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DEPARTMENT OF PEDIATRICS

FIVE YEAR REVIEW

2005 - 2009



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Executive Summary

The Department of Pediatrics brings together the knowledge, skills, expertise and leadership required to provide specialized care to newborns, children and youth through Children's Hospital and Women's Hospital (PHSA) and to meet the academic expectations of the UBC Faculty of Medicine in education, teaching, research and service. As the only provincial clinical resource and academic Department of Pediatrics we are presented with unique challenges and opportunities. Within this five year report you will read about both the advances and the challenges that have occurred over these years.

Organizational Structure and Governance

Over these five years, there has been organizational stability with the Department existing within a Provincial Faculty of Medicine with distributed campuses and a Provincial Health Services Authority that has a provincial mandate and houses the BC Children's Hospital and the BC Women's Hospital and Health Centre.

Key changes that have occurred in the governance structure over this period time include the following:

- Recruitment of a new President to BC Children's Hospital, Larry Gold, with restructuring of the Executive leadership, a move that has been positive with greater clarity of responsibilities and stronger engagement of physician leaders in decision making.
- Creation of Senior Medical Director roles to support the Department Head in clinical operations, quality and ensuring clinical academic facilitation across divisions.
- Agreement with Providence Health Care to establish a Department of Pediatrics at St. Paul's Hospital with the UBC/C&W Head also the Head at St. Paul's. This is a step toward a fuller regional governance model for pediatrics within Vancouver Coastal Health.
- Agreement in Principle for a joint sub-specialty human resource plan between Fraser Health Authority and C&W/PHSA with single division head structures.
- Recruitment of a new President of BC Women's Hospital and Health Centre: Dr. Jan Christilaw.
- Re-appointment of Dean Gavin Stuart for a second term effective July 2010.

The complexity of the governance structure is a challenge when developing a department strategic plan that aligns with and supports each of the institutional plans. However, key leadership in the Department has been involved in the development of the plans and there exists good alignment between the department plan recently developed and those of UBC/Faculty of Medicine, Child and Family Research Institute (CFRI) and BC Children's Hospital and B.C. Women's Hospital.

Governance and accountability was also part of an internal audit of the Department performed by the PHSA in 2006 with a report to the PHSA Board in January 2007.. The audit raised a number of issues that related to the relationship between PHSA and UBC as well as a number of control structures that needed to be improved. The joint agreement between PHSA and UBC that is being developed as a result of the Department Alternative Funding Plan (AFP) will address many of the issues of concern.

Facilities

The Oak Street Campus combines clinical and academic space for three agencies of the Provincial Health Services Authority (BC Children's Hospital, BC Women's Hospital & Health Centre and BC Mental Health and Addiction Services), UBC academic space including the UBC Departments of Pediatrics, Obstetrics and Gynaecology and Medical Genetics as well as jointly supported research space (Child and Family Research Institute, Women's Health Research Institute, Mental Health Research Institute). There has been major growth in clinical and academic activity and recognition of inadequate clinical space and facilities. This has led to the development of a new Master Plan for the site.

The work of the Department has and will continue to benefit from some important facility development supported by PHSA and the BC Children's Hospital Foundation and UBC.

This includes:

- Completion of the Translational Research Building providing significant additional dry lab space, including a new clinical trials facility.
- Approval for construction of additional dry space that will see decanting of research and other health service functions from the Shaughnessy building in preparation for creating the footprint for the new acute care facility.
- Final approval is pending for construction of a new acute care facility housing Children's Hospital inpatient services and Women's Hospital services (primarily the neonatal unit) as well as UBC academic space projected to be completed in 2015.

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- Renovation of ambulatory facilities in the North Wing of Children's to improve clinical and academic services.
 - Renovation and installation of state-of-art video conferencing facilities to support expansion of the medical school provincially.

The planning process for the new acute care facilities has been challenging and has not moved forward as quickly as desired. While this has improved significantly, we have yet to receive final government approval for construction. The major challenge for the next five years will be sustaining our growth while being constrained by the lack of availability of new space.

Faculty and Staff

The last ten years have witnessed a significant increase in new faculty as we have had success in building career opportunities through the Child and Family Research Institute and received increased funding from UBC as a result of the Faculty of Medicine expansion. In addition, we developed and updated a physician clinical resource plan that, together with the academic funding, provided a significant opportunity for new recruitment. The Ministry of Health, PHSA and the UBC Faculty of Medicine have supported the creation of a Department of Pediatrics Alternative Funding Plan. The PHSA and the MOH signed a contract for physician services for the plan in 2007 and with the support of the Dean of Medicine, this has allowed us to move forward on recruitment of the 15.1 FTE new positions. However, the plan is yet to be finalized and this has been an issue of great frustration for all of those involved. The challenge is the complex relationships that exist between government, the BC Medical Association, the health authority and the university. These relationships have made the crafting of an acceptable plan both challenging and time consuming. Our expectation is that the final plan will be in place by the end of this calendar year.

Despite these challenges, the demands of service have meant significant growth in our faculty and turnover of faculty is mostly due to retirement. With support from the Dean, the PHSA/C&W and the CFRI, we have been able to achieve key recruitments in line with the strategic plan of all three organizations. Achievements of particular note over the last five years include:

- A total increase in full-time hospital-based MD faculty to 134 from 113 in 2005, representing a total of 21 recruitments (new and replacement/vacancies) over this period of time.
- With expansion of the medical school and provincial distribution of training there has been a significant increase in the number of private practice community-based clinical faculty with a total of 119 community-based clinical faculty distributed

across the five regions.

- Recruitment of faculty with specific expertise aligned to our strategic areas of focus in research, education, and health service delivery, adopting national descriptions for role definitions.

Throughout this report, you will note concerns expressed about the availability of infrastructure support to Department members in relation to day-to-day clinical and academic activities and in relation to the process of recruitment of new faculty. This has been a chronic problem but is also related to the delay in implementation of the AFP with the associated infrastructure commitment despite having proceeded with recruitment and also to the enormous increase in workload associated with expansion of the medical school and our success in expansion of our research activities.

In addition, the delay in funding of regional services and the support of infrastructure in those regions has compounded the clinical workload demands on the Children's Hospital site. The PHSA commissioned an analysis of department infrastructure, which identified deficiencies as well as large inefficiencies in patient scheduling and clinical information management that need to be addressed.

The Department staff are extremely dedicated and we are moving forward to address the issues of concern. We were fortunate to have Marcelle Sprecher come in as Acting Senior Director of Administration for the Department following the untimely death of Julie Cullen, our former Director. The core administrative staff has been strengthened and is working with the university and BC Children's Hospital to address the infrastructure issues.

Despite the challenges, our Faculty and staff members continue to achieve success in all areas of responsibility as described throughout the division reports. These achievements are recognized in many ways including the receipt of 66 Honours awarded to faculty, 21 of which come from national or international organizations including:

- Order of Canada to Dr. Ross Petty
- Canadian Pediatric Society Ross Award to Dr. David Scheifele
- Killam Research Prize to Dr. Sheila Innis
- BC Representative for Children and Youth Award of Excellence to Dr. Jean Hlady.
- Pediatric Chairs of Canada, Pediatric Academic Leadership Clinician Practitioner Award to Dr. Paul Thiessen.
- Faculty of Medicine Career Award in Clinical Teaching to Dr. Ralph Rothstein.
- Faculty of Medicine Bill and Marilyn Webber Lifetime Achievement Award to Dr. Judith Hall.

Through an initiative of the Faculty of Medicine, the Department has introduced a junior faculty mentorship program under the leadership of Dr. Michael Whitfield. Support for faculty career development is an area that requires further development. There is particular challenge with the PhD faculty members who tend to have less focus and attention in a clinically dominant department.

Building leadership capacity is seen as an important priority for the Department. With the support of the Children's Hospital, we have initiated a leadership course for faculty and hospital staff developed through Simon Fraser University (see summary of program following the Department Head's Report). Additional programs are being planned.

Education

Within the Faculty of Medicine, the Department of Paediatrics has participated and provided leadership to one of the largest transformations of a medical school in Canada if not North America. This has presented enormous challenge and opportunity! The entry class has doubled in size with an entry class of 256 students. In the last year, the Department had 389 students doing a year three or year four clerkship including 61 out of province trainees. Teaching occurs on three campuses with plans for a fourth campus in Kelowna and a restructured relationship with the Fraser Health Authority and Simon Fraser University.

All divisions participate in clerkship-related teaching to varying degrees with some divisions being particularly stressed by the volume increase (e.g. emergency). We are also recognizing that the traditional clinical teaching unit in a Children's Hospital is not necessarily the ideal setting for teaching the basics of pediatric medicine given the high level of acuity with most admitted patients. Alternative strategies are being introduced including:

- **Integrated Clerkship Models:** that assign medical students to a site and primary care setting with interaction across the disciplines of medicine (e.g. Chilliwack).
- **Ambulatory Teaching Clinics:** that are dedicated teaching environments in the community ambulatory setting with teachers specifically supported to have a higher volume of learners (e.g. Richmond Hospital).
- **Regional Hospital Settings:** increased undergraduate teaching at regional hospitals where patient mix is less tertiary. Fraser Health Authority is major opportunity to achieve this and planning is underway.

Besides teaching in the clerkship program, the Department is engaged in teaching in the first two years across the curriculum. The structure of the first two years with tutor groups scheduled on a Monday, Wednesday and Friday mornings is not conducive to clinicians finding the time to teach and requests have been made to reconsider this structure in future revisions of the program.

A number of the Department members are involved in leadership roles within the undergraduate program including the following:

- Dr. Oscar Casiro – Associate Dean, Island Medical Program.
- Dr. Joan Fraser – Vancouver Fraser Medical Program and overall responsibility for development of the Clerkship Programs across the province.
- Dr. Barb Fitzgerald – Assistant Dean, Student Affairs.
- Dr. Mike Whitfield – Course Director, DPAS Program.
- Dr. Peter Malleson – Assistant Dean, Undergraduate Education to May 2009.
- Dr. Carey Matsuba – Evidence-Based Practice Block Chair.
- Dr. Nancy Lanphear – Growth and Development Block Chair.

In contrast to other jurisdictions in the country, expansion of residency slots has occurred in conjunction with expansion of undergraduate positions based on the argument that medical students had to have residency slots to move into and that it was important to sustain the graduated levels and authority related to patient care. In addition, the residency slots were defined as five-year funded slots leaving increased flexibility around sub-specialty training.

For the Department of Pediatrics, the increase in resident numbers has challenged our ability to deliver the core pediatric program. While our residents have always been engaged in regional distributed training opportunities, there are real limitations in what can be achieved in regional settings and we have yet to arrive at a satisfactory model. Under the leadership of Dr. Jenny Druker and with the addition of Dr. Grace Yu as Assistant Program Director we are moving towards solutions. These include:

- Supporting out-of-province core rotations in critical care given the limited resources in BC.
- Alternative models to the traditional CTU at the distributed sites.
- Establishing an independent but linked residency program at Surrey Memorial Hospital.
- Building a fellowship program in general paediatrics that would support longer and more appropriate training for general pediatricians who want to do community practice and/or have a larger academic role.

From the perspective of sub-specialty training, the increase in residency slots has been tremendously beneficial as we now have stable funding for sub-specialty training that was not in place in the past. This allows us in theory to redirect discretionary funding (from the Foundation or other sources) to support advanced research and or education training for residents. There continues to be a significant challenge across many divisions to find Canadians to fill these sub-specialty training programs.

A number of important initiatives have been undertaken in the core residency to improve opportunities for residents. These include:

- Improved support for research training;
- Introduction of a global child health focus with tremendous opportunity for majority world experience;
- Introduction of family-centred care rounds on the CTUs;
- Development of case-based academic half-days

Funding for sub-specialty residents is now largely covered by the Faculty of Medicine, with five-year residency positions and considerable flexibility on how these years can be structured. This has been a major advance for pediatrics as previously sub-specialty positions were not covered.

In 2007, the Faculty of Medicine post-graduate programs were reviewed by the Royal College. The core pediatric program and all but one of our sub-specialty programs were awarded renewed accreditation. The one program given provisional accreditation has subsequently addressed these deficiencies and has been re-reviewed and will receive accreditation status.

The Department has also had a global focus and has supported and encouraged the recruitment of foreign physicians as clinical fellows. At any given point in time, we have about 50 fellows who come from around world to train in our sub-specialty programs. The fellows are treated as equivalent to our Canadian sub-specialty residents and both contribute to us and gain the required skills to function as sub-specialists in their home countries.

Throughout the Division reports, you will note the significant involvement of our faculty in continuing medical and other professional education, within our institution, across the province, nationally and internationally. This is a critically important part of our work that tends to be less recognized and rewarded. With the establishment of Child Health BC, we expect our role in this area to increase, to become better organized and evidence-based and to support quality care across the province.

There is a growing alignment between the university and academic health authorities for an increased focus on knowledge translation and the development of innovative evidence-based strategies for improving the application of new knowledge, the sustaining of skills, and the use of innovative and evidence-based strategies to achieve this. The Department has been committed to recruiting individuals who have an education and knowledge translation interest and look to build a stronger infrastructure to support these individuals. Several of our recent recruits have Masters degrees in Education and there is a strong focus on building a pediatric simulation program. The establishment of the Faculty of Medicine Center for Health Education Scholarship (CHER) will be an important resource to support this.

Research

The Child and Family Research Institute is the organizational framework for the advancement and support of research on the Oak street site. While there are some challenges to this model, given the trans-disciplinary nature of research, this is clearly the most appropriate framework for the support of research. With the creation of the physician resource plan for the AFP, the decision was made that the Department recruitment of researchers would align with the programmatic priorities of the Child and Family Research Institute. This has been an effective mechanism for building the programmatic focus of the CFRI while fulfilling our need for clinical services.

Department members occupy many leadership positions within the senior administration and programmatic areas ensuring close linkage between the Department and CFRI. This includes the Executive Director, Dr Stuart Macleod and Director of Clinical Research, Dr. Anne Junker.

Overall, we have seen a steady rise in research funding received by the Department of Pediatrics with total research funding for the period 2004 – 2009 being \$67.6 million with 14% coming from CFRI (\$9.3 million and 8% from MSFHR (\$5.2 million). In contrast to the previous period (1998-2004), the last five years have demonstrated a large increase in research funding generated by researchers from the Department of Pediatrics with total funding increasing from \$41.3 million in the first period to \$67.6 million in the second period, the majority of the increase coming from peer-reviewed grants.

Members of the Department have taken on major leadership roles and received many honours recognizing their contributions over these years. To identify just a few here:

- Dr. Anne Junker and Dr. Aubrey Tingle have taken on the leadership of the national Maternal Infant Child Youth Research Network (MICYRN), a major national initiative supporting research collaboration.
- Dr. Bruce Carleton, along with Dr. Michael Hayden, is leading the Canadian Pharmacogenomic Network.
- Dr. David Speert received CFI and BCKDF funding of \$8.1M to establish the Centre for Understanding and Preventing Infection in Children.
- Canada Research Chairs are held by Dr. Ron Barr (Tier I) and Dr. Bruce Vallance (Tier II).
- Dr. Kirk Schultz and Dr. David Scheifele received CIHR/Wyeth Research Chairs.

These and many more awards demonstrate that investigators in our Department are at the leading edge of science in their field.

Clinical Services

Major advances have occurred in our ability to deliver quality care for children and youth although many challenges remain. A key strategic initiative over these years has been the establishment of Child Health BC, a framework for provincial planning of child health services including standards, quality and facilities. Thanks to a very generous 50 million dollar commitment from our Foundation, major advances have occurred in the development of provincial services under the leadership of Dr. Bob Peterson.

In terms of BC Children's Hospital the key volume statistics include:

- 57,422 pediatric outpatient visits in 2008/09 compared to 48,557 in 2003/04.
- 40,618 emergency room visits increasing from 39,089 in 2003/04.
- 3,463 pediatric admissions (21,557 days) in 2008/09 increasing from 2,777 (18,871 days) in 2004/05.
- 874 (6,311 days) ICU admissions remaining stable over these years.
- 1,208 Neonatal admissions with 17,614 days and remaining reasonably stable over this period of time.
- 1,937 pediatric inpatient consultations in 2008/09.

Benchmarking occurs with peer hospitals in BC and in the United States. There is room for improvement in terms of Average Length of Stay. For 10 of 22 diagnostic areas, we are in the top 3 of 6 peer Canadian hospitals with similar results when comparing to US peers through MMP. Our goal is to be in the top three in all diagnostic code areas for inpatient ALOS and we are now working to achieve this. Several quality improvement initiatives have been achieved over the five years and are listed below:

- **Food Challenge Program:** introduced to determine in a safe environment whether children have grown out of a previous food allergy (Allergy).
- **Eosinophilic Oesophagitis Clinic:** newly established to meet current standard of care for treatment of this disease (Allergy and Gastroenterology).
- **Neurometabolic Clinic:** established with Division of Neurology to improve coordinated investigation and care of this population of children (Biochemical Diseases, Neurology).
- **Lysosomal Storage Disease Clinic:** In development to improve coordination of care (Biochemical Diseases).
- **Newborn Screening Program:** implementation planning around newly diagnosed patients as a result of expanded newborn screening (Biochemical Diseases, Pathology).
- **Enzyme Replacement Therapy:** First patients in BC treated for Pompe's Disease and mucopolysaccharidosis Type 2 (Biochemical Diseases).

- **Cystic Fibrosis Clinic:** Reduced total inpatient days by 25% due to improved follow-up and treatment (Biochemical Diseases, Respiratory Medicine).
- **Cystic Fibrosis Clinic:** Incidence of chronic pseudomonas has dropped to 14% (2008) from 44% (1995).
- **Catheter-Directed Ablation for Arrhythmias:** now able to do with upgrading of cardiac catheterization lab and addition of interventional electrophysiology (Cardiology).
- **Multi-Organ Transplant Clinic:** to provide single coordinated structure for management of children who have received transplants (Cardiology, Nephrology, Gastroenterology).
- **Expanded Quality Improvement Team:** in critical care to address a range of quality and improvement initiatives (Critical Care).
- **BC Autism Assessment Network/Provincial Autism Resource Centre:** Establishment of provincial population-based services for children with autism spectrum disorders (Developmental Pediatrics, Psychiatry).
- **Social Pediatrics in Downtown Eastside:** Successful establishment of primary and secondary services to high risk children and youth in the downtown eastside and involving research and service learning (General Pediatrics, Developmental Pediatrics).
- **Provincial Diabetes Care Program:** With new recruitment and support of Child Health BC have advanced creation of provincial program to improve care for children with diabetes at regional sites (Endocrinology and Diabetes).
- **Development of Comprehensive Type 2 Diabetes Program:** responding to rapid increase in children with Type 2 diabetes (Endocrinology and Diabetes).
- **Centre for Health Weights Shapedown BC:** focused on supporting primary intervention for children who are overweight (Endocrinology and Diabetes).
- **Insulin Pump Program:** Advocacy and training for funding and management of insulin pumps with rapid increase in the number of children managed in this way.
- **Provincial Inflammatory Bowel Disease Database:** created to support longitudinal monitoring of therapy and outcomes to better understand the disease and to improve quality of care (Gastroenterology).
- **Endoscopy Suite:** new facility, improved equipment, and anaesthesia support provides improved quality, safety and efficiency of care (Gastroenterology).
- **National Biliary Atresia Registry:** established by Dr. Schreiber to better understand this disorder and collect outcome data (Gastroenterology).
- **Provincial Laboratory Policy on Bilirubin:** leadership in establishing policy on assessment of bilirubin levels in neonates and early infancy (Gastroenterology, Pathology).

- **Family Centred Care Rounds:** Restructuring of CTU inpatient rounds to support family centred care improves quality of care and family experience of care and provides an important learning environment for trainees (General Pediatrics).
- **Richmond Pediatric Services:** New partnership between UBC/BC Children's and Richmond hospital along with Child Health BC results in stabilization of pediatric workforce through recruitment and on-site ambulatory facilities and improved access to pediatric care in Richmond (General Pediatrics).
- **Providence Health Care:** Joint agreement on establishment of a distinct Department of Pediatrics that fall within responsibility of BC Children's/UBC Department of Pediatrics leading to improved standards of care, stabilization of physician workforce, and clinical training site (General Pediatrics).
- **Expansion of Inpatient Beds:** Increasing inpatient requirements has led to establishment of a second inpatient unit (2B) mostly focused on youth, allowing move to single room care on 3B and a net increase of 7 beds to 24 beds overall (Oncology, Hematology, BMT).
- **Accreditation of Cellular Therapy:** received full accreditation for delivery of haemopoetic stem cell therapies (Oncology, Hematology, BMT).
- **Newborn Length of Stay:** Achieved stable length of stay despite increasing number of small preterm babies who are surviving (Neonatology).
- **Satellite Pharmacy:** Established satellite pharmacy to decrease number of medication errors (Neonatology).
- **Asphyxiated Newborns:** New protocols for aggressive management of the asphyxiated newborn with evidence showing positive improvement in outcomes (Neonatology).
- **Development of Clinical Outcome Measures aligned to a Pediatric Renal Resource Funding Model:** results in higher quality data for decision making related to funding allocations. Has led to increased funding and more comprehensive service for children (Nephrology).
- **Provincial Epilepsy Guidelines:** to support community pediatricians in the management of epilepsy in co-management model with neurology (Neurology).
- **Guidelines for Management of Status Epilepticus:** developed in collaboration with other divisions and extended provincially with assistance of Child Health BC (Neurology).
- **Educational Materials in Collaboration with BC Epilepsy Society:** Improved support for families through collaboration with Epilepsy Society (Neurology).
- **Respiratory Clinic/Pulmonary Function Services:** Renovation of Level 1 North allowed improved access to pulmonary function testing (Respiratory Medicine).
- **Home Ventilation and Chronic Tracheostomy Service:** With expected strengthening of the division the Home Ventilation/Chronic Tracheostomy Service was moved from Critical Care to this division (Critical Care, Respiratory Medicine).

As described in the report, the move to provincial regional services are a strategic priority and while this will increase in the future, significant regional services are already being provided, including the following:

- **Cystic Fibrosis:** Regional clinics in Kamloops and Prince George supported by Canadian CF Foundation.
- **Diabetes:** Community-based clinical staff supporting care in the Island Health Authority and in Interior Health Authority. BCCH staff supporting care in Fraser Health Authority and Northern Health Authority.
- **Gastroenterology:** Regional clinic established in Nanaimo for North Vancouver Island patients.
- **Hematology/Oncology/BMT:** Regional staff located in Island Health Authority and Fraser Health Authority with goal for expansion to Interior and Northern Health Authorities.
- **Nephrology:** Regional services offered in Northern Health Authority through pediatric nephrologist located in Prince George in association with the Northern Medical Program.
- **Neurology:** Regional services offered in Fraser Health (Surrey), Interior Health (Kelowna), and Northern Health (Prince George). Liaison and support to Pediatric Neurologist in Island Health (Victoria).

Global Child Health

In partnership with UBC, BC Children's Hospital and the CFRI we are committed to making our contribution to the health of children globally. We have been most fortunate to have the visionary support of our Foundation who are working with us to establish an endowment to support the Centre for International Child Health. We have been successful in establishing CICH, in recruiting Dr. Charles Larson as the first full-time Director of the Centre and we are moving forward with partnerships in priority areas.

Internal Self-Study Review Committee

Dr. Bob Armstrong requested that a working group be formed to review and advise on the Department of Pediatrics Five-Year Review document.

The members of the Internal Self-Study Committee in alphabetical order were:

Faculty:

Dr. Mary Connolly
Dr. Ruth Grunau
Dr. Nancy Lanphear
Dr. Yolanda Lillquist
Dr. Douglas Matsell
Dr. Maureen O'Donnell

Faculty Members, cont'd:

Dr. Sandy Pitfield
Dr. Richard Stokes
Dr. Ralph Rothstein
Dr. Kirk Schultz
Dr. Stuart Turvey
Dr. Michael Whitefield

Administration:

Georgia Petropoulos
Marcelle Sprecher

The comments, ideas and suggestions that resulted from the discussions have been incorporated throughout the Department of Pediatrics 5-Year Review document.

Department Head Report

Robert W. Armstrong MD PhD FRCPC

I have been privileged with the opportunity to serve as Head of the Department of Pediatrics for the last nine years. As I move through the final year, I am amazed that time has gone by so quickly and there are so many things yet to be done! The incredibly dedicated faculty and staff who are committed to the mission of clinical care, teaching, research and leadership make the job of Head relatively easy and largely the goal is to ensure that the forward drive of faculty is not impeded.

The material prepared for this review will demonstrate the significant accomplishments that have been made by individuals in the Department. I will not repeat here what you will read in the executive summary and in the individual reports. What I will do is comment on how we have advanced in the key areas of focus over the last five years and highlight some of the challenges as we move forward.

Our People

Establishing a coherent, fair and transparent process for physician compensation and support of our faculty was a priority for our past Head, Dr. Judith Hall, and has been a priority throughout my term. We have made progress but not nearly enough. With the support of the PHSA, UBC and the Ministry of Health, we have worked to build and implement this framework. We have had a dedicated group of physicians working hard to make this happen. I want to particularly recognize Dr. Kirk Schultz, the Chair of the steering committee for the AFP. He put significant effort into achieving this goal. The good news is that the commitment remains strong and the bad news is we have not yet completed the job!

There is no particular rationale that we can point to for how long this process has taken; its completion has been a moving target but I feel a personal responsibility for its lack of completion. Fundamentally, we are trying to extract a logical coherent structure out of a series of multi-institutional policies, rules and processes that as they stand are not compatible with the goal. The real solution is for the Ministry of Health and Ministry of Advanced Education to step back and create an entirely new structure for funding and supporting academic clinicians. In the meantime, we are moving forward and certainly will have the full AFP in place over the next several months.

Despite the extended period of development and approval of the final plan, PHSA and UBC have been extremely accommodating and have permitted us to move forward with the proposed recruitment of 15.1 FTE. You will see that we have recruited outstanding individuals who will clearly be the drivers of the next generation. Recruitment of faculty has been a major undertaking of the Department over the last five and ten years. We have managed to address areas of significant need in clinical care while at the same time focusing on the expansion of our research activities aligned with the strategic direction of the Child and Family Research Institute and supporting the expansion of the medical school.

We have moved forward on several initiatives over the last five years that will serve to better support career development among faculty. These include:

- The development of a formal mentorship program for junior faculty as part of a faculty-wide initiative.
- The development of a leadership training program in conjunction with Simon Fraser University.
- The support of several of our women faculty to attend a specific leadership training program for women in academic medicine.
- The formalization of role descriptions in line with the national role descriptions that provide faculty with greater clarity on career path planning.
- The incorporation of sabbatical time within the AFP framework
- The support of the development and teamwork of our staff members is accomplished through our annual one day staff conference and shorter learning sessions held during the year.

As a Department, we are challenged to more effectively support our PhD faculty. They tend to get lost in a Department that is so dominantly focused on clinical issues. One approach we have taken is to treat the program leads in the CFRI as “division head” equivalents in relation to PhD faculty who are not naturally aligned to a specific division. This has worked for some individuals but is not ideal as there is variability in the degree to which these program leads take on the responsibility.

Support for physicians in the delivery of clinical care is a continuing issue of concern. The systems of booking, patient flow, record management and transcription are outdated and inefficient. While we have had several attempts at moving forward this continues at a glacial pace with many starts and stops. With new methodologies being applied to improve quality and efficiency (LEAN) we are hopeful that we can move forward to address these issues.

The appointment and promotion process has also been a challenge and we must work with the Dean’s Office and with CFRI to create a more seamless process for core support functions such as recruitment, compensation, appointment and promotion. This has been recognized as a major area of concern and is being actively addressed at all levels.

Our Clinical Care

The last five years have put in place the foundation for transforming the way in which we deliver care to children and youth. We have established Child Health BC to provide the framework for planning paediatric services and a structure for continuous improvement in the quality and safety of care no matter where a child lives in the province. The vision of our Foundation to commit 50 million dollars to this initiative gives us the resources to truly achieve a transformation.

Combined with Child Health BC, we have the commitment to build a new acute care facility, allowing us to focus on state-of-the art tertiary and quaternary care that must be

delivered on the Oak Street campus of Children's Hospital and Women's Hospital. The planning for this process has been painful with many stalls and we still await final MOH approval at the writing of this report. Once again, our Foundation has made a major commitment to the new building. Over the next five years, this new building will take shape and will be the flagship facility through which we will deliver care and contribute academically as we reach out to the province through Child Health BC.

These opportunities are very well articulated in the new strategic plan of the Children's Hospital that Larry Gold has led over the last year as he has come into the role of President. This plan is a bold vision that will transform the care we provide building on the drivers – our people and our academic capacity – developing new knowledge and taking that knowledge into practice. This is an important time and I am confident that the leadership will be in place over the next five years to achieve this transformation.

The positions of Senior Medical Director were established four years ago to support operational, quality and safety issues across the divisions of the hospital. Last year Larry Gold established a new leadership structure that will now align the three senior medical directors with the three Directors in a co-management model. The core focus of these roles is on patient quality, safety and operational efficiency. They will work closely with the planned restructuring of the Quality office currently being undertaken by Dr. Tex Kissoon who has recently taken on the VP Medicine and Quality portfolio.

The PHSA has adopted the principles of Lean and introduced imPROVE as a health authority strategy for improving the quality and efficiency of our organization, and those of the other agencies of PHSA. While there has been some concern expressed about the intensity of engagement required, there is no doubt that we need a framework for improving the efficiency and quality of what we deliver. Key leaders across the Department will be trained in Lean methodology and physicians will be engaged in initiatives as this is rolled out.

Our Education

The Faculty of Medicine is undergoing a major transformation with doubling of the medical class and distribution of the students to campuses in Prince George and Victoria and soon in Kelowna as well as a restructured lower mainland relationship. Concurrent with this is the doubling of the residency positions with five years of funding per position. Not only does this double the number of residents we are training, but for the first time it provides stable and predictable funding for our Royal College accredited programs.

The challenges this has placed on our Department have been significant over the last five years and I am truly impressed with what has been accomplished by our educational leaders and staff. We have had to scale up our teaching sites, models of teaching, and overall commitment to our medical students. The opportunity to build careers in educational scholarship is tremendous. The establishment of the Centre for Health Educational Scholarship in the Faculty of Medicine provides the central support to foster these careers. We have initiated the recruitment of individuals along this path and expect

that over the next five years this will be greatly enhanced and also aligned to the strategic educational needs of the health care sector.

The Education section identifies the successes to date and some of the challenges. There remains a great deal of work to do in order to achieve a smoothly running undergraduate and postgraduate program. It will be important to focus significant attention on the residency programs over the next few years to ensure that this transformation has not impacted on the quality of our programs as we move forward to the next accreditation.

Our Research

Our research progress over the last five years and certainly the last ten years has been significant. Through our individual investigators and through our leaders within the Child and Family Research Institute I believe we can be satisfied with what has been achieved. However, I think we could do better!

With the leadership of Dr. Jean Paul Collet we need to work more closely with the divisions to support and facilitate an increased focus on clinical research and link to the interface between clinical research and quality. With the creation of the national Maternal Infant Child and Youth Research Network (MICYRN), there is increased opportunity to build national collaboration around patient populations that make clinical research and quality more feasible for clinically busy physicians. Dr. Anne Junker's strategy for supporting clinical research by investing in research support infrastructure for divisions and the linkage to Child Health BC have been equally important in building opportunity. The success of this approach is already being seen within divisions and with new recruits.

The Child and Family Research Institute has been incredibly successful under the leadership of Dr. Stuart Macleod and Dr. Geoff Hammond. The CFRI has provided the infrastructure to support the successful competition for provincial and national funding (CFI, BCKDF etc) and our investigators have been significantly successful. They have brought new wet-lab and dry lab space to completion. They have introduced a very important clinical investigator program that has supported key recruitments. They have provided leadership nationally in supporting the Canadian Child Health Clinician Scientist training program and they are providing coordinating centre support for Dr. Junker and Dr. Tingle for their leadership roles in MICYRN. The CFRI has excellent support for graduate students and postdoctoral students. Overall, the CFRI is the right framework for building excellence in research and ensuring our competitive position in a highly competitive environment.

There are some challenges but they must be placed in perspective to what has been achieved. The governance issues in relation to PHSA and the multiple roles of the Executive Director, the relationship between the Executive Director and Scientific Director and linkage to the programs, and a number of operational issues related to decision making have been identified to the external reviewers. The external review report is still pending but some changes will be expected following receipt of the report.

With respect to the role of the UBC Head and Chief of Pediatrics, I believe there are some issues that need to be resolved. Currently, there is no formal relationship of the Head/Chief to the executive decisions of the CFRI. While involved in strategic planning there is overall limited opportunity to influence the direction of the CFRI and some new structure needs to be established to strengthen the relationship. In addition, there is no indirect funding that flows through the Department to support research infrastructure despite the department having a considerable burden of the administrative responsibility. This is a faculty wide issue but has to be addressed.

Having said this, I have had excellent working relationships with the CFRI and they have been extremely supportive of our recruitment planning and the joint recruitment of clinical and basic scientists has not been a concern. I have been especially appreciative of Dr. Macleod's support, understanding and creativity as we have struggled to put together recruitment packages in support of clinical faculty.

Our Commitment to Global Child Health

I believe that leading academic child health centres in Canada have a moral obligation to contribute our knowledge and expertise to the health problems of children and youth globally. In addition to the moral obligation, an institution that is committed globally will attract individuals who have a creative engagement in clinical and academic medicine. They are more likely to be at the leading edge of knowledge and will have innovative approaches to care, both within our province and globally. We also become a magnet for the brightest and most socially engaged medical students and residents who contribute enormously to quality care at home and in majority world settings.

This is a natural vision for the university and I am really pleased to see the message from President Toope that UBC must become more globally engaged. The vision is more challenging within the health care system where pressures at home make a global vision more difficult to reach the priority list. I have been really pleased to see that the leadership of BC Children's Hospital has been committed to our role in global child health. We have created a Centre for International Child Health (CICH) to serve as the vehicle through which the hospital can support global child health. Once again, the BC Children's Hospital Foundation has stepped forward to support the Centre through creation of a core endowment and through assistance in identifying program funding from non-conventional sources.

The CICH contributes through the building of partnerships with selected countries or regions. The focus is on capacity building and research. The CFRI is a key partner in the establishment and support of the Centre for International Child Health. Once again, the vision and leadership of Dr. Macleod has been instrumental in the establishment of CICH and in building some of the early partnerships. I am pleased to have Dr. Charles Larson take on the challenge of building on this foundation in his role as the first Director. I have no doubt that the CICH will become a very important component of our organizations over the following years.

Our Staff

We all appreciate the tremendous support that our staff members provide to the faculty in the Department. They are every bit as committed as the faculty to achieving our mission. They do not have an easy job given the two worlds – hospital and university – that we work in, at times with completely different processes. It has been a difficult five years for them as workloads have increased and systems have been stressed, yet, staff retention, productivity and commitment have remained very high. For the core office staff, we have had to come to terms with the illness and eventual death of Julie Cullen, our Director of Administration. I was really proud of how the staff rallied around Julie and supported her throughout this time. We were most fortunate to draw on the tremendous expertise of Marcelle Sprecher during this period and I am personally very appreciative to her for staying on as the Acting Senior Director of the Department and to assist us both in the transition and in working to keep up with the pace of change and challenge. Staff members sometimes face the front line anger when things do not go as they should and in my drive to create the new foundation of the Department to be able to more fully address its various mandates, I am hopeful that my leadership style did not contribute more than it should have to this stress. I have really appreciated their commitment and thank them.

Moving On

It has truly been a privilege to be in this position for the last nine years. A unique understanding of the breadth of our enterprise and the commitment of our faculty and staff to their professional endeavours is gained from this experience. From the day-to-day achievements to the visible successes, we have a tremendously talented and dedicated group of faculty and staff. The Division Heads and Program leaders in clinical care, education and research are the core drivers of the vision within their areas and those leaders have done an excellent job taking on the responsibility. These individuals are critical to our success and it has been a real pleasure working with them over these years.

I have no regrets in taking on the job, although I am quite comfortable with the idea of moving on! On reflection, my only regret is that we have made less progress in some areas than I had hoped. I have been less engaged with our trainees than I would have liked and have been less supportive of division and program leaders than I should have been as over the last few years as we have spent literally thousands of hours trying to get the AFP in place. However, the successes you see throughout the pages of this report attest to the fact that much has been accomplished. I know the next Head will have a great group to work with.



Children's and Women's Health Centre & UBC Department of Pediatrics

Leadership Development Program



A Learning Partnership



The **Children's and Women's Health Centre & UBC Department of Pediatrics Leadership Development Program** is a learning partnership between

- The UBC Faculty of Medicine Department of Pediatrics
- The Children's and Women's Health Centre
- The Learning Strategies Group, Segal Graduate School of Business



A Custom Designed Program



The **Children's and Women's Health Centre and the UBC Department of Pediatrics Leadership Development Program** is a customized 11 day leadership development program that is delivered over an 8 month period in 5 two-day modules and a one-day final module and program finale. The program is delivered by the Learning Strategies Group (LSG) and was designed by LSG in partnership with the UBC Department of Pediatrics. The formal design phase consisted of:

- 1:1 participant Interviews
- Needs assessment survey of all prospective participants
- Steering committee meetings to further clarify learning objectives
- Formal curriculum development including faculty meetings with organizational content experts (e.g. quality and safety, finance, leadership)
- Learning module development and ongoing customization throughout the program delivery phase

The program has been designed for the Department of Pediatrics Division Heads and Children's and Women's Health Centre Program Managers.



Program Recognition

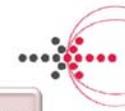


The Children's and Women's Health Centre and UBC Department of Pediatrics Leadership Development Program has been reviewed by and accredited the University of British Columbia Division of Continuing Professional Development and Knowledge Translation.

This program is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of the Royal College of Physicians and Surgeons of Canada.



Program Modules



The Leadership Challenge	<ul style="list-style-type: none"> •Program Launch •Effective Team Building and Fair Process (2 days)
Sharpening your Leadership Skills	<ul style="list-style-type: none"> •Negotiation Skills (2 days)
Leveraging Opportunities	<ul style="list-style-type: none"> •Strategic Decision Making (2 days)
Leading for Quality and Service Excellence	<ul style="list-style-type: none"> •Clinical and Organizational Improvement (2 days)
Performing and Learning in Real Time	<ul style="list-style-type: none"> •Power Systems & Partnership (2 days)
Sharpening your Leadership Skills	<ul style="list-style-type: none"> •Creating Meaningful Conversations for Action (1 day) •Program Close



Program Modules



The Leadership Challenge

Research indicates that the quality of the relationship an employee has with their direct supervisor is one of the most significant determinants of their productivity, organizational loyalty and over-all job satisfaction. A leader's ability to strengthen this relationship is paramount to an organization's success, especially during times of change and uncertainty.

The Leadership Challenge module will focus on the two key areas of team building and fair process.

Sharpening Your Leadership Skills

This two part module focuses on skills to strengthen team and organizational relationships and communication, create environments for fair process and leverage feedback opportunities to enhance individual growth and the organization's strategic objectives.



Program Modules



Leveraging Opportunities

Healthcare organizations are in the midst of challenging transitions and face growing resource allocation pressures, be they time, capital, or human resources. Funding pressures and competing interests for resources have accelerated the need for healthcare leaders to increasingly focus on financial accountability while balancing the considerations of multiple stakeholders at the individual, program, department, institutional, Health Authority, Ministry and societal level.

The goal of this module is to provide an overview of financial strategy and resource management. Topics include, Financial Strategy for Healthcare Settings, Decision Making, Managing Risk, Developing and Managing Operating Budgets, and Specific Budgeting Techniques

Leading for Quality and Service Excellence

As health professional and leaders we are faced with an increasingly complex set of challenges and emerging approaches to care delivery that impact the foundation of the service experience.

Participants will have the opportunity to examine the nature of service delivery, the patient and family experience and the role of managers, providers, patients and families in a service based system. Participants will have the opportunity to examine "service encounters" from a patient, service provider, departmental and organizational perspective and examine the management and leadership issues at the forefront of operations excellence.



The Learning Strategies Group



The Learning Strategies Group (LSG) at SFU Business supplies consultative training and development solutions to organizations – including needs assessment, program design, and program delivery. We match organizational strategic goals with the content of customized courses, coaching, consulting, and performance support solutions. We believe that organizations receive the highest value and greatest impact from learning solutions that bring their employees and other key stakeholders together to work on current and pressing issues impacting the workplace.

The Learning Strategies Group approaches each client as a unique organizational learning challenge. We bring our expert facilitators to the classroom or online environment and draw upon our network of knowledge sources from within and outside the faculty of business at Simon Fraser University.

We design each training and development experience with the specific needs of the client in mind. Our customization approach includes investigation of the specific learning needs of the targeted participants of the program. Our methodology ensures that our clients culture, strategy, and work methods are reflected in our program, and that the course content reflects issues of relevance to the organization.



Mission, Vision and Strategic Planning

Report from Dr. Stuart Turvey, Chair Department of Pediatrics Strategic Planning Committee and Marcelle Sprecher, Acting Senior Director of Administration

With significant changes in the role, structure and membership of the Department of Pediatrics, it was recognized that the mission/vision/values required a full review and update to ensure that they continue to support our contemporary provincial mandates in patient care, academic activities, service and advocacy.

Department of Pediatrics Strategic Planning

Under the direction of the Department of Pediatrics Strategic Planning Committee, an initiative was undertaken to engage all Department members in a collaborative process to develop recommendations for the direction, vision, priorities and outcomes for the future success of the Department.

An initial workshop session with division heads was held on November 10, 2008 and presentations were made by all divisions answering the question on the five areas of major importance for the division. Using the material gained from this session, the Committee planned a strategic planning day on February 27, 2009 to which all department faculty members and senior program and administrative staff were invited. Over 60 people attended and more information was collected through focus groups and a survey conducted at the end of the day.

Five major areas of focus, referred to as mandates, evolved from these discussions (presented in alphabetical order):

1. **Advocacy, Expert Opinion and Communications**
2. **Clinical Care**
3. **Discovery and Innovation**
4. **Education**
5. **Recruitment and Retention**

Based on the findings of the workshop and strategic planning day, a further survey was designed and distributed to all faculty members and to senior administrators during July 2009.

The purposes of this survey were:

- to request opinion as to whether the mandate areas were sufficient to cover the major areas of activity in which the Department should focus over the next five years

- to receive opinion as to the importance of each of the major initiatives under each mandate area
- to solicit feedback regarding any important gaps that you might feel are not covered through a major initiative
- to receive general comments

The survey used a classic Likert Scale in which respondents specified their level of agreement to a statement. Ninety six department members completed the survey with a survey completion rate approaching 90%. In general, the survey results supported the mandate areas and respondents were very supportive of the specific foci proposed for each mandate. It is noted that generally the results of the strategic planning process are in alignment with the strategic directions as elucidated by UBC, BCCH, BCWH and PHSA.

The results of the survey were as follows:

Mandate Areas			
		<i>Yes</i>	<i>No</i>
1	Are the above mandate areas of Advocacy, Clinical Care, Discovery and Innovation, Education and Recruitment and Retention sufficient to cover the key areas of activity on which the Department should focus over the next 5 years?	91.3%	8.7%
Advocacy, Expert Opinion and Communications			
		<i>Response – Very Important</i>	<i>Response- Important</i>
1	Create an Advocacy Team structure with protected time and infrastructure support.	19.8%	46.9%
2	Create an agenda of child, youth and family health issues most in need of advocacy through a collaborative process with key stakeholders and policy makers.	39.5%	46.9%
3	Develop advocacy resources, a communication strategy and in-house expertise to influence public health issues through stakeholders and the media.	23.2%	47.6%
4	Develop and communicate best practices utilizing outreach leadership across the province.	38.3%	44.5%
5	Collaborate with provincial, national and international stakeholders to create issue-specific and/or disease-specific alliances, coalitions and networks for advocacy.	24.4%	53.7%
6	Provide training and mentorship to community pediatricians in the area of advocacy	21.0%	44.4%

Clinical Care Delivery

		<i>Response – Very Important</i>	<i>Response-Important</i>
1	Work with key stakeholders and policy makers to engage their support of our mandate to deliver the best patient care throughout the province	60.5%	32.1%
2	Fully engage in developing the best facility on the C&W site considering optimal infrastructure and technology (i.e., single electronic medical record).	63.0%	28.4%
3	Develop Practice Guidelines based on best available evidence to be implemented both provincially and for BCCH referrals.	47.5%	38.8%
4	Optimize province-wide pediatric care to ensure the delivery of the highest quality care for children, youth and families closer to home, as appropriate.	63.0%	30.9%
5	Provide leadership in effective, efficient and safe patient care.	60.5%	37.0%
6	Develop strategies to address deficiencies in care (e.g. transition to adult care, adolescent health, complex patients, chronic care, nutrition, support services).	75.3%	21.0%
7	Recognize and reward excellence in clinical care.	38.8%	42.5%

Discovery and Innovation

		<i>Response – Very Important</i>	<i>Response-Important</i>
1	Develop a comprehensive research policy considering protected time, adequate funding, human resource, finance and infrastructure support.	48.1%	37%
2	Ensure that discovery and innovation across the research continuum is aligned with our central goal of improving health for children, youth and families.	42.7%	45.1%
3	Work with CFRI and UBC to streamline processes supporting research (i.e., grants facilitation, ethics reviews, finance, human resources and dissemination of results).	57.3%	35.4%
4	Raise the profile of research on all levels and communicate successes.	34.1%	40.2%
5	Enhance the mentorship culture around research; encourage further mentorship from experienced senior researchers (i.e., Research Advisory Committee).	32.1%	50.6%

Education

		<i>Response – Very Important</i>	<i>Response-Important</i>
1	Recognize and reward excellence in education and the variety of career paths which support education.	32.1%	55.1%
2	Recruit new educators to support expansion and offer ongoing faculty development workshops and seminars.	32.5%	41.6%
3	Develop a comprehensive plan to address the educational requirements of the various learners throughout the Department.	35.1%	39.0%
4	Provide the highest quality of training to the next generation of child health clinicians which includes CanMEDS Competencies.	48.1%	46.8%
5	Use enhanced educational technology to address training and education goals for the province (i.e., simulation).	28.2%	44.9%
6	Develop evaluation and assessment as integral processes supporting learners and faculty.	35.1%	48.1%

Recruitment and Retention

		<i>Response – Very Important</i>	<i>Response-Important</i>
1	Recognize and equitably value the variety of career paths which drive the achievement of the Department's overall mandate.	50.5%	41.3%
2	Support the career goals and recognize the achievements of each department member.	45.7%	45.7%
3	Promote the development and use of organizational decision-making processes which fully involve and respect the people impacted.	25.9%	50.6%
4	Clarify, improve and simplify the recruitment, appointment and promotion processes.	57.5%	33.8%
5	Review and consider the enhancement of retention benefits (such as housing policy, daycare and moving/settling-in support).	30.9%	43.2%
6	Improve the professional and personal mentorship and support of new department members.	40.7%	50.6%

Efforts are currently underway to actively engage other Department members. Specifically, focus sessions have also been held with pediatric residents and the Department's administrative staff. We are planning sessions to involve regional faculty more fully.

The strategic planning initiative will guide the Department in the next stage of the process which is the implementation phase. The Strategic Planning Committee believes strongly in ensuring that there will be demonstrable outcomes related to the desires expressed by the Department members through the strategic planning process. To that end, it is envisioned that department leaders through the further development of distinct and measurable action steps, will champion the implementation of the endorsed action items to ensure the process moves successfully from planning to results.

In addition, a “living” document will be created which will help orient new leadership and staff to the department and provide a framework of shared vision and values for all Department members to serve as a guide to further action.

Members of the Strategic Planning Committee:

Dr. Stuart Turvey, Chair
Dr. Bob Armstrong
Dr. Cristina Bigg
Brandy Currie
Dr. Sandra Dunn
Dr. Jennifer Druker
Dr. Shelina Jamal
Dr. Maureen O'Donnell
Dr. Dina Panagiotopoulos
Georgia Petropoulos
Dr. Shubhayan Sanatani
Dr. Peter Skippen
Dr. Alfonso Solimano
Marcelle Sprecher

Who We Are (2009)

The Department of Pediatrics is enriched with highly skilled physicians, scientists/PhDs and supporting staff working to deliver its provincial, national and international clinical and academic mandates.

At the time of the last Department Review, the Ministry of Health and PHSA had recognized the need for additional resources to support Physician Services and we are grateful for their approval of new physician FTE's which we have been authorized to recruit over the past four years; the majority of the approved physicians have now been recruited. We have experienced some issues in being able to attract candidates to Vancouver due to housing costs.

In addition, the Faculty of Medicine has doubled their enrollment of undergraduate medical students from 128 to 256 per year for a total of 1024 students in the 4 year program. In a unique and successful model, the program is also now distributed throughout the province in partnership with the University of Victoria through the Island Medical Program (IMP) and the University of Northern British Columbia through the Northern Medical Program (NMP). The Department of Pediatrics has been a leader in supporting and promoting this expansion. A further expansion is planned through the University of British Columbia – Okanagan through the Southern Medical Program (SMP) in 2011. A concomitant increase in postgraduate education spaces was also approved. We are also grateful for the additional resources made available to support the expansion and are awaiting word on the possibility of further resources.

Faculty Members

We have experienced a significant growth in our faculty from 202 at the time of our last review to 272 today due to increased physician services, including clinical outreach initiatives across the province, and the sheer numbers of faculty required to support the expansion of the medical school.

Our numbers break down as follows:

153 Faculty on the Oak Street Campus broken down as follows:

- 8 Assistant Professors – Science/PhDs
- 3 Assistant Professors – Academic Clinicians
- 5 Associate Professors – Science/PhDs
- 7 Associate Professors – Academic Clinicians
- 2 Professors – Science/PhDs
- 19 Professors – Academic Clinicians

- 7 Clinical Instructors
- 37 Clinical Assistant Professors
- 34 Clinical Associate Professors
- 27 Clinical Professors

Of these, there are 134 MD's and 15 PhD's.

There are also:

- 31 Associate member faculty
- 2 Joint faculty members (in process)
- 3 Adjunct faculty members
- 4 Part-time faculty members

119 Community Clinical Faculty including community pediatricians providing services in all five provincial health regions.

Clinical Staff

Clinical Associates are physicians on the Oak Street Site who provide much needed support under the supervision of physician consultants.

- 19 Clinical Associates

Support Staff

A Department is only as good as its support and we are pleased to count among our staff, the highest of talent. Staff numbers breakdown as follows:

- 18 Central Department (UBC – CUPE 2950; UBC, M&P; C&W Non-Contract)
- 35 Division Support Staff (UBC – CUPE 2950)
- 26 Division Support Staff (BCCH – HEU)
- 84 Research Technicians and Assistants
- 36 Research Managers, Nurses and Coordinators
- 34 Divisional Administrative Managers and Researchers

- 233 Total Support Staff

Post Graduate Trainees

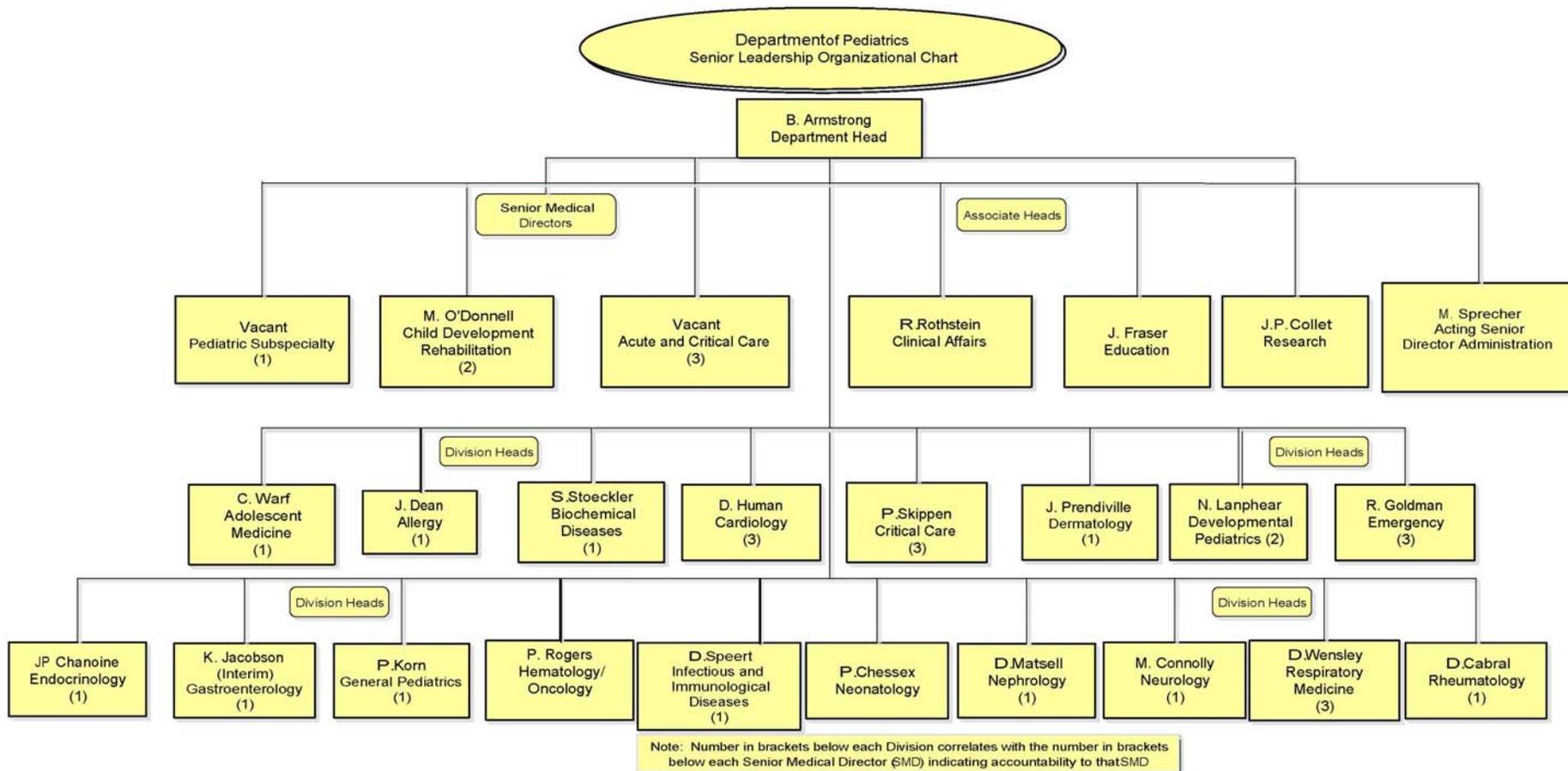
- 50 Core residents
- 23 Sub-specialty residents (Canadian Royal College Approved Programs)
- 39 Clinical Fellows, plus 12 Visa-Trainee Fellows and 4 Trainees

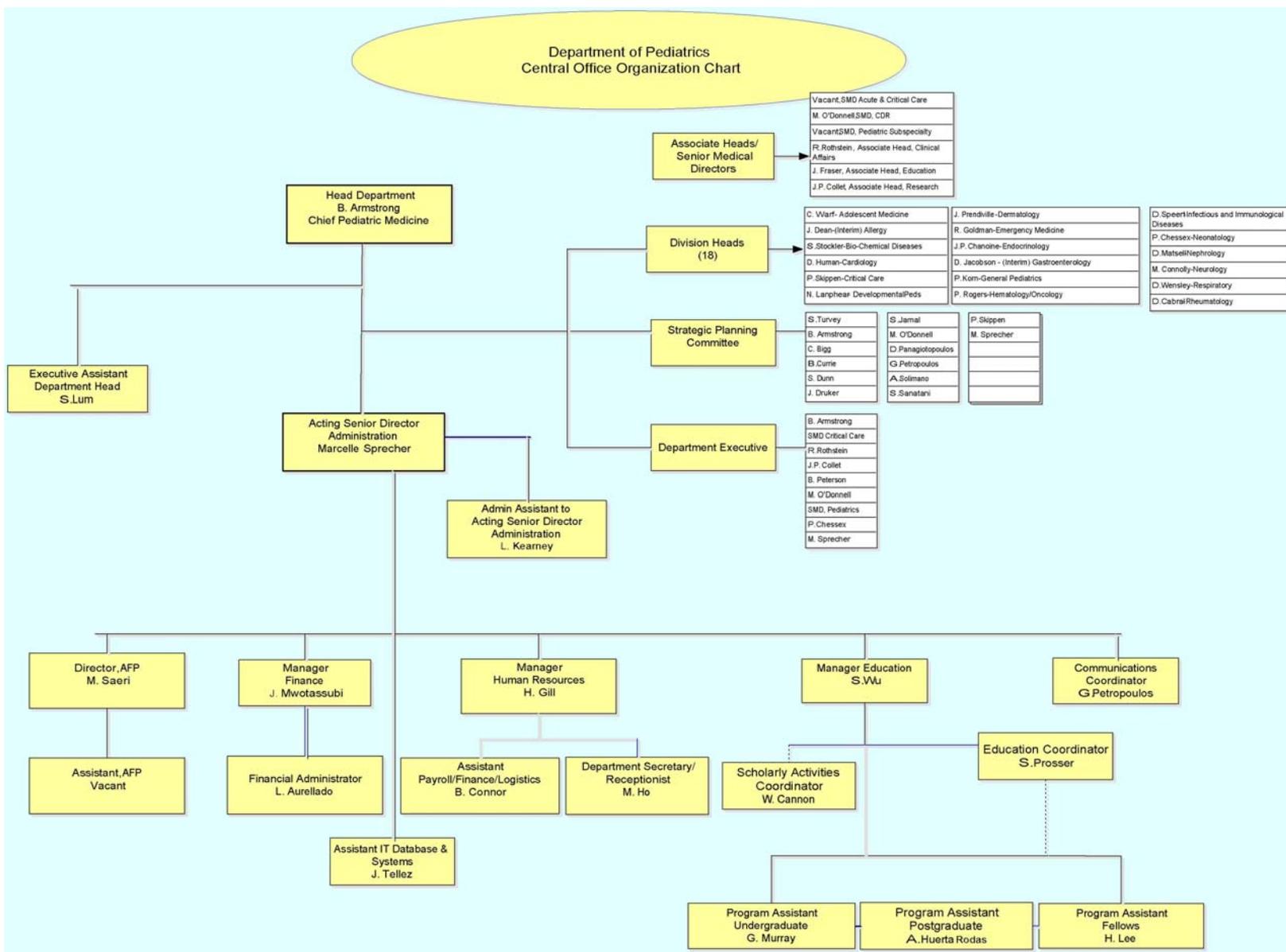
- 128 Total Post Graduate Trainees

Medical Students

190	1 st Year medical students (32 are enrolled in the IMP; 33 in the NMP).
198	2 nd Year medical students
278	3 rd Year Students (25 are enrolled in IMP; 24 in the NMP and in 6 the Chilliwack Integrated Clerkship)
111	4 th Year Students (3 are enrolled in IMP; 2 in NMP)
55	Out of Province or International Elective Students
832	Total Medical Students 2009

UBC Department of Pediatrics Organizational Chart

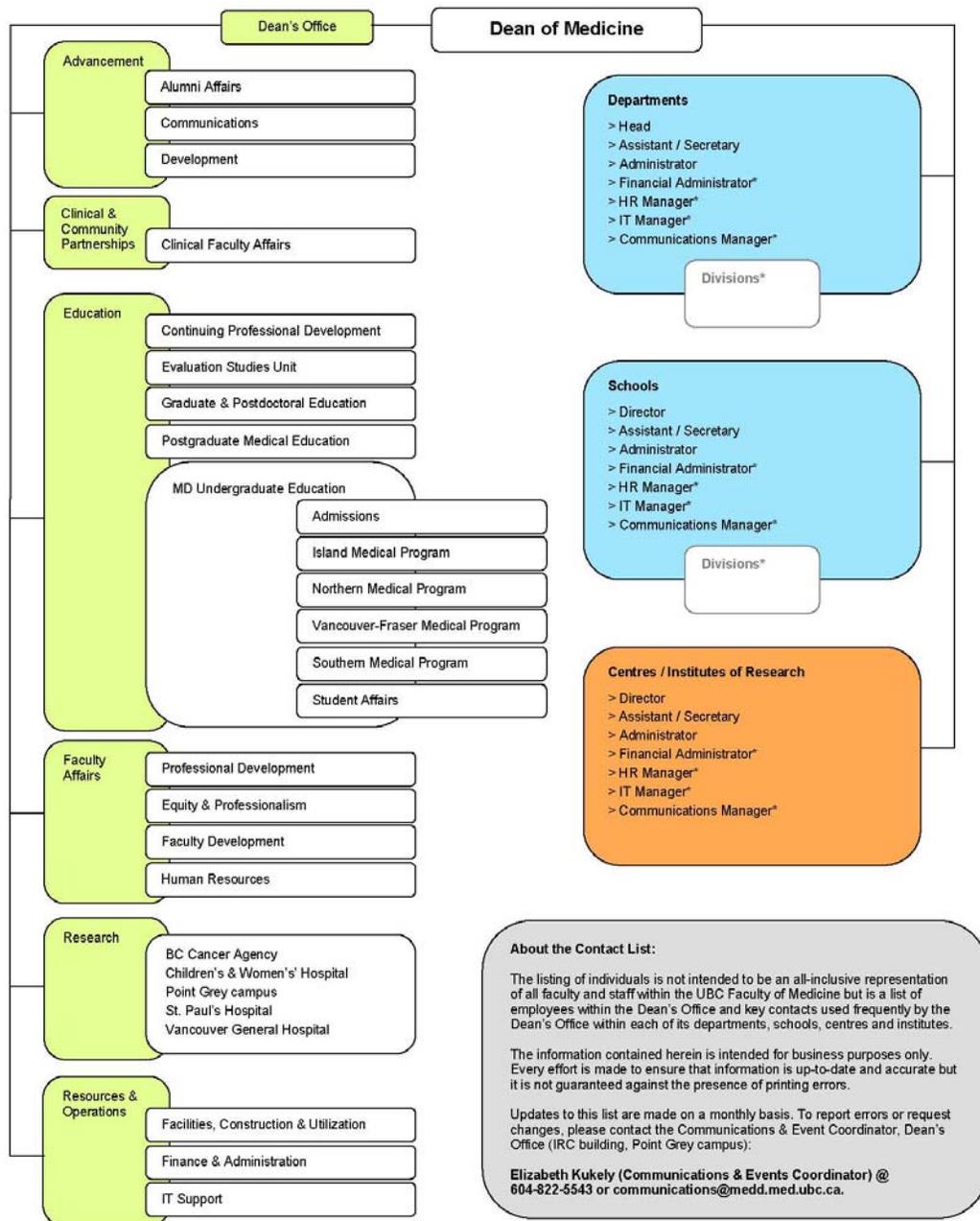




UBC Faculty of Medicine Organizational Chart

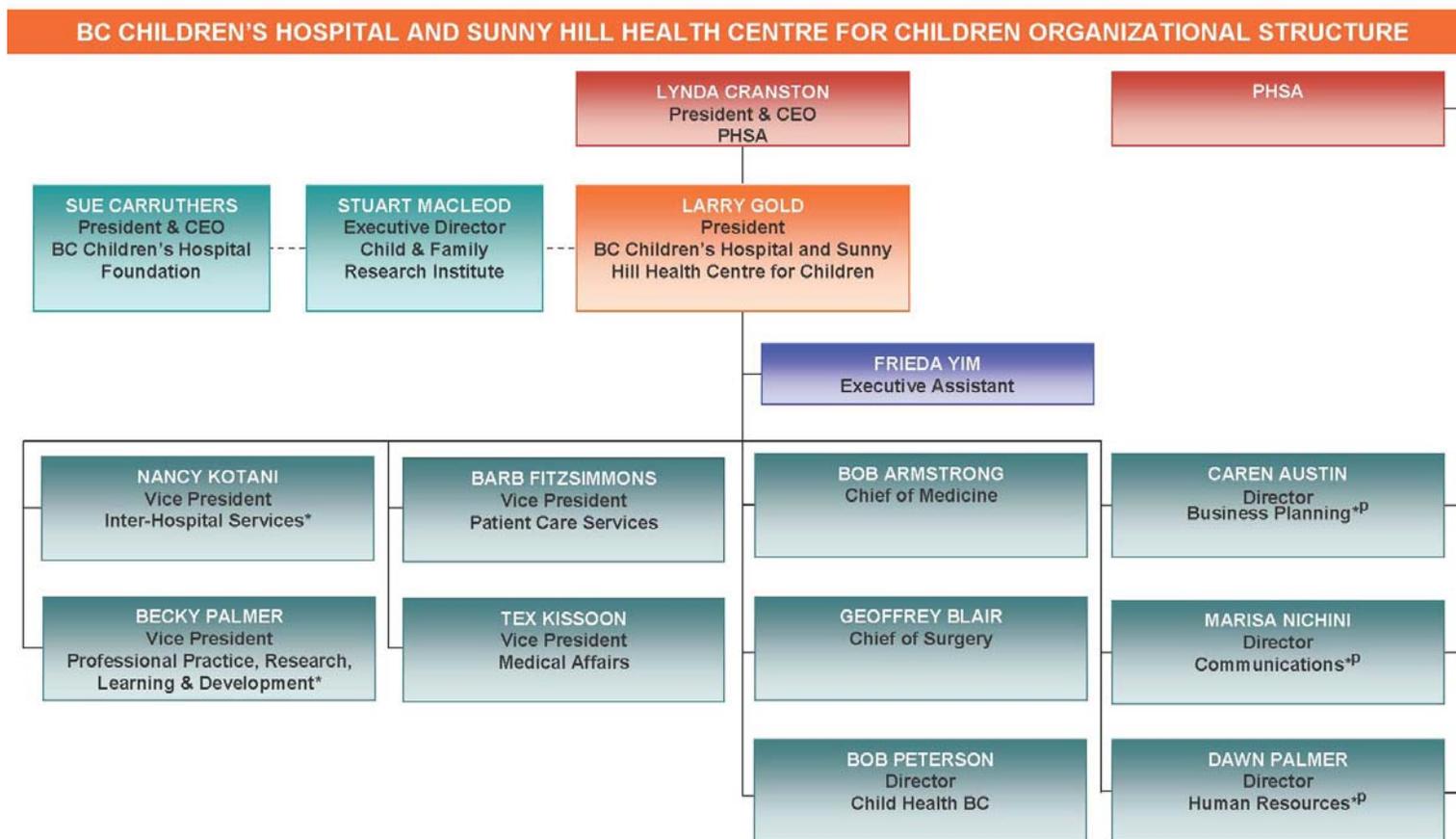
UBC Faculty of Medicine

Units within the Dean's Office and key departmental contacts



* If applicable / appropriate within unit

BC Children's Hospital Organizational Chart



* Dual accountability with BC Women's Hospital & Health Centre ^P Primary reporting relationship is with PHSA Corporate Services

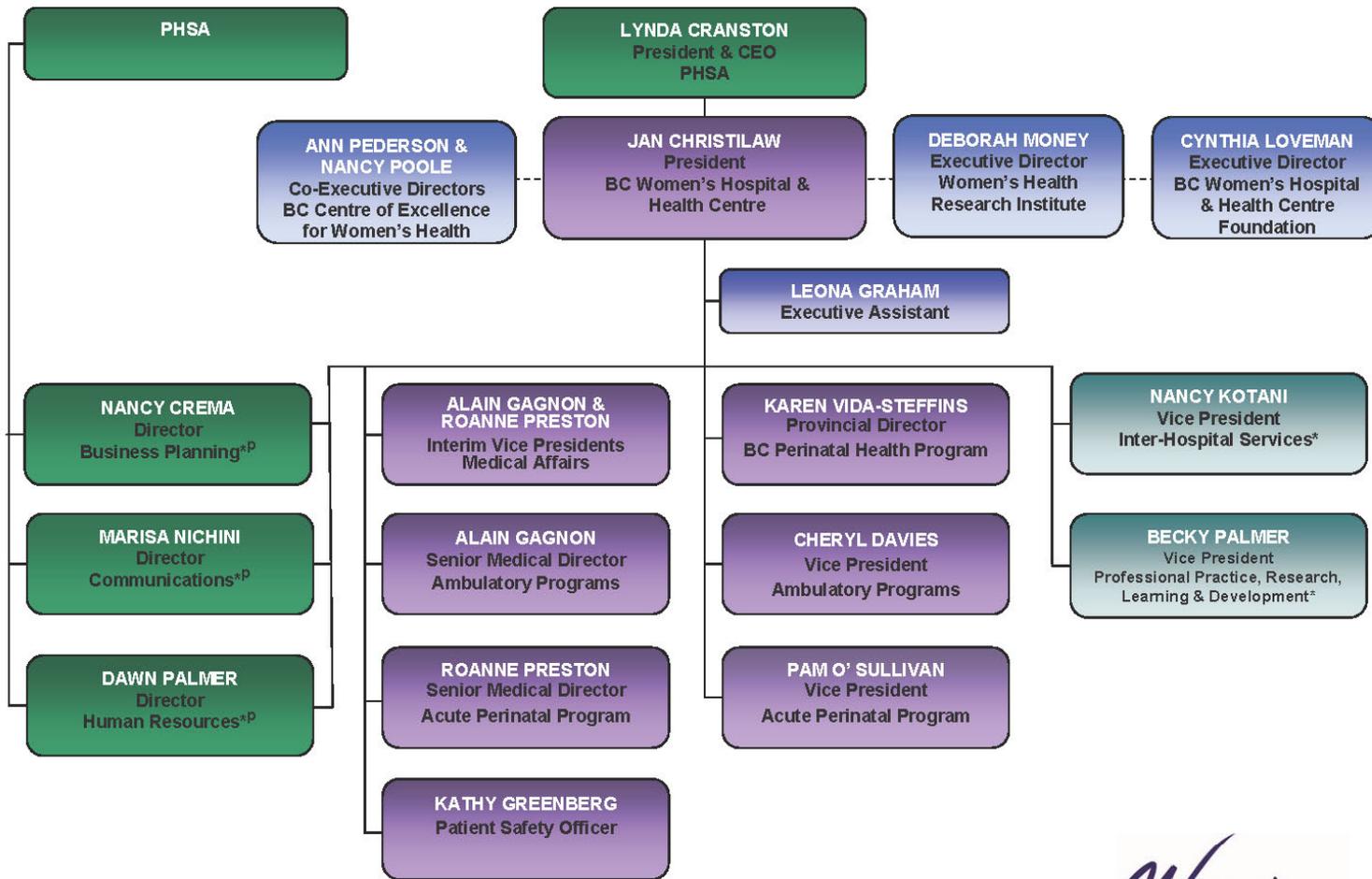
N.B. Organizational charts may be revised pending completion of strategic planning process

June 18, 2009



BC Women's Hospital Organizational Chart

BC WOMEN'S HOSPITAL & HEALTH CENTRE ORGANIZATIONAL STRUCTURE



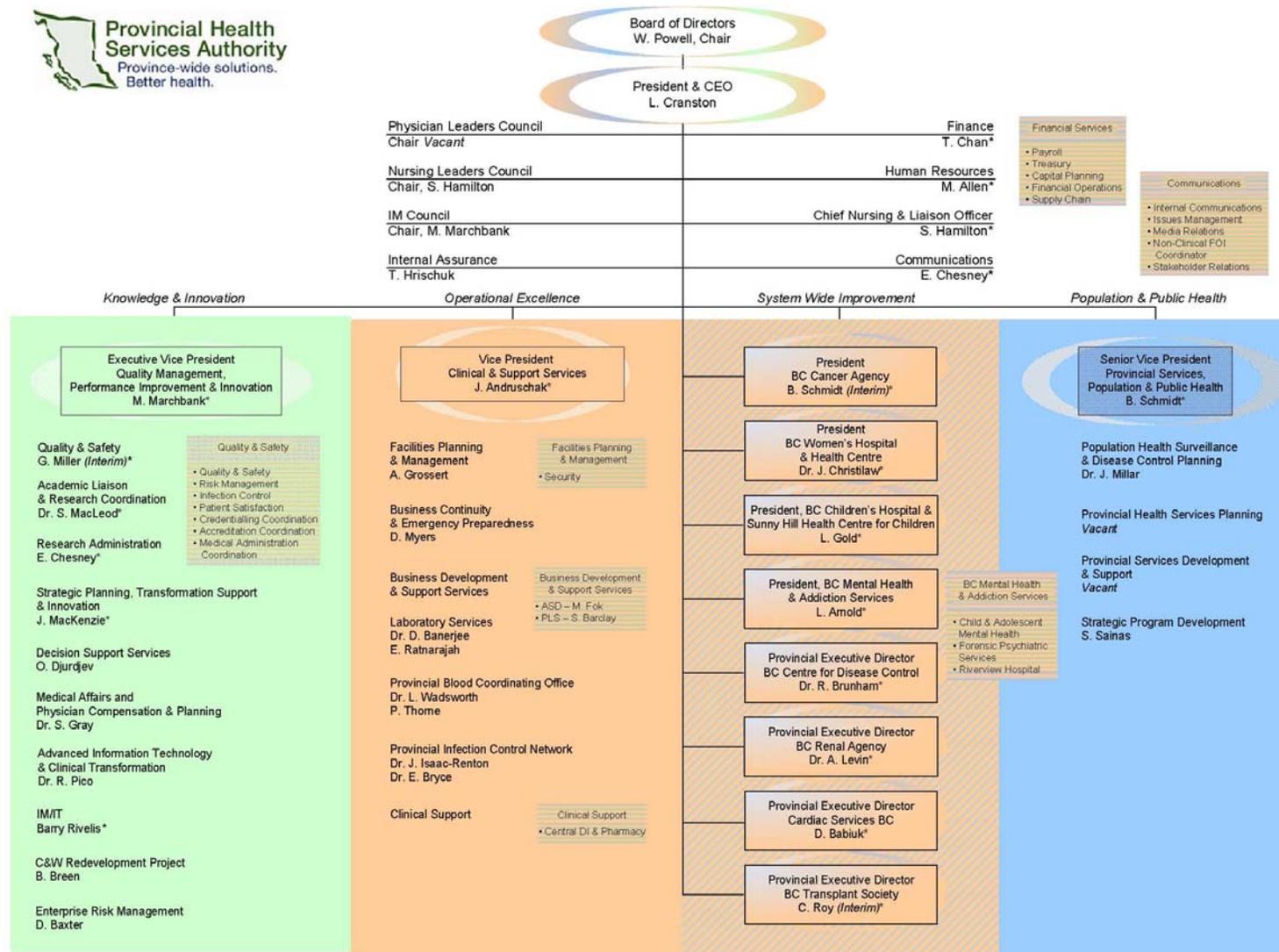
*Dual accountability with BC Children's Hospital and Sunny Hill Health Centre for Children

P Primary reporting relationship is with PHSA Corporate Services

August 24, 2009



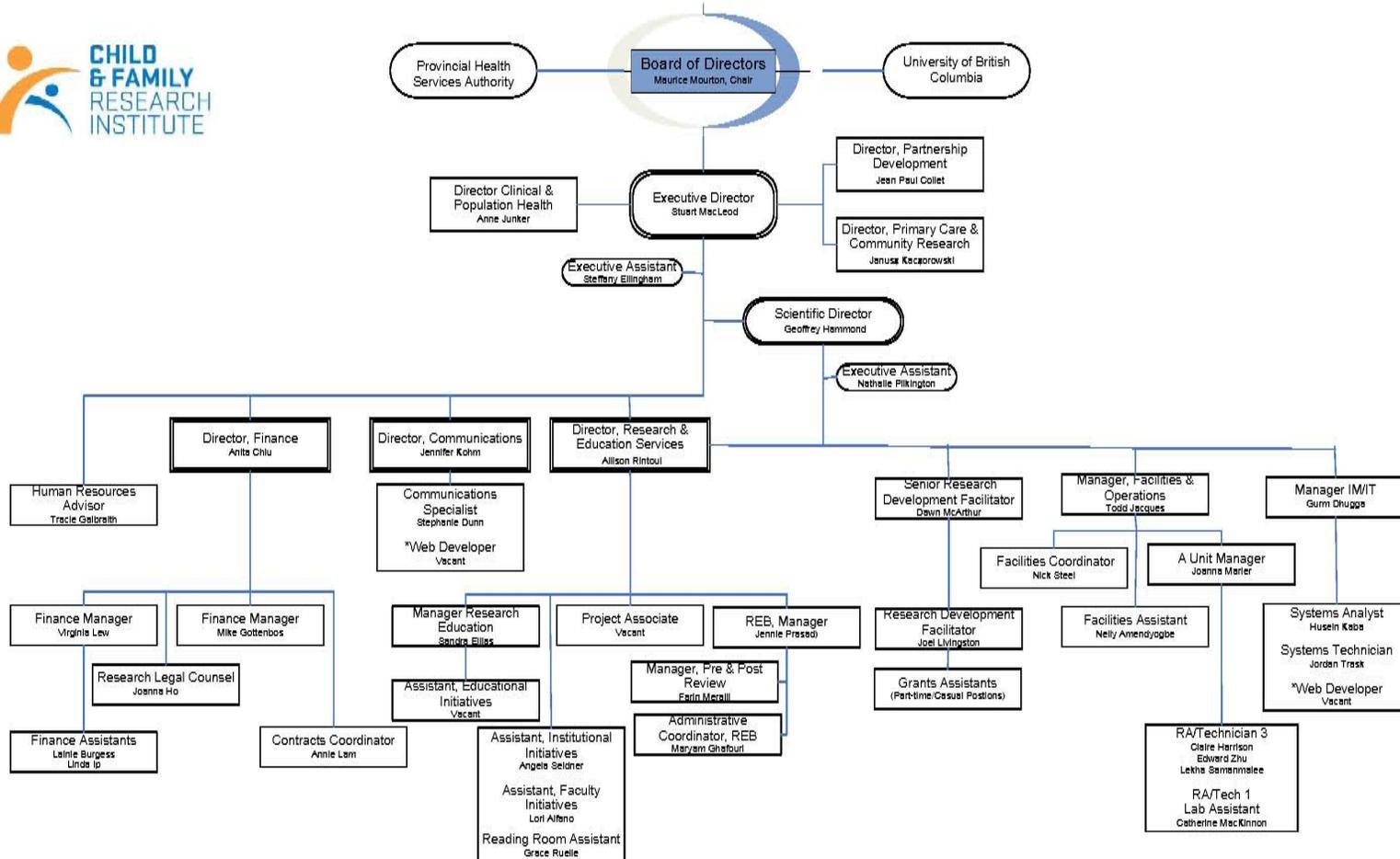
PHSA Organizational Chart



*Denotes membership on PHSA Executive Leaders Council (Chair, M. Marchbank)

June 2009

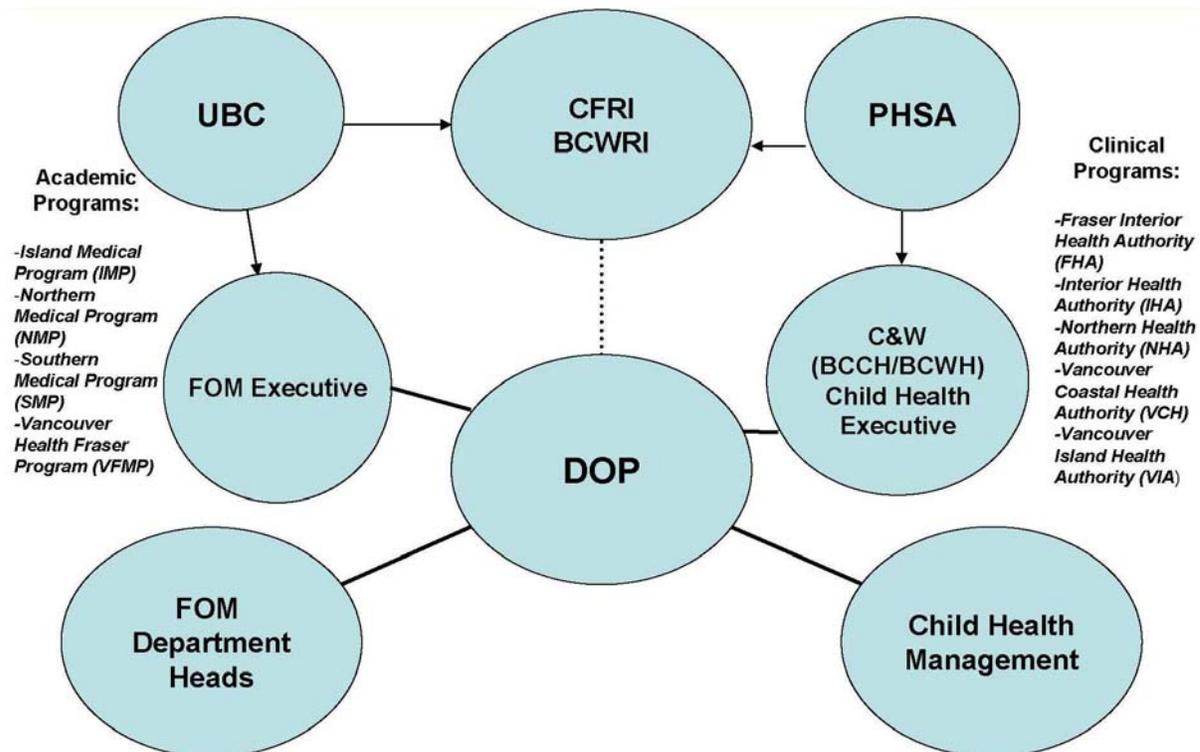
CFRI Organizational Chart



*Joint Reporting Relationship

July 2009

Governance and Committee Membership



The Department of Pediatrics, a Department within the UBC Faculty of Medicine, is responsible for the delivery of quality academic medical programs related to Pediatric Medical Education. The Department is also positioned within the Provincial Health Services Authority at the BC Children's and BC Women's Hospitals and works together with the various medical educational systems throughout the province to accomplish these goals and objectives. The Department works with the various health authorities to accomplish these mandates and is responsible for the quality of pediatric sub-specialty clinical service delivery across the province of British Columbia.

The Department of Pediatrics is a single department combining the mandates of the UBC Faculty of Medicine (UBC Department Head), The BC Children's Hospital and the BC Women's Hospital and Health Centre (Chief of Pediatrics). The Department also has a formal relationship with Providence Health Care in the Department of Pediatrics (Department Head). The Department of Pediatrics has working relationships with the Clinical Departments of Pediatrics in each of the regional health authorities and has a position on the Executive of the BC Pediatric Society.

The Department's committees which serve to integrate the clinical, academic and leadership mandates are:

1. Department of Pediatrics Executive Committee
2. Department of Pediatrics Operations Committee
3. Department of Pediatrics Faculty Meeting
4. AFP Physician Representatives Committee

- 1) The **Department of Pediatrics Executive Committee** comprises the Department Head, Associate Head, Clinical Affairs, Associate Head, Education, Associate

Head, Research, Director, Child Health BC, Senior Medical Director, Acute and Critical Care, Senior Medical Director, Child Development and Rehabilitation, Senior Medical Director, Subspecialty Pediatric Medicine, Head, Neonatology and the Senior Director of Administration. The Executive Committee is responsible for the strategic direction of the Department. The **Department Executive Committee** meets quarterly.

- 2) The **Department of Pediatrics Operations Committee** comprises the Senior Medical Directors, Associate Heads, Heads of each Division, the Senior Director of Administration, and the Director, Alternative Funding Plan. The Operations Committee is responsible for the decision-making through the strategic and operational planning for the Department. The **Department Operations Committee** meets once per month.
- 3) The **Department of Pediatrics Faculty Meeting** occurs once a month, at which time all department faculty members are invited to provide commentary and advise the department with respect to all departmental clinical and academic matters.
- 4) The **AFP Physician Representatives Committee** was established in August 2009 and is newly structured from the previous Alternative Funding Plan Task Force to a larger group of physician representation from each Division. This structure is better aligned with and supportive of the principle of Divisional-based participation in the AFP. The role of this Committee is to serve as a consultative body on all AFP-related matters with the exception of the compensation rates, which are defined in accordance with MOH-BCMA-negotiated rates. The mandate of the Committee will extend to such matters as compensation grid structure, role descriptions, sabbatical benefits, workload data-capture and reporting.

Department of Pediatrics Alternative Funding Plan (AFP) Physician Representatives

Adolescent Medicine	Dr. Curren Warf
Biochemical Diseases	Dr. Sylvia Stockler
Dermatology	Dr. Julie Prendiville
Developmental Pediatrics	Dr. Tim Oberlander
Inflammatory & Infectious Diseases	Dr. David Speert
Endocrinology	Dr. Ralph Rothstein
General Pediatrics	Dr. Hal Siden
Hematology/Oncology	Dr. Mason Bond
Neonatology	Dr. Philippe Chessex
Nephrology	Dr. Colin White
Neurology	Dr. Mary Connolly
	Dr. Steven Miller

Other committees through which Departmental work is accomplished are:

Pediatric Executive Education Committee (PEEC). This committee comprises senior education and administrative staff in the department who provide strategic direction with respect to the Department's education plans. This Committee is assisted by the Undergraduate Education Committee, Resident Training Committee, Sub-specialty Training Committee, and the Clinical Teaching Allocation and Accountability Committee.

The **Department Appointments, Reappointments, Promotions and Tenure Committee (DARPT)**, which is constituted of full-time and clinical faculty members at all ranks to make recommendations with respect to the academic ranks for our full-time part-time and clinical faculty members. Over the last year, the committee has worked to improve its operations and terms of reference.

The Terms of Reference for each of these committees are available upon request.

Other Committee Memberships

Department members have leadership and participation roles on a number of committees within the University of British Columbia, BC Children's Hospital, BC Women's Hospital and Health Centre, Child and Family Research Institute and the PHSA. These include but are not limited to the following:

- BC Children's Hospital Executive Committee
- BC Children's Hospital Operations Committee
- BC Children's Hospital Medical Advisory Committee
- BC Children's Hospital Quality of Care Committee
- CFRI Scientific Advisory Committee
- C&W Pharmacy and Therapeutics Committee
- C&W Infection Control Committee
- C&W Disaster Planning Committee
- Biochemical Genetics Fellowship Committee, UBC
- Lab Scientist Position Selection Committee, Newborn Screening, UBC
- Lysosomal Storage Disorders Advisory Group (LSAG) - advisory to Ministry of Health Service (Pharmacare), BCCH.
- Expensive Drugs for Rare Diseases (EDRD) Committee - advisory to Ministry of UBC Faculty of Medicine Appointments, Reappointments, Promotion and Tenure Committee
- Health, Pharmaceutical Services Division, BCCH.
- Priority and Evaluation Committee, Member, BCCH
- Nutrition Sub-Committee of the Priority and Evaluation Committee, BCCH
- Newborn Screening Program Advisory Committee BCCH
- Newborn Screening Working Group on Cystic Fibrosis, BCCH
- Research Education Committee, Child and Family Research Institute
- The University of British Columbia / Children's and Women's Health Centre of British Columbia Research Ethics Board (UBC C&W REB)

Administration Report

Marcelle Sprecher, Acting Senior Director, Administration

It has been a privilege to have had the opportunity to support the Department of Pediatrics over the past three and a half years. A clinical academic department is its people and it has been a pleasure to work with such creative and committed faculty, staff and trainees. The leadership of Dr. Armstrong in moving relentlessly forward toward the larger provincial and international vision for the department has been inspiring to all. While it has meant a significant amount of work, we know that the work is necessary to sustain the Department into the future, to support C&W, PHSA and UBC and all the beneficiaries of our work and that it will serve as part of our own legacies.

Dr. Armstrong has noted several administrative accomplishments in the Executive Summary and Department Head's Reports, therefore, I will supplement those with a number of other noteworthy accomplishments:

1. **Recruitment** of top-notch faculty and staff – it is noted that the growth in faculty and staff over the past five years has required substantial efforts in recruitment. Upon my joining the department, there were a number of staff vacancies that have now been filled with excellent contributors. We have also worked diligently to ensure that we have backup in the case of staff absences or departures.
2. **Morale and Teamwork** – while we recognize that there are challenges in our workload and diversity, faculty and staff generally express their pleasure in belonging to the Department and teamwork is evident throughout. Absenteeism is low. We note that we have even had temporary support staff ask to join the Department on a permanent basis and in some cases, we are pleased that we have been able to do so.
3. **Retention and development of faculty and staff** – significant development of staff has been undertaken. Retention is evident in our low turnover and continuing productivity improvements. In his reports, Dr. Armstrong has mentioned the major pediatric leadership development program and the annual one-day conference and shorter development sessions for staff that we have created.
4. **Financial Management** – the department has been able to absorb several budget cuts and has employed sound stewardship and continuing improvements in the management of its financial resources in accordance with the policies of both UBC and PHSA.
5. **Support for grantholders** - has been improved with our assistance in the oversight of their human resource financial planning needs.
6. **Department Communication and Events** – a separate report in this documentation outlines the significant communication and events we have undertaken and these efforts were acknowledged by the Review Self Study Committee.

7. Systems Developments

- a. Department of Pediatrics Alternative Funding Plan (AFP) Budget – staff were able to develop an approach to building the budget for the AFP that integrates various funding sources and the development of an AFP Framework that is financially and administratively sustainable.
 - b. Department of Pediatrics website was migrated to a new server and content has been updated.
 - c. UBC Faculty of Medicine Staff Activity Reporter (STAR) Database – despite a very demanding workload, our staff requested that they take on the opportunity to support the development and implementation of the STAR database by acting as the lead department in a pilot project. Key contributions included the following:
 - i. staff identified an opportunity to save significant amounts of time by recommending the development of a tracking system for faculty and staff appointments so that at any time administrators will be able to know the status of an appointment rather than emailing the various individuals throughout the process to find out where an appointment is.
 - ii. staff identified a serious deficit in the system that needed to be addressed before the database was rolled out to the other 19 departments, two schools and various research centres of the Faculty.
 - iii. with the expertise resident in our staff, we were able to provide the leadership and support to UBC Faculty of Medicine staff for the CV module of the database which will allow faculty to remotely access and input their own CVs in future.
 - d. C&W/PHSA Payroll System Changes – Staffing and Scheduling Systems (SASS)
- 8. Improvements in Meeting Deadlines have been evident**
9. **Records Retention** – efforts have been devoted to appropriate records retention and better space utilization.

Future Developments

While much has been accomplished, there is much more on the horizon. We are working through the human resource and financial management recommendations of the PHSA Internal Assurance report and the following developments:

1. revitalised and revised appointments processes through both UBC and C&W; there is a significant need to develop final documentation for recruitments through C&W – this will be aided by the completion of the AFP.
2. further streamlining of the promotions process through UBC.
3. support the efforts to optimally integrate the clinical academic mandates for improved clinical and academic services and economies of scale.
4. support further mentoring and recognition opportunities for our faculty and staff; provide additional faculty and staff development.
5. resolution of administrative staffing in the Divisions.

6. implement further improvements to our financial management systems and processes
7. determine further improvements in our support for our PhD scientists.
8. improve communications (most notably, our website) upon completion of the department strategic planning process and mission/vision.
9. develop a shared documents site for all faculty records to eliminate duplication.

Academic Space

(Description of currently allocated department/school space)

Department of Pediatrics Space

Institution	Building	Room	Use Type	Area	Department	Division	Occupant	Usage
C&W Hospital	ACB	K3-204	AT Office	167.1	Paediatrics	Biochemical Diseases - F	Stoecker, Sylvia	100
C&W Hospital	ACB	K3-205	AT Office	113.3	Paediatrics	Biochemical Diseases - F	Gyorgy, Sharon	100
C&W Hospital	ACB	K4-100	AT Office	149.13	Paediatrics	Dermatology - Paeds	Prendiville, Julie	100
C&W Hospital	ACB	K4-106	AT Head's Office	106.63	Paediatrics	General Paediatrics	Korn, Paul	100
C&W Hospital	ACB	K4-109	AT Office	93.07	Paediatrics	General Paediatrics	Multi-User, Several	100
C&W Hospital	ACB	K4-111	AT Office	82.1	Paediatrics	Dermatology - Paeds	Ali, Rehana	100
C&W Hospital	ACB	K4-115	AT Office	80.7	Paediatrics	Rheumatology - Paeds	Guzman, J	100
C&W Hospital	ACB	K4-119	AT Secretary	57.35	Paediatrics	Rheumatology - Paeds	Shirley, Maureen	100
C&W Hospital	ACB	K4-121	AT Office	160.43	Paediatrics	Rheumatology - Paeds	Cabral, David	100
C&W Hospital	ACB	K4-148	AT Office	114.81	Paediatrics	Renal Research	Dionne, Janis	100
C&W Hospital	ACB	K4-168	AT Storage	90.92	Paediatrics	Renal Research	Chow, Josephine	100
C&W Hospital	ACB	K4-184	AT Office	112.66	Paediatrics	Gastroenterology - Paed	Israel, David	100
C&W Hospital	ACB	K4-200	AT Secretary	98.9	Paediatrics	Gastroenterology - Paed	Finlay, Deborah	100
C&W Hospital	ACB	K4-205	AT Office	132.78	Paediatrics	Endocrinology - Paeds	Panagiotopoulos, Dina	100
C&W Hospital	ACB	K4-211	AT Secretary	86.08	Paediatrics	Diabetes Program	Frutaci, Caterina	100
C&W Hospital	ACB	K4-212	AT Office	201	Paediatrics	Endocrinology - Paeds	Chanoine, Jean-Pierre	100
C&W Hospital	C&W	1C 41	RE Laboratory	105.8	Paediatrics	Respirology - Paeds	Seear, Michael	100
C&W Hospital	C&W	1C 49	AT Office	130	Paediatrics	Cardiology - Paeds	Potts, Jim	100
C&W Hospital	C&W	1C 50	AT Office	110.5	Paediatrics	Cardiology - Paeds	Cender, Laurier	50
C&W Hospital	C&W	1N 22	AT Office	192.7	Paediatrics	Paediatrics	Fellows, Various	50
C&W Hospital	C&W	1N 23	AT Conference Room	267	Paediatrics	Paediatrics	Residents, Various	50
C&W Hospital	C&W	2B 34	AT On Call Room	149	Paediatrics	Paeds UG Program	Multi-User, Several	100
C&W Hospital	C&W	2B 35	IN Washroom	93	Paediatrics	Paeds UG Program	Multi-User, Several	100
C&W Hospital	C&W	2B 36	IN Corridor	210	Paediatrics	Paeds UG Program	Multi-User, Several	100
C&W Hospital	C&W	2B 37	AT On Call Room	147	Paediatrics	Paeds UG Program	Multi-User, Several	100
C&W Hospital	C&W	2B 38	AT On Call Room	117	Paediatrics	Paeds UG Program	Multi-User, Several	100
C&W Hospital	C&W	2C 70	RE Laboratory	158.23	Paediatrics	Biochemical Diseases - F	Multi-User, Several	100
C&W Hospital	C&W	2C 74	RE Wet lab	218.64	Paediatrics	Biochemical Diseases - F	Coulter-Mackie, Marion	100
C&W Hospital	C&W	2C 75	RE Wet lab	338.08	Paediatrics	Biochemical Diseases - F	Stoecker, Sylvia	100
C&W Hospital	C&W	2D 1	AT Office	132.56	Paediatrics	Paeds Admin	Sprecher, Marcelle	100
C&W Hospital	C&W	2D 2	AT Office	115.13	Paediatrics	Paeds Admin	Mwotassubi, John	100
C&W Hospital	C&W	2D 3	AT Office	112.33	Paediatrics	Paeds Admin	Fraser, Joan	100
C&W Hospital	C&W	2D 4	AT Office	109.86	Paediatrics	Paeds Admin	Saeri, Maryam	100
C&W Hospital	C&W	2D 5	AT Office	117.5	Paediatrics	Paeds Admin	Druker, Jenry	100

Department of Pediatrics Space

Institution	Building	Room	Use Type	Area	Department	Division	Occupant	Usage
C&W Hospital	C&W	2D 6	AT Office	141.17	Paediatrics	Paeds Admin	Rothstein, Ralph	100
C&W Hospital	C&W	2D 7	AT Photocopy Room	141.49	Paediatrics	Paeds Admin	Multi-User, Several	100
C&W Hospital	C&W	2D 8	AT Office	89.09	Paediatrics	Paeds Admin	Gill, Harjit	100
C&W Hospital	C&W	2D 9	AT Office	90.92	Paediatrics	Paeds Admin	Aurellado, Lito	100
C&W Hospital	C&W	2D 10	AT Workstations	254.69	Paediatrics	Paeds Admin	Kearney, Lillian	50
C&W Hospital	C&W	2D 11A	AT Workstations	168.23	Paediatrics	Paeds Admin	Lum, Starlet	50
C&W Hospital	C&W	2D 11B	AT Workstations	168.23	Paediatrics	Paeds Admin	Connor, Brandon	100
C&W Hospital	C&W	2D 11C	AT Workstations	168.23	Paediatrics	Paeds Admin	Tellez, Juan	100
C&W Hospital	C&W	2D 12	AT Office	103.19	Paediatrics	Paeds Admin	Finance Assistant	100
C&W Hospital	C&W	2D 13	AT Office	103.19	Paediatrics	CPS	Hudson, Stephanie	100
C&W Hospital	C&W	2D 13	AT Office	104.59	Paediatrics	Paeds Admin	Cannon, Wendy	100
C&W Hospital	C&W	2D 14	AT Office	103.94	Paediatrics	Paeds Admin	Schaller, Jane	100
C&W Hospital	C&W	2D 15	AT Head's Office	342.6	Paediatrics	General Paediatrics	Armstrong, Robert	100
C&W Hospital	C&W	2D 16	AT Office	110.61	Paediatrics	Paeds Admin	Wu, Sylvia	100
C&W Hospital	C&W	2D 17	AT Office	108.89	Paediatrics	Paeds Admin	Atkinson, Victoria	50
C&W Hospital	C&W	2D 18A	AT Workstations	181.27	Paediatrics	Paeds Admin	Virji, Mumtaz	50
C&W Hospital	C&W	2D 18C	AT Workstations	181.27	Paediatrics	Paeds Admin	Ho, Maria	100
C&W Hospital	C&W	2D 18D	AT Workstations	181.27	Paediatrics	Paeds Admin	Yin, Peggy	100
C&W Hospital	C&W	2D 19	IN Corridor	110	Paediatrics	Paeds Admin	Buchman, Sharon	100
C&W Hospital	C&W	2D 21	AT Lounge / Coffee / Kit	235	Paediatrics	Paeds Admin	Multi-User, Several	100
C&W Hospital	C&W	2D 22	AT Conference Room	390.16	Paediatrics	Paeds Admin	Residents, Various	100
C&W Hospital	C&W	2D 23	IN Corridor	174	Paediatrics	Paeds Admin	Multi-User, Several	100
C&W Hospital	C&W	2D23A	AT Office	86	Paediatrics	Paeds Admin	Multi-User, Several	100
C&W Hospital	C&W	2D23B	AT Office	75	Paediatrics	Paeds Admin	Lee, Helena	100
C&W Hospital	C&W	2D23C	AT Office	82	Paediatrics	Paeds Admin	Murray, Gisela	100
C&W Hospital	C&W	2D23D	AT Office	78	Paediatrics	Paeds Admin	Huerta Rodas, Alejandro	100
C&W Hospital	C&W	2D23E	AT Workstations	78	Paediatrics	Paeds Admin	Petropoulos, Georgia	100
C&W Hospital	C&W	2D23F	AT Workstations	70	Paediatrics	Paeds Admin	Prosser, Susan	100
C&W Hospital	C&W	2F 05	AT On Call Room	69	Paediatrics	Paeds Admin	Fellows, Various	100
C&W Hospital	C&W	2H 17	AT Resource Room	282	Paediatrics	Paeds Learning & Develk	Residents, Various	100
C&W Hospital	C&W	2H 18	AT Resource Room	66	Paediatrics	Paeds Learning & Develk	Multi-User, Several	100
C&W Hospital	C&W	2H 19	AT Resource Room	93	Paediatrics	Paeds Learning & Develk	Multi-User, Several	100
C&W Hospital	C&W	2N 28	RE Office	114.4	Paediatrics	Paeds Learning & Develk	Multi-User, Several	100
C&W Hospital	C&W	2N 33	AT Sleep Room	98.78	Paediatrics	Paeds Learning & Develk	Multi-User, Several	100
C&W Hospital	C&W	3B 2	AT Conference Room	180.02	Paediatrics	Paeds Learning & Develk	Multi-User, Several	100

Department of Pediatrics Space

Institution	Building	Room	Use Type	Area	Department	Division	Occupant	Usage
C&W Hospital	C&W	3D 3AB	AT Seminar / Conference	273.95	Paediatrics	Paeds Admin	Multi-User, Several	100
C&W Hospital	C&W	3M82	AT Office		66 Paediatrics		Chiefs, Various	100
C&W Hospital	C&W	3M83	AT Office		67 Paediatrics		Chiefs, Various	100
C&W Hospital	Shaughnessy	E620	AT Office		100 Paediatrics		Multi-User, Several	50
						MD Undergraduate Education	Multi-User, Several	50

Faculty Member Recruitments

We have been fortunate with the support of the PHSA and UBC to secure additional funding for the recruitment of new faculty.

The following two tables identify new and replacement faculty recruited from 2005 to 2009. The first table identifies faculty who have a full-time appointment and are salaried at UBC. The second table identifies those who are appointed and compensated through C&W and who have a clinical appointment with UBC.

We are also in the process of recruiting or completing the recruitment of 20 faculty members.

UBC Full-Time Faculty Recruitments with C&W Appointments (clinicians) 2005 - 2009

Name	Year	Rank
Bettinger, Julie	2006	Assistant Professor
Boyce, Tom (Joint Appointment)	2006	Professor
Brussoni, Mariana	2006	Assistant Professor
Carleton, Bruce (Joint Appointment)	2009	Professor
Foster, Helen	2008	Professor
George, Anne	2006	Assistant Professor
Goldman, Ran	2007	Associate Professor
Kissoon, Niranjana (Tex)	2005	Professor
Kollmann, Tobias	2008	Assistant Professor
Lim, James	2009	Assistant Professor
Masse, Louise	2007	Associate Professor
McLeod, Stuart	2005	Professor
Miller, Steven	2005	Associate Professor
Paice, Naomi	2005	Assistant Professor
Panagiotopoulos, Dina	2008	Assistant Professor
Pike, Ian (rehired)	2008	Assistant Professor
Sly, Laura	2008	Assistant Professor
Stockler, Sylvia	2005	Professor
TOTAL	18	

There are 12 recruitments underway for UBC of which 7 will have some clinical engagement with C&W/PHSA.

We are also recruiting in partnership with Fraser Health Authority for an academic leader for their Department of Pediatrics.

C&W/PHSA Recruitments with UBC Clinical Faculty Appointments – 2005 – 2009

Name	Year	Rank
Amed, Shazhan	2008	Clinical Assistant Professor
Chan, Edmond	2008	Clinical Assistant Professor
Chau, Van	2009	Clinical Assistant Professor
Cheng, Adam	2006	Clinical Assistant Professor
Chilvers, Mark	2008	Clinical Associate Professor
Clarke, Michelle	2006	Clinical Assistant Professor
Collet, JP	2006	Clinical Professor
Demos, Michelle	2007	Clinical Assistant Professor
Dionne, Janis	2006	Clinical Assistant Professor
Dyke, Lisa	2006	Clinical Assistant Professor
Foster, Helen	2007	Clinical Associate Professor
Guttman, Orlee	2009	Clinical Assistant Professor
Horvath, Gabriella	2009	Clinical Assistant Professor
Houghton, Kristin	2007	Clinical Assistant Professor
Huh, Linda	2008	Clinical Assistant Professor
Kielska, Anna	2005	Clinical Assistant Professor
Hung, Geoffrey	2008	Clinical Assistant Professor
Lanphear, Nancy	2008	Clinical Associate Professor
Larson, Charles	2008	Clinical Professor
Lavoie, Pascal	2006	Clinical Assistant Professor
Mahmutoglu, Saadet	2009	To be appointed as Clinical Assistant Professor
Matsuda-Abedini, Mina	2006	Clinical Assistant Professor
Miller, Steven	2005	Associate Professor
Ogborn, Malcolm	2008	Clinical Professor
Panagiotopoulos, Dina	2006	Clinical Assistant Professor
Pitfield, Sandy	2008	Clinical Assistant Professor
Purtzki, Jacqueline	2007	Clinical Assistant Professor
Rasseck, Rod	2007	Clinical Assistant Professor
Salvarinova, Ramona	2009	Clinical Assistant Professor
Sauve, Laura	2007	Clinical Assistant Professor
Shereck, Evan	2007	Clinical Assistant Professor
Sherlock, Rebecca	2006	Clinical Assistant Professor
Trnka, Peter	2005	Clinical Assistant Professor
Van Rensburg, Esias	2008	Clinical Assistant Professor
Virji, Mumtaz	2009	Clinical Assistant Professor
Warf, Curren	2009	Clinical Professor
TOTAL	36	

There were also significant efforts in the recruitment of locums and clinical associates. We also participated in the recruitment of two pediatricians for Vancouver Coastal Health – Richmond Health Services and two pediatricians for St. Paul’s Hospital.

Currently, we are engaged in the recruitment of 9 C&W physician positions and of the 12 recruitments underway for UBC, 7 will have some clinical engagement with C&W. We note that all C&W physicians recruited into the Department of Pediatrics are also provided with clinical faculty appointments at UBC.

Faculty Member Promotions and Tenure

We are pleased to have been able to support the promotions of our highly accomplished and productive faculty members.

The following table displays the approved promotions and tenure decisions for our full-time faculty at UBC and C&W.

In addition, although not indicated below, we have made significant changes to our process of identifying our community clinical faculty who are eligible for promotion and as a result, are seeing an increase in promotions for our clinical faculty members.

Department of Pediatrics Promotions 2005 – 2009		
Name	Year	Rank
Full-Time Faculty		
Coulter-Mackie, Marion	2008	Associate Professor
Dunn, Sandra	2007	Associate Professor
Grunau, Ruth	2006	Professor
Miller, Steven	2007	Associate Professor
Oberlander, Tim	2007	Professor
Sanatani, Shubhayan	2008	Associate Professor
Schultz, Kirk	2008	Professor
Vallance, Bruce	2009	Associate Professor
Site-Based Clinical Faculty		
Bond, Mason	2007	Clinical Associate Professor
Chan, Edmond	2007	Clinical Assistant Professor
Cogswell, Arthur	2007	Clinical Associate Professor
Colbourne, Margaret	2007	Clinical Associate Professor
Connolly, Mary	2009	Clinical Professor
Dix, David	2008	Clinical Associate Professor
Druker, Jennifer	2007	Clinical Associate Professor
Fitzgerald, Barbara	2007	Clinical Associate Professor
Forbes, John (Jack)	2007	Clinical Professor
Hukin, Juliette	2007	Clinical Associate Professor
Human, Derek	2005	Clinical Professor
Hung, Geoffrey	2007	Clinical Assistant Professor
Jacobson, Kevan	2007	Clinical Associate Professor
Khangura, Simi	2007	Clinical Assistant Professor
Metzger, Daniel	2007	Clinical Professor
Mickelson, Elizabeth	2007	Clinical Associate Professor
Skippen, Peter	2008	Clinical Professor
Wu, John	2007	Clinical Professor

Department of Pediatrics Promotions 2005 – 2009, cont'd

Community-Based Clinical Faculty

Atkinson, Victoria	2009	Clinical Assistant Professor
Behrmann, Jack	2009	Clinical Assistant Professor
Chan, Ruby	2009	Clinical Assistant Professor
D'Agincourt-Canning, Lori	2007	Clinical Assistant Professor
Davey, Allyson	2009	Clinical Assistant Professor
Hewes, Deborah	2009	Clinical Assistant Professor
Jain, Nita	2007	Clinical Assistant Professor
Jia, Xiaoyan	2009	Clinical Assistant Professor
Kalaher, Susan	2009	Clinical Assistant Professor
Ladkiova, Alena	2009	Clinical Assistant Professor
Lund, Mark	2009	Clinical Assistant Professor
Ramesh, Kappuchipalayam	2009	Clinical Assistant Professor
Robertson, Glen	2007	Clinical Assistant Professor
Salvarinova, Ramona	2007	Clinical Assistant Professor
Smith, Trent	2009	Clinical Assistant Professor
Stock Suzanne	2009	Clinical Assistant Professor
Ukpeh, Henry	2008	Clinical Associate Professor

There are also four promotions of full-time faculty in process.

There is one full-time faculty member pending tenure.

There are 14 promotions of site-based clinical faculty in process.

There are 16 promotion of community based clinical faculty in process.

In addition to the annual reviews of all full-time and site-based faculty, the Department has initiated a regular annual review of all community clinical faculty members with a view to their further recognition through promotion. As a result, there has also been an increase in the promotions of community clinical faculty over the past two years.

Faculty Departures

Department of Pediatrics Departures 2005 to 2009

NAME	Term Date	Rank
UBC Faculty		
D'Angiulli, Amedeo	2/16/2004	Asst Professor (grant ten-trk)
Hoube, Jill	7/1/2009	Asst Professor (grant ten-trk)
Klassen, Anne	1/1/2007	Asst Professor (grant ten-trk)
Ochnio, Jan	7/1/2008	Asst Professor (grant ten-trk)
Pusic, Martin	7/1/2007	Asst Professor (grant ten-trk)
Shaw, Nicola	5/1/2006	Asst Professor (grant ten-trk)
Vincent, Inez	7/1/2007	Asst Professor (grant ten-trk)
Paice, Naomi	7/1/2007	Asst Professor (ten-trk)
Evdokimova, Valentina	7/1/2007	Asst Professor without review
Ou, Dawei	7/1/2005	Asst Professor without review
Smith, David F	7/1/2007	Associate Professor(part-time)
Wong, Lawrence T K	7/1/2005	Associate Professor(part-time)
Malleson, Peter	6/1/2009	Professor (grant tenure)
Ferguson, Alexander C	7/1/2006	Professor (tenure)
Hall, Judith G	1/1/2005	Professor Emerita
Pendray, Margaret R	7/1/2006	Professor Emerita
Applegarth, Derek A	7/1/2004	Professor Emeritus
Hill, Alan	7/1/2009	Professor Emeritus
Petty, Ross Edward	7/1/2009	Professor Emeritus
Tingle, Aubrey J	7/1/2008	Professor Emeritus
Total UBC	20	
C&W Faculty		
Lauriente, Cynthia E	7/1/2009	Clinical Assistant Professor
Lee, Shoo Kim	7/1/2006	Clinical Associate Professor
Pinzon, Jorge	11/1/2007	Clinical Associate Professor
Green, Gordon J	7/1/2008	Clinical Instructor
Kodeeswaran, Tanuja	7/1/2008	Clinical Instructor
Total C&W	5	
Grand Total	25	

Faculty Mentoring

Dr. Michael Whitfield, Professor, Neonatologist, Mentoring Coordinator

Background

Effective mentoring in the Department of Pediatrics ranks as a very important factor in the career development and professional success of new recruits. Clinical, Academic and research-based PhD faculty can benefit from the mentoring process. The Department of Pediatrics has traditionally had an informal mentoring system where the Department Head and Division Heads mentor the career development of their Divisional members. A number of factors, including the expansion of the medical school, have led to active recruitment of new Clinical, Academic and PhD faculty, at the Children's Hospital campus, and at remote sites including Prince George and Victoria, and other clinical education locations around the Province where we now send medical students and graduate trainees. In 2004, the Faculty of Medicine under Dr. Dorothy Shaw's leadership set up an ad hoc committee to develop a framework for a Faculty-wide mentoring system. Dr. Whitfield, as the Department of Pediatrics Mentorship representative sat on that committee and was involved in the development of the Faculty mentoring program and the contents of the Mentoring website www.med.ubc.ca/mentoring, which outlines the program and provides tools to locate and facilitate mentoring activity. Dr. Whitfield presented a summary of the faculty mentoring program at the departmental meetings in 2005 at the initiation of the program and again in 2006.

Process

Georgia Petropoulos, Communications Coordinator, is notified of new Department of Pediatrics faculty appointments from the Departmental Appointment, Reappointment, Promotion and Tenure Committee (DARPT) Committee. Once the faculty member arrives, Georgia forwards both Departmental and University orientation packages, including information about the Faculty Mentoring Program to the new faculty member. Georgia, together with Dr. Whitfield follow-up with new recruits through inquiring about the progress of their mentorship search and respond to any questions. Dr. Whitfield facilitates approaches by recruits to mentors within and outside of our Department as necessary. Follow-up has been on an individual basis. Academic Faculty members approaching promotion and tenure are offered assistance by Dr. Whitfield who is on the Departmental Appointment, Reappointment, Promotion and Tenure Committee.

Progress

We had confined the activities of the formal mentoring program to Assistant Professors and Clinical Assistant Professors due to a large number of recruits during a period of brisk new faculty appointments. There exists good buy-in of the mentoring program by new Assistant Professor and Clinical Assistant Professor faculty. Senior faculty members within the department have been generous in taking on new faculty in a mentoring relationship. New clinical teaching faculty at Prince George and Victoria have found mentoring relationships locally, primarily with the relevant Associate Dean (Dr. Oscar

Casiro or Dr. David Snadden), and keeping an arm's-length connection with their appropriate Division Head in Vancouver.

Challenges

- Many of our newer clinical teaching faculty are located neither at the Children's Hospital campus nor at Prince George, or Victoria, and they have a somewhat tenuous relationship with the University and the Faculty of Medicine except in relationship to their teaching commitments. Providing adequate mentoring which is relevant to both their work environment and the seemingly remote University presents a significant challenge. This is expected to improve with more sustained and frequent contact with the clinical undergraduate and residency education activities of the department.
- The mentoring needs of Academic PhD Departmental members who are predominantly engaged in research activities are different from the medical academic faculty and require a more individualized approach. We are planning to request a senior PhD faculty member as the mentoring advisor to focus on the needs of this group.
- Because of the large number of faculty recruits we have accommodated in the last 5 years, to date, we have not implemented any of the follow-up evaluation tools provided in the Faculty Mentoring site. Follow-Up has been informal and in person. This appears to work very well, at least for those at the Children's site, and it is not perceived as threatening confidentiality, but by the same token, does not generate data on frequency of contact, or satisfaction with the mentoring process by the participants. We may be able to revisit this within the next two years.

The mentoring program represents a significant time commitment, particularly at a time of rapid recruitment. The excellent logistical support of Georgia Petropoulos has been a key factor in contacting and welcoming new faculty and making the program work.

Awards and Honours

2005 - 2009

Department of Pediatrics Awards and Honours 2005

Name	Sponsoring Agency	Name of Award
Dehghani, Dr. Navid	Children's & Women's Health Centre of BC	Excellence in Education Award
Hall, Dr. Judith G.	Canadian Academy of Health Sciences	Fellowship
Innis, Dr. Sheila	UBC	Killam Research Prize, Senior Category
Klassen, Dr. Anne	CIHR	New Investigator Award
Klassen, Dr. Anne	MSFHR	Career Investigator Award - Scholar
Kollmann, Dr. Tobias	Burroughs Wellcome Fund	Career Award
Loock, Dr. Christine	UBC Medical Alumni Association	Honorary Alumni
MacLeod, Dr. Stuart	Canadian Academy of Health Sciences	Fellowship
MacNab, Dr. Andrew	Royal College of Paediatrics and Child Health of England	Honorary Fellowship
MacNab, Dr. Andrew	Peter Wall Institute for Advanced Studies	Scholar in Residence
Petty, Dr. Ross	American College of Rheumatology	Distinguished Rheumatologist Award
Petty, Dr. Ross	German Pediatric Society	Honorary Corresponding Membership
Petty, Dr. Ross	British Society for Pediatric and Adolescent Rheumatology	Named Symposium
Petty, Dr. Ross	American College of Rheumatology	Master of the ACR
Tingle, Dr. Aubrey	Canadian Academy of Health Sciences	Fellowship
Turvey, Dr. Stuart	Canadian Child Health Clinician Scientist Program	Career Development Award

Department of Pediatrics Awards and Honours 2006

Name	Sponsoring Agency	Name of Award
Antrim, Dr. Anne	BCCH Partners in Care	Family Centred Care Award
Connolly, Dr. Mary	BCCH Partners in Care	Award of Distinction
Devlin, Dr. Angela	Heart & Stroke Foundation of Canada	McDonald Scholar Award
Farrell, Dr. Kevin	BCCH Partners in Care	Award of Distinction
Fraser, Dr. Joan	Canadian Association for Medical Education	Certificate of Merit
Fryer, Dr. Christopher	International Research Promotion Council	Eminent Scientist of the Year Award - North America
Hall, Dr. Judith G.	BC Pediatric Society	Judith G. Hall Award
Hall, Dr. Judith G.	American Journal of Medical Genetics	Festschrift Issue in Honour of Judith Hall
		Greatest British Columbian for Pediatrics and Medical Genetics
Hall, Dr. Judith G.	CBC: British Columbia's Almanac	Peter Wall Distinguished UBC Scholar in Residence
Macnab, Dr. Andrew	UBC	Lifetime Achievement Award
Macnab, Dr. Andrew	British Columbia's Ambulance Service	Scholar in Health Sciences Research
Macnab, Dr. Andrew	Western Society for Clinical Investigation	President
Macnab, Dr. Andrew	Western Society for Pediatric Research, USA	Career Investigator Award - Senior Scholar
Masse, Dr. Louise	MSFHR	Education Award of Excellence with Distinction
Metzger, Dr. Daniel L.	Children's & Women's Health Centre of BC	Dr. Parminder Singh Award
Metzger, Dr. Daniel L.	British Columbia Pediatric Society	Charles H. Best Award
Metzger, Dr. Daniel L.	Canadian Diabetes Association	Career Investigator Award - Scholar
Miller, Dr. Steven	MSFHR	
Sanatani, Dr. Shubhayan	Wyeth Excellence in Teaching Award	Undergraduate Educational Contribution in Pediatrics
	Centre for Understanding and Preventing Infection in Children	
Speert, Dr. David		Research Building Award

Department of Pediatrics Awards and Honours 2007

Name	Sponsoring Agency	Name of Award
Antrim, Dr. Anne	Partners in Care Family Advisory Committee/BCCH and BCCF	Award of Distinction
Armstrong, Dr. Robert W.	SFU Alumni Association	SFU Outstanding Alumni Award for Professional Achievement
Hadad, Dr. Keyvan	Department of Family Practice, Greater Vancouver Program, UBC	2007 Postgraduate Teaching Excellence Award
Hadad, Dr. Keyvan	Department of Family Practice, International Medical Graduate Program, UBC	2007 Postgraduate Teaching Excellence Award
Hosking, Dr. Martin	Partners in Care Family Advisory Committee/BCCH and BCCF	Family Centred Care Award
Hurley, Dr. Morrison	Dept of Pediatrics Residency Program	Golden Rattle Award
Kollmann, Dr. Tobias	Canadian Child Health Clinician-Scientist Program	Career Award
Macnab, Dr. Andrew	Western Society for Pediatric Research, USA	President
Macnab, Dr. Andrew	American Federation for Medical Research	Scholar
Macnab, Dr. Andrew	Western Society for Pediatric Research, USA	Distinguished Service Award
Macnab, Dr. Andrew	Gi'gat First Nation	Award of Excellence
Macnab, Dr. Andrew	Canadian Academy of Health Sciences	Fellowship
Macnab, Dr. Andrew	NW Urological Association, USA	Henry Cooper Research Award (for Outstanding Research)
Metzger, Dr. Daniel	Partners in Care Family Advisory Committee/BCCH and BCCF	Family Centred Care Award Teacher of the Year Award, Presented by the Undergraduate Committee
Paice, Dr. Naomi	Dept of Pediatrics Residency Program	
Panagiotopoulos, Dr. Constadina	Dept of Pediatrics Residency Program	Ivory Tower Award for excellence in resident teaching and research
Phang, Dr. Min	Dept of Pediatrics Residency Program	Hospital-Based Pediatrician Teaching Service Award
Prendiville, Dr. Julie	Partners in Care Family Advisory Committee/BCCH and BCCF	Family Centred Care Award
Rothstein, Dr. Ralph	Faculty of Medicine	Career Award in Clinical Teaching
Scheifele, Dr. David	Canadian Pediatric Society	Alan Ross Award for Outstanding Achievement

Department of Pediatrics Awards and Honours 2007, cont'd

Name	Sponsoring Agency	Name of Award
Schreiber, Dr. Richard	Canadian Pediatric Society	"Reach for the Top" Award for second best abstract at 84th Annual CPS Meeting 2007
Speert, Dr. David	William Sauder	Sauder Professorship
Spenceley, Dr. Neil	Dept of Pediatrics Residency Program	Clinical Fellow Award (shared with Dr. Rod Rassekh)
Stewart, Dr. Laura	Partners in Care Family Advisory Committee/BCCH and BCCF	Award of Distinction
Tan-Dy, Dr. Cherrie	Dept of Pediatrics Residency Program	Community-Based Pediatrician, Teaching Service Award
Ward, Dr. Glen	Dept of Pediatrics Residency Program	Community-Based Pediatrician, Teaching Service Award
Wensley, Dr. David	American Thoracic Society, The Assembly on Pediatrics	Special Recognition for work on developmental and maintenance of "Ped-Lung" listserv - a global forum for children's lung health

Department of Pediatrics Awards and Honours 2008

Dr. Adam Cheng	UBC Faculty of Medicine	UBC Clinical Faculty Award for Excellence in Teaching
Dr. Adam Cheng	BC Children's Hospital	Education Award of Excellence with Distinction
Dr. Quynh Doan	Canadian Pediatric Society	1st Prize Fellow Research Award
Dr. Quynh Doan	Society for Pediatrics Research	Clinical Fellow Research Award
Dr. David Dix	Partners in Care Family Advisory Committee/BCCH and BCCF	Family Centred Care Award - Honourable Mention
Dr. Jennifer Druker	Department of Pediatrics - Pediatrics Residency Program	Golden Rattle Award (Faculty member who has contributed the most to the life experience and well being of residents, both by example and ongoing support of the resident body)
Dr. Walter Duncan	Department of Pediatrics - Pediatrics Residency Program	Teacher of the Year Award
Dr. Shawn George	Department of Pediatrics - Pediatrics Residency Program	Rookie of the Year Award
Dr. Ruth Grunau	Human Early Learning Partnership (UBC)	Senior Scholar Award
Dr. Keyvan Hadad	Department of Family Practice	2008 Postgraduate Teaching Award

Department of Pediatrics Awards and Honours 2008, cont'd

Name	Sponsoring Agency	Name of Award
Dr. Jane Hailey	Partners in Care Family Advisory Committee/BCCH and BCCF	Family Centred Care Award - Honourable Mention
Dr. Judith Hall	Canadian Pediatric Society	Lifetime Membership in Canadian Pediatric Society 2008
Dr. Jean Hlady	BC Representative for Children and Youth	Award of Excellence
Dr. Derek Human	Partners in Care Family Advisory Committee/BCCH and BCCF	Family Centred Care Award
Dr. Sheila Innis	Dieticians of Canada	Volunteer Recognition Program Award
		Transcultural Paediatrics Award [Preis fuer Transkulturelle Paediatric] of the German Society for Social Paediatrics and Adolescent Medicine, Poster Prize of the German Society for Family Medicine
Dr. Osman Ipsiroglu	German Society for Social Paediatrics and Adolescent Medicine; German Society for Family Medicine	
Dr. Frank Jagdis	Department of Pediatrics - Pediatrics Residency Program	Best Community Based Pediatrician of the Year
Dr. Peter Louie	Department of Pediatrics - Pediatrics Residency Program	Best Hospital Based Pediatrician of the Year
Dr. Andrew Macnab	American Urological Association	Outstanding Achievement in Research Innovation
Dr. Andrew Macnab	Canadian Paediatric Society (CPS)	CIHR Research Prize (Faculty Supervisor, resident research)
Dr. Ross Petty	Order of Canada	Order of Canada
Dr. Min Sen Phang	UBC Clinical Faculty Award for Excellence in Teaching	UBC Faculty of Medicine
Dr. Glenn Robertson	Wyeth Pharmaceuticals	Wyeth Excellence in Teaching Award, Undergraduate Education
Dr. David Speert	Department of Pediatrics - Pediatrics Residency Program	Ivory Tower Award
Dr. David Speert	Vancouver/Lower Mainland Chapter of the Canadian Cystic Fibrosis Association	BC Cystic Fibrosis Association Dawn Green Volunteer Award
Dr. Paul Thiessen	Pediatric Chairs of Canada, Pediatric Academic Leadership Award - Clinician Practitioner Award	Pediatric Chairs of Canada
Dr. Glen Ward	BC Pediatrics Society	Judith Hall Service Award
Dr. Stephen Wellington	BC Children's Hospital	Excellence in Education Award with Distinction

Department of Pediatrics Communications
Georgia Petropoulos, Communications Coordinator

The Department of Pediatrics initiated its communications and faculty support strategy in 2005 with the advent of the Weekly Departmental Update, the publication of the Department's semi-annual magazine, "Pediagogue", an annual Recognition, Retirement and Awards Dinner and special biannual alumni events.

The Fall Reception also takes place annually in late September. It is a significant event, providing the Department with the opportunity to welcome new faculty and staff members at the beginning of the academic year.

The Weekly Departmental Update appears on the Department of Pediatrics website: <http://www.pediatrics.med.ubc.ca/Updates>. The Departmental Update is distributed to all hospital and community based pediatricians, fellows, trainees, program management and administrative staff members.

The Weekly Update features topics associated with Department, the Faculty of Medicine, UBC, and the PHSA. Subject areas range from information of general interest, to Hospital and Department notes, announcements, funding and award opportunities, and upcoming events, rounds, presentations and seminars.

The Department's Magazine, *Pediagogue* features research related articles, news, updates, celebratory events, and information about faculty members and their innovations, trainees, alumni and staff. The publication is extremely well received and has been since its inception in 2005. It is one of the Department's key communication vehicles. It is also available on the Department of Pediatrics website: <http://www.pediatrics.med.ubc.ca/Pediagogue>.

The Department of Pediatrics Recognition, Retirement and Awards Dinner was formally initiated in 2004 after the Department's 50th Anniversary Celebration, which was held in May 2003. The event's primary purpose is to recognize hospital and community-based Faculty members, for their long-standing contributions to the Department, the Faculty of Medicine and the Community, both nationally and internationally. During the event, Department of Pediatrics annual awards recipients are also recognized.

The Department also holds two Senior Pediatrician luncheons, which take place in the fall and spring of each year at the Royal Victoria Yacht Club. These luncheons are coordinated through Dr. Dave Smith and Dr. Rob Hill, Professor Emeritus and former Department of Pediatrics Head and Georgia Petropoulos. These events provide an opportunity for alumni to meet and catch up on news and general events.

Clinical Affairs Report

Report from Associate Head, Clinical Affairs

Ralph Rothstein, MD, FAAP, FRCP(C)

In the five years since the last Department of Pediatrics review in 2004, the Department of Pediatrics has made significant progress towards its goal of being a Center of Excellence in healthcare for neonates, infants, children and adolescents not just in British Columbia but also nationally and internationally. Innovative ways to deliver health care in partnership with care providers in the community are underway. Under the leadership of Dr. Robert Peterson, Child Health BC (CHBC) is a collaborative network bringing together partners from the five Health Authorities, the Provincial Health Services Authority (PHSA), the Ministries of Health Services, Children and Family Development, Education, and Healthy Living and Sport, the Department of Pediatrics Faculty of Medicine UBC, and other provincial agencies to optimize the health of children/youth and improve quality and accessibility to pediatric clinical health services province wide. The three primary roles of Child Health BC are to:

- provide leadership by offering direction and shaping the future of clinical child health services in BC,
- work in partnership with other organizations and stakeholders to achieve common goals, and
- advocate for the support of other organizations to achieve the best health care outcomes for children.

Child Health BC builds and strengthens regional capacity through the support of knowledge translation workshops, investment in capital projects and equipment for children and youth facilities in various communities, and other educational activities. Some past and recent CHBC co-branded projects and initiatives include:

- *Opening of new Pediatric Ambulatory Care facility – Nanaimo Regional District Hospital - Vancouver Island (2008-2009).*
- *Opening of new Child Health Centre - Richmond Hospital – Vancouver Coastal (2006-2008).*
- *Opening of Audiology Clinic and expansion of the Northwest Public Health Audiology Program – Prince Rupert, Northern Health (2007-2008).*
- *Establishment of Pediatric Neurology Regional Subspecialty Clinic - Surrey Memorial Hospital, Fraser Health (2006-2007).*
- *Establishment of Telehealth Resource and Interdisciplinary Education Program – Vernon, Interior Health Authority (2008-2009).*
- *Nine Interprofessional Best Practice Knowledge Exchange Workshops – for example, Provincial Pediatric Diabetes, Pediatric Palliative Care, Community Reintegration of Children with Cancer, and others*
- *Development of pediatric standards and guidelines for emergency departments province wide.*

The clinical resources available to the faculty and trainees of the Department of Pediatrics have significantly increased in the last five years concomitant with an increase in utilization

at the Oak Street campus. Appendix A shows an increase of approximately 25% in inpatient admissions and a 14% increase in length of stay over the period 2005 to 2009. ICU shows an increase as well but on a smaller scale and NICU has remained constant. BCCH has opened a new ten-bed Oncology ward, which has greatly improved the Oncology health care team's ability to deliver quality coordinated care. The ten-bed increase (11%) has significantly enhanced BCCH's ability to meet surges in patient care needs and reduced delays and cancellation of scheduled admissions. We note that there continues to be a need for further resources, both at BCCH and provincially to be able to deliver pediatric oncology care within accepted standards of practice. The increase in bed numbers has facilitated the Emergency Department at Children's in meeting its target rate of 80% of inpatient admissions to take place within four hours of the decision to admit.

The University of British Columbia Faculty of Medicine has now graduated its first class under its distributed sites program; the distributed sites have developed new teaching units that include management of child health issues. The expansion of the Pediatric Units at Abbotsford and Surrey has also increased the total inpatient and ambulatory care capacity in the Lower Mainland.

The trend to transition pediatric care to the ambulatory setting and to the community has continued and is reflected in the increasing number of ambulatory visits. Appendix A shows an increase of 18% in outpatient visits over the period 2004 to 2009 and an increase in pediatric procedures of 34 % over the period 2005 to 2009. The Children's Center at Mount Saint Joseph which housed a 16 bed clinical teaching unit closed in 2003. While there is ongoing review by the Vancouver Coastal Health Authority to identify primary and secondary care resources for general pediatric patients, possibly at Lion's Gate and Richmond Hospitals, to date, no new sites have been formally designated. BCCH continues to provide primary and secondary care for patients previously accommodated at Mount Saint Joseph Hospital.

The two pediatric clinical teaching units at BCCH (CTUs) on site each have a sixteen patient capacity so up to one third of all BCCH inpatients at any one time may be CTU patients. A major change in the format of house staff training and patient care delivery has been the introduction of Family Centered Care rounds. Rounds take place at the bedside with the parent, patient and the entire health care team including nursing and clinical pharmacy. The reduction in secondary care pediatric patients on site makes the CTU experience less appropriate for junior trainees; the Family Centered Rounds allow the clinical teaching program to focus on bedside clinical skills as well as the more complex tertiary care issues of the CTU patients. These issues are actively being addressed at both the undergraduate and postgraduate levels. Both the medical school expansion initiatives as well as the Department Alternative Funding Plan (AFP) envision a greater focus on provision of clinical care and training through regional health centers throughout the province. Funding is being provided to develop new training sites, and we continue to develop innovative ways to provide an appropriate clinical experience to all the levels of trainees on the CTU team, particularly in general pediatrics.

Clinical demand for inpatient pediatric beds fluctuates seasonally, with the greatest demand occurring during the winter months. During the 2003 Influenza A epidemic, the lack of staffed inpatient beds resulted in prolonged patient stays in our Emergency Department with some families having to spend two nights in the Emergency Department before an inpatient bed became available. This was the first year that this had happened at BCCH and required increasing support to families in the ER and introduction of quality assurance initiatives to ensure patient safety and continuity of care over the numerous shift changes. In collaboration with the inpatient Clinical Teaching Units, a comanagement model of care for these patients has been developed in which the CTU takes on clinical responsibility for the patient while they are still in the Emergency Department and the Emergency Physician on shift remains involved to comanage acute care issues.

In 2009, we face the possibility of an H1N1 pandemic and are well into readiness planning, building on the lessons learned from previous influenza epidemics. The CTU will play a central role in care delivery to H1N1 inpatients.

Our residency program continues to provide a significant component of clinical care delivery at BCCH and its graduates are practicing in both general and subspecialty pediatrics across the province. There is strong support by the Department and the hospital for clinical innovation and research and commitment to translate new research findings into advanced clinical care. In September 2009, a clinical research clinic has opened in the new CFRI building.

Inpatient modules 3G and 3H have been merged and extensively renovated. There are now 28 single negative pressure rooms on the new ward 3M; four of these rooms, have been specially designed with the help of our infection control department to allow safer management of virulent organisms such as SARS. There are a further 13 negative pressure rooms on 3F and 10 extra patients can be cohorted in these negative pressure rooms. The increased ward space required an improved communication system for nursing and a new call system has been put into place. Both CTU team Senior Residents have been included which has improved access to urgent physician consultation and intervention.

Some Divisions have active Mortality and Morbidity committees in place The CTU has initiated a Morbidity and Mortality review committee with leadership in this committee provided by the Pediatric Residents under the supervision of the CTU Directors. Over the coming year, all Divisions are expected to have such a committee in place.

Please see individual Division and Program reports for details of their clinical activities.

There was initial concern that larger units with a mixed population would prove to be a serious obstacle to maintenance of subspecialty nursing expertise on the wards. With a much larger nursing pool for the new modules, any one nurse's clinical subspecialty experience and opportunity to care for cardiac and neurosciences patients on 3M and 3R decreases because of the dilution factor. The NRT program and an active well supported enhanced training program for unit nurses has led to significant improvements in the last years in maintaining subspecialty expertise.

We are fortunate since our last review to have several new ambulatory clinical resources available that have allowed us to enhance the delivery of care to our patient population. On site at BCCH, there is an outstanding Medical Day Unit which accommodates many patients formerly cared for in the inpatient setting and a Diabetic Day Program which supports patients and families with newly diagnosed diabetes and allows them to become competent to manage their diabetes at home and in the community. The New Ambulatory Care Building which houses many of our clinics has allowed expansion of ambulatory clinic programs in the main hospital building. BCCH received a major donation to renovate the North section of the main building and there is a new Cardiac Care clinic in the vacated shared clinics area. The North Wing renovations have allowed major improvements to the Oncology program to parallel the expanded inpatient program. The Emergency Department has been fully renovated and enlarged and there is a new Technology Dependent Unit with 8 beds which has been placed adjacent to the ICU.

In Neonatology, the SCN and NCN have been combined and the SCN space extensively renovated. Capacity remains a challenge; there has been a commitment to expand the NICU by 50% as part of the Oak street campus renovation. Due to space challenges, Neonatology is highly concerned about the number of patients that continue to have to be transported at great risk and cost out of province for clinical care. Additional NICU beds are being developed in Victoria and Surrey as well and the Division has been dedicating efforts in support of further building a provincial program of Neonatology in partnership with the other health authorities.

Capacity in PICU has been a major challenge in the last three years. Several IMPROVE projects have been undertaken to increase efficiency and enhance patient access to the PICU. BCCH is committed to IMPROVE projects as an ongoing continuous quality improvement initiative to ensure the best care possible to all patients with efficient resource utilization. Given the limitations to PICU access, there are several proposals underway to develop a critical monitoring unit on the third floor to provide a transition care level resource as an intermediary between critical care and standard inpatient care. The unit would be staffed with a full time attending physicians and dedicated nursing with further critical care training to monitor potentially unstable, non-ventilated patients.

Youth, particularly until the age of nineteen, are a pediatric mandate. Most of our pediatric subspecialty clinics transition patients to the adult medical subspecialties by the age of nineteen. There remain a small number of patients who require on-site care after the age of nineteen, who are accommodated through an overage approval process. Because of resource limitations, overage approval for Emergency, Anesthesia/Surgery, PICU, and Inpatient modules utilization is required after an adolescent's 17th birthday. Currently, we have up to one hundred such "overage" patients receiving ED/PICU/Anesthesia/Inpatient care yearly. In planning for the new Children's Hospital, we have identified the gaps in care for adolescents aged seventeen and eighteen that need to be included in projecting utilization for the new hospital. We are excited by the recruitment of Dr. Curren Warf as Head, Division of Adolescent Health and the expansion of youth services on site and into the community. The Division is actively participating in the transitioning of our pediatric subspecialty youth

patients to the adult subspecialty services to provide support to patients, families, and health care providers to ensure full communication and continuity of care.

BCCH is fortunate to have outstanding diagnostic services with outstanding faculty in Pediatric Pathology and Pediatric Radiology that are an essential part of BCCH's daily ability to function as a tertiary care teaching hospital. The Labs on site are part of PHSA Labs; C&W Hospitals provide acute care and their needs are somewhat different than some of the other PHSA institutions. Several concerns about the relationship between PHSA Labs and C&W Labs were raised in the recent review of the Department of Pathology with recommendations to improve the current situation. The recent Lower Mainland Regional Health Authorities initiative to amalgamate services across Lower Mainland Hospitals, raises concerns for the future of BCCH retaining the full complement of Pediatric Pathology faculty and resources on site that are so essential to the hospital remaining a Child Health Center of Excellence. The BCCH Pathology Department is in the process of recruiting a new Head.

Challenges to the Radiology program were also noted in that Department's recent review. To date, it has not been possible to recruit a new Head for the Department and there are ongoing efforts by C&W to address the concerns identified. There is an interventional radiology suite across from the ICU and we have both new CT and MRI machines. We have expanded our Ultrasound capacity, but there remains great demand to be addressed especially for sedation supported procedures. The PICC service which relies on interventional radiology is at times overwhelmed by the number of requests and patients may have their care compromised by lack of appropriate vascular access. This has been recognized by PHSA and a funding grant this year from PHSA to develop a Nutrition program includes funding to enhance the PICC program. There has been a major commitment to a pediatric imaging center at CFRI with funding for a new higher 3T MRI to enhance research.

My last report noted concerns about ambiguities in our administrative structure and these are currently being addressed. A new streamlined administrative structure has been established for BCCH. The Quality Assurance programs are being restructured with the expectation that each program and division within BCCH will be evaluating the quality and safety of their practice and will develop indicators to monitor treatment outcomes and patient safety. There has been an increased focus on follow up of critical incident review recommendations with quarterly reporting to the Medical Advisory Committee (MAC) on implementation of recommendations. The MAC has been reorganized as have the Quality of Care committees to make them more effective. The Child Health Committee reviews all critical incidents and monitors their implementation. The committee reviews all new clinical policies, monitors utilization initiatives, and advises the BCCH administration and, via the MAC, the PHSA board on the quality of care at BCCH and gaps in care that need to be addressed.

A gap identified by the Child Health Quality of Care Committee is that unlike many other tertiary Pediatric Centers, BCCH does not have a Hospitalist program. The Committee has identified the need for enhanced in house attending physician numbers to safely support the increasingly complex tertiary care patients on our inpatient units. General Pediatrics and Subspecialty attendings provide On Call services from off site. The CTU residents and PICU staff provide emergency coverage to all patients, till an off site attending can come to

hospital to manage their urgent patient care issues. Critical incident reviews have recommended that BCCH develop a Pediatric Hospitalist program so that all inpatients will have in house attending physician coverage.

The BCCH building is aging and a new hospital will hopefully be in place by 2015.

The PHSA has committed funding for an electronic health record system, which should greatly improve patient care quality across the province and increase our ability to access clinical information for QA and research purposes. My last report suggested 10 areas for focus over these last five years; progress has been made in each area and there are plans for further improvement.

The ten priorities were:

- 1) Strategic Planning for Pediatric Care
- 2) Improve Ambulatory and Inpatient resources on site and across the Province
- 3) New faculty recruitment
- 4) Improved infrastructure support
- 5) Quality Assurance
- 6) Clinical Pathways and Guidelines
- 7) Provincial partnerships and outreach
- 8) Improved support for pediatricians in the community
- 9) Improved resources for out of town patients
- 10) Revision of the Program structure at BCCH

For the upcoming five years, I anticipate additional clinical priorities for the Department will be:

- 1) Building on our strengths as a Provincial Center to Become a National and International Center of Excellence
- 2) Building a State of the Art Pediatric Hospital
- 3) Enhancing Quality Assurance activities in all our programs
- 4) Integrating our various sites to truly become a Provincial Department of Pediatrics
- 5) Developing a Hospitalist Program

The Department of Pediatrics' ability to provide excellence in clinical care has improved during the last five years and the strategic plan of the Department and the Hospital focus on developing the Department and BCCH as a Provincial, National and International Center of Excellence. Despite many challenges, the Department has been able to flourish and overcome many obstacles, to continuously improve in our delivery of clinical care. Within the new AFP, the department and its divisions have all committed themselves to new deliverables in child health initiatives and furtherance of our outreach activities. We greatly appreciate the leadership of the Department Head, Dr. Armstrong, in moving the Department forward and the support we have received from UBC, BCCH, and the PHSA in helping us achieve our goals. We look forward to the next five years with confidence in our leadership and the increasing supports planned to allow us to continue to continually improve on our initiatives in child health, research and medical education.

BCCH Inpatient Admissions by Dept. of Pediatric M.R. Doctor Services
Period: Admit Fiscal Year 2004/05 to 2008/09

Note: Includes admissions with or without an ICU stay

Most Responsible Doctor Service	2004/2005		2005/2006		2006/2007		2007/2008		2008/2009	
	Admits	LOS Days								
GENERAL PAEDIATRICIAN	1,384	8,047	1,433	8,309	1,714	8,490	1,733	8,872	1,680	8,151
CLINICAL IMMUNOLOGY & ALLERGY					2	60	3	85	1	9
CARDIOLOGY	172	1,704	180	1,921	188	1,528	201	1,884	241	2,145
DERMATOLOGY			1	3			1	4	3	9
ENDOCRINOLOGY & METABOLISM	41	147	43	174	56	134	52	142	49	142
GASTRO-ENTEROLOGY	144	1,340	157	1,092	162	1,183	188	1,637	141	1,403
NEPHROLOGY	120	1,461	103	985	108	847	157	1,225	98	616
NEUROLOGY	259	1,433	303	1,787	373	1,843	375	1,922	373	1,796
RHEUMATOLOGY	12	68	11	172	24	204	14	211	15	97
HAEMATOLOGY	178	1,360	206	1,599	226	1,685	222	1,982	204	1,495
ONCOLOGY	467	3,311	514	4,319	681	5,013	625	5,616	658	5,694
NEONATAL-PERINATAL MEDICINE							4	22		
Fiscal Year Totals:	2,777	18,871	2,951	20,361	3,534	20,987	3,575	23,602	3,463	21,557

Sunny Hill Inpatient Admissions by Dept. of Pediatric M.R. Doctor Services

Most Responsible Doctor Service	2004/2005		2005/2006		2006/2007		2007/2008		2008/2009	
	Admits	LOS Days								
GENERAL PAEDIATRICIAN	123	1,522	116	1,388	164	1,931	236	4,917	211	3,117
PHYSICAL MED & REHAB	51	2,643	39	2,071	33	789	2	43	0	0
Fiscal Year Totals:	174	4,165	155	3,459	197	2,720	238	4,960	211	3,117

BCCH Inpatient Admissions w Any ICU Stay (Any M.R. Doctor Service)

Period: Admit Fiscal Year 2004/05 to 2008/09

Note: Total Admissions w ICU Stay reflects hospital admissions, not the total number of visits into ICU unit during hospitalization. One hospital admission can have > 1 ICU stay.

	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
Total Admissions w ICU Stay	1,170	1,036	1,186	1,043	874
% ICU Admissions of All Hosp Admissions	20.9%	18.1%	18.4%	16.5%	13.8%
Total Hospital Admissions	5,589	5,729	6,463	6,313	6,311
Total ICU Days	5,215	5,720	5,230	5,478	4,716
% ICU Days of Hospital LOS Days	13.0%	14.2%	12.4%	12.2%	11.1%
Total Hospital LOS Days	40,030	40,402	42,123	45,060	42,508

Data Source: Discharge Abstract Database (DAD)

Prepared by: Carla Kreklau

NICU Admissions + Transfers In & Total Special Care Unit Days 2004/05 - 2008/09

Data	2004/05	2005/06	2006/07	2007/08	2008/09
Admissions / Transfers In	1,219	1,177	1,164	1,148	1,208
Total SCU Days	17,846	17,810	17,095	17,876	17,614

Data Source: Discharge Abstract Database (DAD)

Prepared by: Scott Macrae

BCCH Surgical Daycare Procedure Episodes - Primary Procedure Performed by Dept of Pediatric Specialty

Period: Admit Fiscal Year 2004/05 to 2008/09

SPECIALTY	ProcedureDescription	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
CARDIOLOGY	BIOPSY-MYOCARDIAL	11	14	3	6	8
	CARDIOVERSION	1	2			
	CATHETERIZATION-CARDIAC-BILATERAL	100	78	37	33	85
	CHALLENGE-ADRENALINE			1		
	CT SCAN					1
	MRI-HEAD		1			2
	MRI-SPINE				2	
	REPAIR-DEFECT-ATRIAL SEPTAL-SECUNDUM	1				
REPAIR-PATENT DUCTUS ARTERIOSUS	1	1				
TEE	5	7	2	2	3	
CARDIOLOGY Total		119	103	43	43	99

BCCH Surgical Daycare Procedure Episodes - Primary Procedure Performed by Dept of Pediatric Specialty

SPECIALTY	ProcedureDescription	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
DERMATOLOGY	THERAPY-DYE-LASER	117	131	128	124	106
DERMATOLOGY Total		117	131	128	124	106
GASTROENTEROLOGY	BIOPSY-RECTAL SUCTION		1			
	CHANGE-TUBE-GASTROSTOMY		1			
	COLONOSCOPY-WITH BIOPSY (1K6)	9	12	10	11	16
	COLONOSCOPY-WITH BIOPSY (OR)	10	7	9	5	7
	COLONOSCOPY-WITH POLYPECTOMY (1K6)	6	13	10	11	12
	ENDOSCOPY	1	1	2		1
	ENDOSCOPY & COLONOSCOPY WITH BIOPSIES (OR)	68	94	66	80	89
	ENDOSCOPY-WITH BIOPSY-UPPER GI (1K6)	48	46	66	81	177
	ENDOSCOPY-WITH BIOPSY-UPPER GI (OR)	122	96	85	103	135
	ENDOSCOPY-WITH CHANGE OF GASTROSTOMY TUBE (OR)	2				
	ENDOSCOPY-WITH ESOPHAGEAL DILATATION (1K6)			1	2	6
	ENDOSCOPY-WITH ESOPHAGEAL DILATATION (OR)	1	2	4	1	2
	ENDOSCOPY-WITH FOREIGN BODY REMOVAL (OR)	4	5	4	4	3
	ENDOSCOPY-WITH PYLORIC DILATATION (1K6)		1	2		
	ENDOSCOPY-WITH PYLORIC DILATATION (OR)	3	1	7	3	1
	ENDOSCOPY-WITH SCLEROTHERAPY (OR)	1	9	4	5	9
	ESOPHAGOSCOPY		1			
	ESOPHAGOSCOPY-REMOVAL-FOREIGN BODY	1				
	GASTROSCOPY		1			
	LUMBAR PUNCTURE		1			
PROCTOSCOPY				1		
RESTORATIONS & EXTRACTIONS	1					
SIGMOIDOSCOPY-WITH BIOPSIES			2			
GASTROENTEROLOGY Total		277	294	271	306	458

BCCH Surgical Daycare Procedure Episodes - Primary Procedure Performed by Dept of Pediatric Specialty

SPECIALTY	ProcedureDescription	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
NEUROLOGY	LUMBAR PUNCTURE			2		5
NEUROLOGY Total				2		5
ONCOLOGY	BIOPSY-BONE MARROW	1	2	3		1
	BIOPSY-BONE MARROW-WITH LUMBAR PUNCTURE			7	6	8
	CT SCAN	1				
	HARVEST-BONE MARROW	6	5	2	2	3
	INSERTION-DEVICE-VENOUS ACCESS		1			
	LUMBAR PUNCTURE	21	20	38	46	47
	MRI-HEAD		2			
REMOVAL-LINE-CENTRAL VENOUS					1	
ONCOLOGY Total		29	30	50	54	60
PAEDIATRICS	BRONCHOSCOPY-FLEXIBLE			1		1
	REPAIR-LACERATION	1				
PAEDIATRICS Total		1		1		1
Fiscal Year Total:		543	558	495	527	729

Data Source: ORSOS (surgical suite) database

Prepared by: Carla Kreklau

BCCH Emergency Department Visits			
Fiscal Year	ED Visits	ERO	Grand Total
2004/2005	38,382	707	39,089
2005/2006	38,634	566	39,200
2006/2007	37,351	561	37,912
2007/2008	40,176	526	40,702
2008/2009	40,618	145	40,763

Data Source: BCCH_ER

Database

Prepared by: Karen Barker

Outpatient visits to Medical Clinics for FY03/04 to FY 08/09

Outpatient visits to Medical clinics for FY03/04 to FY 08/09							
Division	Clinic	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Adolescent Medicine	YOUTH HEALTH CLINIC	366	337	315	298	207	117
Adolescent Medicine Total		366	337	315	298	207	117
Allergy	ALLERGY CLINIC	1472	1224	1155	1153	1121	1707
Allergy Total		1472	1224	1155	1153	1121	1707
Biochemical Diseases	BIOCHEMICAL DISEASES CL SERVICE	458	399	410	627	820	817
	CYSTIC FIBROSIS CLINIC	471	427	496	511	559	535
	CYSTIC FIBROSIS OUTREACH						22
Biochemical Diseases Total		929	826	906	1138	1379	1374
Cardiology	CARDIOLOGY CLINIC	4212	4151	4134	4229	4313	4425
	CARDIOLOGY OUTREACH	586	557	655	783	789	849
Cardiology Total		4798	4708	4789	5012	5102	5274
Critical Care	HOME TRACHEOSTOMY/VENTILATION CLINIC	85	68	87	96	123	152
Critical Care Total		85	68	87	96	123	152
Dermatology	DERMATOLOGY CLINIC	4354	4915	4676	4597	4956	5148
Dermatology Total		4354	4915	4676	4597	4956	5148
Developmental Paediatrics	AUTISM CLINIC BCCH	41					
	COMPLEX PAIN CONSULTATION SERVICES	47	58	72	68	46	87
	MADISON CLINIC			10	25	16	33
	SHHC AUDIO AT C&W	76	61	61	52	31	8
	SHHC ENT AT C&W	120	51	29	30	26	
	SHHC VISION AT C&W	160	138	144	149	160	170
	VISUALLY IMPAIRED CLINIC		3	1	1	10	
Developmental Paediatrics Total		444	311	317	325	289	298
Endocrinology	DIABETES CLINIC	1598	1586	1609	1493	1569	1558
	DIABETES DAYCARE - MDU						209
	DIABETES/ENDOCRINE OUTREACH	14	13	6	8	12	31
	ENDOCRINE CLINIC	3219	3183	3292	3461	3922	3952
	METABOLIC INVESTIGATION FACILITY	644	516	623	573	500	551
Endocrinology Total		5475	5298	5530	5535	6003	6301
Gastroenterology	ENDOSCOPY CLINIC	64	77	78	52	47	508
	GASTROENTEROLOGY CLINIC	2210	2304	2639	2670	2723	2910
	GASTROENTEROLOGY OUTREACH				10	8	
Gastroenterology Total		2274	2381	2717	2732	2778	3418
General Paediatrics	AMBULATORY CARE ROTATION CLINIC	91	92	73	88	58	87
	BLADDER CARE CLINIC				9	42	105
	CHILD AND FAMILY CLINIC	537	634	621	615	637	603
	CHILD AND YOUTH PRIMARY CARE CLINIC						1
	CHILDREN'S TELEHEALTH		2		2		1
	GENERAL PEDIATRIC CLINIC	3220	2985	3159	2839	2912	2792

Outpatient visits to Medical Clinics for FY03/04 to FY 08/09, cont'd

	LOSS SUPPORT PROGRAM	33	1				
	MEDICAL DAY UNIT	2553	3052	3457	3298	3150	2810
	PEDIATRIC COMPLEX CARE CLINIC				4	10	16
General Paediatrics Total		6434	6786	7310	6855	6809	6415
Hematology/Oncology	BONE MARROW PROCEDURES CLINIC	338	262	333	321	401	223
	COAGULATION TESTING	69	105	96	136	128	37
	HEMATOLOGY CLINIC	1508	1451	1602	1648	1555	1792
	HEMATOLOGY CONSULTATION CLINIC					67	132
	HEMOPHILIA CLINIC		145	250	338	298	375
	HEMOPHILIA OUTREACH						6
	ONCOLOGY LONG TERM FIU CLINIC			1			896
	ONCOLOGY/HEMATOLOGY/BMT CLINIC	5493	5353	5339	6353	6670	6692
	SPECIALIZED HEMATOLOGY TESTING	23	25	15		1	
Hematology/Oncology Total		7431	7341	7636	8794	9120	10153
Immunology & Infectious Diseases	IMMUNOLOGY CLINIC	42	40	52	54	43	55
	INFECTIOUS DISEASE CLINIC	98	118	98	111	122	101
	OAK TREE CLINIC - PEDIATRICS	378	389	351	380	353	321
Immunology & Infectious Diseases Total		518	547	501	545	518	477
Multi-Organ Transplant	MULTI-ORGAN TRANSPLANT CLINIC						312
Multi-Organ Transplant Total							312
Nephrology	RENAL CLINIC	1845	1910	1865	1867	1997	1776
	RENAL DIALYSIS CLINIC	837	595	830	803	853	131
	RENAL OUTREACH						38
Nephrology Total		2682	2505	2715	2670	2650	1945
Neurology	EE/EMG CLINIC	2273	2293	2368	2525	2278	2560
	NEUROLOGY CLINIC	3911	3819	3916	4230	4154	4619
	NEUROLOGY OUTREACH	129	181	162	151	194	396
	NEUROMUSCULAR CLINIC	150	158	152	152	158	156
	SPINAL CORD CLINIC	410	419	415	385	372	374
Neurology Total		6873	6870	7013	7443	7156	8105
Respiratory Medicine	ASTHMA EDUCATION CLINIC	76	414	552	463	443	409
	PULMONARY FUNCTION LAB	1399	1225	1382	1500	1646	1925
	RESPIRATORY CLINIC/PF LAB	1388	1235	1222	1622	1655	1733
Respiratory Medicine Total		2863	2874	3156	3585	3744	4067
Rheumatology	ARTHRITIS CLINIC	871	879	881	920	871	1049
	RHEUMATOLOGY CLINIC	688	735	894	1013	919	1045
	RHEUMATOLOGY/ARTHRITIS OUTREACH						65
Rheumatology Total		1559	1614	1775	1933	1790	2159
Grand Total		48,557	48,585	50,598	52,711	53,745	57,422
Data Source: Outpatient_all table (Affinity/Encompass and Cerner data)		Date: Sep. 09, 2009		Prepared by: Donis Huang			

Sunny Hill Visits by Health Authority and Pt Type						
Data Available to Period 5 of 2009/2010 (Aug. 20, 2009)						
Health Authority	Pt Type	Fiscal Year				
		2005/2006	2006/2007	2007/2008	2008/2009	2009/2010
Fraser	Ambulatory	1699	1443	1535	2011	666
	Inpatient	65	93	122	111	31
	Intake	951	798	1198	1068	325
	Outreach	404	399	485	627	204
	Unknown	274	222	222	71	
Interior	Ambulatory	224	175	226	238	83
	Inpatient	28	28	24	31	7
	Intake	213	165	202	247	68
	Outreach	343	288	226	313	140
	Unknown	39	34	51	10	
Northern	Ambulatory	132	144	100	159	84
	Inpatient	14	10	11	11	3
	Intake	171	162	180	225	83
	Outreach	255	246	238	226	104
	Unknown	25	24	21	5	
Vancouver Coastal	Ambulatory	88	66	83	107	60
	Inpatient	7	4	7	3	1
	Intake	94	56	74	100	37
	Outreach	46	26	33	35	6
	Unknown	16	9	15	4	
Vancouver Island	Ambulatory	1513	1777	1869	1987	927
	Inpatient	26	50	63	49	25
	Intake	690	761	1083	1085	365
	Outreach	226	219	259	254	76
	Unknown	149	120	209	59	
Unknown	Ambulatory	257	191	149	159	91
	Inpatient	16	12	12	16	3
	Intake	249	185	140	131	42
	Outreach	122	124	76	63	21
	Unknown	50	34	20	8	
Grand Total		8386	7865	8933	9413	3452
Unknown Pt Type indicates patient admitted under an non-Sunny Hill service code - typically a Children's Hospital patient transferred to Sunny Hill						
Unknown indicates Health Authority could not be determined from patient's postal code						
Datasource: Affinity ADT						

Benchmark: BCCH Inpatient Top 20 Typical Medical M.R. Doctor Service CMGs by Descending Case Volume (All Ages) for CY 2008

CMG	CMG Description	BCCH			Alberta	CHEO	CHWO	IWK	SickKids	Stollery	BCCH Rank by ALOS
		BCCH M.R. Doctor Service	Cases	ALOS	ALOS	ALOS	ALOS	ALOS	ALOS	ALOS	
638	Chemo/Radio Session Neoplasm	Oncology	322	3.5	4.1	3.4	3.9	4.8	4.4	3.6	2
141	Upper/Lower Respiratory Infection	Gen Peds/Critical Care	226	2.9	3.7	4.0	3.7	2.7	3.5	3.7	2
040	Seizure Disorder	Neurology/Gen Peds	150	2.4	2.5	2.4	2.7	2.7	2.6	2.3	2
138	Viral/Unspecified Pneumonia	Gen Peds/Other Services	104	3.4	3.2	3.5	3.2	3.3	4.0	4.4	3
147	Asthma	Gen Peds	104	2.0	1.9	2.5	1.8	1.5	2.2	2.1	4
633	Agranulocytosis	Hematology/Other Services	79	5.7	5.9	5.1	5.7	5.0	5.1	5.4	4
432	Cystic Fibrosis	Gen Peds	75	12.7	14.5	13.2	12.8	12.0	12.6	14.9	4
095	Sleep Apnea*	Critical Care	73	1.1	1.0	2.0	1.0	1.0	1.8	2.3	2
249	Enteritis	Gen Peds/Other Services	58	2.6	2.4	2.4	2.2	2.5	3.4	2.8	4
487	Lower Urinary Tract Infection	Gen Peds/Other Services	54	3.8	3.8	4.3	4.0	2.9	3.4	3.9	3
257	Symptom/Sign Digestive System	Gen Peds/Onc/Other	51	3.1	2.3	2.5	3.4	2.8	2.9	2.7	6
097	Influenza/Acute Upper Resp Infection	Gen Peds/Onc/Other	49	2.5	2.7	3.0	2.6	2.1	2.5	2.6	2
361	Systemic Connective Tissue Disorder	Gen Peds/Rheumatology	46	3.8	3.1	5.2	2.9	3.9	3.5	4.3	4
178	Percut Translum Card Interv excl PCI	Cardiology	44	1.0		1.0		1.2	1.1	1.1	1
407	Other Dis/Disord Skin/Subcut Tissue**	Gen Peds/Oncology	43	3.6	3.3	3.5	4.1	3.6	4.3	4.2	3
437	Diabetes	Endocrinology/Gen Peds	39	2.2	2.1	2.8	1.4	2.2	2.4	1.6	4
662	Fever***	Hemat/Onc/Gen Peds	34	3.0	2.8	3.3	3.0	2.7	2.8	2.4	4
435	Disorder of Metabolism****	Gen Peds	31	4.1	5.0	2.6	4.3	4.0	2.8	2.0	5
253	Inflammatory Bowel Disease	Gastroenterology	30	6.4	6.7	6.0	4.9	5.4	6.6	7.5	4
433	Disorder related to Nutrition	Gen Peds/Other Services	30	6.7	7.0	9.0	5.8	8.5	5.1	6.3	4
625	Acute Leukemia except Myeloid	Oncology	28	9.5	8.3	13.3	13.4	13.2	11.8	12.4	2
041	Migraine/Other Headache	Neurology/Gen Peds	28	2.6	2.9	3.4	3.0	2.5	2.4	2.2	4

Data Source: BCCH discharges abstract database (DAD), benchmark data from CIHI portal - discharges

*CMG 095 - Sleep Apnea: 73% of these cases were admitted for sleep study in the medical day unit. Majority of the remaining cases were ICU patients on ventilation.

**CMG 407 - Other Disease/Disorder Skin/Subcutaneous Tissue: This CMG encompasses many different conditions incl. impetigo, herpes zoster, erythema multiforme, scabies, dermatitis, etc.

***CMG 662 - Fever: These are cases with M.R. diagnosis of fever with other underlying conditions such as neoplasm/leukemia, blood disorder, immune disorder, metabolic disorder, non infective gastroenteritis, etc.

****CMG 435 - Disorder of Metabolism: Majority of these cases are amino-acid & carbohydrate disorders

Review of BCCH High Ranked CMGs:

BCCH ALOS Ranking 5 to 7:

- CMG 257 Symptom/Signs of Digestive System: Comparison ALOS ranges from 2.5 to 4.2 days with BCCH ALOS = 3.4 days. Out of 25 BCCH cases, ~67% have a M.R. diagnosis of abdominal pain or vomiting/nausea. BCCH LOS ranges between 1-7 days with two longer stays at 13 & 17 days. 40% of BCCH cases exceed our median LOS = 3.0 days. There were no cases with an ICU stay. Peer comparison reported Toronto SickKids having a much higher case volume than BCCH, i.e. 128 cases, and lower ALOS = 3.0 days. Alberta Children's & CHEO have comparable case volumes and a similar LOS range to BCCH but lower ALOS = 2.7 & 2.5 days respectively. CHWO, IWK & Stollery have lower case volumes and are therefore not really comparable.

- CMG 435 - Disorder of Metabolism: Comparison ALOS ranges from 2.0 to 5.0 days with BCCH ALOS = 4.1 days. BCCH had 31 discharges with LOS ranging from 1 - 11 days with median LOS = 3.0 days. Majority had a M.R. diagnosis of amino acid disorder. 81% of BCCH cases fell within 1 - 5 days LOS. Most discharges with an LOS > 5 days were patients admitted with pre-admit comorbidities or developed post admit-comorbidities during hospitalization. Peer comparison: The only peer facility with comparable case volume was Toronto Sickkids with 34 discharges & ALOS = 2.8 days. 91% of Sickkids cases had an LOS between 1 - 4 days. All other peer facilities had low case volumes ranging from 2 - 14 discharges.



***Report from Director, Child Health BC
Dr. Robert Peterson, Director, Child Health, BC and Clinical Professor,
Department of Pediatrics***

Child Health BC, an initiative of the BC Children’s Hospital, is a network of health authorities and healthcare providers dedicated to excellence in the care of infants, children, and youth in British Columbia. BC Children’s Hospital is an agency of the Provincial Health Services Authority.

Faculty and Staff

Dr. Robert Peterson MD, PHD, MPH
 Director, Child Health BC, Clinical Professor, UBC Dept. of Pediatrics
 Mary Lou Matthews, BEd, BSc, MSc, Manager
 Garnett Bucknor BA, Med, and Elizabeth Fitzgerald BA, MA, Administrative Assistants

Overview

The effective delivery of healthcare services to children/youth in British Columbia requires an integrated and collaborative approach that allows families to access high quality clinical health care from any community across the province. The realities of BC’s geography and population distribution make it challenging to develop and implement health care services that support equitable regional access for many of the province’s children/youth.

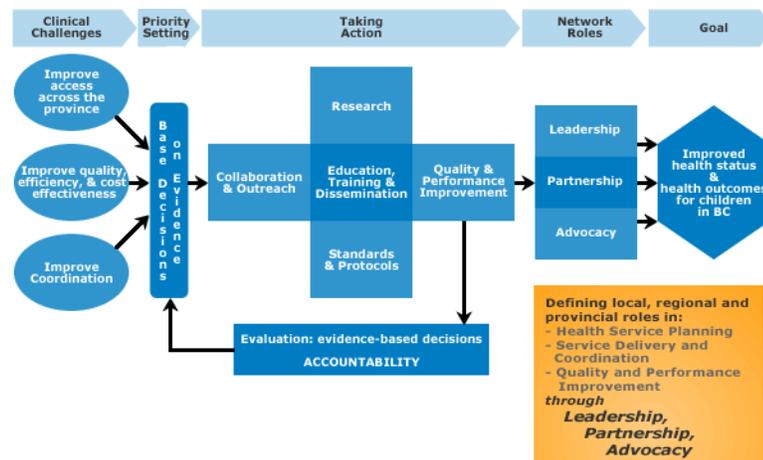
In light of these challenges, Child Health BC (CHBC) was established as a collaborative network to bring together partners from the five Health Authorities, the Provincial Health Services Authority (PHSA), the Ministries of Health Services, Children and Family Development, Education, and Healthy Living and Sport, the Department of Pediatrics Faculty of Medicine UBC, and other provincial agencies to optimize the health of children/youth and improve quality and accessibility to pediatric clinical health services province wide. The three primary roles of Child Health BC are to:

- provide leadership by offering direction and shaping the future of clinical child health services in BC,
- work in partnership with other organizations and stakeholders to achieve common goals, and
- advocate for the support of other organizations in order to achieve the best health care outcomes for children.

To promote collaboration across facilities and ensure access to required services, any child receiving health services in the province is considered a stakeholder of Child Health BC.

Founded as the Child Health Network Project in 1997 and later expanded into the Provincial Child Health Services Network (2000-2005), the focus on a unified approach to address challenges associated with building an integrated and accessible system of health care for children and youth has been the organization's key goal. The network became Child Health BC in 2006 and receives strategic direction from its steering committee, which has been meeting since 2003. The steering committee is comprised of child health service program directors and medical directors from each health authority, as well as representatives of four ministries and other provincial bodies. These individuals bring their understanding of health care challenges in regional communities as well as their unique perspectives on regional needs and priorities to the table.

CHBC Framework



Within an established framework, Child Health BC identifies and establishes strategies and actions that enable the network to deal with current issues requiring a consolidated approach such as: the opening of ambulatory care facilities, competition for human resources and trained personnel, geographic and transportation issues, transitioning services for youth with longitudinal illnesses and operational information systems that capture child and youth health outcomes and service data. The Network builds and strengthens regional capacity through the support of knowledge translation workshops, investment in capital projects and equipment for children and youth facilities in various communities, and other educational activities. Some past and recent CHBC co-branded projects and initiatives include:

- *Opening of new Pediatric Ambulatory Care facility – Nanaimo Regional District Hospital - Vancouver Island (2008-2009).*
- *Opening of new Child Health Centre - Richmond Hospital – Vancouver Coastal (2006-2008).*
- *Opening of Audiology Clinic and expansion of the Northwest Public Health Audiology Program – Prince Rupert, Northern Health (2007-2008).*
- *Establishment of Pediatric Neurology Regional Subspecialty Clinic - Surrey Memorial Hospital, Fraser Health (2006-2007).*

-
- *Establishment of Telehealth Resource and Interdisciplinary Education Program – Vernon, Interior Health Authority (2008-2009).*
 - *Nine Interprofessional Best Practice Knowledge Exchange Workshops – for example, Provincial Pediatric Diabetes, Pediatric Palliative Care, Community Reintegration of Children with Cancer, and others.*
 - *Development of pediatric standards and guidelines for emergency departments province wide.*

Additional information on these and other initiatives are available on Child Health BC's website at <http://www.childhealthbc.ca>

To carry out its work, Child Health BC receives funding from two primary sources: (a) an annual budget from the Provincial Health Services Authority, and (b) donor funding raised by the BC Children Hospital Foundation. In 2007, the Overwaitea Food Group became Child Health BC's lead benefactor with a pledge of \$20 million.

CHBC will continue to broaden the scope of its initiatives across the province in collaboration with the UBC Department of Pediatrics and all its partners to build capacity and develop resources that will open doors to child and youth health services and ensure a healthy future for all children in the province.

Education Report

Report from Association Head, Education

Joan Fraser, MBChB, FRCP(C)

The UBC Undergraduate Medical curriculum is a four-year program distributed throughout the province at three main sites: Vancouver Fraser Medical Program (VFMP), Island Medical Program (IMP) and Northern Medical Program (NMP). The current curriculum, implemented in 1997, is problem-based, integrated and student centered for the first two years of training, relying heavily on tutorials and other small group techniques. The basic sciences are taught in a clinical context and students have patient contact early in their first year through courses in Clinical Skills and Family Practice. Students also focus on the interrelationship between doctors, patients and society in a longitudinal course, *Doctor, Patient and Society*. Years 3 and 4 constitute the clinical clerkship programs. These programs are also widely distributed throughout the province, in community hospitals as well as at the home site, BC Children's Hospital. Students and faculty are involved in ongoing evaluations of the programs to ensure that high standards of curriculum-delivery are observed and maintained throughout the Programs.

The UBC Pediatric Residency program offers community rotations via a distributed teaching model during each of the four years of training. Special funding has been received to provide residents having an interest in rural pediatrics with the opportunity to design their own elective experiences in smaller centres within the province of British Columbia. The fourth year can be customized to the resident's academic interests and objectives. Half of our residents select subspecialty training during their third or fourth year. The remaining residents structure a final year of training based on their career goals. This educational plan is formulated in conjunction with the Program Director. Funding exists for an optional fifth year of general pediatrics training which residents have used to complete a master degree or pursue an area of special interest.

Expansion: Since the beginning of the UBC medical school expansion, UBC Medical School has, courtesy of the BC provincial government, undertaken an ambitious increase in trainee enrollment across all sites. UBC Pediatrics has demonstrated leadership in that the Assistant Dean of the IMP is a pediatrician/neonatologist, recruited from Manitoba. The first cohort of the expanded class was admitted in September 2004 and has now graduated our program.

During the 2008 -09 academic year, 389 medical students were enrolled in our program, including 55 out-of province and/or international students. The table below provides the breakdown between years and locations.

Year	Total Students (all sites)	VFMP only Total	IMP only Total	NMP only Total	Other only Total
Year 3	278	223	25	24	6 Chilliwack
Year 4	111	51	3	2	55 Out of Province
TOTAL	389	274	28	26	61

All eighteen divisions and sub-specialties participate and make valuable contributions to the Pediatric Undergraduate Program.

Pediatrics holds a major leadership role in expansion: Dr Joan Fraser, as VFMP site Director, Clerkship Programs, has overall responsibility for the development of the UBC clerkships across the province.

Currently, the Pediatric residency program is distributed in Victoria and Kamloops. As well, residents visit community and hospital sites within the Vancouver Fraser Medical Program (VFMP). During the 2008-09 academic year, we had 47 residents in our program.

Academic Space Issues: New site development is expected for the Department of Pediatrics. Please see the Academic Space section in this report.

Call Rooms/Learning Commons/Teaching Rooms: Since January 2009, students completing the inpatient portion of their clerkship at BC Children's Hospital are assigned three sleep rooms. The new rooms offer complete privacy in a quiet area as well as some amenities like a functional kitchen, computers, lockers and an entertainment centre. In February 2009, the resident lounge (situated close to the call rooms on the second floor) was renovated to provide better working /desk space, computer and network access, additional phone lines, a kitchen facility and entertainment centre.

Academic Development: The NBME [National Board Medical Examinations] serves as the written portion of third-year examinations for our medical students and has ensured quality assurance and standardization of the written component to the clerkships across our distributed sites. There have been ongoing upgrades to the content and delivery of OSCEs [Objective Standardized Clinical Exams] in addition to the improvements to the Clinical Teaching Unit. Students across all our sites have benefited from our interactive on-line CLIPP cases, which are, linked to the COMSEP objectives.

In our postgraduate residency program, residents receive and participate in three mandatory courses: Pediatrics Advanced Life Support Certification (PALS), Neonatal Resuscitation Certification (NRP), and the Advanced Cardiac Life Support Certification

(ACLS). Residents also take the American Board Examination, participate in our new case-based Academic Half Day curriculum and use the simulation-training centre in Emergency Pediatrics.

Evaluation: In 2007-08, in order to meet accreditation requirements, resident evaluation forms were updated to reflect the Royal College CanMEDs Competencies. In 2008-09, the new evaluation of teachers was introduced for undergraduate and postgraduate programs. As well, our Year 3 and 4 clerkship programs implemented electronic evaluations using the Web-Eval/one-45 system.

UBC Clinical Skills Teaching Unit: The Department of Pediatrics continues to use the E6 Shaughnessy area (twelve small adjacent rooms designed to resemble clinical examination rooms) for its undergraduate and postgraduate OSCEs. Students/residents are placed into teams or tracks, which flow through the unit, from room to room, in sequential order. Each room or station presents a specific dilemma posed within the type of intervention specified.

Teaching and the Pediatrics Educational Activity Report: The Department of Pediatrics Division Educational Activities Report 2007-08, was undertaken to better understand and help address the challenges inherent in medical school expansion. Interviews with program directors were structured to provide an opportunity for candid discussion about current educational programming and to generate new ideas.

From this report, the Department of Pediatrics discovered that additional focus and effort are required on encouraging and supporting new faculty recruits interested in medical education; appointing Educational representatives; providing stronger guidance and policy around faculty teaching matters such as protected time and administrative support; and investigating opportunities for increased outreach programs. The Associate Head, Education, is currently working with the Department Head to address these needs.

The Report also confirmed the need to create a database to track educational activities and the need to streamline processes to provide information about an individual's education deliverables, teaching payments to individuals and promotion of individuals. The UBC STAR database is expected to address these administrative processes.

Program Delivery and Distributed Sites: The Department of Pediatrics is constantly striving to better include distributed sites in educational programming and ensure consistency of curriculum delivery. The Department's Boardroom, 2D22, is now outfitted with video-conferencing equipment, which enables our faculty, staff and residents to connect with other sites for administrative and academic discussions. For example, senior leadership is now able to conference with DSSLs throughout BC and senior residents are linking with their colleagues in Surrey and Royal Columbian Hospitals to hold study sessions in preparation for the Royal College Exam.

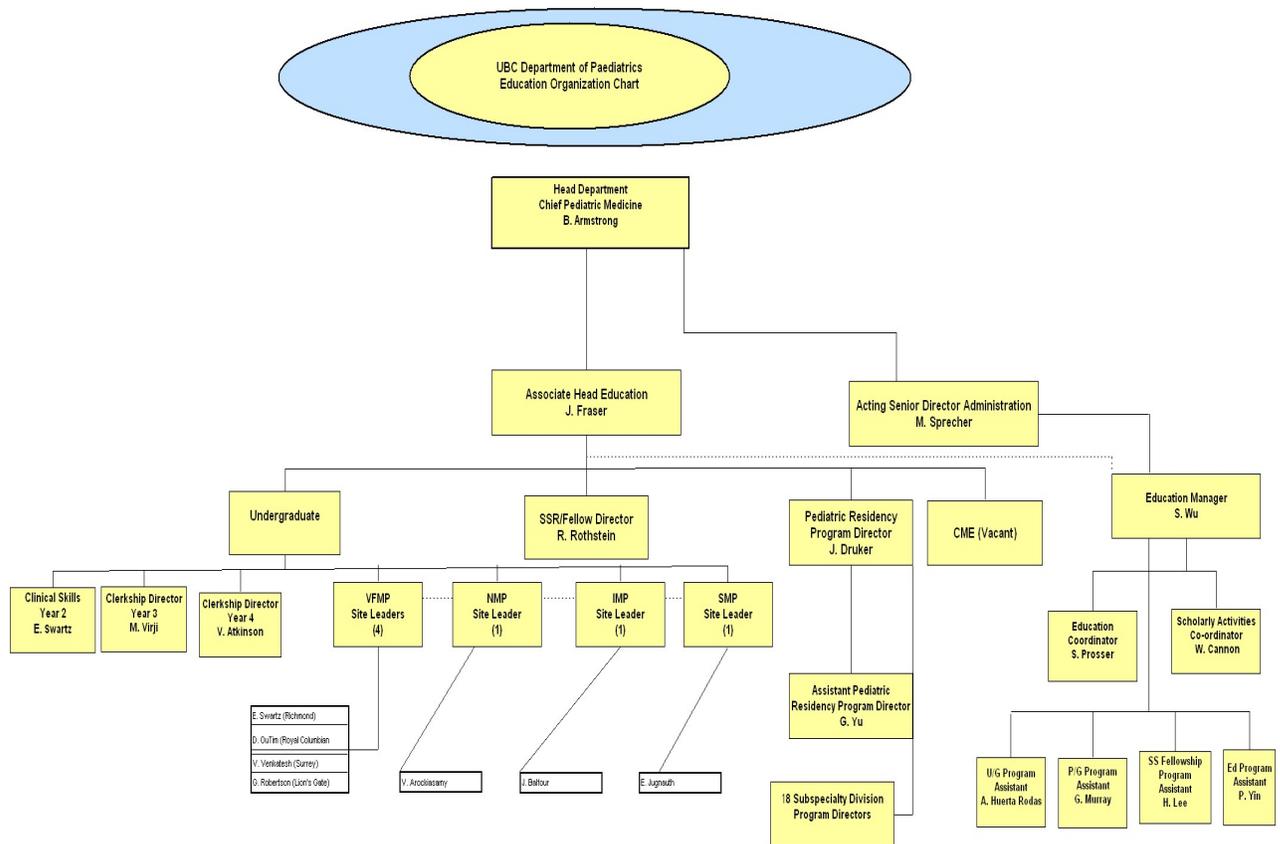
Room 3D16, a pre-existing video-conferencing option, is still used for Academic Half Days for undergraduate students, postgraduate residents and clinical fellows. Video-conferencing is used to include trainees at distributed sites and other hospitals in the lower mainland.

Future Plans: The educational mandate of the Department of Pediatrics for the next few years will include addressing continued expansion issues at the VFMP and its distributed sites.

1. Continuing to develop potential distributed sites for our undergraduate and postgraduate programs and to further develop existing sites.
2. Addressing challenges noted in our Divisions' Pediatric Educational Activity Report (capacity, space, CME opportunities, Educational representatives, etc.)
3. Ensuring evaluation and assessment tools effectively capture teaching and contributions by faculty, trainees and staff.
4. Staying apprised of and involved in the BCCH site redevelopment planning, ensuring educational needs are met, and continuing to maintain excellence in our clinical care and academic delivery during this time.

Overview of Education Programs

For over fifty years, the Department of Pediatrics, UBC Faculty of Medicine, has cultivated excellence in undergraduate, residency and clinical fellowship training programs. The Department has several mandates, including providing clinical services to the children of British Columbia, conducting research, supporting child advocacy and child health and delivering medical education including undergraduate and postgraduate curriculums across eighteen divisions and subspecialties. Over 260 undergraduate medical students are enrolled in our courses each year, not including visiting medical students from other educational institutions. Our General Pediatric training program is four years in length with over 50 pediatric residents participating. In addition, about 60 subspecialty residents and fellows participate in our subspecialty-training program. Now, three years after the initial implementation of medical school expansion, the Department has developed educational programs in Prince George (Northern Medical Program: NMP) and Victoria (Island Medical Program: IMP) We have also expanded our Vancouver Fraser Medical Program (VFMP) to four lower mainland sites and joined an integrated clerkship in Chilliwack.



Stakeholders in Education

Associate Head, Education – Dr. Joan Fraser
 UG Yr 1 & 2 Clinical Skills Director – Dr. Erik Swartz
 UG Yr 3 Clerkship Director – Dr. Mumtaz Virji
 UG Yr 4 Clerkship Director – Dr. Victoria Atkinson
 UG Teaching Fellow – Dr. Regan Ebbeson
 Residency Program Director – Dr. Jenny Druker
 Assistant Program Director, Residency, Dr. Grace Yu
 Associate Head, Research – Dr. Jean-Paul Collet
 Residency Chiefs – Dr. Cristina Bigg & Dr. Shelina Jamal
 Associate Head, Clinical Affairs – Dr. Ralph Rothstein
 Manager Education – Sylvia Wu
 Education Coordinator – Susan Prosser
 Scholarly Coordinator, Residency Program – Wendy Cannon
 UG Program Assistant – Alejandro Huerta Rodas
 Residency Program Assistant – Gisela Murray
 Program Assistant, Clinical Fellowship – Helena Lee
 Program Assistant, Education - Peggy Yin

Education Division Heads & Program Directors 2009

Adolescent Health	TBC	TBC	Fellows/SSR, Residents, MSI
Allergy	Dr. John Dean	Acting Division Head	Fellows/SSR, Residents, MSI
	Dr. Edmond Chan	Program Director	
Biochemical Diseases <i>CLINIC SERVICE</i> <i>CYSTIC FIBROSIS</i> <i>BIOCHEMICAL GENETICS</i>	Dr. Sylvia Stockler	Division Head	
	Dr. Sylvia Stockler	Program Director	Fellows/SSR, Residents, MSI
	Dr. Mark Chilvers	Program Director	
	Dr. Yolanda Lillquist	Program Director	MSI, Residents
	Dr. Hilary Vallance	Program Director	Fellows/SSR
Pediatric Cardiology	Dr. Derek Human	Division Head	
	Dr. Walter Duncan	Program Director	Fellows/SSR, Residents, MSI
Pediatric Critical Care	Dr. Peter Skippen	Division Head	
	Dr. Mary Bennett	Program Director	Fellows/SSR, Residents, MSI
Pediatric Dermatology	Dr. Julie Prendiville	Division Head & Program Director	Fellows/SSR, Residents, MSI
Developmental Peds	Dr. Nancy Lanphear	Division Head	
	Dr. Jill Hoube	Program Director	Fellows/SSR
	Dr. Carey Matsuba	Program Director	MSI
	Dr. Esias Van Rensburg	Program Director	Residents
Emergency Pediatrics	Dr. Ran Goldman	Division Head	
	Dr. Adam Cheng	Program Director	Fellows/SSR
	Dr. Michelle Clarke	Program Director	Residents, MSI
Endocrinology	Dr. Jean Pierre Chanoine	Division Head	
	Dr. Laura Stewart	Program Director	Fellows/SSR, Residents, MSI
Gastroenterology	Dr. Kevan Jacobson	Interim Division Head	
	Dr. Collin Barker	Program Director	Fellows/SSR, Residents, MSI
General Pediatrics	Dr. Paul Korn	Division Head	
	Dr. Joan Fraser	Associate Head	MSI
	Dr. Jennifer Druker	Residency Program Director	Residents
	Dr. Victoria Atkinson	Year 4 Clerkship Director	Year 4 MSI
	Dr. Mumtaz Virji	Year 3 Clerkship Director	Year 3 MSI
Hematology / Oncology	Dr. Paul Rogers	Division Head	
	Dr. David Dix	Program Director	Fellows/SSR, Residents, MSI
Infectious Diseases	Dr. David Speert	Division Head	
	Dr. Simon Dobson	Program Director	Fellows/SSR, Residents, MSI

Education Division Heads & Program Directors 2009 . . . continued

Neonatology	Dr. Philip Chessex	Division Head	
	Dr. Horacio Osioovich	Program Director	Fellows/SSR, Residents, MSI
Nephrology	Dr. Doug Matsell	Division Head	
	Dr. Colin White	Program Director	Fellows/SSR
	Dr. Janis Dionne	Program Director	Residents, MSI
Neurology	Dr. Mary Connolly	Division Head	Fellows/SSR
	Dr. Linda Huh	Program Director	Residents
	Dr. Elke Roland	Program Director	MSI
Research	Dr. Jean Paul Collet	Associate Head	Fellows/SSR, Residents, MSI
Respirology	Dr. David Wensley	Division Head & Program Director	Fellows/SSR, Residents, MSI
Rheumatology	Dr. David Cabral	Division Head	
	Dr. Kristin Houghton	Program Director	Fellows/SSR, Residents, MSI

Report from Clinical Skills Director Undergraduate Education Yrs 1 and 2
Erik Swartz, MD, MSc, FAAP, FRCPC

First Year Program

Introduction to Pediatric Clinical Skills (INDE 410) introduces first-year medical students to history-taking and physical examination of children. Sessions begin with a ninety-minute large group seminar emphasizing the key differences between adult and pediatric histories. Within the seminar, students split into smaller groups to review four different pediatric respiratory histories. Afterwards, in small groups, students learn to examine the head, neck and respiratory systems in a healthy pediatric volunteer patient (age 6-12). Tutors include both pediatricians and family physicians.

Second Year Program

PEDIATRICS CLINICAL SKILLS (INDE 420) builds on the knowledge acquired by students in INDE 410. It is broken up into four components:

1. *Newborn:* A self-study unit where students watch a video demonstrating relevant history-taking and physical examination of the newborn. After the video, students are given access to a newborn doll on which to practice the examination of the hip.
2. *Toddler:* Students spend a full afternoon at the UBC day care where they conduct an observational review of development in children ages 18 months to 5 years, after attending a presentation by a pediatrician.
3. *Adolescent:* Students are introduced to adolescent pediatrics, including the concepts of confidentiality and consent in an introductory seminar. The HEADSS assessment tool is described. Students are then broken up into small groups and asked to take a medical history from a volunteer adolescent patient, using a HEADSS assessment. A tutor is present for guidance.
4. *Developmental:* An afternoon is spent at the Sunny Hill Health Centre for Children where students are introduced to the care of children with special needs.

***Report from Undergraduate Year 3 Clerkship Director
Mumtaz Virji, MBBS, FRCP(C), FAAP, MHA, Clinical Assistant
Professor***

During the third-year Pediatric core rotation, students are assigned a total of eight weeks of clinical work, with six groups per year. The eight weeks are divided into four-week inpatient and four-week outpatient blocks. In 2004, we had approximately 20 students in each group; this number has increased to approximately 30 students per group during the 2008-2009 academic year. The increased number of students has led the Pediatric program to peripheral sites. Currently, about half the students complete their inpatient rotation at BC Children's Hospital and half rotate through Lion's Gate Hospital, Richmond Hospital, Royal Columbian Hospital and Surrey Memorial Hospital.

We also have students in Pediatric core rotations at our two distributed sites: Prince George Regional Hospital and Victoria General Hospital. Community-based longitudinal clerkships are available in rural communities in which students gain pediatric experience in primary care settings such as family practice offices.

The Pediatric core rotation learning objectives correspond to those widely used across North America (COMSEP). Every Thursday, students attend Academic Half Day, which supplies a series of mainly sub-specialty based lectures and seminars. These Half Days are video-conferenced to peripheral sites.

A more recent resource over the past three years has been the use of the CLIPP cases; 30 interactive on-line cases based on general pediatrics and linked to the COMSEP objectives. CLIPP enables students at all sites to access similar materials and the cases are used to ensure equivalency across sites. Faculty also utilize CLIPP cases as teaching material. The CLIPP program allows us to track the use of the cases by individual students and we have discovered a positive correlation between the numbers of cases completed by students and their scores on the NBME examinations.

The emphasis is on the acquisition of clinical skills and a knowledge base of general pediatrics. Clinical duties include patient histories, physical examinations, participation in management plans including investigations, following patient progress and taking part in daily rounds (family-centered at BCCH) and night call experiences. Each student's final grade in Pediatrics is based upon clinical evaluations by faculty members and residents (40%), student performance on a four station, standardized patient –based OSCE (25%) and student grades on the NBME (35%).

- Clinical Evaluation: The Department of Pediatrics pioneered the use of mini-cexs as a component of clinical evaluation for students.
- OSCE: Only two students have failed the OSCE since 2004. These students were required to complete additional clinical work and then repeat the exam.
- NBME: The Department of Pediatrics switched from an internal MCQ examination to the NBME discipline exams in 2004 as part of the end-of –rotation

assessments in conjunction with four other major disciplines within the core clerkship programs.

Since 2005 – 06, only seven students have failed the Pediatric NBME exam. These students received remediation by the Teaching Fellow and Faculty members in the form of help with answering multiple-choice questions, and subsequently repeated the exam. There were no failures on the second attempt.

Table 1 illustrates how UBC students perform on the Pediatric NBME in comparison to students in other medical schools.

Since 2001, UBC students have ranked between fourth and ninth place in the Pediatric component of Medical Council of Canada Part I exam out of 16 Canadian Medical Schools (**Graph 1**).

Table 1:

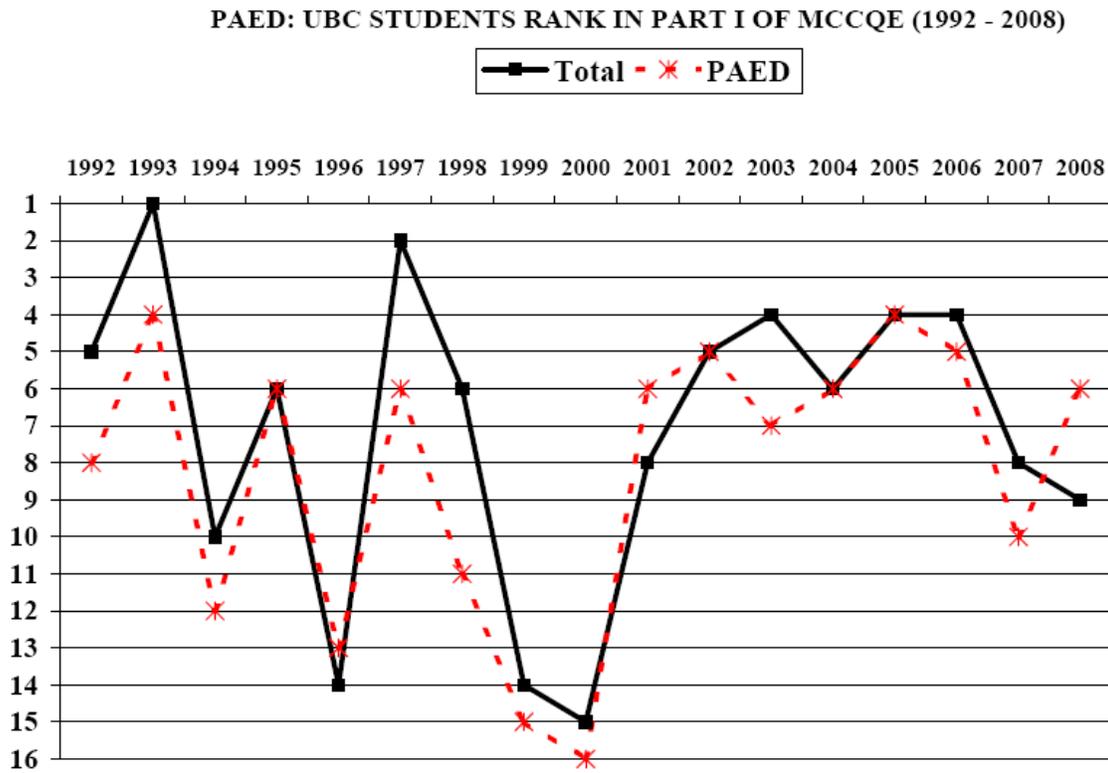
Comparison of performance of UBC students in NBME exams in Pediatrics, compared to students from other medical schools.

**Performance of First-Time Examinees Taking the
Pediatrics Subject Test During the 2007-2008 Academic Year**

Medical School: 058010 U British Columbia Faculty of Medicine

Candidate Group	Academic Year Clerkship Rotations	Number of Examinees	Subject Exam Total Test Scores Mean (SD)
First-Time Takers From Your School	All Clerkship Rotations	168	77.0 (7.5)
Comparison Group*	All Clerkship Rotations	14,529	74.9 (8.1)

Graph 1: UBC Students Rank in Pediatrics in Part I of MCCQE exam 1992-2008.



Challenges for the future

- Managing capacity, both on our site (as the only provincial Children's Hospital) and provincially (on distributed sites) to accommodate continued expansion of the medical school.
- Implementing faculty development, especially in terms of building consistency of clinical evaluations.

Utilizing and recruiting faculty members appropriately to fulfill the education needs, across all sites and spanning four years of curriculum.

***Report from Year 4 Clerkship Director, Victoria Atkinson, BSc, MD,
FRCP(C), Clinical Assistant Professor***

The fourth year curriculum has been significantly modified to include more clinical time for senior students. The year now consists of 24 weeks of senior clerkship electives as well as a five-week longitudinal Preparation for Medical Practice (PMP) course.

The elective component of the fourth year program is designed to graduate undifferentiated physicians as well as to offer opportunities for career exploration. Electives are faculty-supervised experiences that students select from a large database maintained by the Dean's Office. Opportunities are available at distributed sites throughout the province. Students are guided to choose electives which ensure exposure to medical, surgical and primary care practice. Student evaluations are now completed electronically by preceptors through the One45 system.

PMP aims to expose students to disease prevention, palliative care and rehabilitation medicine. Themes include Preventative Medicine, Patient Safety, Evidence-Based Medicine, Informatics, Electronic Health Technologies, Communication, Ethics, Professionalism, and Diagnostics.

Near the end of the fourth year program students complete a comprehension objective structured clinical exam (OSCE) as an exit examination.

Report from Postgraduate Residency Program Director

Jenny Druker, MBChB, DCH, FRCPC, Clinical Associate Professor

Pediatric Residency Program

Pediatrics is a four-year PGY1 entry program consisting of a core of three years and a fourth year which may be dedicated to General Pediatrics or the first year of a subspecialty program. Some residents opt to remain in General Pediatrics for four years before progressing to a subspecialty; particularly as there is currently additional funding available, allowing them to do so. Currently, we have 47 residents in the pediatrics program, including three international visa trainees.

In February 2007, our program was fully accredited by the Royal College of Physicians and Surgeons of Canada. The accreditation report notes that we have a team of dedicated program directors with strong support from residents, faculty members, and administrative staff. Our strengths include:

- A strong educational curriculum and Academic Half Day programming
- An impressive health advocacy component with varied and valuable community experiences available in the curriculum
- A collegial atmosphere in which residents' opinions are highly valued
- A flexible program which permits residents to focus on their chosen career paths

The residency program received full accreditation for all standards, including

- Administrative structure
- Common goals and objectives (developed in the format to guide the curriculum's structure and organization)
- Resources available to the on-site and distributed site programs
- Clinical, academic and scholarly content of the program, and
- Evaluation of resident performance.

The administrative structure has been significantly supported by the Department Head, Dr. Bob Armstrong. We have one full-time equivalent Program Director position, a half-time Assistant Program Director, a team of administrative staff, and a Residency Program Committee (RTC) comprised of Program directors, two Chief Residents and elected residents. The RTC oversees the curriculum, reviews resident performance, candidacy for promotion and directs admission of students into the program. The Committee is also dedicated to career planning and stress counseling for residents and our trainees feel that these issues are addressed in the context of Academic Half Day, resident retreats and regular meetings with Program Director.

The residents have the ability to evaluate their teachers anonymously on a regular basis.

Our program reflects the components of specialty training: the first three years provide exposure to the Clinical Teaching Unit (CTU) and a broad variety of subspecialties. A one-month elective is scheduled during second year, two months during the third year and the fourth year is designed in conjunction with the Program Director to meet the educational needs of each individual resident. The program provides a strong basis of acute care pediatrics with a three-month Pediatrics Intensive Care Unit (ICU) and three-month Neonatal Intensive Care Unit rotation in BC Children's Hospital as well as six months on the Clinical Teaching Unit (CTU) and two months in the Emergency Room. In addition, the residents are exposed to various subspecialty and ambulatory pediatric environments at BCCH as well as in the Greater Vancouver area, Kamloops and Surrey. Planned expansion in Victoria and Prince George will enhance our trainees' exposure. Increasing resident responsibility is well defined in this program as the residents progress and spend at least one year as a supervisory senior resident.

The balance between clinical service and education is excellent in this program. On a weekly basis, residents attend mandated academic activities including Academic Half Day, Grand Rounds, and Advances in Pediatrics. In addition, they attend the common courses for all residents arranged through the Postgraduate Dean's Office. Competencies are taught on each rotation, as well as during Academic Half Day. The role of Medical Expert has always been a priority; however, we also focus on other competencies such as ethics, professionalism, managerial skills and a safety curriculum. In addition, our residents receive training in one of the early simulation centres in Canada. Teaching workshops are provided through UBC Faculty Development at the Academic Half Day. Residents are expected to complete the Pediatric Advance Life Support (PALS), Neonatal Advance Life Support (NALS) on entering the program as a PGY1 and this is funded by the Postgraduate Deans Office. They are required to complete refresher courses every two years.

The academic curriculum is well organized and spans all of the Competencies. The Objectives of Training and Specialty Training Requirements, as outlined by the Royal College of Physicians and Surgeons of Canada, are strictly adhered to in this program and resulted in our successful accreditation. The core curriculum is evaluated every year at our RTC Annual Curriculum Retreat (see Appendices this section) as are non-core elective offerings such as Child Psychiatry, Infectious Diseases, Respiriology/Allergy/Cystic Fibrosis, Gastroenterology, and community rotations.

Residents utilize the Web-Eval system to evaluate their rotations and faculty supervisors. We are currently proposing a rotation in Social Pediatrics, which is being developed in the Downtown Eastside Vancouver population, as well as a Continuity Clinic at BCCH.

The Department of Pediatrics has a strong interest in International Child Health. Residents have various opportunities to engage in global child health initiatives. Past opportunities included Australia, South Africa, Uganda, Philippines, China and India. Drs. Druker, Schaller, Larson, Speert, Armstrong and Sauvé continue to develop our international health strategies. Through the international child health program of the

Canadian Pediatric Society, Dr. Sauvé has presented two modules into our Academic Half Day as a pilot project with consideration to distribute with other Pediatric Residency Programs in Canada. We still have a very successful three-month exchange program with Sydney Children's Hospital. The uniqueness of our international programs attracts many medical students to our residency program from across the country.

The annual selection process, CaRMs, occurs in January-February of each year. In 2009, we had 125 medical school applicants for twelve entry PGY1 positions. We conducted 95 interviews. The interview process was conducted the Program Director, Dr. Druker, the Chief Resident, a faculty member and a senior resident. In addition, we invited five international trainees to be interviewed for one residency placement, and were pleased to offer a residency placement to the best candidate, effective July 1, 2009.

Evaluation of residents' performance is based on the goals and objectives in a format meeting the specialty standards of accreditation. In-training evaluations are completed on Web-Eval, an electronic evaluation system, and face-to-face evaluation is encouraged. Attendings have many opportunities to observe clinical skills being practiced by trainees, especially during out-patient clinics. A formal OSCE examination is conducted three times per year. During the first three years, the residents take the American Board of Pediatrics In-Training Examination. Evaluation of the Medical Expert Role is through clinical rotations, the OSCEs, and the American Board of Pediatrics In-Training Examination. The management of competencies is evaluated on clinical rotations, especially on CTU and during community pediatric rotations. Health advocacy is strength of this program and is evaluated and managed through clinical rotations. Collaboration is evaluated by direct observation, especially in the multidisciplinary clinics. Communication, scholarly and professional competencies are evaluated through clinical rotations and OSCE examinations. The FITER (Final In-Training Evaluation Record) is completed by the Program Director based on the rotational ITERs and other evaluative components. This component of evaluation is mandated by the Royal College prior to a resident being able to take the final RCPSC Fellowship Examination at the end of the PGY4 year. Residents have traditionally done extremely well on these examinations. Residents who have had medical school training in Canada and completed the Residency Program at UBC have had 100% pass rate in the past few years.

During academic years 2008 and 2009, we had 24 residents (in years either 3 or 4) identify their chosen career path: six residents selected General Pediatrics, 14 residents selected a subspecialty and two residents chose an academic fellowship. Two Visa Trainees elected to return to their home country at the conclusion of the fourth year. In summary, 25% of our residents chose General Pediatrics and 50% chose a subspecialty.

The Program Director meets weekly with the Chief Residents, monthly with the Postgraduate Deans, monthly with the Residency Program Committee, monthly with the Department Head, Dr. Bob Armstrong, annually with the Canadian Pediatric Program Directors and RCPSC Subspecialty Committee in order to evaluate the program and meet the UBC and Royal College requirements. In addition, the Program Director meets with the Pediatric Education Executive Committee (PEEC) on a regular basis. Dr. Druker is a member of the Royal College Pediatric Examination Committee and is an examiner for

the Pediatric Fellowship Examinations. She regularly attends educational workshops organized by the Postgraduate Dean's Office, the Royal College of Physicians and Surgeons, the Canadian Pediatric Society, and has attended international educational meetings including the AMEE (Association for Medical Education in Europe) and the Ottawa International Conference.

The UBC Postgraduate Office, Dr. Armstrong and the Department of Pediatrics provide continuing medical education (CME) opportunities for all members of the Department and our pediatric colleagues in the provincial community. UBC Faculty Development offers educational workshops for faculty and residents. Residents and faculty members are encouraged to attend conferences and funding is made available for them to do so. In addition, our major CME events include weekly Grand Rounds and Advances in Pediatrics, and Sleepy Rounds are scheduled every Universal Closure Day. The BC Pediatric Society works with the Department to promote a number of CME events and an annual update. Technical advantages have resulted in an increase in range of educational materials being available electronically either for group presentation or individual study activities. Moreover, a number of events, in particular Academic Half Day and Grand Rounds, are regularly video-conferenced to other centres to promote the province-wide mandate of the Department for supporting activity in child health advocacy.

We continue to be significantly supported by our administrative staff, led by Sylvia Wu, Manager Education and her dedicated team.

The uniqueness of our program includes Global Health Curriculum with dedicated faculty, our newly developed case-based Academic Half Day and our simulation centres. Challenges continue to be capacity of the expansion of the UBC Medical Program for which we are supported by the Department Head and Postgraduate Deans.

All members of the Department of Pediatrics contribute to and benefit from the educational opportunities. Our Department Head, faculty and administrative staff are an integral part of the process necessary to continually refine the scope, content and direction of Pediatric Education and as such contribute significantly to our department goals and objectives in the area of pediatric education

Curriculum 2008/2009

	R1	R2	R3
1	CTU Blue	CTU Blue	CTU Sr
2	CTU Green	ICU	CTU Sr
3	Intermediate Nursery	ICU	ICU
4	Victoria Nursery	ER	NICU
5	Endocrinology	Oncology	Neurology
6	General Peds BCCH	NICU	Heme/Onc Clinics
7	Surgery	NICU	Adolescent Med/ Child Protection
8	ER	Nephrology	Psychiatry
9	GI	Kamloops	ID
10	Neurology	Cardiology	Surrey
11	Development	CTU Green	Elective
12	Resp/Allerg/CF	Elective	Elective

American Board Exam Results 2006 – 2008

Year	Number of UBC Pediatrics Examinees	PGME Yr.	Average Percent Correct	Average Standard Score	Rank Overall
2008	16	1	61	169	40 out of 209 tie
2008	12	2	65	253	119 out of 210 tie
2008	13	3	70	328	110 out of 209 tie
2007	14	1	54	149	105 out of 210 tie
2007	13	2	66	318	47 out of 211 tie
2007	10	3	68	346	89 out of 211
2006	13	1	60	203	25 out of 213
2006	13	2	64	268	113 out of 215 tie
2006	12	3	65	286	166 out of 216 tie

Report from Chief Residents
Cristina Bigg and Shelina Jamal, 2009-2010

The Pediatrics residency program has experienced many changes and accomplishments over the past four years. It continues to evolve in response to the many challenges posed to resident education and the changing health care environment. Overall, the postgraduate pediatric program at the University of British Columbia continues to provide excellent clinical and academic training to its residents.

Several new developments have affected resident life: academic and educational activities, clinical rotations, call requirements and expectations. In this document, we will highlight these transformations and discuss their impact on resident education. We will also review past, present and anticipated challenges facing the program.

Introduction

Academic and Educational Activities

Over the last year, the Academic Half Day curriculum has been improved. The new curriculum addresses Royal College of Physicians and Surgeons objectives and repeats every two years. During the Half Day, residents participate in a case-based, interactive, small-group session moderated by senior residents and afterwards, a didactic session taught by a faculty member. The cases are written by residents with faculty supervision. The Associate Chief Resident liaises with Departments to help design cases and lecture topics. The new curriculum and format has been very well received by the resident group and faculty.

The Royal College has made research a mandatory educational requirement for pediatric residents. At UBC, we were well prepared with our first-year research curriculum that runs once a month, parallel to Academic Half Day. This curriculum reviews basic concepts and principles essential for research and allows first-year residents to be exposed to current research being conducted by faculty members.

In terms of other educational activities, all pediatric residents are funded to obtain ACLS certification (pediatric residents are required to respond to adult codes at a free standing pediatric/obstetrical hospital). In addition, residents maintain their Pediatric Advanced Life Support and Neonatal Resuscitation Program certification.

Residents are strongly encouraged to attend conferences and scientific meetings. Funding is available to support resident education and attendance at conferences with additional monies provided to residents presenting at the meetings.

Rotations

There have been a number of changes to the rotations over the past four years. One of the major adjustments has been the development of a core three-year program with the fourth year used to start a subspecialty or expand a trainee's general pediatrics base.

Some of the changes over the last couple of years have included a reduction in the time spent in the PICU from four months to three. This was done because of increasing demands from other specialties requesting PICU rotations. Time spent in the NICU was subsequently increased from two to three months given that Neonatology was a perceived weakness of the resident body.

Residents continue to travel for rotations. Currently, first-year residents spend a month in the Victoria NICU for an introductory experience to level III nursery care. The Victoria rotation has been an extremely worthwhile experience for the residents. A general pediatrics month is available in Kamloops during the second year of residency. The rotation has proven to be an excellent opportunity for junior residents as they learn under the supervision of community pediatricians who are interested and engaged in resident education. Funding for resident travel expenses and accommodation has improved significantly and is now covered by the Dean's office for mandatory rotations.

The pediatric residents continue to spend a significant portion of their time on the Clinical Teaching Unit (CTU): four months as a junior resident, and two months as a senior. The CTU provides care for patients on 3M and 3F as well as members of the code team. In the past, Blue team managed multiple cardiac patients and the Green team managed nephrology patients. In order to optimize resident exposure to both subspecialty and general pediatrics, each team manages a maximum of two patients from a single subspecialty. The Blue team continues to have a cardiac focus with weekly rounds and teaching with the entire cardiology team. Green team maintains an emphasis on nephrology with weekly rounds and teaching provided by the nephrology team.

In 2009, CTU attending commitments changed to include service for two weeks (reduced from four weeks) and a requirement for in-house presence from 8:00 AM until noon. This change facilitates resident and medical student education as well as the implementation of family-centered rounds. Family-centered rounds is an exciting initiative that aims to address the needs of the families, learners, and staff. Family-centred rounds involves daily rounds at the patient's bedside with the physicians, nursing, and pharmacy.

Call Requirements

Call continues to be an important component of the pediatric residency program at BCCH. The increasing number of pediatric residents and compliance with PAR-BC guidelines has slightly reduced the frequency of call for pediatric residents. For the PICU and NICU, residents continue to do 1:4 call. Rotation specific call still exists for services such as Nursery, Endocrine, and Nephrology.

Over the past few years, Canadian pediatric residency programs have experienced a shift in resident call scheduling. The night float system consists of residents doing a rotation of nights, often four weeks per year divided into 2 two-week rotations. This system essentially creates a consistent nighttime CTU team. During the day, the night-shift residents do not have any responsibilities. During the remainder of the year, residents only do one or two CTU calls/month to cover for the days the night float resident is not present. The benefits of this method include better resident education and continuity of care. Residents will no longer be 'post-call' and therefore missed clinic time will be eliminated. The Department of Pediatrics Resident Training Committee voted for a two-year trial of night float starting in July 2009.

Previously in the PICU, senior pediatric residents covered the unit alone. There has been a move towards having a PICU fellow or clinical assistant in-house along with the resident during all call shifts. This change was deemed necessary due to the increasing acuity and volume of PICU patients requiring overnight coverage. There was concern that this extra coverage would dilute the senior resident's experience. Both the pediatric residency program and PICU physicians are aware of these potential effects on resident education and are working together to ensure optimal patient care within an excellent learning environment.

Challenges

Although many challenges have occurred within the program over the past four years, the program has responded promptly and in strong support of resident needs. Family Practice residents no longer rotate through the pediatric CTU, alleviating the scheduling and exposure concerns. Many of the administrative tasks assigned to the Chief Residents have been taken over by the Pediatric Department administrative staff, allowing more time for educational goals and initiatives to be addressed by the Chiefs.

Current challenges include resident involvement in starting and maintaining intravenous cannulae (IVs), sustaining consistency in the mock code program, and the managing the distribution of residents to various locations offsite.

Residents recognize that developing and maintaining IV skills is essential for community pediatric practice. During the day, a designated IV team is responsible for starting all IVs outside the Emergency Department. Currently, residents are not permitted to start IVs on patients in the Emergency Department until they have completed an IV certification course. After-hours, an algorithm is in place for IV insertion; residents are considered a last resort. The Chiefs and Residency Program Director are meeting with administration to alleviate some of these barriers so that residents can better develop their IV skills.

For many years, BCCH has used a mock code program to enforce resuscitation skills. Unfortunately, over the past few years, this program has not been consistent, often cancelled because various members of the planning team are unavailable. We hope to organize a program that will run on a relatively routine basis allowing the residents to become more comfortable in these scenarios. The Department recently obtained access to a child and infant simulator that will allow computerized scenarios to be programmed.

These high-tech simulators mimic live patients and will provide endless opportunities for education and debriefing.

The UBC medical school has expanded to include distributed sites in Victoria and Prince George. Residency programs are being approached to distribute their residents appropriately to aid in medical student training. The challenge for our program is to structure these rotations to meet objectives and training goals agreed upon by both parties.

Chief Role

Balancing clinical work and the role of the Chief Resident has always been a challenge. With the program's expansion and recent changes, the administrative role of the Chief has required significantly more time. In 2009, we manage 47 pediatric residents and four pediatric neurology residents. We estimate our Chief duties require approximately 70 hours per month in addition to our regular clinical duties. Currently, Chiefs are excused from our clinical duties for 30 hours per month (15 hours each co-chief) depending on the rotation. Fortunately, in response to this heavy burden, there has been a significant increase of the administrative support available to the general pediatrics program. We believe that the additional support will help alleviate the heavy workload, and allow the Chief Residents to be more effective administrators, educators and clinicians.

Report from Postgraduate Associate Head, Subspecialty Residency Program and Clinical Fellowship

Ralph Rothstein, MD, FAAP, FRCP(C)

Associate Head and Professor, Clinical Affairs

We currently have 78 trainees in our programs: 23 subspecialty trainees, 39 Clinical Fellows, 12 Visa Trainees/International Medical Graduates and four Postgraduate Trainees. Some of our trainees will complete their education during the summer and fall of 2009, with additional 30 trainees joining our ranks each year.

There are 17 subspecialty programs of which 13 have Royal College accreditation and one is accredited by the CCMG.

RCPSC Accredited Programs:

Adolescent Medicine: TBA

Cardiology: Dr. Walter Duncan - Program Director

Critical Care: Dr. Mary Bennett – Program Director

Developmental Medicine: Dr. Jill Hoube – Program Director

Endocrinology: Dr. Laura Stewart – Program Director

Emergency Medicine: Dr. Michelle Clark – Program Director

Gastroenterology: Dr. Collin Barker – Program Director

Hematology/Oncology/Bone Marrow Transplantation: Dr. David Dix – Program Director

Infectious and Immunological Diseases: Dr. Simon Dobson – Program Director

Neonatal-Perinatal Medicine: Dr. Horacio Osioovich – Program Director

Neurology: Dr. Mary Connolly – Program Director

Nephrology: Dr. Colin White – Program Director

Rheumatology: Dr. Kristin Houghton – Program Director

Canadian College of Medical Geneticists (CCMG) accredited:

Biochemical Genetics: Dr. Hillary Vallance – Program Director

RCPSC Proposed:

Allergy: Dr. John Dean – Program Director

Respiratory Medicine: Dr. David Wensley – Program Director

Not RCPSC Accredited:

Dermatology: Dr. Julie Prendiville – Program Director

The Subspecialty Program Committee identified the following issues as goals for all Pediatric subspecialty programs:

To provide infrastructure to facilitate recruitment of subspecialty residents and clinical fellows.

1. To provide infrastructure to assist subspecialty programs in preparation of RCPS reviews etc.
2. To develop a welcome package especially for our non-Canadian fellows.
3. To organize an Academic Half-day Program where subspecialty residents and fellows may develop camaraderie with educational emphases on CanMEDs competencies, ethics, professional development, career planning, financial and practice management. Similarly, a series of courses on evidence-based medicine, biostatistics and research methodology would be conducted as part of the joint educational experience.

Funding

The UBC Faculty Medicine Postgraduate Dean's office adequately funds all our subspecialty resident needs. We have limited funding for clinical fellowships within the Department; there are numerous other funding sources for fellowships including sponsoring countries and agencies, AFP and similar clinical funds and individual scholarships. The Postgraduate Dean's Office has greatly enhanced our ability to provide subspecialty opportunities in Pediatrics and the support has been greatly appreciated.

Please see the Divisional Reports section for subspecialty information.

Research Report

Report from Associate Head, Research

Dr. Jean-Paul Collet, M.D., PhD, Professor and Associate Head, Research Associate Director, Partnership Development, CFRI

INTRODUCTION

Clinical research is an essential part of the academic practice of medicine in a tertiary care teaching hospital. It is one of the main pillars of academic Health Centers along with Education and Medical Practice. In addition to generating evidence and answering questions that can benefit patients in the global medical community, it enhances the quality of care provided in the centre where it is conducted. As such, research is a critical component of activities within the Department of Pediatrics, UBC and BCCH to promote high quality, evidence based practice. Each of the fulltime members of the Department of Pediatrics is involved in the generation of new knowledge through his or her involvement in the conduct of clinical or basic research, or in the provision of innovative clinical care. One might consider each clinical encounter a research exercise as the physician is asked to clarify a confusing situation and learn from it. To that end, all members of the Department of Pediatrics, from full professors to medical students are investigators.

Although the Department of Pediatrics is relatively young, it has a well-established tradition in the practice of research. Evidence of successes, challenges and impediments will be provided below as will a plan for research in the Department.

OPERATIONAL OBJECTIVES

Objectives to support research (from Planning and Priorities Committee Report – 2007)

- To offer structured research mentoring for new clinician-investigators. To offer new specific research curriculum for Residents and Fellows.
- To consolidate and update existing infrastructure and develop new support (clinical research support platform) for researchers involved in clinical research, health services research and population health research.
- To develop partnership and strategic plan with UBC Department of Healthcare & Epidemiology and with CFRI for joint recruitment of new research staff.
- To reinforce the synergistic relationship with CFRI for joint initiatives (a) to recruit and better support highly qualified clinician-investigators (protected time, start-up fund, etc.) and (b) promote clinical research culture. Working in partnership with CFRI and Health Authorities will enable leveraging our research funding and creating opportunities for new endowments and other research support.
- To partner with PHSA and hospital administration to identify needs and possible solutions for healthcare quality and patients' safety improvement.
- To partner with Child Youth Research Network for developing community interventions around health care organization with a solid evaluation framework – that will be useful for building Pediatrics research capacity across BC.

- To partner with Child and Youth Health Research Network (CYHRNet) for building research capacity across BC.
- To play a significant role within MICYRN, (Maternal, Infant, Child & Youth Research Network) the national Pediatric network.

Administrative Structure and Synergy with CFRI

Each division within the Department of Pediatrics is involved in the conduct of research, with the exact form ranging from “pure” basic science to the novel description of clinical observations. Research and other academic activities of departmental members are performed under the auspices of Dr. Robert Armstrong, Head of the UBC Department of Pediatrics, with immediate reporting through one of the seventeen division heads.

Clinical research in the Department of Pediatrics is strongly supported by the Child and Family Research Institute (CFRI). The department research goals were stated to align with the programmatic priorities of CFRI and therefore we recruited to those programs to strengthen them. Overall, CFRI spends about 2 millions dollars per year to support clinical research:

- Clinician Scientist Salary Award Program
- Clinical Research Support Unit. This unit provides support to researchers, clinicians, residents and fellows in the domains of design, informatics, statistics, and systematic review.
- High quality data management platform for all researchers affiliated to CFRI. The system provides support for developing different kind of studies (RCT, cohort studies, survey, etc.) and facilitate the conduct of multi-center studies through web based electronic data management.
- High quality support regarding financial and legal contractual agreements in the context of industry partnership or the need of inter-institutional agreements.

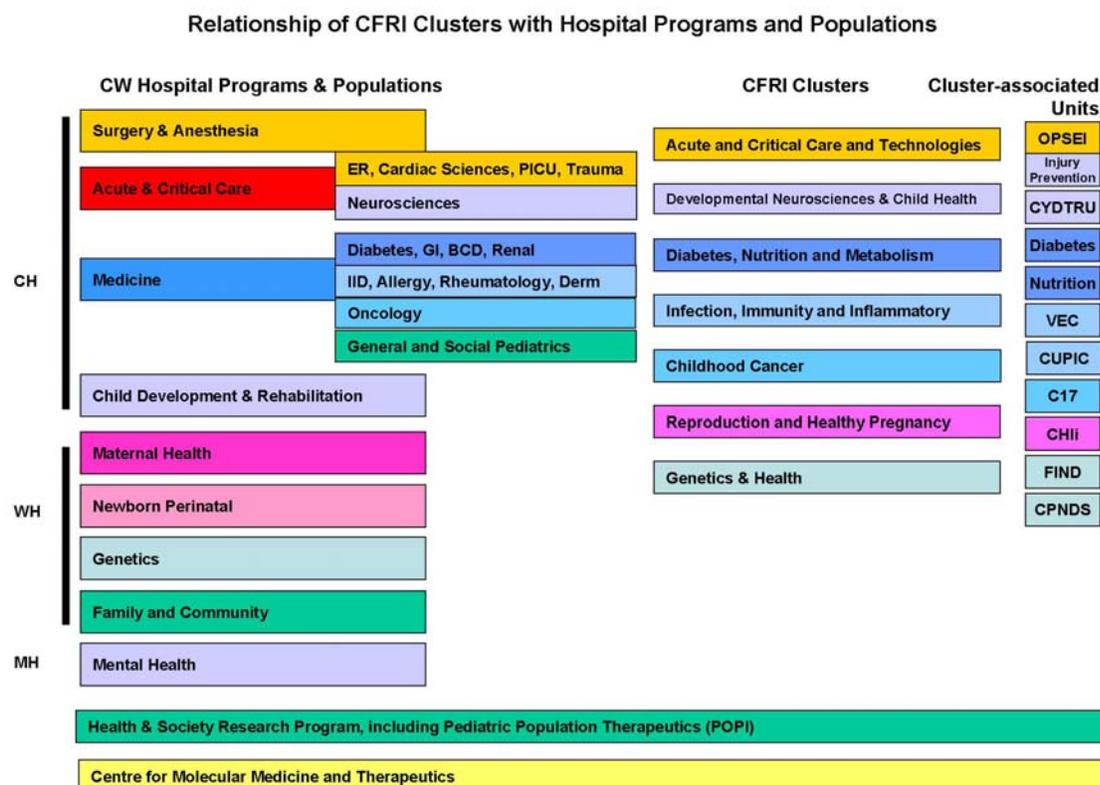
CFRI also supports 7 research clusters in the following domains:

- Acute & Critical Care and Technologies
- Developmental Neuroscience & Child Health
- Diabetes, Nutrition and Metabolism
- Infection, Immunity and Inflammatory
- Childhood Cancer
- Reproductive and Health Pregnancy
- Genetic and Health

Each cluster becomes involved in the CIHR four pillars of research. As can be seen in Figure 1 below, these clusters are linked to different research units on one side, and medical programs on the other. Clusters therefore represent a link between clinical activity, clinical research and basic research. They are the source of productive interactions among various professionals on the Oak Street site and with common interests in relevant issues throughout the province. Each of these clusters has an organizational structure with a budget and

fulltime staff and is intended to fulfil the mandate of enhancing research productivity and collaboration. All members of centres within the Research Institute report through their centre director to the Head of the Research Institute, Dr. Geoffrey Hammond.

Figure 1:



This model is a unique opportunity to promote translational research at two levels: from basic to clinical and from research to practice. Governance committees have been constituted in most clusters, and include clinical investigators. All researchers in the Department have an affiliation in one or several clusters with subsequent enhanced production.

Research Activity for the Period 2004-2009

Total research funding for the period is \$67.6 millions, with 21% from CIHR (\$14.3 millions), 14% from CFRI (\$9.3 millions) and 8% from MSFHR (\$5.2 millions). The largest source (\$36.4 millions; 54%) comes from contractual grants from industry, government, health authorities or other organizations.

A positive trend regarding academic peer review success rate: Over the period 2004-09 funding from CIHR increased by 47 % (from \$2.7 to \$3.5 millions); funding from CFRI increased by 48% (from \$1.4 to \$2.1 millions); funding from MSFHR increased by 84%

(from \$0.66 to \$1.2 million). While during the same period contractual research funds remained stable from \$7.8 to \$7.9 millions.

Figures 2 and 3 below illustrate research funding pattern for the period 2004-09 according to type of funding (Figure 2) and source of funding (Figure 3).

Figure 2:

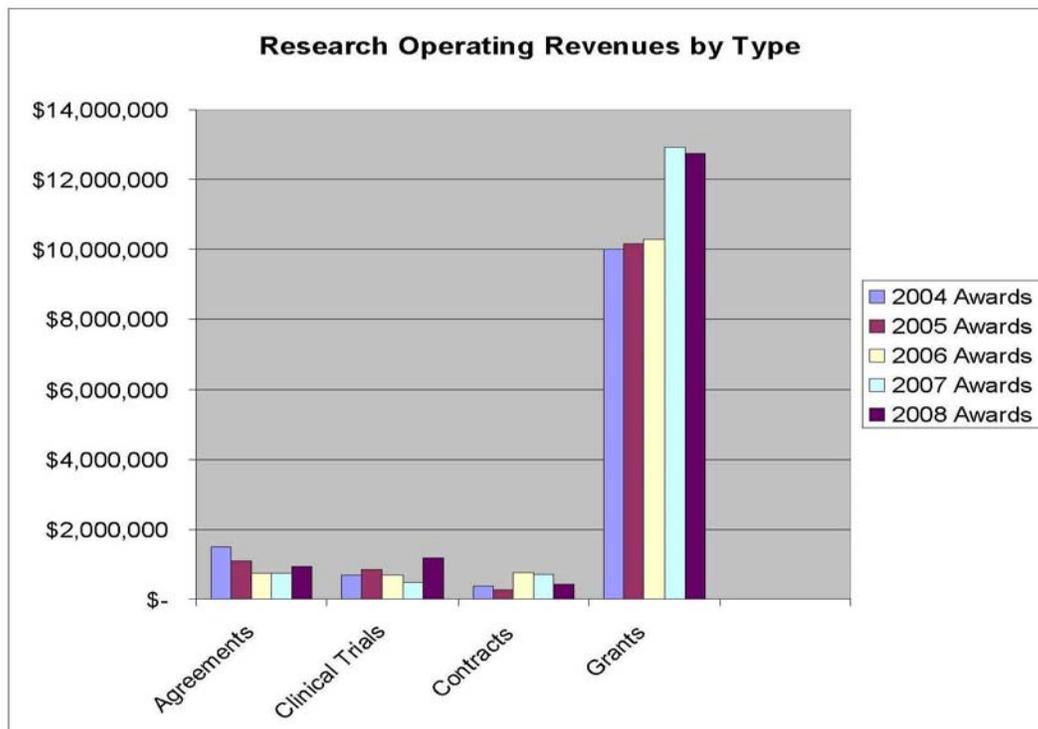
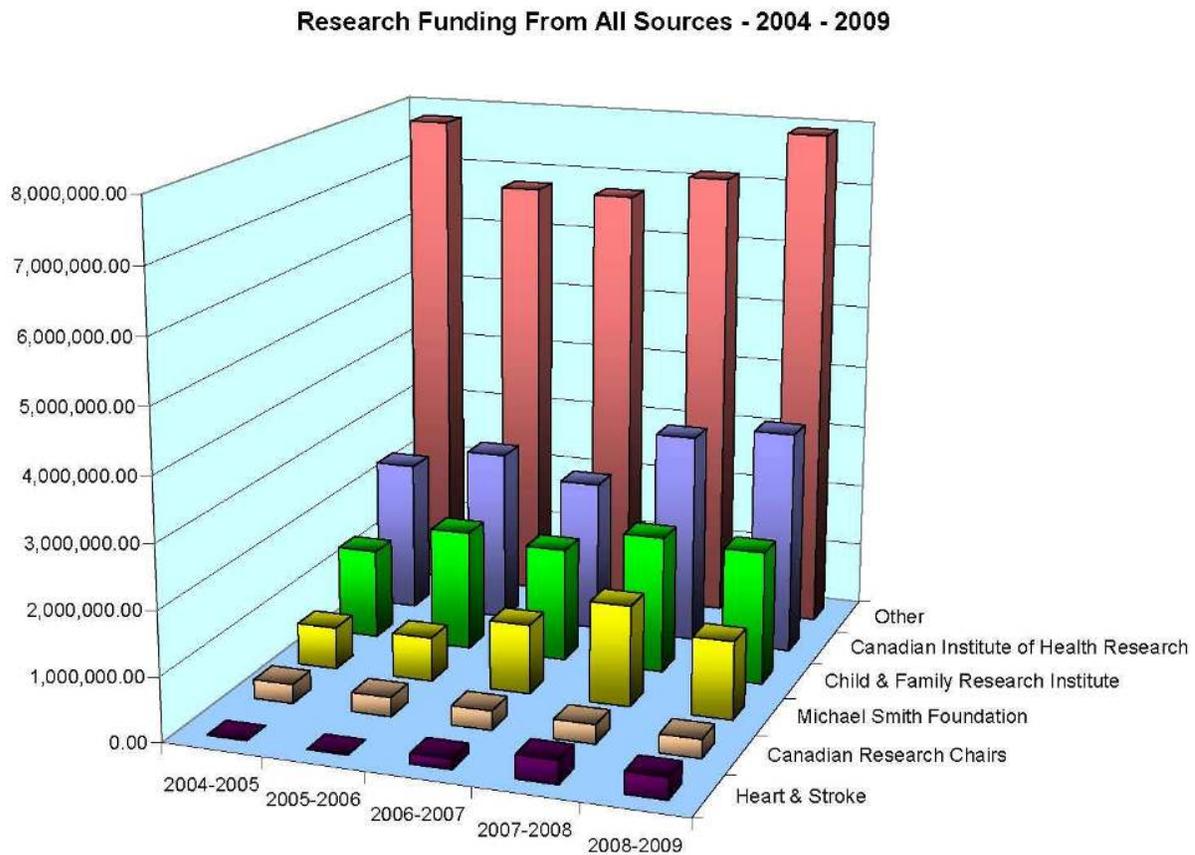


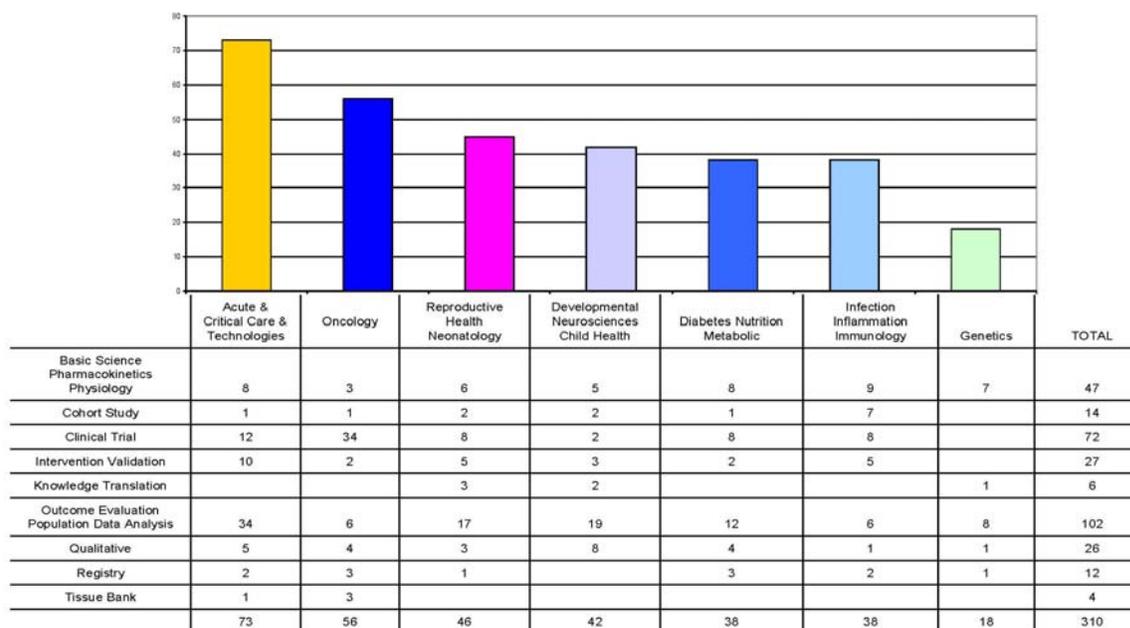
Figure 3:

In contrast to the period before (1998-2004), the last five years have demonstrated a huge increase in research funding generated by researchers from the Department of Pediatrics: Total research funding increased from \$41.3 millions in 2003 to \$67.6 millions in 2008 (+ 64%), essentially from peer review grant funding.

Figure 4 below shows research activity by research cluster according to the number of studies submitted to the ethics committee (funded or not funded). It indicates that many studies in the Department of Pediatrics are conducted without funding, by residents or fellows in general.

Figure 4

Appendix I for Clinical Research Report for CFRI Review June 2009

Type of Clinical Research by CFRI Cluster*

*Clinical Research defined by requirement for Ethics Board approval. Dataset represents 310 active studies by CFRI investigators in September 2008.

Figure 4 courtesy of Dr. Anne Junker, CFRI Report on Clinical Research, 2009

Research Leadership by the Department of Pediatrics

During the last five years, several important activities developed under the leadership of a researcher from our Department:

- Dr Anne Junker, CFRI's Director of Clinical and Population Health and Dr Aubrey Tingle, past President of MSFHR and founding Executive Director of CFRI – are new co-Directors of MICYRN (Maternal Infant Child and Youth Research Network).
- Drug safety through genomic: The Canadian Pharmacogenomic Network is lead by Drs Bruce Carleton and Michael Hayden.
- Dr Dina Panagiotopoulos is leader a project for assessing determinants of obesity and type 2 diabetes in First Nation Communities.
- Drs Steven Miller and Vann Chau are leading the way for studying brain development of premature babies.
- Dr Ian Pike received over \$1.8 million from Ministry of Health Services to develop the BC Injury Research Unit
- Dr Tim Oberlander is leading a research program to assess the long term consequences of using psychotropic drugs during pregnancy and first years of life on future child development.
- Dr Jean-Pierre Chanoine received funding from MSFHR to develop a Team on obesity prevention

These new lines of activities join the already established successful streams of research in Vaccine Research (Dr David Scheifele), Child development and Crying Baby Syndrome (Dr Ron Barr), Diabetes (Dr Chanoine), Cancer research (Dr Kirk Schultz), Center for Understanding and Preventing Infections in Children (CUPRIC) lead by Dr David Speert.

Career Awards and Significant Research Grants

This section describes career awards that researchers from the Department of pediatrics received during the period 2004-09

- Dr. Ronald Barr (Canada Research Chairs); CIHR
- Dr. Kirk Schultz (University-Industry: Research Chair); CIHR
- Dr. David Scheifele (University-Industry: Research Chair); CIHR/Wyeth
- Dr. Bruce Vallance Canada Research Chairs from CIHR and Scholar – Biomedical from MSFHR
- Dr. Anne Klassen, New Investigator form CIHR and Scholar – Population Health from MSFHR
- Dr. Angela Devlin (New Investigator); Heart and Stroke Foundation of Canada Dr. Louise Masse (Senior Scholar – Population Health); MSFHR
- Dr. Steven Miller Clinician Scientist - Phase 2 from CIHR and Scholar – Clinical from MSFHR
- Dr. Stuart Turvey (Canadian Child Health Clinician Scientist Program); CIHR
- Dr Tobias Kollmann (career award) Burroghs Wellcome Fund
- Dr. Jan Ochnio (Senior Scholar – Health Services); MSFHR
- Dr Dina Panagiotopoulos (Clinician Scientist); CFRI
- Dr Laura Shy, New Investigator award

Canadian Foundation for Innovation Awards

- Dr David Speert received CFI and BC Knowledge Development Fund infrastructure award for a total \$8.1 millions. Developing the CUPRIC
- Several investigators received awards from the leaders Opportunity Fund (Canadian Foundation for Innovation) and the BC Knowledge Development Fund: Dr Thomas Boyce, Dr Louise Masse, Dr William Gibson, Dr Michael Kobor, Dr Steven Miller and Dr Tobias Kollmann

Other Prestigious Awards and Recognitions

This section describes main recognitions and award (not necessarily monetary) that researchers from the Department of pediatrics received during the period 2004-09

- Dr Ron Barr and Dr Aubrey Tingle were elected to the Fellowship of the Canadian Academy of Health Science.

- Dr Andrew Macnab received several awards and recognitions:
 - Henry Cooper Research Award for Outstanding Research from the NW Urological Association (US)
 - Outstanding Achievement in Research Innovation, from the American Urological Association
 - Scholar in Health Research from the Western Society of Clinical Investigation
 - CIHR Research Prize (Faculty Supervisor) from Canadian Pediatric Association.
- Dr David Scheifele received the Alan Ross Award for Outstanding Achievement from the Canadian Pediatric Society;
- Dr David Speert was named Sauder Professor

Residents and Fellows Awards

In May 2008, Dr. Kevin Harris, a third-year resident in our program, won the “Best Resident Paper” in the national research competition in Winnipeg and was invited to present his paper in June 2008 at the 85th Annual Conference of the Canadian Pediatric Society (CPS) in Victoria BC. Dr. Jacob Rozmus, a fourth- year resident, received the CPS "Reach for the Top" Best Resident Award for his research paper based on his work in a northern BC aboriginal community. In addition, our residents have won a series of awards from various groups such as: The Research Society for Pediatric Research, the Canadian Pediatric Society (CPS) and the Canadian Association of Allergy and Clinical Immunology, the American Academy of Pediatrics, the BC Pediatric Society and the Don Hillman Award. Two of our residents Dr. Kevin Harris and Dr. Jane Ng received the Canadian Pediatric Society Resident Advocacy Grant of \$10,000 in 2008 to conduct research in the Downtown Eastside with a vulnerable population group. Dr. Kevin Harris also received two other awards in 2008: The American Academy of Pediatric Council School Health Young Investigator Award and the Department of Health Care and Epidemiology Faculty of Medicine UBC Stewart Murray Prize. In June 2008 Dr. Alexandra Zorzi, a third year resident, received the 2008 Outstanding Achievement by a Resident from The Child and Family Research Institute. In May 2009, Dr. Andrew Steer, won the “Best Fellow Paper” in the national research competition in Winnipeg and was invited to present his paper in June 2009 at the 86th Annual Conference of the Canadian Pediatric Society (CPS) in Vancouver BC. Quynh Doan won the first prize Fellow Research Award from Canadian Pediatric Society.

New Research Curriculum for Residents and Fellows

Resident research was spearheaded in March 2007 by the Associate Head of Research, Dr. Jean-Paul Collet who established a Pediatric Research Curriculum for pediatric trainees. The Research Curriculum includes one formal practical education, with a formal component in Health Quality Improvement since 2008, a research journal club and a research project. Residents are encouraged to select projects related to clinical practice evaluation that could lead to continuous Quality Improvement. Research support is offered to residents by the Research Institute (CFRI) through the Clinical Research Support Unit for assistance with methodology, statistics and evaluation. Research projects are conducted locally in our institution and in the community (for instance Downtown Eastside Vancouver, and with First Nations remote populations in Kitkatla, Port Simpson and Hartley Bay), as well as nationally and internationally. The research curriculum involves many clinician researchers who teach and share their experience and expertise.

The research curriculum has an active monthly Journal Club, which is resident driven and supervised by faculty. Residents receive a general fund from the Post Grad Dean's Office to attend conferences each year and are encouraged to attend and present their research. Four subspecialty residents have been recently awarded a Clinical Investigator Program (CIP) Fellowship in the following disciplines: Nephrology, Rheumatology, Neuroscience and Social Pediatrics, which will pave the way and foster the Clinician Scientist Program under the direction of Dr. David Speert.

The research program has been a great success with very positive evaluation and comments. It is based on a long term vision for building pediatric research capacity in BC by involving residents in conducting research projects early enough so they consider the possibility of becoming clinician investigator – and take all necessary actions in a timely way.

Strengths and Challenges and Challenges

Strengths

1. Highly skilled motivated young researchers with a willingness to engage in clinical research
2. The relationship with Child & Family Research Institute (CFRI) that supports Clinical Research directly and support Clusters that increase productivity and innovative research
3. Relationship building skills that have proven successful in establishing a number of new initiatives: PHSA, Child Health BC. These collaboration are essential to support and enhance our clinical and academic missions
4. Academic research leadership established by our researchers in different fields. These leadership developments indicate the good investment made by the Department to recruit “raising stars”.
5. The relationship with Child Health BC is another strength for our Department to implement health system reform through field interventions.

6. Residents are now involved into research projects early in their career and mentored by established and committed investigators.

Telethon for pilot / proof of concept studies is very important for generating preliminary data that will serve the rationale for a larger study.

Challenges

1. Recruitment is difficult:
 - Limited pool of applicants and those available are primarily international due to the specialized nature of various areas of Pediatrics
 - Unfunded costs of recruitment for advertising and site visits for interviews; particularly acute due to the limited pool of applicants necessitating the need for international advertisements and large travel costs for interviewees.
 - Lengthy, detailed and extremely time consuming and costly recruitment and appointment processes
2. Space for office and dry lab research since new buildings at CFRI offered more space; mostly for “wet labs”. Researchers in the field of quality improvement, health services research are still struggling to find appropriate place integrated within clinical divisions. Presently, they are too isolated to create a critical mass that would be more efficient.
3. Relationship and support from UBC School of Population and Public Health are weak and distant.
4. Protected time for research. With the escalating clinical demands, which are being felt by all practicing members of the department of Pediatrics, research opportunities are being “squeezed out.” Efforts must be made and resources found to protect time of these individuals for research, which is one of their mandates for practice at a tertiary care health centre. Protected time is also an issue for residents and fellows to conduct a research project and get involve in academic research activities.
5. The importance of research activity is more recognized by the health authority (PHSA), but this recognition has still little impact in practice.
6. Building research capacity at BC level is still a challenge – and supporting community research a plan.
7. More support should be given to clinician-investigators for classic tasks such as statistics or epidemiology (already supported) and for new tasks such as ethics submission, financial account management or human resource expertise for recruiting research staff.

Development and Action Plan

1. Research performed in the Department of Pediatrics should be directed at enhancing patient care, either directly or indirectly. Each division should strive for integration of research and delivery of care and for seamlessness of the connections between the

efforts of clinicians and scientists. The current research climate is favourable in the context of the new MSFHR framework (May 2009) and new CIHR patients centered research program.

2. Research and evaluation to improve practice and to enhance quality, safety and efficiency are recognized important features in the new Hospital Strategic Plan developed by Larry Gold (President of BCCH). There is real opportunity to engage more residents and fellows in HSR and KT projects. It is also possible to develop a new stream of clinician-investigators whose objectives would be to improve practice quality through the development of continuous evaluation and whole program assessment.
3. An equitable process for evaluating research productivity -- papers published, grants received, major contributions, etc. -- should be established. It should include a fair recognition of “non funded research” and Health Quality Research/Evaluation. Research impact should be evaluated in term of practice change and evidence based promotion practice – not only the “impact factors” that are not always related to the research utility.
4. Productive research programs should be facilitated whenever possible. It is recognized that not all research programs will flourish, but those which do succeed should be supported to the extent that their sustained success is enhanced. Clear criteria should be developed for measuring success which considers (for instance) data other than grant money received. The Department of Pediatrics should make a strong commitment to build on strength. It is clear that there are nodes of excellence in the department and that those have developed around dedicated investigators. If the department wishes to achieve the goal of national and international prominence in the area of child health, these areas of strength should be acknowledged and further supported.
5. To reinforce the Research Curriculum and organize a strong mentoring system for young faculty in order to enhance the likelihood of success. A “safety net” should be in place to ensure that those productive investigators who “stumble” do not take a fall from which they are unable to recover and that those who wish to establish research programs may do so.
6. The support of personnel should be one of the most important missions of the CFRI and more of the budget should be assigned to funding graduate students and post-doctoral fellows. These traineeships might best be awarded by individual Institute clusters at the discretion of the cluster head. This would facilitate the development of excellence in at least the few areas which have been targeted for development within the Institute structure and would guarantee that “dry” laboratory research is supported.
7. There is interest to optimize quality of care for children and youth who have a chronic condition. Collaborative research teams should be encouraged and supported – especially to link hospital and community activities along a continuum of care and evaluation. Along the same line, partnership with Child Health BC is critical to better link hospital and community activities. Developing/reinforcing links with health authority and hospital decision makers so to (a) harmonize activities for research and evaluation; (b) strengthen KT activity; (c) optimize healthcare delivery. Also (e) to

-
- optimize collaboration, (f) prevent duplication and (g) get more support for research and evaluation.
8. Part of the research budget could be managed directly by the Department; especially in the domains of Health Services Research, Health Quality Improvement and Knowledge Transfer, because these domains are most efficient when researchers are located within the clinical teams. Similarly, domains of practice evaluation through community interventions would likely be better managed if the Department had some autonomy regarding research support and organization.
 9. To offer support for community child health research and prevention is one priority. BCCH being the single tertiary institution for childcare in BC, with a provincial mandate, its research portfolio also includes community support and establishing links with patients, families and community organizations so to have them actively involved, as partners in research. This may go with giving smooth access to the service platform to all researchers involved in pediatric research and/or child health promotion
 10. Investigators (both clinical and basic) should be well-represented on all committees/boards which make decisions regarding research on this site.

Global Child Health Report

Report from Dr. Charles Larson, Director, Centre for International Child Health

“All Children Matter”

In 2003, the BC Children’s Hospital (BCCH) in partnership with the Department of Pediatrics and the Child and Family Research Institute approved the creation of the Centre for International Child Health (CICH). The Creation of the CICH was made possible by the strong support of the BC Children’s Hospital Foundation which understood the important role that the BC Children’s Hospital, in partnership with the University of British Columbia, has in advancing the health of children globally.

The CICH was established to: 1) focus and support the international activities of child health professionals from the BCCH and UBC, 2) help build expertise and capacity within our partner organizations in less and least developed countries, and 3) support the engagement of trainees in global child health. From the outset, the core strategy has been to develop international partnerships within which capacity building and research could be conducted, with an initial focus on China and Uganda because of important historical relationships with these two countries.

The initial operation of CICH occurred through a Steering Committee with an Interim Director, Dr. Robert Armstrong, and core operational support staff. The plan for a full-time Director was realized with the appointment of Dr. Charles Larson in January, 2008.

The terms “international” or “global” health are subject to a wide range of interpretations and, therefore, expectations. While not wanting to oversimplify this, the CICH was created to strategically position the BC Children’s Hospital, the Department of Pediatrics and UBC as an international player in child health. Our partnerships directly aim to improve the health and well being of children and mothers, in particular those most vulnerable and those living in less developed settings/countries. In light of current international agreements, the focus is on projects that will assist our partners in achieving their health development goals through the strengthening of health services, training and research.

Nearly 10 million children under the age of five die from preventable illnesses each year. Of all these deaths, 98% occur within least developed and emerging economy countries, in particular among the poor. While under-five mortality rates are improving in many regions of the world, progress lags far behind what is required to meet the Millennium Development Goals set for the year 2015. In several sub-Saharan countries the situation is actually worsening. Least developed countries can generically be described as severely limited in material and human resources and in their capacity to deal with an overwhelming array of urgent problems. Within their under-funded health systems, health workers are inadequately supported and underpaid. Strengthening capacity through training and opportunities for self learning, improved pro-poor health policies and decision making, and the provision of essential equipment and supplies will be critical challenges for any developing country and

those who partner with them in the effort to reduce unnecessary deaths and improve the health of children and the families in which they are raised.

Countries with rapidly emerging economies, such as China and India, have a considerably strengthened resource base upon which to reform their health systems and the delivery of services. Nonetheless, they face enormous challenges in terms of the health needs of their rural and urban poor populations, persistent poverty, inefficient health systems and insufficient clinical and public health capacities.

The CICH is well positioned to strengthen local capacities through the generation, transfer and exchange of knowledge and appropriate technologies that will impact on the above raised issues. These skills can and should address clinical, public health and rehabilitation sciences without creating artificial boundaries between them. Thus, an important goal of the CICH is to develop project proposals that go beyond institutional partnerships and are better positioned to have a lasting impact on child health through more effective integration into host country health systems and service delivery.

Guiding Values

Promoting health, reducing disease burden and saving lives among children and mothers

- Health equity in terms of gender, socioeconomic status and where one lives
- Universal access to health care
- Respecting the rights of children
- Ethical and transparent conduct of projects
- Generating new knowledge directly applicable to the delivery of health services
- Knowledge translation
- The integration of public health and clinical services within functional health systems
- Equal partnerships with reciprocal benefits

CICH Projects

I. China

(i) Children's Hospital of Fudan University (CHFU), Shanghai

(ii) Cardiac Sciences Training Program (2004 to 2010)

This project was initiated in 2004 with the aim of strengthening the management and surgical correction of congenital heart diseases, initially at the Children's Hospital of Fudan University. This was followed by the creation of a cardiac sciences training centre at Fudan and support for the development of pediatric heart surgery programs outside of Shanghai. Remarkable progress has been made in the overall quality and complexity of care provided by the CHFU cardiac surgery program over the course of the partnership. According to the CHFU director, "The program at Fudan University, which provided minimal to no complex cardiac care, was housed in an old and decaying building and did not value family based

care, has now blossomed into a large program, housed in a state-of-the-art new facility, which competently provides even complex neonatal cardiac care, and which is increasingly introducing aspects of family based care to their practice. Many of these changes can be directly linked to exchanges of ideas, skills and information between our partner institutions...” In 2008, 5 months following the move to a new hospital complex, the number of the pediatric cardiac surgery increased to over 900 cases, from a baseline of 200. Of these, 30~40% were complex cases and over 60% involved infants or neonates. In addition, a Cardiac Surgery Outcomes Analysis Database System for quality-control and audit was introduced in the CHFU.

(iii) Infectious Diseases/Emergency Medicine Project (2006 -2011)

This project was launched in early 2006 with the aim of establishing training centres at the CHFU in emergency pediatrics and infectious diseases. This includes training opportunities for Chinese fellows in Canada as well as at the CHFU. Once their training is completed, the fellows return to their sponsoring institutions. For a period of two years they then receive follow-up support from a mentor (former project trainers), including a yearly visit to their hospital of origin. In 2008, six trainees in emergency medicine and five in infectious diseases were brought to Canada for six months of specialty training. In addition a second batch of 12 fellows was identified for training in Shanghai that started in January, 2009.

(iv) Guangzhou Children’s Hospital: Advancing disability and epilepsy care for children in China

China is rapidly progressing in its ability to meet new challenges in health. However, an important rate-limiting factor is the absence, or extremely limited capacity, of health professionals in domains that were not recognized as high priority in the past. This is specially the case for neuro-developmental disorders such as epilepsy, cerebral palsy and general developmental delays. According to the latest statistics, there are about nine million epilepsy sufferers in China, with the number growing by 400,000 each year. As such, there is a strong need to develop appropriate facilities and services that can be integrated in a sustainable manner to existing health services. In addition, the system is challenged in providing services to all children in need. Guangzhou has nearly 1.7 million children under the age of 15, and the Province of Guangdong is home to over 17 million children. The neurology clinic at Guangzhou Children’s Hospital treats 230 children daily (approximately 60,000 patient visits a year) and its rehabilitation clinic sees 250 children per day (approximately 65,000 patient visits a year). About 65 per cent of these children come from the district of Guangdong, but outside of Guangzhou. In addition to a lack of trained professionals in seizure control and rehabilitative medicine at the community and tertiary levels in Guangzhou and Guangdong, capacities and the standard of care at the community level also vary greatly among hospitals. As a result, parents either do not seek help for their children or have to endure long waits due to limited resources. In October, 2008 funding was received to continue our association with the Guangzhou Children’s Hospital. The neurosciences partnership between Guangzhou Children’s Hospital (GZCH) and BC Children’s Hospital (BCCH) is a product of over twenty years of affiliation.

Four goals have been established for the advancing disability and epilepsy care project:

- To strengthen capacities among Guangzhou Children's Hospital staff in the diagnosis and management of seizure disorders, neuro-motor disabilities and developmental disorders.
- To create a provincial training centre at Guangzhou Children's Hospital in neuro-developmental disorders.
- To develop service delivery models and clinical practice guidelines that can be tested and evaluated.
- To establish and pre-test models of neuro-developmental training to be delivered in first- or second-tier health facilities throughout the province of Guangdong.

During the first few months of this project, the work has mainly focused on a baseline needs assessment and environmental scan that addresses both childhood epilepsy and cerebral palsy.

This project is funded through grants from the Fu Tak Iam Foundation and an anonymous donor.

II. Uganda

(i) Strengthening Capacity for Health in Uganda Project

In March of 2008 the CICH received funding to support four separate initiatives under the title "Building Capacity for Health in Uganda". These are described below.

Problem-based learning: For several years the Faculty of Medicine (now the Faculty of Health Sciences with four schools, including Medicine) has embraced the concept of problem-based learning. Every member of the medical faculty is involved in tutoring and mentoring students. At the inception of the change from the old curriculum to PBL the tutors agreed that PBL was the way to go. The major constraints to implementation have been lack of faculty skills in PBL and the absence of a PBL curriculum. In June, 2008 BC Children's Hospital/UBC faculty conducted two, 2-day PBL workshops for medical faculty. The workshops not only addressed teaching, but also included sessions focusing on counseling, characteristics of a good mentor and mentee, and common challenges faced. In 2009 this will be expanded to include community-based PBL modules. (community based education and service or COBES)

Midwifery: This project addresses continuing education and leadership training. Two ALARM International courses (Advances in Labour and Risk Management, International) have been given in Masaka. In rural Bukoto, a neighboring district to Masaka, a workshop on essential obstetrical care was held at the local health centre. A leadership training workshop for nurses and midwives was conducted at Mulago Hospital this past June

Improved survival of the acutely ill child: A needs assessment at Mulago Hospital and a nearby district hospital were approved and completed in 2009. This detailed situational analysis of pediatric emergency and critical care services is based on the World Health Organization guidelines for acute services in resource limited environments. During an initial visit in February, 2008 it was observed that methods for delivering supplemental oxygen to children were sub-optimal and indeed many children who needed oxygen could not be given

any. This is due to a shortage of oxygen supplies and inefficient delivery systems. In collaboration with the department of Pediatrics, Mulago Hospital, we have undertaken the task of developing prototype oxygen delivery systems. This has involved an additional partnership with Emily Carr University in Vancouver, renowned for its centres for innovation. These prototypes will undergo testing to determine functionality.

Specialist training in health research: Residents (Post Graduate Physicians) undertaking specialist training in Pediatrics and Child Health are required to present a research project as part of their Masters of Medicine Program. This should be original work and is begun in the second year of the three-year Master's program and has to be completed by the time they finish their third year. Generally the students undertake an observational or interventional study. The project is developed by the student under the guidance of two Faculty supervisors, at least one of which must be in the Department of Pediatrics at Makerere University. It is reviewed by members of the Department of Pediatrics. Following this, the project is presented by the student to the Faculty Review Board of the Department of Medicine at Makerere University for approval. There are 8 to 10 pediatric residents each year who undertake these projects. In September, 2008 two senior staff from the BCCH (both of whom were born and trained in Africa – South Africa and Zimbabwe and one has spent 6 months working at Mulago Hospital) conducted a three-day workshop for second year pediatric residents. In the months prior to this visit, each resident prepared a concept paper which was reviewed and revised following comments. The first two days were relatively structured and aimed to assist the Residents in the design and implementation of research their project. This workshop included information on research design, common errors in research, and display and analysis of results. On the third day BCCH staff met individually with residents to further refine their protocols. 15 residents attended the training session and from these 10 protocols were selected by Makerere faculty for funding support through the Building Capacity project. Each protocol has received \$1,000 following IRB approval. We provide on-going support to residents during the conduct of their projects. A second training session is planned for the fall of 2009.

(ii). Developing and delivering integrated innovations in support of acute illness management: It is estimated that 1.3 million children under the age of five die each year as a result of acute illness mismanagement. Health ministries throughout the developing world have adopted WHO's integrated management of childhood illness (IMCI) strategy to deal with acute illnesses in primary care settings. IMCI has enormous potential, but is meeting with limited success due to inadequate availability of material and human resources, insufficient financing, weak or absent health worker support and lack of adherence to treatment protocols. The over-riding goal of this project is to improve child survival. The specific aims will be to develop and test affordable, appropriate innovations that have the potential to mediate the identified constraints through improved support and acute care decision making among primary care health providers, greater efficiencies in the use of limited resources, and the more effective delivery of IMCI. The innovations to be tested include cell phone communication and diagnostic capabilities, centralized acute care support units, color coding of IMCI acute illness guidelines, strengthened referral capacities and improved, relevant information systems. These will be tested in two East African rural populations located in Mbarara, Uganda and Kisumu, Kenya and in rural Bangladesh. A full proposal is to be prepared and submitted for funding by Fall, 2009.

Institutional partners include.

- Centre for International Child Health – BC Children’s Hospital and Dept. of Pediatrics, University of British Columbia
- Emily Carr University
- Healthy Child Uganda – Dept. Pediatrics, University of Calgary
- International Centre for Diarrheal Disease Research, Bangladesh
- Kisuma field site – CDC/KEMRI
- Mbarara Institute of Science & Technology

Other International Partnerships

Better Medicines for Children: Headed by Dr. Stuart Macleod, Better Medicines for Children is a WHO sponsored project designed to improve access to essential medicines for children through addressing issues of availability, safety, efficacy and price. The project has five strategic project objectives:

- Promote research and development of essential medicines for children, by reviewing existing evidence for priority treatments for some diseases in children, developing appropriate standards and capacity for the conduct of clinical trials in children in resource poor settings, and encouraging development of appropriate dosage forms of medicines for children;
- Encourage the development of high-quality priority products for diarrhoea, by their inclusion in the WHO Prequalification of medicines programme;
- Promote access to essential medicines for children in priority countries by promoting inclusion of essential medicines for children in national essential medicines lists, treatment guidelines and procurement schemes; working with drug regulatory authorities to expedite regulatory assessment of essential medicines for children; and developing measures to monitor and reduce their prices;
- Promote improved use of medicines for children in several priority countries by scaling up established interventions that result in better use of medicines in children;

This project is funded by the Bill & Melinda Gates Foundation but within the overall programme ‘Better Medicines for Children’ developed by WHO in collaboration with UNICEF. Project activities will be executed by the WHO Department of Medicines Policy and Standards in collaboration with the WHO Department for Child and Adolescent Health, WHO Regional Offices, UNICEF, academic groups, and several countries. This is a five year programme (2008-2013).

Scaling up zinc for the treatment of childhood diarrhea: Dr. Larson continues to be involved in international efforts to scale up zinc treatment of childhood diarrhea – an intervention that has the potential to save 400,000 under-five lives per year. Activities include the development of guidelines for scaling up, monitoring the impact of zinc scale up in Bangladesh and Kenya, and consulting with other organizations planning national scale up programs.

Training in global health: There is unparalleled interest in international health among young Canadian health professionals in training. Training opportunities with clearly stipulated learning objectives are required. The CICH will work with the pediatrics residency training program to develop core and streamed curricula in global health. A fellowship program in global pediatrics is also planned. CICH will also partner with the newly created UBC School of Population and Public Health in support of its global health and vulnerable populations academic stream.

DIVISIONS

Division of Adolescent Health***Curren Warf, MD, MSED, FAAP, FCPS, FSAM, Head*****Faculty**

David Smith, MD, FRCPC, Associate Professor

Tara Tandan, MD, FRCPC, Clinical Instructor

Sandy Whitehouse, MBBS, Clinical Associate Professor

Curren Warf MD, MSED, FAAP, FCPS, FSAM, Clinical Professor and Head

Elizabeth Saewyc, PhD, MN, Affiliate Member

The mission of the Division of Adolescent Medicine is to improve the health of adolescents through clinical services, education and training, advocacy, health promotion and research. The Division seeks to define best practices for youth, educate and train health professionals in these best practices, facilitate youth involvement in program planning and evaluation, identify and address adolescent health issues, and develop partnerships for clinical service, training and research.

BCCH Background

The Division of Adolescent Medicine has been without a Division Head since Dr. Roey Malleson left in 2006. Dr. Jorge Pinzon left the Division in the summer of 2007 and Dr. Mark Norris left in 2008. Since then, though clinical and educational needs have been addressed with part time faculty and Dr. Ralph Rothstein stepped in as Acting Head, there has been no full-time leadership for adolescent health. Physician clinical coverage has been provided by three part time physicians: Dr. Sandy Whitehouse, Dr. Tara Tandan and Dr. David Smith. Together they have covered the eating disorder program, clinical consultations for youth with chronic medical conditions, and have provided resident clinical outpatient education, however, most of the prior educational and community adolescent health activities have been dropped and the demand for clinical consultations diminished with an increase in demand since the beginning of the year.

In 1998, the Division had developed the On TRAC Program, a relatively advanced model for transition services for youth with chronic medical conditions, but due to the lack of capacity, it was not locally implemented, though it still enjoys a positive reputation at other institutions.

In July, 2009, the Department of Pediatrics was successful in recruiting a new Head of the Division of Adolescent Medicine from Los Angeles, California, Dr. Curren Warf. The Provincial Health Services Authority has provided sufficient funding support to recruit an additional two faculty members to the Division.

Clinical Service

Eating Disorders Program

The Eating Disorders Program is sited at the Mental Health Building and is structured to be co-directed by Psychiatry and Adolescent Medicine. An innovative day treatment program has recently been initiated which is housed in the adolescent section of the mental health building. Two physicians, Dr. Tara Tandan and Dr. David Smith, provide medical coverage as part of the team caring for young people in the eating disorders program. Dr. David Smith, a highly experienced pediatrician, provides medical care for four full days per week. Dr. Tara Tandan, trained in adolescent medicine, provides initial medical assessments one day per week.

<i>Eating disorders day treatment program patient involvement</i>					
Age	2004	2005	2006	2007	2008
6-10	2	1	2	4	3
11-15	57	39	54	43	57
15+	119	99	94	99	93
Total	178	139	150	146	153

As can be noted, almost all the participants in the eating disorders program were adolescents, most of whom were over 15 years of age.

<i>Unique patients admitted to inpatient care with primary diagnosis of eating disorder (including anorexia nervosa with severe malnutrition, bulimia, other eating disorders 2004/2005-2008/2009)</i>						
	2004	2005	2006	2007	2008	Total unique patients over 5 years
Total Unique Patients	33	24	37	43	50	164

Patients seen in the Youth Health Centre

The Youth Health Centre is a tertiary care clinic for adolescents with complex health problems such as insulin dependent diabetes mellitus and other chronic illnesses who are managing poorly, and those with significant life impairment resulting from fibromyalgia, chronic fatigue syndrome and somatoform illness leading to frequent school absence and referrals from the BCCH Emergency Department commonly related to drug and alcohol use. Consultations are provided by Dr. Sandy Whitehouse. Dr. Sandy Whitehouse supervises pediatric clinical education at the Youth Health Centre.

A Nurse Clinician with a background in mental health, who has recently returned from a year's maternity leave, had joined the Youth Health Centre when the last full time

Adolescent Medicine specialist physician left. Having recently resumed her position, she provides clinical services assessing the psycho-social and behavioral risk of youth with referrals and linkage to appropriate community resources, and is currently implementing a six month mandatory follow-up of patients.

Since early 2007, Nurse Practitioners have provided ambulatory health promotion services on sexual health for youth with chronic medical conditions including youth with renal problems, cystic fibrosis.

Recently, the Nurse Practitioners have moved out of the Division of Adolescent Medicine and have initiated a well child clinic at BCCH's Ambulatory Care building; they continue to see some teen girls for issues of sexual health.

The Women's Hospital is in close proximity to the Division of Adolescent Medicine; teen girls needing gynecological evaluation or reproductive healthcare are generally seen there.

<i>Youth Health Centre outpatient visits 2004-2008</i>										
Age	2004		2005		2006		2007		2008	
	visits	Unique patients								
6-10	4	1	4	3			1	1	5	2
11-15	142	49	130	39	116	44	71	33	40	21
15+	211	69	197	69	166	55	177	72	63	34
Total	357	119	331	111	282	99	249	106	108	57

Inpatient consultation service

One of the goals of the Division of Adolescent Medicine has been to be a resource for other Divisions of the hospital in addressing the health and behavioral concerns of adolescent inpatients. This service was discontinued about one year ago in view of the lack of Adolescent Medicine staffing capacity. Those consultations had largely been related to treatment adherence for youth with chronic medical conditions, assessment of behavioral risk, management of menstrual disorders, drug and alcohol assessment, evaluation and counseling regarding family conflict, and addressing issues of reproductive and sexual health.

At this time, the Adolescent medicine program has no presence in inpatient care.

Inpatient medical services

The inpatient service had a designated inpatient unit of about 9 beds with dedicated nursing staff which was discontinued about 8 years ago when the hospital discontinued developmentally-based placement and emphasized diagnosis based placement.

<i>Unique* Inpatient Discharges Age 11-18 by program per fiscal year 2004/05-2008/09</i>										
*Unique indicates unique patients across all programs										
	2004/05		2005/06		2006/07		2007/08		2008/09	
	Number unique patients	% total hospital programs	Number unique patients	% total hospital programs	Number unique patients	% total hospital programs	Number unique patients	% total hospital programs	Number unique patients	% total hospital programs
Cardiac Sciences	60	5.0%	60	5.0%	46	3.7%	46	3.6%	48	3.8%
Critical care	55	4.6%	63	5.2%	75	6.0%	55	4.3%	68	5.3%
Neurological Sciences	148	12.3%	153	12.7%	140	11.1%	185	14.4%	181	14.2%
Heme/Onc/B MT	81	6.7%	78	6.5%	89	7.1%	76	5.9%	102	8.0%
Mental Health (Eating d/o)	33	2.7%	22	1.8%	32	2.5%	38	3.0%	42	3.3%
Specialty Pediatrics	243	20.1%	289	23.9%	301	23.9%	349	27.1%	307	24.1%
Surgery	588	48.7%	542	44.9%	577	45.8%	538	41.8%	525	41.2%
Total BC Children's Hospital unique patients	1208	29.3%	1207	29.1%	1260	26.8%	1287	28.0%	1273	27.4%

At this time, the Adolescent medicine program has no presence in inpatient care, though there are staff, including a child life therapist and psychologist, assigned to the inpatient service who have some dedicated time to adolescent care.

As is illustrated by the table below adolescent aged youth 11-18 years have constituted a third or more of the inpatients at BCCH over the last five years.

Number of discharges and proportion of total hospital discharges of adolescent inpatients aged 11-18 years of top ten diagnoses responsible for admission										
	2004/05		2005/06		2006/07		2007/08		2008/09	
	Number of discharges	Percent of all discharges	Number of discharges	Percent of all discharges	Number of discharges	Percent of all discharges	Number of discharges	Percent of all discharges	Number of discharges	Percent of all discharges
Adolescent admissions of top ten medical diagnoses*	547	34.3%	520	32.3%	620	38.6%	619	35.0%	639	36.1%
*Top ten medical diagnoses: eating disorders, appendicitis, cystic fibrosis, epilepsy, sleep disorders, Crohn disease, scoliosis, agranulocytosis, complications of procedures NEC, other acquired deformities of limbs, intracranial injury, complications of cardiac/vasc/prosth/implant/grafts/Type 1 diabetes mellitus, and other medical care**										
** primarily patients admitted for chemotherapy for neoplasia										

Transition planning and implementation

Transition is the planned and coordinated preparation of youth and their families for adult health care, and the transfer to health care providers that have the skills and resources to provide developmentally appropriate care to late adolescents and young adults. Transition planning acknowledges that adolescents and young adults are frequently not able to demonstrate the consistency and judgment required to independently address complex chronic medical conditions and strives to improve health outcomes by assuring that young people have the support that they need to succeed in managing their medical condition.

In 1998, the BC Children's Hospital Division of Adolescent Medicine developed a program for transition of youth into adult services, which has developed a national and international reputation, the On TRAC program; however, it is not formally implemented at BCCH at this time. Many clinics have created their own transition models.

Medical education

Through the Division of Adolescent Medicine and UBC faculty, medical students at UBC are provided five or six lectures focused on adolescents over a week in the Growth and Development Program. These lectures cover puberty, sexual health, sexually transmitted infections, drug and alcohol use, adolescent development and nutrition. Medical students do not receive clinical training.

Clinical education of pediatric residents continues largely through an experience in the Youth Health Centre, the eating disorders program, a dual-diagnosis clinic operated by

psychiatry, and community clinics for general health care and confidential reproductive health. The rotators are provided clinical supervision at the sites, however, there is no structured curriculum currently being implemented.

Family Practice residents come to Women's Hospital and are provided lectures on adolescent health by members of the Adolescent Medicine Division.

Although in the past nurse practitioners of the Division of Adolescent Medicine had made educational presentations to nurses on adolescent health, there is currently no health education focused on non-physician health care providers.

The Community of Care Intranet site was very recently set up and includes many adolescent health related resources. The site has the potential to enhance education related to adolescent health concerns, and coordinates and facilitates the utilization of existing resources within the hospital.

Goals of the Division for the upcoming five years:

Faculty Recruitment:

- Recruit a new adolescent medicine physician faculty to provide full time leadership and clinical coverage in the Eating Disorder Program.
- Recruit a second full time faculty physician to participate in all phases of the Adolescent Medicine Division, in particular educational initiatives.

Education

Initiate a new Adolescent Medicine Fellowship Program and win accreditation from the Royal College of Physicians and Surgeons of Canada.

- This fellowship will be a 24-month program and comply with the training requirements of the RCPSC. It will take advantage of the extensive expertise of the faculty of BC Children's Hospital and the University of British Columbia to provide an exceptional curriculum and training environment.
- Initial recruitment of fellows should begin in July, 2010.
- Develop and implement a new curriculum for pediatric residents on Adolescent Medicine.
- Provide didactics and clinical training to prepare graduates of the BCCH Pediatric residency program with the skills and knowledge to care sensitively for adolescents in the context of their families.

Clinical and Consultative Services

Eating disorders program: Provide state of the art evaluation and management for youth with eating disorders in collaboration with the Department of Psychiatry through the inpatient, day program and out patient programs.

Adherence support for youth with chronic medical conditions: Given the difficulty that adolescents with diabetes mellitus commonly have in adhering to treatment, as well as youth with other chronic medical conditions, with sufficient resources, the Division of Adolescent Medicine may be able to develop adherence programs for youth with specified medical conditions in collaboration with the subspecialty physicians and staff which could significantly improve patient outcomes and family satisfaction.

Develop multidisciplinary clinical services for youth with fibromyalgia, chronic fatigue syndrome and somatoform conditions.

Develop consultative services in Adolescent Medicine for patients referred by physicians of BC Children's Hospital caring for both the inpatient and outpatient population.

Adolescent specific inpatient care: In view of the significant proportion of inpatients that are youth between the ages of 11-18, it would be advisable to revisit the concept of targeted cohorting of select adolescent patients in a specified area of the hospital with designated nursing and support staff who have adolescent specific interest, training and skills.

Community engagement for adolescents at high risk: Assess clinical, consultative, referral and professional education needs related to Adolescent Medicine of community physicians in East Vancouver and develop strategies towards utilizing the resources of the University to address those needs. These environments can provide excellent educational opportunities for pediatric residents.

Referral, linkage and on-call services

Substance abuse: Given the capacity and priorities of the Adolescent Medicine program at this time, the most effective method of improving access to care for youth with substance abuse problems will be to identify existing high quality adolescent-focused community programs and improve referral and linkage. This will entail some effort and increased staffing capacity to identify effective programs, support youth and parents in becoming linked to programs, and evaluating the effectiveness of these efforts.

Based on recent discussion with physicians from the Emergency Department, given sufficient staff and resources, the Division of Adolescent Medicine will develop a geographically based resource and referral guide for youth with substance use problems and support to assure successful linkage with programs.

Resource Development: Though the staff resources are not now available for a 24-hour on-call system, the Adolescent Medicine Division should be able to develop a rapid referral system for youth who present to the Emergency Department. Acquisition of new resources to support a social worker or other appropriate health professional would make the development sustaining of such a referral and linkage system feasible.

Adolescent Transition Services

Develop and implement transition services for chronically ill adolescents into adult services.

To successfully implement an effective transition program, there must be dedicated staff, and the development of a care giving culture within the pediatric institution that prepares nurses and other critical staff to assess adolescent specific health issues related to sexuality, substance use and other sensitive health related areas so that they have the support to effectively evaluate and understand the needs of young patient.

There are effectively two developmental stages in adolescence during which transition for patients with chronic medical conditions takes place. First, there is a transition from pediatric care to adolescent care as children develop the increasing capacity for independence and are increasingly influenced by a social environment over which parents frequently have diminishing control.

Secondly, there is adolescent transition into adult care. Unfortunately, decisions to move patients into adult care are typically made based on an administrative basis, i.e. after attaining a specified age of 17 or 18 or 21 years as a threshold, because of funding considerations, concern about perceived behavioral risks related to substance use or sexual expression, or on the bed capacity of the hospital. None of these factors are related to the readiness of specific patients to take on adult responsibilities and function autonomously. Making what are essentially clinical decisions based on these criteria are fraught with danger for the adolescent and young adult, who at the same time frequently also has reduced engagement with parents, or whose parents may have less ability to deal with a complex, adult medical system. Medical conditions worsen.

The above challenges are informally recognized by some Divisions who appreciate the limitations of youth to take on adult responsibilities and make allowances. For example, it is common for pediatric oncology or cystic fibrosis patients to continue to be seen in pediatric facilities long after other young people's care is transferred to adult providers.

Addressing this issue will be one of the new priorities of the Division of Adolescent Medicine. This can be achieved by developing collaborative relationships with adult medical facilities, working on the development of adolescent and young adult medical programs at specified facilities, and pursuing research initiatives.

Youth in high risk environments

To increase community engagement and care of marginalized youth

Tragically, despite the overall success of Vancouver as a healthy urban environment, there remain many young people who have not benefited from the generally positive economic picture. In British Columbia many aboriginal youth, youth from low income families, youth in foster care, and sexual minority youth leave home or stable housing prematurely, do not have meaningful family support, have been traumatized within the family and/or raised in the foster care system, victimized by violence, and survive outside the mainstream economy. In doing so, they put their future at great risk, failing to advance in their education or develop employable skills, and live in an environment that puts them at high risk for developing serious substance use problems, incurring infectious diseases including HIV, and being further traumatized by physical or sexual assault. This population has emerged as a special group on which the field of Adolescent Medicine has targeted research and resources. The Division of Adolescent Medicine will be well positioned to offer expertise, develop collaborative networks and initiate research to address these critical challenges.

The close connection that has historically existed between adolescent medicine at BCCH, fostered by Roger Tonkin, and the McCreary Youth Foundation, which has conducted innovative population based research on the health and well-being of youth in British Columbia, will facilitate the development of targeted collaborative clinical services and associated research.

Participate in community prevention efforts relative to adolescent health:

In view of a recent up tick in violence related morbidity (most of which is not related to youth behavior), there is a conference planned on community violence prevention in the near future. Through this, and other activities as developed, the staff of the Division of Adolescent Medicine will participate in community prevention efforts.

Research initiatives

The association of BC Children's Hospital's Division of Adolescent Medicine with both the University of British Columbia and the McCreary Youth Foundation, creates conditions for an exciting environment to develop adolescent health focused research. The McCreary Foundation has conducted the most far-reaching and extensive surveys of youth health in British Columbia, which have been repeated periodically over the last fifteen years or more. The School of Nursing and the School of Public Health at UBC have both experienced researchers as faculty who are highly interested in adolescent health.

Transition care

The transition of adolescents with chronic medical conditions into adult care remains a critical juncture during which their health typically is jeopardized and deteriorates significantly adding to both the financial costs and human burden of disease. Gaps in knowledge and experience regarding barriers, resources, and efficacy of transition models provide rich territory for both research and program development. There exists a core of medical faculty at BCCH who are interested in issues of transition; this creates potential for new and interesting developments in this field.

Evaluation of substance use by youth with chronic medical conditions

The Youth Health Program of BCCH's Division of Adolescent Medicine produced an innovative manual for youth with chronic illnesses called "Cocktails" in 2002, republished in 2005. This product provides information on potential interactions of pharmaceutical drugs with drugs of recreation and abuse. Evaluation of the utilization of this manual can provide the basis for research project focused on understanding substance use by youth with chronic medical conditions.

Adolescent focused population based research

Data collected by the McCreary Youth Foundation provides a rich basis for population based research on the health of youth in British Columbia. Although there have been several compelling publications based on these data, this is largely an untapped resource for research.

Successful pursuit of the above initiatives, and perhaps others, will position the Division of Adolescent Medicine at BCCH to be eligible for additional funding for research.

Academic Activities

Adolescent Health	2005	2006	2007	2008	2009
Refereed Publications (Journals)	1	5	3	7	9
Books/Book Chapters		2	1		2
Invited Presentations		1	1		

Summary

In brief, the Division of Adolescent Medicine is emerging from a challenging period after the loss of several key faculty members. Over the last two years the Division has been able to provide clinical services for the eating disorders program as well as the Youth Centre for adolescents with chronic medical conditions. With the granting of sufficient funding to attract a team of adolescent medicine physicians, including a new Division Head, there is an opportunity to develop new educational initiatives, including an Adolescent Medicine Fellowship Program, more extensive clinical and consultative medical services, enhanced relationships with community agencies focused on youth health, and new research initiatives that will position the Division to pursue research funds.

Division of Allergy

Dr. John Dean, Professor and Head

Faculty

John Dean, BSc, MBBS, FRCP(C) (Peds), Clinical Associate Professor
Edmond Chan MD FRCP(C) Clinical Assistant Professor

Overview

Allergic diseases are the most common chronic childhood afflictions and their prevalence has increased markedly over the last twenty years. Up to 40% of children can be affected by some atopic disorder. While the spectrum of these disorders ranges from benign nuisance ailments to severe life threatening disease, all levels of disease are a concern for the parents and family and constitute one of the major reasons for specialist consultation. Scientifically based allergy has been advancing enormously over the last quarter century and a strong academically based Allergy Department is vital for the well-being of the children of this province.

Background

The Division of Allergy was established in 1976 at the old Children's Hospital on West 59th Avenue. with Drs. Andrew B. Murray and Alexander C. Ferguson, a clinic nurse and clinical secretary. The unit provided consultative care for children with allergic disease and asthma from all over the province of British Columbia. The program integrated clinical care, teaching with clinical, and laboratory research. Over the ensuing years, a number of important research articles were published in the areas of immune function in intrauterine malnutrition, bronchial hyper-responsiveness, the role of aeroallergens in the etiology and management of childhood asthma, tobacco smoke and asthma, and growth in atopic children. Several continue to be cited in contemporary literature. The use of blood testing for allergy in clinical practice (RAST, ELISA) in British Columbia was developed in the Allergy Laboratory.

In 1982, the Division moved to the new BC Children's Hospital site, to a smaller but more efficiently organized clinical area and the research laboratory was accommodated beside other laboratories elsewhere in the Hospital.

In May 1992, Dr. Andrew Murray retired from clinical practice and Dr. Ferguson became Acting Head and then Head in September 1995. During this period, the extra clinical load, teaching, Dr. Ferguson maintained clinical research and administrative duties.

In 1995 Dr. John Dean moved his practice from the Vancouver community to the Allergy Clinic as clinical GFT member of the Division, contributing greatly to teaching, CME, and clinical demands on the Division.

In 2004 Dr. Stuart Turvey joined the Division of Infectious Diseases as a laboratory researcher, with 0.1 FTE clinical allergy), and in 2007, Dr Ferguson retired.

In April 2008, Dr Edmond Chan became a full GFT and has greatly helped the Division meet its heavy clinical and teaching demands, both in the hospital and in community CME's.

Goals of the Division

- To provide exemplary and current scientifically based investigation and treatment of complex allergic diseases in children, including those of the respiratory tract, gastrointestinal disease and food intolerance, skin disease and systemic symptomatology, such as recurring infections, food, venom and drug reactions, and anaphylaxis.
- To improve the quality of care of Children with allergic disease throughout British Columbia by the development of regional outreach/partnership programs.
- To provide effective education of students, post-graduates and practicing physicians in the basic science and evidence-based approaches to allergic disease to enhance quality of care in the community; and to develop a Royal College approved training program in Allergy/Clinical Immunology.
- To develop innovative research projects with practical applications.

Major Successes and Challenges

Clinical - Successes

- Model program providing high quality care to a large number of cases of increasing complexity. Complex patients are frequently referred to us by other allergists. Also, many patients have seen other allergists in the past.
- Starting a food challenge program. Some children outgrow food allergy and the only definitive way of showing this is by oral challenge with the food.
- Collaborating with infectious disease on vaccine allergy.
- Starting a multidisciplinary eosinophilic oesophagitis clinic with gastroenterology, the current standard of treatment of this disease.
- Ability to respond quickly to advances in diagnosis and treatment.
- A team approach, with flexibility of members to provide a caring environment for children and families, good professional communications and a sense of frequently going a step further than required.
- Survival of the team through periods of intense stress resulting from the culmination of years of lack of space and resources.
- Channeling of community resources into developing patient programs at BCCH when no hospital financial support is forthcoming.
- Becoming contract salaried. Prior fee for service was ultimately dependent on sufficient clinical support personnel. (see below)

Challenges

- Inability to appropriately follow-up children with complex problems who live at a distance from BCCH.
- Inability to maintain back-up clinic personnel for sickness/vacation relief (funding for this was removed by the hospital in 2003, but partly re-instated in 2004).
- Loss of 25% of clinic staff in April 2004 when one of the clinic staff (0.5 FTE) retired and was not replaced. This reduction (from a total of 2.2 FTE), resulting in a major 25% reduction in patients seen and a huge impact on worsening the waiting list, reducing clinical cases for teaching and diminishing potential candidates for clinical research studies.
- Lack of medical personnel to deal with patient load, appropriate on-call demands and outreach. As a corollary to this, the majority of children having allergic disease in the community are referred to Allergist/Immunologists trained in Internal Medicine, not Pediatrics, raising important quality of care issues.

Teaching - Successes

- There is now a compulsory R 1 rotation with CF and respiratory medicine. This has been favourably received by all residents.
- We are currently applying to found a fellowship program in Allergy and Clinical Immunology with the Royal College of Physicians and Surgeons of Canada and hope to have a program running in July 2010 or 2011.
- Local, national and international recognition of effective teaching skills and knowledge in the field of pediatric allergy.
- Ability to provide effective paramedical and public education at an understandable level.

Challenges

- There is little time and personnel for journal reviews and other CME activities for Divisional physicians to stay on top of the information explosion.
- Additional secretarial support will be necessary once our proposed Royal College Fellowship program is approved.

Research - Successes

- Integration of research into a clinical program where income support for research is minimal or absent.
- Ability to network and develop collaborative projects with other Divisions, Departments and Centres.

Challenges

- There is little time to review, analyze and synthesize information in order to be proactive in developing research projects. Easy access to computer expertise is lacking or outrageously expensive.
- There has been a lack of research climate at BCCH, often making collaborative projects difficult.
- Financial and space support of clinical research is extremely constrained, other than the minimal funding for Telethon Projects, by the corporate vision which flows considerable research funds to the infrastructure of large programs in and around the Research Center.

Administration – Successes

- Existence of organizational, planning, and implementation skills.
- Resilience of the Division in dealing with professional stress, change, increasing administrative demands by the hospital, eking-out space to survive and to keep going, at least temporarily, despite a major cut in financial resources.

Challenges

- Chronic lack of awareness of Allergy Division programs by the BCCH administration, unfortunately not improved with the advent of the Pediatric PBCU. The latter has declined from initially being an advocate for the needs of patients to being the uncomplaining enforcer of budget cuts.
- Chronic under-funding of personnel and resources, much worse since April 2004.
- Historically BCCH expects administration time from physicians without pay.

Subspecialty Resources and Planning

Three immediately compelling reasons for recruitment:

i) The first is to provide a critical mass within the Division to permit adequate time for members to participate in all aspects of academic activity – clinical care, education, research and administration.

ii) The second is the need to provide an improved quality of care to the children of British Columbia, of whom 10% have asthma and 20-25% other allergic diseases. There are only five Royal College or American Board certified subspecialties in pediatric allergy/clinical immunology in the entire Province of British Columbia, three of whom are in Vancouver (two at BCCH), one in Surrey and one in Victoria. This means that the majority of children with allergic disease referred by general pediatricians and family doctors are seen by the much larger number of Internist Allergists, untrained in pediatric medicine. Many children ultimately find their way to our clinic where it is evident that their care has been suboptimal. The Hospital, through the Division, should be encouraging qualified sub-specialists to set up practice in Greater Vancouver area and to

be clinical members of the Division. This may be facilitated by permitting these community sub-specialists to have access to the investigative and educational resources of the Allergy Clinic and would entail modest enlargement of the Clinical resources, which are currently fully utilized.

iii) The third is to develop a co-operative arrangement with community hospitals in other parts of the province. This would bring expertise to children until now excluded from sub-specialist care unless they travel to Vancouver, and update local medical and nursing staff. Currently, this “outreach” is not feasible as it makes little sense to remove personnel and equipment from the Allergy Clinic, reducing operations there only to perform similar functions elsewhere less efficiently.

Other than lack of funding, a further difficulty in recruiting academic faculty is the small number of graduates from Subspecialty training programs in Canada. Those who have graduated in recent years have generally gone on to community practice careers. Despite this, it should be possible to identify candidates having the potential for excellence and these require nurturing and development. Without the possibility of firm and competitive funding for a faculty position, this is an unrealistic expectation. Based on the ratio of pediatric allergists to childhood population in the rest of Canada, British Columbia and the Department of Pediatrics are severely depleted. We believe that at least two more academic faculty are required to provide the critical mass both for productive “academic” development and co-management programs in the community. As well, the need for recruitment for retiring faculty over the next 3-6 years needs to be addressed. This was not done prior to 1992 when Dr. Murray retired with a loss of funding which placed inordinate demands on the remaining faculty. Finally, the issue of sabbatical leave has never been addressed, but again possible within an AFP.

Clinical Care Commitment

Children with allergic disorders are referred to BCCH from all parts of British Columbia. The clinic is a tertiary referral centre and the program is a model for “one stop consultation” care. Children seen have a variety of complex allergic problems including respiratory tract disease (asthma, rhinitis, recurring pneumonia, allergic bronchopulmonary aspergillosis), gastro-intestinal disease related to food intolerance, skin disease (atopic dermatitis, urticaria, atypical skin eruptions) and systemic symptomatology (recurring infection, food, venom, drug and antibiotic reactions and anaphylaxis). Most consultations take approximately 1 ½ to 2 hours and involve information gathering, investigation (skin testing, spirometry, inhalation challenge testing, provocative oral or cutaneous challenge testing), diagnosis and formulation of a treatment plan, and education of parents and children as to allergen avoidance, use of inhaler devices, dietary modifications and other therapy. A report is forwarded to the referring physician for ongoing care. This single visit model is particularly appropriate for British Columbia where children travel long distances to be seen and follow-up care can be close to home though there are concerns about the quality of this especially in terms of the general lack of training of Residents in this field. Some children with very severe or complex problems require follow-up and this can typically be arranged at 3-6 months intervals. A prior analysis of referrals determined that about 30% of children were from outside the Greater Vancouver area and about 50% had been previously attended to and referred from other specialists, mainly general pediatricians.

There is a huge demand for our clinic services. The two physicians together have approximately 1500 patient visits per year. Because of the demand for services, a triage system is used whereby referring physicians forward a referral letter. Based on the information contained therein the referral is triaged as urgent, semi-urgent or routine. Those assigned “urgent” are seen within 2-3 weeks, “semi-urgent” in 3 or 4 (now 4-5) months and “routines” have diminishing hope of being seen as they are pushed back by the accumulation of more urgent cases. Our current waiting list for routine patients is about 10 months. In 2003, hospital administration decided not to pay for replacement of clinic staff on sick leave or vacation leave. This resulted in a significant curtailment of patients seen. Because patient through-put is directly related to clinical staffing (for investigational procedures and education) this resulted in a 25% reduction in patient volume.

In 2002/2003, there were approximately 21,000 consultations provided by adult allergists in British Columbia, of which 3,602 consults were for children and youth under age 19 years. These contrast with the approximately 1500 patient visits that were accommodated by the two pediatric allergy sub-specialists at BCCH. Because of this understaffing, this number will now be reduced to 1125. It has been argued that these children could be followed by other community physicians. Many of these patients have already been, as previously noted, and for others, the problem requires the level of expertise and resources of our Allergy Clinic, which are unavailable elsewhere in the province.

With regards to the importance of asthma education, the Division in 1998 developed, with the help of the BC Lung Association, an education program with a **Certified Asthma** Educator designed for parents and children, from preschoolers to adolescents. Unfortunately, in 1999, the hospital was unwilling to share the cost, resulting in discontinuance of the Lung Association funding, and the program ended. We have since had the two asthma educators from the now defunct Mount St Joseph's program join us, and apart from asthma education, these nurses are also doing food challenges for the clinic twice a week.

Quality assurance of the clinical program is facilitated by the excellent and close working relationships of the Allergy Clinic team. Arising issues are managed quickly, with policy and procedures updated, and diagnoses and treatment options discussed with staff as appropriate.

Division Faculty have been actively involved in health promotion beyond the bounds of the clinic as volunteers in public education, for example as Chair of the Asthma Education Committee of the BC Lung Association and as organizers and speakers at numerous paramedical, nursing and public education forums on allergic disease and asthma.

Teaching Involvement

The two faculty Division members are active in education at several levels:

Medical Students

Third year medical students spend time in our clinic as part of their outpatient paediatric rotation. We also regularly provide students with didactic lectures and teaching sessions.

Residents

Pediatric residents at the R1 level each do a one-month rotation in the Allergy Clinic, since much of their future practice (for general pediatrics) will involve allergic problems. The Pediatric residents who do spend time in the Allergy Clinic invariably give their experience a high rating. Internal Medicine and Dermatology residents routinely spend time in our clinic as a part of their outpatient paediatrics.

Subspecialty trainees

We have applied to the Royal College of Physicians and Surgeons of Canada to establish a Royal College Training Program in Allergy/Clinical Immunology. We hope to have it operational by 2010 – 2011. Dr. John Dean, a member of the Division, was the chair of the Royal College Examination Board for Subspecialty Certification in Allergy/Clinical Immunology.

Continuing Medical Education

The Division's physicians continue to participate in a variety of CME programs, which include Department of Pediatric Updates for Pediatricians and General Practitioners, symposia arranged by the Division of CME/UBC, Community Hospital Programs, Grand Rounds, Advances in Pediatrics, invited lectureships and numerous Conference Program Committees and presentations. As well, staff have served as chairs of the Canadian Pediatric Society Allergy Section, and recently, chairs of Committees developing updated Canadian Consensus Asthma Treatment Guidelines under the auspices of the Canadian Thoracic Society/Canadian Lung Association in 1995, 1998-99, and 2003/04.

Allied Health and Public Education

The Division physicians have been deeply involved over the years in organizing and presenting seminars and symposia for nurses, asthma educators and the public, the latter organized by the BC Lung Association and the Canadian Anaphylaxis Society. Dr. Ferguson chaired the Asthma Education Committee of the BC Lung Association for ten years, and has been instrumental in organizing Asthma Camps for severely affected children and is currently on the Advisory Board of the Canadian Anaphylaxis Society.

Scientific Development

Research Productivity

Division faculty have, in the past, been highly productive in studies of intrauterine growth retardation and immune function, environmental factors in asthma, pathogenesis and mechanisms of inflammation and bronchial responsiveness in asthmatic children and different treatment modalities. Papers linking intrauterine growth retardation from intrauterine "malnutrition" with diminished lymphocyte immunologic functions persisting into school age were the first published on this topic, 1978-1982. It is interesting to note that 25 years later, attention is now being focused on the life-long effects of the uterine environment and the increased rate of infections and death in adults who had IUGR. A study of the importance of the indoor environment associated with house dust mite allergy and the beneficial therapeutic effect of dust – avoidance measures in controlling asthma in children was published in 1983. This has become a landmark study and is frequently cited in the contemporary literature. Investigations using bronchial lavage in children with asthma to examine the relationship between bronchial mucosal inflammation and bronchial hyper-responsiveness, published in 1989 and 1992, were the first in the literature using this technique to describe the pathogenetic changes in the airways of children rather than adults. Research continues to be actively pursued, is mainly clinical and is often done in collaboration with other investigators.

A large randomized controlled study (over 500 families) in Vancouver and Winnipeg funded by CIHR of early developmental intervention to modify the expression of allergy and asthma in high risk children, which was started in 1996, continues. Analysis of data from the first and second years showed rapid viral colonization, an important role for

environmental tobacco smoke with a marked concentration of the nicotine metabolite cotinine in breast milk and in infant urine, enhanced atopic genotypes, and diminished wheezing illness in those in the intervention group. Analysis of data indicates a significant decrease in asthma at age 7 years. This study will hopefully continue for several years to find out the effects on the ultimate expression of asthma and other allergic disease. Co-investigators with Dr. Ferguson are from adult Respiriology Epidemiology (UBC), Genetic Lung Disease (St Paul's Hospital) and Winnipeg Children's Hospital. Results have been published in several journals during the last five years. Dr Chan is taking over Dr Ferguson's role in the future of this study that has now received further funding from CIHR. The cohort is being re-evaluated in their teenage years.

In 2004, an epidemiologic study of the prevalence of asthma and allergic disease was undertaken in Vancouver, funded by Health Canada; of over 3000 children aged 12-14 years. This was part of the International Study of Asthma and Allergy in Children Phase 3. Participation of students was 95%; almost double that of elsewhere in Canada. Co-investigators with Dr. Ferguson are from Hamilton, Ontario, and Auckland, New Zealand. The data is currently being analyzed.

During the last several years, two large scale randomized clinical trials have been conducted (PI: Dr. Ferguson) examining the safety of inhaled corticosteroids in children with asthma. These showed significantly different effects on growth velocity. One was published in *J Pediatrics* the other (a year long study) has been submitted for publication. A third RCT was of the efficacy and safety of adding long- acting beta-agonist therapy to regular inhaled corticosteroids in children.

Stuart Turvey is the co-PI of the Canadian Healthy Infant Longitudinal Development (CHILD) Study. The CHILD study, which began in 2008, is a national study of 5,000 children born in four provinces across Canada. The purpose of this study is to discover what environmental factors may be related to children's health and development. The dramatic increase over the last 30 years of allergic diseases, including food allergies, eczema, allergic rhinitis, and asthma, may relate to our environment. Lifestyle, indoor and outdoor air quality, diet, stress, family history and changes in genetic expression may contribute to the increase in these childhood diseases.

The CHILD study has secured over \$12 million in funding from the Canadian Institutes of Health Research (CIHR) and the AllerGen Network of Centre of Excellence, with additional support from the Canadian Mortgage and Housing Corporation, Childhood Asthma Research Foundation, Health Canada and Environment Canada.

Dr. Chan will be participating in a randomized study on the use of conjugated linoleic acid for the treatment of pediatric asthma. The collaboration will be with investigators at St Paul's Hospital and a grant application has been submitted.

Future Plans

With the increased clinical, education, and administrative demands over the last ten years, research activity has become greatly restricted and has largely been possible only within the context of collaborative studies. Previous wet-lab based research is no longer tenable. There are many exciting projects related to the development of allergy, pathogenesis of asthma in children, genetic factors, teasing out the true role of pharmacologic treatments and so on, which could be pursued as a Division but with two-faculty members stretched to the limit and without additional personnel to free-up substantial research time these objectives remain elusive.

Interactions and Collaborations

The Division of Allergy interacts with other Divisions, programs and individuals at several levels. For clinical activities, a collegial relationship is maintained with referrals back and forth to Otolaryngology, Dermatology, and to a lesser extent Emergency, Respiriology, Gastroenterology, Endocrinology, Infectious Diseases, Cystic Fibrosis Service and Oncology among others. As much as possible, consultations are expedited on referral from these services and attempts are made to coordinate appointment times for patient convenience. Divisional faculty frequently respond to telephone calls regarding clinical problems from colleagues inside the hospital and physicians province-wide (average 300 calls / year) Much of the research and educational activity is also on a collaborative basis with participation in Rounds with other Programs, presentations, with other subspecialty colleagues, and the development and presentation of meetings and symposia in local, national and international venues. Research collaboration since 1999 has included projects with Medical Genetics; Infectious Disease, Complimentary Medicine; Neonatology; Division of Respiriology (Vancouver General Hospital); Section of Allergy, Department of Pediatrics, University of Manitoba; Division of Respiriology, McMaster University, Hamilton.

Strategic Initiatives

The incidence of allergic disease and asthma in the pediatric population is increasing along with the complexity of cases seen by the Division of Allergy. This underlines the immediate need to train and employ additional highly skilled medical and support staff, enlarge the space available for Divisional activities, enhance training of general pediatric residents, institute a fellowship training program and develop clinical research to address the many diagnostic and treatment issues which arise.

In the 1999 Division of Allergy Report, the Reviewers stated *“Through the Department of Pediatrics and the Pediatric PBCU the needs of the Allergy Division can be brought to the awareness of the BCCH “upper” administration and, along with the needs of other clinical programs, directly if necessary, to the Board. There must be recognition at all levels of the administration of the value of all clinical program and of the enormous contributions of medical and support staff, not only of the historically “select few” programs and in-patient facilities. The administration and Board should identify what*

are the minimal resources required for all programs to provide optimal care, and clearly express their resistance to inadequate funding and the consequences thereof. It is illogical, for example, that an allergic disorder such as chronic asthma the morbidity costs the economy CAN\$600 million is treated at BCCH either as an Emergency (at great cost) or as a minor problem that can wait 6-8 months for investigation and treatment.”

Some things have improved since this assessment but our small technical staff with no real backup for sickness and holiday leave, along with our small medical staff and long wait list underline our need for more staff. It appears that the Board (PHSA) is unaware of the impact of the specific fiscal policies of the hospital administration. This hopefully can be addressed by presentation via the Medical Staff Executive rather than the CEO. The potential outcome(s) of this Medical Staff initiative remains unknown.

The Department of Pediatrics is currently in the final stages of a very prolonged process of developing an AFP with the PHSA and MOH. Should this come to pass, a major advantage would be the ability to competitively recruit two additional faculty members, which would improve patient care by diminishing the waiting list, provide the critical mass to develop a Subspecialty Training Program (further enhanced by the recruitment of Dr. S. Turvey with a background in laboratory immunology and clinical practice, to the Division of Infectious Diseases) and to move forward with the research agenda of the Division. It is critical for the survival of the Division of Allergy that the AFP be quickly implemented. At the moment, the staff salary situation is satisfactorily managed through a service contract but there is no indication that this would be passed on to a new recruit.

The doubling of faculty would improve the visibility of the Division and mandate improved resource allocation both at BCCH and, especially, in the development of partnership programs in the other centers in BC. This would result in the enhancement the quality of care of allergic children and provide a much larger patient base for the development of clinical studies.

The Division will continue to work with the Children’s Hospital Foundation to identify donors willing to contribute to funding an endowment for the Division. This will require a large degree of serendipity as the five focus areas of the Foundation do not include Allergy/Clinical Immunology.

Division of Biochemical Diseases

Dr. Sylvia Stockler, M.D., M.A.S., Professor and Head

Faculty

Biochemical Diseases

Dr. Sylvia Stockler, MD, M.A.S., Professor and Division Head

Dr. Yolanda Lillquist, MD, LMCC, FRCPC, Clinical Assistant Professor

Dr. Anna Kielska, MD, FRCPC, Clinical Assistant Professor

Dr. Marion Coulter-Mackie, PhD, Associate Professor

Dr. Ramona Salvarinova, MD, FRCPC

Dr. Gabriela Horvath, MD, FRCPC

Cystic Fibrosis

Dr. Mark Chilvers, MD, MRCP (UK), Clinical Associate Professor and Head, Cystic Fibrosis Clinic

Dr. George Davidson, MD, FRCPC, Professor Emeritus

Dr. Yolanda Lillquist, MD, LMCC, FRCPC, Clinical Assistant Professor

Dr. Donlim Peacock, MBChB (Cape Town), FRCPC, Clinical Associate Professor

Dr. Anna Kielska, MD, FRCPC, Clinical Assistant Professor

Division Overview

The Division of Biochemical diseases (Metabolic Medicine) was formed in 1984 as the University of British Columbia's and Children's Hospital Pediatric Division with the mandate for caring for children in British Columbia with Biochemical diseases both treatable or potentially treatable inborn metabolic diseases. Metabolic disorders are a continuously evolving branch of medicine since its inception in the early 20th century. From its beginning, the division's mandate was also to build up a team for the care of patients with Cystic Fibrosis. Today, there are two distinct clinics, which have evolved under the umbrella of the Division of Biochemical Diseases -- The Biochemical Diseases Clinic headed by Dr. Sylvia Stockler and the Cystic Fibrosis Clinic headed by Dr. Mark Chilvers.

Biochemical Diseases Clinic

Introduction

Mission and Goals:

The Biochemical Diseases Clinic at BC Children's is the only centre in British Columbia dedicated to the diagnosis and care of children with inherited metabolic diseases. As a tertiary care centre, our mandate is to provide the highest standards of medical care using the best clinical evidence and research.

Major Successes and Challenges

Successes

Clinical

1. Dr. Sylvia Stockler was recruited as Division Head from Vienna, Austria.
2. Doubled the patient clinic visits within the last two years.
3. New referrals increased from 10 to 25 % of the total patient visits.
4. There is currently no wait list for new patient referrals or follow-up visits.
5. Over 1700 'Outpatient Home Monitoring' visits annually.
6. Started joint "Neurometabolic Clinic" with neurology.
7. Division members actively participated in the technology assessment for expanded newborn screening (NBS) and are currently preparing acute management protocols for positive NBS patients.
8. Introduction of various innovative treatment protocols.
9. Further improvement of transition program to adult metabolic clinic.
10. In development - "Lysosomal Storage Disease Clinic".
11. In development - Standardization of Disease-specific Treatment and Follow-up Protocols.

Teaching

The Biochemical Diseases Clinic is contributing to the education of a new generation of specialists dedicated to the clinical care of patients with these rare diseases and attracting new upcoming researchers in this field. With our teaching activities in the scientific and public community we also contribute to the awareness of inborn errors of metabolism nationally and internationally. For further details, see "Teaching Involvement".

Research

Initiation of various projects focusing on translational research (clinical and laboratory) in inborn errors of metabolism. For further details see "Research including major interactions and collaborations".

Major Challenges

1. The Division is going through transition due to staff retirements and hiring of key staff personnel.
2. Enhancement of Outreach Services and telecommunication services for patients in remote areas.
3. Research space.

Strategic Initiatives including recruitment

1. Quality assurance in patient care.
2. Enhancement of Health Literacy of our patient population most vulnerable to non-adherence to medical treatments and health care plans.
3. Expansion of Biochemical Disease data base and participation in the international data registry on disease follow up and outcomes.
4. Establishment of focused research domains and arrangement of sustainable long term external research funding.
5. Participation in industry sponsored clinical trials for new treatments.
6. Recruitment of three faculty positions – work in progress
7. Knowledge Dissemination: teaching material for patients and professionals (websites, printed articles, educational talks, etc.).

Subspecialty Resources and Planning

1. Three sub-specialty fellows finished CCMG fellowship in Biochemical Diseases
2. Two Visa Fellows from Saudi Arabia
3. Expanding resources for subspecialty training in biochemical diseases for national and international fellows.

Clinical Care Commitment including quality improvement structure and achievements

The Biochemical Diseases Clinic is responsible for the diagnosis and management of pediatric (up to age 18) patients with metabolic diseases in the Province of British Columbia. It operates the ambulatory (outpatient) Biochemical Diseases Clinic, inpatient clinical service, and home monitoring program. The scope of metabolic diseases is ever increasing through initiatives in Expanded Newborn Screening and new partnerships with the Neurometabolic Clinic and international collaborations.

Teaching Involvement

Division of Biochemical Diseases – Undergraduate students include medical students from UBC, Out of Province and International medical students, students from nursing, social work, physiotherapy and dietetics. Residents rotate from Pediatrics, Genetics, Neurology and Family Practice. Fellows rotate from Gastroenterology, Respirology and Genetics.

1. Dr. Lillquist, Dr. Salvarinova, Dr. Coulter-Mackie and Dr. Horvath are involved in the education of medical students at UBC.
2. Dr. Stockler is responsible for the development and coordination of the division's teaching activities including the teaching of subspecialty residents and fellows.
3. Development of a teaching website for neurometabolic disorders.
4. Dr. Lillquist organizes weekly academic rounds on metabolic and cystic fibrosis topics which is Royal College of P&S of Canada approved for CME credit.
5. The Division has started a 2-week clerkship rotation for third year medical students.

6. Hosted the Annual Garrod Association Symposium in 2007.
7. Dr Stockler has contributed to the 22nd Edition of Rudolph's Pediatrics with a chapter on creatine and ornithine metabolism. She edited and contributed to the chapter on Pediatric Neurology in one of the German standard textbooks on Pediatrics (Paediatric, Speer, Gahr eds, 3rd edition). She was in charge of a one-day teaching module for neurometabolic disorders at IPOCRATES, a European based international postgraduate academy.
8. Dr Stockler has been a member of the review board for the EC Framework 7 Program Call on Rare Diseases, and she was an active participant of the European Commission Conference on rare diseases research in 2007 (and 2009).

Under Graduate	Lectures	DPAS	Clinical Skills	Clinical Preceptor		Electives			
				In-patient	Out-patient	UBC	OOPS	IMG	
Year 1		Pediatric OSCE exams for medical students (RS)	Pediatric Clinical Skills (GH/RS)			Summer Students (SS/GH)			
Year 2									
Year 3	Academic ½ Days for medical students (GH/SS)				MSI – Clerkship (YL/SS/RS/GH)	MSI – Clerkship (YL)			
Year 4						Clinical rotations BDCS/CF (YL, GD, DP, AK)	✓ (YL/SS)	✓ (YL/SS)	✓ (YL/SS)
Postgraduate	Lectures	Seminars	Research Supervisor	Clinical Preceptor		Electives			
Residents Yr 1	Academic ½ Days (GH/SS)	Pediatric Junior & Senior Residents Clinical Skills teaching (YL) 4 th yr pediatric resident's Royal College exam preparation in Met Disease (GH)	✓ CIP Students (SS)	In-patient ✓ (YL/SS/GH/RS)	Out-patient ✓ (YL/SS/GH/RS/GD/DP/AK)	Combined CF/Allergy/Respirology Rotation (YL/GD/DP/AK/MC)	Genetics Program Residents (YL/SS)	Pediatric Neurology Residents (SS)	
Residents Yr 2									
Residents Yr 3									
Residents Yr 4									
SSR	Academic Rounds (SS/YL/GH/RS et al)		PhD Student (SS)			GI Fellow Rotation (YL/SS)	Biochemical Diseases Clinic Preceptorship (SS)		
Fellows			Post-doc Fellow (SS)						
		Local	Distributed	Provincial		International			
CME		Grand Rounds/Advances; BDCS Academic Rounds; Biochemical Genetics Research Rounds		CF Outreach Clinics		International invited talks; organization of international meetings			

Research including major interactions and collaborations

Funded Research Projects:

New Investigator Start-up Funding (CFRI) – “Neuroprotective effects of ketone bodies. Development of an experimental model in 14 day old rat pups”, \$125,000, Stöckler-Ipsiroglu S, 2005-2010.

BCCH Telethon Award – “Developing methods to screen for X-linked Creatine Transporter Deficiency (X-CRTRD) in patients with mental retardation”, \$ 9,910, Stöckler-Ipsiroglu S, Co-Invest: Dr. G. Sinclair, 2007-2009.

Industry Sponsored - International Registry for Lysosomal Storage Diseases, \$30,000, Stöckler-Ipsiroglu S, Dr. S. Sirrs, Dr. L. Clarke, Dr. K. Selby, Dr. E. Yap-Todos, 2007-2008.

Bluma Tischler Postdoctoral Fellowship Award 2007 Awardee: Dr. Eduard Struys – “Functional characterization of antiquitin gene mutations: implications for the treatment of pyridoxine-dependent epilepsy”, \$44,000, Stöckler-Ipsiroglu S, Coulter-Mackie M, 2007-2009.

Clinical Investigator Program (UBC) Award to Dr. Gabriela Horvath – “Pediatric Neurotransmitter Disorders from Clinical Presentation to Molecular Characterization and Back to Treatment”, \$70,000/ year for 2 years. Supervisors: Stöckler-Ipsiroglu S, Coulter-Mackie M, Waters P, 2008-2010.

CIHR Meetings, Planning and Dissemination Grant (Institute of Genetics and Neurosciences – “Canadian Metabolic Epilepsy Network: Antiquitin deficiency”, \$25,500, Stöckler-Ipsiroglu S, 2008-2009.

HeRRO CIHR Pillar 3 and 4 Development (Seed Fund Program) – “New Approaches to Improving Outcome and Quality of Life for Children with Chronic Conditions. The PKU Model”, \$5000, Stöckler-Ipsiroglu S, McKellin W, Johnston C, Ipsiroglu O, 2008-2009.

Savoy Foundation – “Development of a diagnostic panel for treatable metabolic epilepsies: a prerequisite to investigate frequency and clinical spectrum of metabolic epilepsies in Canada”, \$24, 600, Stöckler-Ipsiroglu S, Coulter-Mackie M, Connolly M, Vallance H, 2009.

UBC interim funding award- Molecular investigations of type 1 hyperoxaluria. \$15,000. 2005. Coulter-Mackie, MB

CIHR Operating grant- Biochemical consequences of missense: protein mis-folding, instability, and altered co-factor binding. AGT as a model enzyme. \$72,783 /year, 2005-2008. Coulter-Mackie, MB

Unfunded Projects/Pilot Projects:

Development of methods for screening and diagnosis of cerebral creatine deficiency (CRTR deficiency). Mahmutoglu S, Coulter-Mackie MB, Stockler S.

Development of methods for screening, diagnosis and molecular characterization of treatable inborn errors of metabolism causing mental retardation, autism spectrum disorders and epilepsy: pyridoxine dependent epilepsy (PDE); cerebral creatine deficiency syndrome; GLUT1 deficiency. Mahmutoglu S, Stockler S, Coulter-Mackie MB.

Development of expression systems in E coli for mutations in the GAMT and Antiquitin genes. Coulter-Mackie MB, Stockler S.

Clinical and biochemical characteristics of patients with the First Nation variant of CPT1a deficiency. Mahmutoglu S, Stockler S, Vallance H.

Mutation analysis of the alanine:glyoxylate aminotransferase gene in patients with type 1 hyperoxaluria. Coulter-Mackie, MB.

International Leadership in:

1. Inborn errors of creatine synthesis and transport
2. Pyridoxine dependent epilepsies

Governance**DIVISION MEMBERS**

CLINICS	BIOCHEMICAL DISEASES	CYSTIC FIBROSIS
FACULTY	Dr. Sylvia Stockler Dr. Yolanda Lillquist Dr. Anna Kielska Dr. Marion Coulter-Mackie(Research)	Dr. Mark Chilvers Dr. George Davidson Dr. Yolanda Lillquist Dr. Donlim Peacock Dr. Anna Kielska
LOCUMS	Dr. Ramona Salvarinova Dr. Gabriela Horvath	
FELLOWS/TRAINEES	Dr. Saadet Mahmutoglu Dr. Majid Al-Fadhel Dr. Jatinder Grewal Dr. Peter Schutz (PhD Student) Dr. Eduard Struys (Postgraduate Fellow)	Dr. Jatinder Grewal
CLINICAL & ALLIED HEALTH PROVIDERS	Dr. Cynthia Davis (Psychology) Kathy Withers (RN) Susan Failanga (RN) Linda MacNutt (SW) Carol Hartnett (Nutr) Alette Giezen (Nutr)	Shelagh Jenkins (RN) Anna Gravelle (RN) Vanessa McMahon (RN/ResN) Maggie McIlwaine (Physio) Lillian Morishita (Tech) Linda MacNutt (SW)

	Barbara Cheng (Nutr) Eva Yap-Todos (RA)	Barbara Bell (Nutr)
STAFF	Sharon Gyorgy Ruth Giesbrecht Gail James Sally Lin Deborah Hunter	Pamela Seldon

Administrative responsibilities of division members

Dr. Sylvia Stockler:

Biochemical Genetics Fellowship Committee, Member, UBC, 2006 - present.
 Pediatric Sub-Specialty Committee, Member, UBC, 2006 - present.
 Search Committee for Academic Clinician, Respiriology, Member, UBC, 2006.
 Search Committee for Clinical Specialist, Respiriology, Member, UBC, 2006.
 Cystic Fibrosis Director Search Committee Recruitment, Member, UBC, 2006.
 Lab Scientist Position Selection Committee, Newborn Screening, UBC 2007.
 Member of Lysosomal Storage Disorders Advisory Group (LSAG) - advisory to Ministry of Health Service (Pharmacare), BCCH.
 Member of Expensive Drugs for Rare Diseases (EDRD) Committee - advisory to Ministry of Health, Pharmaceutical Services Division, BCCH.
 Priority and Evaluation Committee, Member, BCCH, Vancouver, BC, 2006 - present.
 Nutrition Sub-Committee of the Priority and Evaluation Committee, Member, BCCH, Vancouver, BC 2006 - present.
 Newborn Screening Advisory Committee, Member, BCCH, Vancouver, BC 2006 - present.

Dr. Yolanda Lillquist:

Newborn Screening Working Group on Cystic Fibrosis, BCCH, August 2006 – present.

Dr. Gabriela Horvath:

Residency Training Committee, (UBC Pediatric Residency) 2004 – 2005

Community roles of division members

Dr. Sylvia Stockler:

Member of Advisory Board of the European Metabolic Group (EMG). 2003 - 2007.
 Member, Society for the Study of Inborn Errors of Metabolism (SSIEM), 2006 - present.
 Member, B.C. Pediatric Society (BCPS), 2006 - present.
 Member, Garrod Association, 2006 - present.
 Member, Child and Family Research Institute (CFRI), 2006 – present.
 Member, The American Society of Human Genetics, 2006 - present.
 Member of Medical Advisory Board, The Canadian Society for Mucopolysaccharide & Related Diseases Inc. (MPS), 2007.

Committee Member, Canadian College of Medical Genetics (CCMG) - Biochemical Genetics Fellowship Training Program.

Monatsschrift f. Kinderheilkunde (Journal of German and Austrian Societies of Paediatrics and Adolescent Medicine), coeditor of the Section for continuous education, Editorship, 2001-2005.

Neuropädiatrische Praxis, Editorship, 2001-present.

Klinische Paediatric, Editorship, 2004-present.

Journal of Inherited Metabolic Diseases, Editorship, 2005-present.

Dr. Yolanda Lillquist:

Member, Canadian Paediatric Society, 1992 – 2007.

Member, BCMA, 1992 – 2007.

Member, BC Paediatric Society, 1996 – 2007.

Member, SSIEM, 2000 – 2007.

Dr. Gabriela Horvath:

Member, CPS, 2006- present.

Member, BCMA, 2006- present.

Member, College of Physicians and Surgeons of BC, 2006-present.

Member, Garrod Association, 2006- present.

Member, SSIEM, 2006- present.

Dr. Ramona Salvarinova:

Member CPS, 2000-present

Member BCMA, 2006-present

Member, College of Physicians and Surgeons of BC, 2006-present.

Member, Garrod Association, 2006- present.

Member, SSIEM, 2007- present.

Dr. Marion Coulter-Mackie:

Member, Garrod Association, 1995-present.

Member, American Society for Human Genetics, 1985 to present.

Member, Mayo Clinic Hyperoxaluria Centre Advisory Committee, 2007-present.

Reviewer for international research grant competitions: Comitato Telethon
Fondazione, etition)

South African MRC; European Research Projects on Rare Diseases (E-RARE);

Institute National de la Sante et de la recherché Medicale (INSERM, France));

Oxalosis and Hyperoxaluria foundation; Genopat (INSERM, France).

Academic Activities

Biochemical Diseases	2005	2006	2007	2008	2009
Refereed Publications (Journals)	16	6	10	11	3
Books/Book Chapters	4	2	3	3	1
Invited Presentations	5	14	8	10	

Cystic Fibrosis Clinic

Introduction

Mission and Goals:

The Cystic Fibrosis Clinic at BC Children's is the only centre in British Columbia dedicated to the diagnosis and care of children with cystic fibrosis. As a tertiary care centre, our mandate is to provide the highest standards of medical care using the best clinical evidence and research. We provide leadership and excellence in pediatric Cystic Fibrosis care in British Columbia through patient and family oriented state-of-the-art diagnosis and care, exemplary teaching and ethical research.

Five Year Plan

Aim: To continue to provide a high quality clinical service for **CF CARE**

The **CARE** model is divided into the following areas;

- Clinical:** To develop and roll-out the new CF newborn screening program; develop and update protocols for patient therapy; review and update infection control guidelines; and develop a CF patient annual review process.
- Administrative:** To review the current clinic structure; address staffing issues; and review current database. To work to strengthen links between BC and western Canadian CF clinics through a clinical network development.
- Research:** To continue to promote BCCH as a centre for high quality research through in house and multicentre clinical trials; to publish data from previous studies.
- Education:** To implement routine parent/family education strategies such as family education days, CF clinic newsletter; staff training.

Major Successes and Challenges

Successes

Clinical

1. Dr. Mark Chilvers has been recruited from Leicester, UK as Director of the Cystic Fibrosis Clinic. He has been in post since August 2008.
2. With improved treatment and follow-up, the CF clinic has reduced the number of total in-patient days by 25 %.
3. The incidence of chronic Pseudomonas has dropped to 14 % (2008) from 44 % (1995) in our CF patient population.
4. CF clinic actively participated in the process for developing and implementing the newborn screening program for Cystic Fibrosis in BC. This is due to commence in October 2009
5. Canadian CF Foundation funding has enabled CF Outreach Clinics to be held in Prince George since 1999 and Kamloops since 2003. Maintenance of these services in the long term and expansion to other sites, such as Kelowna, requires development of funding from the PHSA.
6. Adult CF clinic (a first in Canada) was developed over 25 years ago. It is internationally known and based now at St. Paul's Hospital. Our CF clinic nurse clinician is a leader in the Transition steps from Pediatric to Adult care.
7. There has been a significant improvement in the clinical status of adolescents transitioning to the adult service. Over the last 5 years (2005-2009) we have observed a fall in the % patients colonized with pseudomonas(50%(2005), 12%(2009)) with a corresponding increase in lung function (Mean FEV₁(% predicted): 77%(2005), 94% (2009)) and BMI (Mean:21.4 (2005), 22.5(2009)). This has had an impact in reducing the number of hospital admissions.
8. VEST study; this is the largest Canadian clinical multicentre study with a principal investigator who is a non-clinician.

Teaching

1. A clinical rotation for UBC pediatric residents has been developed which is combined with the Allergy clinic and Respiriology service. Evaluation of the rotation has improved over the last year with very positive feedback
2. Hosted the Western CF Conference in 2006.
3. Cystic Fibrosis Family Education Day – Excellence in Education Award 2008
4. BC CF lower mainland chapter family education day and AGM.
5. Postgraduate educational session: Victoria and Kamloops
6. BC Child Health: CF Update and newborn screening October 2009.
7. Triannual meeting with St Paul's Adult CF clinic.

Research

1. Investigating the effects of choline related supplements on abnormal plasma methionine and glutathione levels in a proof of concept study: **Completed**
2. Choline status of CF patients: **Completed**
3. Azithromycin in CF patients without *Pseudomonas aeruginosa* colonization: **Completed**
4. Randomized, open label, multicentre, phase 3 trial to assess the safety of Tobramycin Inhalation Powder compared to TOBI in Cystic Fibrosis subjects.
5. Phase II study, to determine the safety and to estimate the effectiveness of High Frequency Chest Wall Oscillation (HFCWO) using the inCourage vest system, as an airway clearance technique compared to Positive Expiratory Pressure Mask (PEP) in the treatment of cystic fibrosis (CF).
6. Denufosal in CF : International multi-centre study.
7. Canadian CF patient data registry.
8. VERTEX VX-770; This is a Phase 3, randomized, double-blind, placebo-controlled, parallel-group multicentre study of orally administered VX-770 in subjects with CF who have the G551D-CFTR mutation in at least 1 allele.. G155 genetic
9. ISIS: A multicentre randomized trial evaluation the impact of hypertonic saline in infants with CF.
10. Qualitative evaluation on adolescent transition services to adult clinics.
11. Review and qualitative survey of CF Outreach clinic and service provision.

Major Challenges

1. The Division is going through transition due to staff retirements and hiring of key staff personnel.
2. Enhancement of Outreach Services.
Newborn Screening for Cystic Fibrosis is targeted to begin in 2009 and will require additional clinical and non-clinical support staff.
3. Staffing
 - There has been a **loss** of 0.3FTE Dietetic support, this will significantly impact both the clinical program and newborn screening program
 - Historically the clinic has a CF fellow, currently there is no fellow and it is unclear as to the source of funding. It is imperative that this position is replaced.
 - The clinic has developed an extensive research portfolio. There is no permanent research coordinator funding. The position exists due to funding pieced together from research projects.
4. Space
 - There is insufficient office space to accommodate the members of the CF team.
Given the increased research activity there is no space available for the research coordinator nor storage of research materials/documents.

Inpatient support: currently inpatient support is provided by the clinicians involved in the metabolic on call schedule.

Strategic Initiatives including recruitment

8. Quality assurance in patient care.
9. Expansion of CF database and participation in the national data registry on disease follow up and outcomes.
10. Establishment of focused research domains and arrangement of sustainable long term external research funding.
11. Participation in clinical trials for new treatments in cystic fibrosis.
12. Recruitment of two respiratory faculty positions to support in and outpatient work.
13. Revision of infection control policies.
14. Review of length of stay indicators and annual review process.
15. The development of a research portfolio, which leads to regular monthly research meetings to plan, implement and publish research within the clinic.

Subspecialty Resources and Planning

Planning is underway for a subspecialty fellowship program for CF.

Clinical Care Commitment including quality improvement structure and achievements

The Division is responsible for the diagnosis and management of pediatric (up to age 18) patients with Cystic Fibrosis in the Province of British Columbia, in cooperation with a smaller CF clinic in Victoria, which serves southern Vancouver Island. It operates the ambulatory (outpatient) Cystic Fibrosis Clinic, Outreach (Prince George and Kamloops) CF Clinic, and the inpatient clinical service at BC Children's Hospital. Newborn Screening for Cystic Fibrosis will be launched in 2009. An internationally renowned transition program has been developed and is in the process of re-evaluation. All clinic members are participants in numerous ongoing multi-center clinical trials.

Teaching Involvement

Cystic Fibrosis Clinic – Undergraduate students include medical students from UBC, Out of Province and International medical students, students from nursing, social work, physiotherapy, genetic counseling and dietetics. Residents rotate from Pediatrics, Genetics, Neurology and Family Practice. Fellows rotate from Gastroenterology, Respiriology and Genetics.

The current resident (R1) evaluation has received a very positive review of the placement.

Members of the multidisciplinary team (RN, PT, Dietetics) have UBC affiliations to the School of Nursing at UBC and contribute in post/undergraduate teaching.

Research including major interactions and collaborations

Clinical trials, research and committees:

1. High Frequency Chest Wall Oscillation Study
2. Choline study
3. Denufosol Trial
4. Azithromycin Trial
5. Dry-Powder Tobramycin Trial
6. CF Aging Committee
7. ISIS Trial
8. Vertex: VX-770 Trial

Administrative responsibilities of division members

Dr. Mark Chilvers:

CF Clinic director

CCFF Clinical Studies Consortium 2009 – present

BCA CF Advisory Committee 2008- present

Newborn Screening Working Group on Cystic Fibrosis, BCCH, August 2008 – present

Newborn Screening program Advisory Committee, BCCH, August 2008 – present

BCMA GPAC: Asthma guideline working Group 2009- present

QI Initiative for Management of Asthma

Search Committee for Clinical Specialist, Respiriology, Member, UBC, 2008-present.

Educational Program Director for Division of Pediatric Respiratory Medicine 2008-present

Dr. A.G. Davidson:

Newborn Screening Working Group on Cystic Fibrosis, BCCH, August 2006 – present

Dr. Yolanda Lillquist:

Newborn Screening Working Group on Cystic Fibrosis, BCCH, August 2006 – present.

Community roles of division members

Dr. Mark Chilvers:

Member, Canadian Paediatric Society, 2008- .

Member, BCMA, 2008-.

Member, BC Paediatric Society, 2008 –

Member Canadian Respiratory Society 2009-

Dr. A.G. Davidson:

Member, Society for the Study of Inborn Errors of Metabolism, 1976-present.

Member, Canadian Paediatric Society-Liaison Member, Nutrition Committee, 1989-present.

Member, Society for Inborn Metabolic Disease, 1996-present

Dr. Yolanda Lillquist:

Member, Canadian Paediatric Society, 1992 – 2007.

Member, BCMA, 1992 – 2007.

Member, BC Paediatric Society, 1996 – 2007.

Member, SSIEM, 2000 – 2007.

Academic Activities

Cystic Fibrosis	2005	2006	2007	2008	2009
Refereed Publications (Journals)	3	5	2	3	3
Books/Book Chapters	-	-	-	-	-
Invited Presentations	6	10	4	3	16

**DIVISION OF BIOCHEMICAL DISEASES
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ -	\$ -	\$ -	\$ -	\$ 30,000
Clinical Trials	\$ -	\$ 19,603	\$ 47,468	\$ 28,831	\$ 75,369
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 37,439	\$ 111,392	\$ 147,783	\$ 178,093	\$ 73,384
Total	\$ 37,439	\$ 130,995	\$ 195,251	\$ 206,924	\$ 178,753

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	0	0	0	1
Clinical Trials	0	1	1	3	4
Contracts	0	0	0	0	0
Grants	2	2	2	4	4
Total	2	3	3	7	9

Division of Cardiology

***Dr. Derek Human, MA, BM, BCh, MRCP, FRCPC, FAAC
Clinical Professor and Head***

Faculty

Walter Duncan, MD, FRCPC, FACC, Clinical Professor
Martin Hosking, BSc, MD, FRCPC, FACC, Clinical Associate Professor
Derek Human, MA, BM, BCh, MRCP, FRCPC, FACC, Clinical Professor and Head
James Potts, BPE, MPE, PhD, Clinical Assistant Professor
Shubhayan Sanatani, BSc, MD, FRCPC, Associate Professor
George Sandor, MB, ChB, DCH, MRCP, FRCPC, Professor
Brian Sinclair, MD, FRCPC, FACC (joint appointment with Victoria General Hospital),
Clinical Associate Professor
Marion Tipples, MB, BS, DCH, MRCP, FRCPC, Clinical Professor

Overview

The Division of Cardiology provides care in British Columbia for cardiovascular disorders occurring in childhood. This mandate extends from *in utero* diagnosis via fetal echocardiography through to supervision of care in the adult world at the Pacific Adult Congenital Heart Clinic. A program of family-centered care is anchored in the Cardiac Sciences Program at BC Children's Hospital and extends to all the regional centers of the province through the Partnership Program in Pediatric Cardiology. Congenital Heart Disease is the commonest congenital malformation of childhood, and the timely diagnosis, management and treatment of heart disease is an essential part of tertiary level pediatric care. The Division works closely with the Division of Cardiovascular surgery at BCCH to provide pediatric cardiac surgery in one of only two programs in Western Canada, and together support the critically ill patients in Intensive Care, Neonatal Intensive Care, Oncology and Orthopedics.

Mission

Cardiac care that cares.

Goals

- Timely, appropriate and excellent care for the children of BC with Cardiovascular Disorders.
- Patient and family satisfaction with all aspects of their care.
- National recognition for the quality of training and teaching.
- Relevant research directed to improved outcome for Cardiovascular Disorders in childhood.

Major Successes and Challenges

Clinical Care - Successes

The Cardiac Clinic now integrates the office and clinic space for Cardiology to create the “Children’s Heart Centre for British Columbia”. This encompasses:

- a) Four state of the art echocardiography machines (two replaced in 2008) providing the Division’s core imaging needs, together with a portable machine for use in urgent calls and the Partnership program.
- b) A digital imaging storage and reporting system, (updated in 2008) with secure long-term archiving in the Provincial PACS.
- c) Outpatient Electrophysiology services including ECG & Holter recording, telephonic monitors and pacemaker assessments.
- d) A comprehensive Exercise Physiology laboratory, dedicated to pediatric exercise assessments using the treadmill, cycle, or arm ergometer. Metabolic and echocardiographic measurements can be obtained as necessary during exercise.

The biplane imaging unit for the cardiac catheterization laboratory was upgraded in 2005, and in 2008 the interventional Electrophysiology capability was added. Under the direction of Dr. Shu Sanatani, we will now be able to offer catheter-directed ablation procedures for the treatment of arrhythmias in childhood. As an adjunct to cardiac catheterization, the Division has access to sophisticated, non-invasive/minimally invasive options in terms of CT scanning and MRI imaging, through the valued contributions of Dr. Gordon Culham and Dr. John Mawson.

The workloads in the cardiac catheterization laboratory and inpatient services have not seen any growth in patient numbers, however patient acuity continues to intensify with routine use of intra-operative trans-esophageal echocardiography as well as increased clinical support demanded by the Extracorporeal Life Support (ECLS) Program. The increased complexity of patient care in the Intensive Care Unit has led to the adoption of joint rounds with the ICU and cardiac surgical attending staff on a daily basis, creating a cohesive and efficient patient care structure.

The annual workload in terms of the clinical activities of the Division has remained at a stable and high level over the past several years: over 7,000 patient visits, supervision and reporting of over 5,000 echocardiograms and 4,000 electrocardiograms as well as exercise testing and Holter monitor reports. A detailed spreadsheet breakdown of clinical activity is available. The Division’s Pediatric Partnership Program has continued to evolve, bringing the complete outpatient diagnostic capabilities to nine different communities around the province as well as Whitehorse in the Yukon. A detailed summary of the program activity is available.

The cardiac transplant patients are now cared for as part of the Multi-organ transplant clinic, where a multi-disciplinary team is available to review all aspects of their medical

care; this has been a much-needed addition to the outpatient service, bringing BCCH into line with the facilities offered at the two major transplant centers, Edmonton and Toronto.

The Division of Cardiology therefore continues to provide the highest possible standard of care in both the outpatient and inpatient settings.

Clinical Care - Challenges

The integral working relationship between Cardiology and Cardiovascular Surgery was stressed in the overview. The search for a surgeon to replace Dr. Leblanc has been unduly prolonged, and must be resolved soon to maintain the quality of the Cardiac Sciences program. The clinical workload for the staff cardiologists remains very high by national standards, and the failure of the Department Practice Plan to address this is a cause for concern in the long run.

The creation of the single 3M inpatient unit with the loss of the cardiac step-down unit beds on 3G-Room 9 has proven to be a serious error in terms of retention of nursing expertise and interest in the Cardiac patient population. The increasing pressures on the ICU have led to the incorporation of the intended step down beds into full ICU care beds, with no intermediate care level, and resultant early transfer of potentially unstable Cardiac cases to an inpatient area without a designated group of cardiac-trained nurses. Discussions have continued on ways and means to improve this potentially dangerous clinical scenario.

With respect to our access to imaging in Diagnostic Radiology, there have been growing concerns with respect to the CT scanner, which is now seriously out of date, and a 64-slice, gated machine, which will both improve image quality and reduce radiation exposure is urgently needed. Furthermore, although the quality of Magnetic Resonance imaging available is among the best anywhere in the country, the wait times for studies are now excessively lengthy due to the growing demand for this modality in many clinical areas.

Education - Successes

The Division continues to take pride in the teaching accomplishments of its Members. In 2008, the division received the Wyeth award from the 4th Year medical students for most valuable teaching services, and Dr Duncan and Dr Myers (Cardiology Fellow) received the excellence in teaching awards from the Pediatric Residents.

The Division has an established Royal College Training Program in Pediatric Cardiology, with sub-specialty resident positions filled for the next three years. Through the Western Canadian Children's Heart Network (WCCHN) the Cardiology Sub-specialty Residents participate in weekly teaching sessions with the centers in Edmonton, Calgary, Saskatoon and Winnipeg; there is also a quarterly National Teleconference for SSR education.

All Members of the Division contribute to CME courses around the province as part of the Partnership Program in Pediatric Cardiology, giving at least one talk each year in the regional centers visited. Dr Human and Dr Tipple take an active role in the Pediatric and Pediatric Emergency Medicine Courses sponsored by the University of British Columbia.

The Division again hosted distinguished visitors in Pediatric Transplantation (Dr. Anne Dipchand, University of Toronto and Dr Steven Webber, University of Pittsburgh). As part of the WCCHN initiative, a regular program of clinical and educational telemedicine sessions has been established for cardiac surgical case discussions, transplant care and transplant education on a biweekly basis.

Research - Successes

Dr. Potts continues as Research Coordinator for Cardiac Sciences at BC's Children's Hospital, maintaining excellent academic productivity and focus for the entire program. A summary of Grant and Publication activity is indicated below:

Academic Activities

Cardiology	2005	2006	2007	2008	2009
Refereed Publications (Journals)	11	14	11	13	5
Books/Book Chapters	1	1			
Invited Presentations	15	6	8	15	

The first Cardiac Sciences Research Day was held in September 2008, attracting over 100 attendees, highlighting the involvement of the division in three key areas of research: Vascular development and Marfan's Syndrome; Cell physiology; and Arrhythmias Genetics of Cardiovascular Malformations.

Additionally, two poster sessions were held, displaying 34 research projects. The full program is appended.

The Division has increasingly collaborated with Dr. Glenn Tibbits and Dr. Casey van Breemen in the Cardiovascular Research Institute, and with scientists in biophysics at UBC. The investigation of Sudden Death in British Columbia is a clinical and research focus, which is a growing field in cardiology. Dr Sanatani is working closely with the Coroner's Service and Pathology to improve the services for families who have lost someone to Sudden Unexpected death (SUD). He is part of a national research collaboration and contributes as the only pediatric centre in this research. The clinical work in SUD substrates has led to multidisciplinary collaboration with basic scientists, geneticists, genetic counselors and lay personnel. We have described a novel mutation in a Northern British Columbia community predisposing many individuals to SUD. This work has led to further collaboration, grants and ongoing research. Dr. Sanatani is the lead investigator in a Heart and Stroke funded study on the treatment of neonatal

tachycardia, and Dr. Sandor in a Marfan Society study on the experimental treatment of the vasculopathy of the syndrome.

Research - Challenges

The initial administrative structure of the CFRI did not recognize the Cardiovascular Group as an entity, leading to inadequate space in the CFRI building to support the Cardiac research of Drs. Tibbits and van Breemen; Dr Andrew Campbell in Cardiovascular Surgery has also been unable to establish space for the promised laboratory for research in pulmonary hypertension and cellular therapies. Hopefully, the recent recognition of the Acute Care cluster for research structure and administration will start to address these deficiencies.

University Service

Drs. Human and Hosking devoted many hours to the deliberations of the Practice Plan Committee. The integration of the Division into the Practice Plan unfortunately remains problematic at this point due to significant funding discrepancies. We are hopeful that this will be resolved in due course, acknowledging the importance of a stable funding source for an academic Division.

Dr Sanatani is a member of the Departmental committee for appointments, promotion and tenure, and has recently been part of the Departmental Strategic Planning process.

Dr Duncan is a regular participant in the admissions process for UBC medical school and the Pediatric residency program.

Dr Potts has been involved in the academic mission of the University and the Hospital:

- Member, Research Education Committee, Child and Family Research Institute, 2002- present
- Chairman, Pediatric Clinical Studies Sub-Committee, Telethon New Research Fund Competition, 2003-2005
- Member, Telethon Project Standing Committee, Telethon Awards Competition, 2006
- Chairman, Telethon Project Standing Committee, Telethon Awards Competition, 2007

Dr. Michael Patterson in his role as Emeritus Professor has continued in a central role in organizing the Undergraduate PBL learning block, and Dr Duncan continues as a PBL teacher.

Health Care Service: Royal College and National and International Initiatives

The Division's important role in the Royal College of Physicians of Canada Examination process has continued with the involvement of Dr. Martin Hosking as Chairman of the Examination Board in Pediatric Cardiology from 2005, during which time he has overseen an important evolution in the examination to a computer-based and highly structured objective assessment. This follows in the tradition established by Drs. Duncan and Human, both of whom are prior Chairmen of the Examining Board. Dr Duncan has regularly served as an external reviewer for programs for the Royal College.

The Western Canadian Children's Heart Network was formally established since 2002, with a full time coordinator based in Edmonton, and Dr. Human continuing in the role of Chairman of the Clinical Steering Committee of the Network. We have experienced extremely positive progress on the creation of a cohesive clinical and educational network across Western Canada, Vancouver, Edmonton, Calgary, Saskatoon and Winnipeg. The centers are now linked with a common clinical database to track patient outcomes; weekly clinical videoconferences, meetings, and weekly educational videoconferences linking all the centers take place regularly. Dr Human and Dr Potts serve on the Information Management Committee.

The first conference sponsored by the Network entitled, *Defining Quality in Pediatric Cardiology*, was held immediately prior to the Canadian Cardiovascular Society (CCS) meeting in Calgary in 2004, and the second conference in Vancouver in 2006, entitled *Neuro-Developmental Outcomes in Congenital Heart Disease*. These meetings brought together Pediatric Cardiologists, trainees and nursing staff from across the country and have since been adopted by the host cities for all CCS meetings since 2004. The Network will continue to sponsor a biennial meeting with the CCS when held in western Canada.

Dr. Sanatani has played a key role in the establishment of the Canadian Heart Rhythm Society, and is a member of the medical advisory for the Sudden Arrhythmia Death Syndromes (SADS) Foundation. As a nationally recognized expert on sudden death in the young, he is one of very few Canadians invited to serve on the advisory of the American SADS Foundation. He has initiated dialogue between the pediatric electro physiologists in Canada, culminating in a manuscript, along with an ongoing exchange of clinical ideas and learning opportunities. This group is recognized by the Canadian Heart Rhythm Society, and he has recently helped to unite the pediatric electro physiologists in Western Canada, with the recently formed PACE WEST group.

The Cardiac Sciences Program has been a key resource in the establishment of the International Centre for Children for Child Health. Dr. Human, Dr Leblanc and other members of the Division have continued to visit to the Children's Hospital of Fudan University in Shanghai. This initiative has allowed our physicians to work in the demanding setting of Shanghai, working with the Fudan University team in delivering clinical care, undertaking highly complex (and successfully completed) cardiac surgery

and providing formal instruction in the areas of cardiology, cardiac surgery, intensive care and cardiac nursing. This program has now established a viable cardiac team in Shanghai delivering cardiac care of first world standards in this rapidly expanding city. Dr Human was co-chairman of the 2nd Sino-Canadian Cardiac Symposium held in Shanghai in September 2008, attracting faculty and participants from across China and the Far East.

Public Relations and Fundraising and Community Roles

Dr Jim Potts is the Co-Chairman, Hospital Family Campaign, B.C. Children's Hospital Foundation, 2005-present, and Dr Sanatani has served as the Miracle Weekend Physician Chair for the past three years. The entire Division has been involved in the hospital's fundraising activities, as well as in public appearances promoting the hospital. In the wider community, Dr Potts has been prominent in the Hockey world, and assists the Vancouver Canucks with exercise and fitness assessments at the start of each season. Other key roles he is involved with are:

National Hockey League (NHL)

Off-Ice Official, Vancouver, September 2005-present

Crew Supervisor, Off-Ice Officials, Vancouver, January 2008 - present

International Ice Hockey Federation (IIHF) 2006 World Junior (U-20) Championships

• Team Host, On-Ice Officials, Vancouver, December 2005-January 2006

2007 Mastercard Memorial Cup Tournament

Team Host, On-Ice Officials, Vancouver, May 2007

2009 Hockey Canada Cup Sledge Hockey Tournament (Pre-Olympic Sport Event)

Chief of Competition, Vancouver, February-March, 2009

2009 Hockey Canada Cup Women's Hockey Tournament (Pre-Olympic Sport Event)

Chief of Competition, Vancouver, August-September, 2009

2010 Olympic Winter Games

Chief of Competition, Men's and Women's Ice Hockey, Vancouver, February, 2010

2010 Paralympic Winter Games

Chief of Competition, Sledge Hockey, Vancouver, March, 2010

Clinical Care Commitment

The Division created a hand-held based program for quality assurance in all aspects of Cardiac and Cardiac Surgical procedures. A real-time database is now available for the tracking of complications, and control chart information can also be created for quality measurement.

A major challenge identified is the slow and inaccurate data available from Health Records. The Division is working with Decision Support to streamline processes.

Quality Assurance meetings occur weekly with the ICU physicians, monthly for the Echo Lab, and monthly with the Cardiac Sciences team. Mortality meetings also take place monthly to review all deaths on the service. Quarterly Physician meetings are held with ICU, Anesthesia and Cardiac Surgery to review changes in practice and quality initiatives. A Combined team visit to the Children's Hospital of Philadelphia took place in 2007 as part of a QA initiative.

Strategic Initiatives

The Division of Cardiology is uniquely dependant on other areas of clinical expertise in maintaining overall excellence for Cardiac care, particularly Cardiac Surgery and Critical Care. We have jointly established a planning initiative to create a vision for the Program for the next decade, addressing the challenges we face as an institution in maintaining adequate physician, nursing and technical personnel in this highly competitive area.

The training program is a continuing strength of the Division, and regular funding for trainees has created a strong core of new Cardiologists graduating over the next five years; we will work to focus their training to the needs of our Division in terms of expertise in non-invasive imaging, critical care and clinical/outcomes research.

Conclusion

The Division has again made steady progress during the past decade, achieving our goals with respect to enhancement of clinical care, increasing academic productivity and maintaining a record of excellence in teaching. That this has been achieved despite a cohesive alternative funding plan is a tribute to the Members' dedication to an academic ideal and their individual excellence and collegiality.

**DIVISION OF CARDIOLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards \$	Awards \$	Awards \$	Awards \$	Awards \$
Agreements	\$ -	\$ -	\$ -	\$ -	\$ -
Clinical Trials	\$ -	\$ -	\$ 500	\$ 3,974	\$ 9,526
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 21,119	\$ -	\$ 111,420	\$ 182,985	\$ 183,967
Total	\$ 21,119	\$ -	\$ 111,920	\$ 186,959	\$ 193,492

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	0	0	0	0
Clinical Trials	0	0	1	2	2
Contracts	0	0	0	0	0
Grants	1	0	1	3	4
Total	1	0	2	5	6

Division of Critical Care

Dr. Peter Skippen, MBBS, FRCPC, FJFICM

Clinical Professor and Head

Faculty

Robert J. Adderley, BSc, MD, FRCPC, Clinical Professor

Mary M. Bennett, BSc, MD, FRCP(C), Clinical Associate Professor

Arthur F. Cogswell, BMedSc, MBBS, FJFICM Clinical Associate Professor

Niranjan Kissoon, MBBS, Professor, Pediatrics, University of British Columbia

Sandy Pitfield, MD, FRCPC, Clinical Assistant Professor

Michael D. Seear, BSc, MBChB, FRCPC, FRCPC(Peds), Clinical Professor

Peter W. Skippen, MBBS, FRCPC, FJFICM Clinical Professor, Head

David F. Wensley, BSc, MBBS, Clinical Professor

Overview

The Division of Critical Care provides leadership and excellence in the provision of critical care to children in British Columbia. The division supports an increasingly busy clinical service, together with education, research and administrative responsibilities.

Introduction

The Division strives to provide exemplary care to all children of British Columbia at all times. Our mission is three-pronged:

- To preserve human life - we have low mortality
- To provide suitable rehabilitation as soon as the patient begins to recover from his or her critical condition – we have significant delays in rehabilitation due to an under-resourced long term care program (e.g. no dedicated social worker, physiotherapist or occupational therapist)
- To provide palliative care and affective support to the nonrecoverable patient – we work closely with Canuck Place to offer a comprehensive palliative care program

Major Successes and Challenges

Clinical - Successes - the clinical program remains strong and highly respected within the organization. Attempts at developing a critical care outreach team were unsuccessful due to resource limitations.

The PICU is a leader in quality initiatives throughout the organization and Province, with guideline development and outreach education throughout the organization. Examples include fluid and electrolyte guidelines, sepsis guidelines, cervical spine clearance, and traumatic brain injury guidelines.

Clinical - Challenges

o Patient Access

The major problem faced by the PICU is the aging physical unit, lack of space, unsuitable floor plan with increasing patient workloads and increasing demands from the OR and Wards. Major structural space planning changes will be required for our Critical Care Unit to be able to maintain and improve upon the current performance. A recent renovation provided much needed increased office space, upgrades to each current bedside as well as two new isolation rooms suitable for any infectious agent. The fact is, British Columbia has one of the lowest ratios of PICU beds per 100,000 children in North America.

There has been an increasing number of elective surgical PICU cancellations during the past two years. The reasons are complex, but include:

- Inadequate operational bed spaces
 - o Nursing shortages
 - o Acute care bed shortages
 - o Social work and RT shortage

The PICU until recently has been funded for a total of 15 beds (despite a bed number of 22 beds). This has included both acute and long-term stay patients. Despite a recent recognition for the need for more functional beds, and efforts to recruit more nurses, the worldwide shortage of nurses has made this problematic.

In addition, there is a serious shortage of respiratory therapists, social workers and child psychologists. Many families and children languish without the necessary support.

- Increasingly complex chronic patient population

The long-term patient population is increasing exponentially. A combination of factors is contributing to this. The consequences are profound – increasing occupancy of the acute care beds. The net effects are a reduced number of critical care beds for critically ill children, or for elective surgical cases requiring high level monitoring and nursing care.

- Shortage of ward beds

The hospital continues to operate at approximately 90% capacity; hence, our inability to deal with flux. Similarly, the ER suffers from prolonged stays, overcrowding and resource limitations, such as no respiratory therapist or pharmacy support.

o In house physician coverage

The unit is covered during daytime hours by the critical care physician with four critical care fellows and 2.5 clinical associates (includes coverage of the home tracheostomy and ventilated patient population), together with pediatric residents. Varying levels of experience and clinical competence amongst the clinical associates and fellows has made afterhours bedside coverage challenging.

- **Cardiac science program at a crossroad**

The imminent retirement of Dr. LeBlanc has created tensions and threats for the cardiac science program. The recruitment of a suitable replacement has been problematic. At the same time, it has given the program an opportunity to reflect on the future. The prospective loss of the cardiac science program through absorption into the Western Canadian network would have serious ramifications throughout the institution. Consequently, a business case is being prepared to move the program forward, which will include a request for recruitment of cardiac critical care specialists and cardiac nurse practitioners.

- **Vascular access service**

As the radiology department attempts to increase its vascular access service, the delays for PIC line placement continue because of an under resourced vascular access service.

- **Lack of a clinical information system**

The PICU is a highly complex environment and recognized as an area where critical incidents and errors are common. There is an urgent need for a dedicated CIS for critical care, especially physician order entry for medications and laboratory. This remains a cornerstone of improving patient safety within the PICU.

Teaching - Successes

The Critical Care Fellowship has had several directors over the past few years. Dr. Adderley succeeded Dr. Seear. After Dr. Adderley took his sabbatical, Dr. Bennett assumed the Program Directorship.

Drs. Cogswell and Singh provide an annual ECLS technician and bedside physician ECLS course to local fellows, nurses and respiratory therapists. This excellent course attracts registrants from across North America.

Drs. Lister, Bennett and Skippen recently organized and ran the first ever APICS course in Canada (Acute Pediatric Intensive Care Simulation Course). The feedback from all 24 registrants was overwhelmingly positive. The plan is to make this an annual course and to customize it for both a national or provincial audience.

Teaching - Challenges

Providing outreach education through the use of simulation will present challenges, not the least of which will be lack of physical critical care physicians.

Research – Successes

The unit continues to be active in clinical research. Mr. Gordon Krahn has been recruited as research assistant/coordinator, funded through the clinical research branch of the CFRI. The main activities are international multicentre studies, predominantly through membership of either the Canadian Critical Care Trials group or PALISI. Two of these completed studies made it to the New England Journal of Medicine.

Academic Activities

Critical Care	2005	2006	2007	2008	2009
Refereed Publications	10	14	14	34	14
Books/Book Chapters	5	5	8	3	
Invited Presentations	3		8	7	

Research - Challenges

The busy clinical service always makes research difficult.

Recruitment of an academic critical care physician has been approved, but to date this has been unsuccessful.

Conferences – the 6th Annual Canadian Critical Care Conference was held in Whistler in February 2009. This is a joint meeting co-organized by our PCU with Vancouver General Hospital.

Health Care Services

The physicians in the PICU actively collaborate with Dr. Amanda Barclay who is the Head of the PICU in Victoria. There is a weekly educational teleconference where she joins in with the fellows and specialists educational 1/2 days, regular discussions regarding clinical care and attempts at ensuring adequate holiday coverage and relief during her breaks.

Preliminary discussions are occurring with Dr. Petterson in Child health and Dr.Cheng from ER to plan the development of a Provincial simulation program for acute illnesses.

Administrative – all members of the faculty contribute to the administrative workload of the Division.

Public Relations – the ECLS program held a family picnic of survivors and their families in 2007. This was an overwhelming event for families and the ECLS team alike.

Subspecialty Resources and Planning

The Critical Care Fellowship Program has had two Program Heads during the past five years, initially Dr. Froese followed by Dr. Adderley. Dr. Bennett has taken over this responsibility as of July 2008. The training program continues to attract large numbers of applicants from overseas, mostly due to positive feedback from program graduates. The Critical Care Fellowship Program remains jointly approved by the Royal College the Joint Faculty of Intensive Care Medicine in Australia and New Zealand.

Dr. Bennett remains a member of the Pediatrics Residency Training Committee as well as the Emergency Fellows Training Committee and the Neonatal Fellowship Training Committee. Dr. Bennett also teaches Ethics through the Faculty of Medicine at the University of British Columbia. She supervises the pediatric residency rotations of the residents from Pediatrics, Anaesthesia, Emergency Medicine and subspecialty residents from Surgery, Cardiology and Neonatology. Dr. Bennett also coordinates Pediatric Resuscitation Courses (PALS, APLS, and PET) for the province through UBC and the Justice Institute of British Columbia. She is the PALS provincial advisor to Heart and Stroke BC

The Pediatric Critical Care Program continues to be accredited by the College of Intensive Care in Australia for 12 months training. Dr. Tavey Dorofaeff from New Zealand was a most recent fellow participating in this overseas experience.

Clinical Care Commitment

The Pediatric Intensive Care Unit (PICU) is a 22-bed unit that serves as the only comprehensive intensive care facility, other than the newborn nursery, for surgical, medical and cardiac patients in this province. The PICU has a life or limb no refusal policy and refuses no in-house emergencies. The PICU averages between 1000-1200 admissions each year, although 2008 saw a reduction in patient numbers for reasons that will be elaborated later in this document. The average length of stay for these patients has been steady between 4 and 4.5 days. The mortality rate is consistent with the best pediatric critical care units in North America, averaging less than 3% each year. 40% of the patients admitted to the ICU are ventilated for longer than 48 hours. The past few years have seen an increasing number of elective surgical cancellations because of nursing shortage and physical bed shortage. In addition, more patients are being transferred out of province because of the same access problems. Surgical wait lists increase, together with patient morbidity.

Quality improvement structure and achievements.

The PICU established a Continuous Quality Patient Safety Program in 2007. At the same time, Tracey Northway was successfully recruited as the full time quality improvement leader for critical care, followed shortly after with the recruitment of Gordon Krahn. Dr. Skippen, Tracey Northway and Gordon Krahn became faculty members of the Canadian Critical Care Patient Safety Collaborative in 2007, a consortium of ICU's across Canada focusing on improving patient safety through improvement process initiatives. The impact has been profound.

The PICU became involved with the lean imPROVE quality program in 2008. This tool examines how to make the processes of healthcare more streamlined to add value for the patient, and promises to be an exciting complement to the continuous quality program already established within the PICU.

Five Year Summary of Clinical Activity

The sources for the following information includes the following: annual ICU summary reports (2005, 2006 and 2007), ICU database, PICU's database, ICU admissions book/list, transport list provided by B. Wong, Infection Control, and Respiratory Therapy.

Admissions and Length of Stay Data

	2008	2007	2006	2005	2004
Total Admissions - from admissions Book/list	958	1256	1252	1133	1279
Average Length of Stay ICU database	5.1	4.3	4.7	6.7	5.2
Average Length of Stay PICUEs standard	5.2	3.5	3.7	5.5	4.4
Average Length of Stay PICUEs calculated	5.1	3.8	3.4	5.3	4.3
Total Bed Days – ICU database	4926	5507	5890	7620	6599

Transport and Trauma Admissions

	2008	2007	2006	2005	2004
Transports directly to PICU	151	176	193	170	185
Total transports arranged	989	968	961	877	858
Trauma admissions	51	63	81	79	75

Cardiac Population – derived from most responsible diagnosis on admission to PICU

	2008	2007	2006	2005	2004
Post cardio-pulmonary bypass	134	134	118	127	142
Post cardio-thoracic surgery	38	45	34	57	65
Non-surgical admissions – Congenital Heart Disease	44	47	53	21	46

Ventilation Statistics – based on fiscal year (April 1 – March 31)

	2008 -09 incomplete	2007-08	2006-07	2005-06
Invasive Ventilation Starts	407	464	not available	not available
Invasive Ventilation Days	2750	2847	1944	not available
Non-invasive Ventilation Starts	220	158	not available	not available
Non-invasive Ventilation Days	1054	882	798	not available
Total Ventilation Starts	607	622	464	557
Total Ventilation Days	3804	3729	2742	3771

Infection Control Data

	2008	2007	2006	2005	2004
Bloodstream	5	12	9	11	33
CRBSI	7	1	7	5	18
Respiratory Tract	22	13	3	5	15
VAP	7	9	9	11	unknown
Surgical Site	8	7	3	5	10
UTI	12	6	3	10	15
UTI – Foley Catheter Related	4	7	7	10	unknown
C. Difficile	2	1	2	2	unknown
Sternal Wound	0	3	1	1	unknown
Peritoneal	1	3	0	2	unknown
Skin & Soft Tissue	0	1	3	3	unknown
Totals	68	63	47	65	unknown
Annual Rate per PICU admissions	7.1%	5.0%	3.7%	5.5%	unknown

Device Associated Infection Rates

	2008	2007	2006	2005	2004
CRBSI – compound rate	3.6	3.5	4.6	5.0	7.6
CRBSI – compound rate starting From beginning of collaborative	2.4	2.0	2.9	2.2	Not applicable
FCR – UTI	4.7	5.1	5.5	5.3	not available
	2008 -09 - incomplete	2007-08	2006-07	2005-06	
VAP by fiscal year	3.5	4.0	4.9	4.4	

Transport

The physicians in the PICU at BC Children's Hospital coordinate the Pediatric Transport Service. Specially trained transport teams (paramedic personnel) undertake the transports with or without a physician, as circumstances dictate. The number of transports coordinated by physicians increases every year and is currently over 1000 per annum. The service offers not only advice for the transporting physician and the paramedical staff, but advice to the referring physician on acute patient management and stabilization. Transport coordinators also serve as an advice line to physicians throughout the province, where patients may not require transport, but advice in management is sought. Dr. Andrew Macnab has recently retired as the Program Coordinator for the Pediatric Transport Program and has been replaced by Dr. Wensley.

Home Trach and Ventilation Program

Dr. Adderley's leadership, vision and stewardship of this stellar program have made it the envy across Canada. This program continues to grow exponentially. Drs. Seear and Wensley have recently assumed responsibility for the program as Dr. Adderley approaches retirement. The growing population of long-term patients will present many challenges to the critical care unit in the years ahead. Figure 1 illustrates the exponential program growth.

Extracorporeal Life Support

The ECLS Program has now been operational for 10 years as of Easter 2009. Under the joint stewardship of Dr. Arthur Cogswell (PICU) and Dr. Avash Singh (SCN), this program has now provided life support to 126 children with results comparable or better than those reported to the large central database of ELSO based in Michigan, USA. There have also been 14 courses organized for the training of ECMO technicians and physicians caring for these children. The courses attract an international audience. The organization and results of this ECLS program are without a doubt the best in Canada and probably North America. An external review of the program undertaken in 2007 provided guidance for future directions.

The ECLS Program has provided education and support for programs at St. Paul's Hospital (Vancouver Adult Program), Stollery Children's Hospital (Edmonton Pediatric Program), Montreal Children's Hospital (Montreal Pediatric Program) and Halifax (on site support for establishing a provincial program) over the past several years. Techniques developed in the Program at BCCH have been utilized in other ECMO programs throughout Canada.

Quality Improvement Program

The PICU has been a leader in quality improvement initiatives at BCCH. The Patient Safety Program was initiated in 2004, and focused on a culture of safety, reduction of nosocomial infections, a hand washing campaign, full disclosure and family participation in all aspects of care for their child. Below is a summary of the many quality and patient safety initiatives that we have embarked upon.

Quality Improvement & Patient safety projects large or small

Program Specific Activities Initiatives

- *Reduction of Catheter Related Blood Stream Infections*
- *Reduction of Catheter Associated Urinary Tract Infections*
- *Reduction of Ventilator Associated Pneumonia*
- *Improved Medication Delivery:*
 - Med Rec- ongoing for admit.
 - Medication Ordering Sheets (Booklet).
 - Standard Concentrations
 - Satellite pharmacy.
- *Pain and Sedation*
- *Standardized Cardiac Admission*
- *Improving Basic Care*
- *LEAN: 4 imPROVE initiatives under way. 3 completed RPIWs with 4th occurring in March.*
 - RPIW #1: Standardized bedside set-ups and bedside carts
 - RPIW #2: 5S of storage areas and completion of bedside carts
 - RPIW #3: Decreasing CNC non-value added activities
 - RPIW #4: Transfer process- Cardiac patients from OR to ICU

Education:

- *Orientation for new nurses*
- *Orientation for new residents and fellow*
- *Education for new initiative:*

Hospital Wide Activities

- **Implementation of Hospital Wide Initiatives**
 - *Medication Reconciliation*
 - *Transfer of Accountability (Care)*
 - *CRBSI*
 - *Standardized Morphine Infusions*
 - *Wound Care*

Site Wide Activities

- **Interprofessional Education team**

- **Co-facilitator leadership series**

Provincial/National Activities

- **Provincial Taxonomy for Critical Care for PSLS.**
- **Canadian ICU Collaborative**
- **Safer Healthcare Now!**

Quality Goals for 2009

On January 7, 2009, our Quality Assurance Committee for Pediatric Critical Care met and determined the following to be our goals for the next 12 months:

1. *Medication safety:* Completion of development and implementation of medication booklet, medication reconciliation process (as per hospital), and identification and management of pain and sedation (including pump upgrades and new COI pumps).
2. *Sepsis:* Support sepsis early recognition and management bundle implementation through BCCH. Collaborate with Learning, Development, and Nursing Administration in creation of education and support tools. Assist in education as required and support as required. Determinants of measurement will be PICU responsibilities.
3. *Cardiac care:* Update of pre and post-operative care of cardiac surgical patients while in PICU. Development of a cardiac care interest group will be a priority with an initial focus on post-op handover of cardiothoracic patients from OR staff to PICU team.

Quality Improvement project would like support with:

Standardized Laboratory Process (Accessioning, Transporting, Testing and Distribution of Results): Partnered with lab. Worked with Laura Book (Alecia Robin and Sandra Manzano leading) to develop a signally system for delivery for specimens to the correct place. Would like to see this as a hospital initiative to improve upon ordering, sampling, transporting, testing, reporting and receiving results. This is a site-wide issue.

Measurement: We would like to see ongoing education for quality focused personnel regarding measurement and quality improvement strategies. Stronger partnership with support services would also be beneficial to better understand resources available for collection and analysis of data.

New Recruits

We also welcomed the recent appointment of Dr. Alexander (Sandy) Pitfield to our Division in January 2009.

Teaching Involvement

All Division members participate in all aspects of resident and fellow education, both clinical bedside and didactic.

Medical students have regular weekly sessions in the PICU, and a medical student elective continues to be popular and are coordinated and managed by Dr. Bennett.

In addition, nursing, respiratory therapists and infant transport team personnel receive the benefit of the faculty teaching expertise throughout the year.

Dr. Bennett continues to organize and teach at many PALS and APLS courses through the year. In conjunction with the Emergency Department, the first simulation based APLS course was presented this winter.

Drs. Skippen and Kissoon remain active teaching faculty for the ATLS program.

Dr. Cogswell also supports the Respiratory Therapy Training Program and the Training Program for the Infant Transport Team

The Outreach Program continues with teaching of various sites throughout the Province, both on Vancouver Island and the interior of BC.

The ECLS Program under Mr. Salt and Drs. Cogswell and Singh has provided education and support for programs at St. Paul's Hospital (Vancouver Adult Program), Stollery Children's Hospital (Edmonton Pediatric Program), and Montreal Children's Hospital (Montreal Pediatric Program) over the past several years. Techniques developed in the Program at BCCH have been utilized in other ECMO programs throughout Canada.

Research including major Interactions and Collaborations

Drs. Wensley and Skippen are active members of the Canadian Critical Care Trials Group and have recently become full site members of the PALISI Group from the US.

Dr. Wensley was PI of a large multi-centre study evaluating the severity of illness scoring in Pediatric Intensive Care Units in Canada. That study is complete and awaits final analysis and publication. Dr. Bennett was PI of a multicenter study looking at Adrenal Insufficiency in Critically Ill Children. She has received a number of grants in the past two years for research into Decision making in Critically Ill Children in collaboration with Canuck Place.

Fellows have completed various animal lab and clinical projects during the past five years. These have included work in the animal laboratory exploring the utility of a new oximetric pediatric central venous catheter in critically ill children. One of those studies has been published and the other awaits final analysis and publication.

The Division is involved in a number of ongoing multi-centered clinical trials, an industry sponsored surfactant study for acute lung injury (Calfactant), the HypCAP study (hypothermia following cardiac arrest), long term follow-up of children with acute renal failure. Ethics have just been submitted to join another major traumatic head injury study sponsored through the ANZICS Trials group.

Recently completed studies included the HYPHIT study (hyperthermia in pediatric head injuries), and TRIPICU (transfusion thresholds in critically ill children), both recently published in the New England Journal of Medicine. The EPO-ICP 301 Survey (incidence and cause of anemia in critically ill pediatric patients) and adrenal suppression study have also been completed and awaiting final analysis.

The table below lists the division's main research activities over the past five years.

Title	Grant funded or Industry funded	Patients enrolled	Reimbursement to Hospital	Start Date	Completion Date and Status
Resolve Trial (Activated Protein C for severe sepsis)	Industry funded Eli Lilly	4	\$12,000	Nov/2003	Mar/2005 – closed
Hyp-Hit Study (Hypothermia for Acute Head Injury Trial)	Grant funded CHIR	18	\$6,000	Oct/2001	Nov/2006 – closed
TRIPICU (Transfusion in Pediatric ICU)	Grant funded CHIR	56	\$5,000	June/2001	Dec/2005 - closed
Measurement of Troponin-I in Children after Cardiac Surgery	Self-Funded	100		May/2003	Nov/2004 – closed
EPO-ICP-301 (survey of anemia in ICU)	Industry funded Janssen-Ortho	52	\$46,800	Feb/2004	Feb/2005 Closed
epidemiology of acute renal failure in children undergoing open-heart surgery for Congenital Heart Disease	Self Funded	100		May/2003	Nov/2004 - closed
Early CVVH for the Treatment of Acute Respiratory Failure (Post BMT)	Non funded	2	\$0.00	April/2005	April/2007 - Closed
National PICU database/scoring systems evaluation	Grant Funded CHIR	4,000	0.5 FTE for 4 years	Sept/2004	Dec/2007 Closed
Vasopressin for the Treatment of Vasodilatory Shock in Pediatric Patients	Grant Funded CHIR	5	\$18,000	Feb/2006	July/2008 Closed
Evaluation of the Peditasat Central Venous Line	Industry Funded Edwards	21	\$19,000.00	Mar/2006	Feb/2008 Closed
Continuous Central Venous Oxygen Saturation Monitoring Under Varying Physiological Conditions in a Piglet Model	Self Funded	5		Feb/2008	April/2008 Closed
An Epidemiological Study of the Incidence of Adrenal Insufficiency in Pediatric ICU's.	Grant Funded CHIR	2	\$14,000	July/2006	Sept/2008 closed
Hypothermia for Cardiac Arrest in Pediatrics	Grant Funded	0	\$0.00	Jan/2009	Open
Pharmacokinetics of extended interval gentamicin in critically ill pediatric patients	Self Funded	6	\$0.00	Dec/2006	Open
Validation of The Paediatric Early Warning System	Grant Funded	8	\$1,200	Nov/2007	Dec/2008 – Closed
Epidemiologic multicenter study on mechanical management in children with Acute Lung Injury Phase 1	Non Funded	12	\$0.00	Jun/2007	May/2008- Closed
Serious Inflicted Traumatic Brain Injury in Children – Incidence, Risk Factors & Outcomes	Grant Funded, Ont Neurotrauma Foundation via The Hospital for Sick Children	25	\$8,250	May/2008	Open
Hypothermia in Traumatic Brain Injury in Children (HiTBIC) Trial	Grant Funded	0		Pending ethics	Open
Hospital Clinical Practice and Urban Pluralism: Paediatrics in Harmony with its Social Environment	Grant Funded	N/A	N/A	Sept/2008	Open

Title	Grant funded or Industry funded	Patients enrolled	Reimbursement to Hospital	Start Date	Completion Date and Status
Calfactant Therapy for Direct Acute Respiratory Distress Syndrome & Direct Acute Lung Injury in Adults and Children (AR06)	Industry Funded	2	\$6,000.00	Feb/2009	Open

Governance

All members of the Division are involved in various hospital committees. Dr. Bennett was until recently co-chair of the Ethics Committee and continues as an active member.

Administrative Responsibilities of division members

Dr. Bennett chairs the Resuscitation Committee and the Code Blue Team.

Strategic Initiatives including recruitment

Physician Recruitment

This remains an issue for a number of important reasons:

- the increasing age of the existing faculty and the need to recruit young enthusiastic critical care specialists
- a need to recruit a research based pediatric critical care specialist to lift our research program to an international level.
- Unacceptable on call workload responsibilities
- The need to recruit cardiac intensive care specialists

Despite advertising for over two years and interviewing two potential recruits, attempts at recruiting an academic critical care specialist with research responsibilities has been unsuccessful to date.

We have successfully recruited one of our own recent fellows back to PICU after a fellowship at Los Angeles Children's Hospital. Dr Adderley is retiring at the end of 2009 and a search committee has been struck for his replacement.

There is an urgent need to recruit two additional critical care physicians to the Division to alleviate a heavy clinical and on call burden, and to advance the simulation program provincially.

Nursing recruitment

An aggressive recruitment campaign during 2008-09 has seen the levels of nursing staffing improved to allow 18 fully functional beds. This has been the result of an unprecedented increased number of cancellations during 2008.

In addition, the PICU is also under-resourced relative to social workers, physiotherapists and occupational workers.

PICU Database

Dr. Wensley developed a detailed PICU database. A full time data entry specialist, who is able to generate regular reports, continues to supports data entry.

PICU renovations

The PICU has undergone some important structural improvements over the past five years as follows: upgrades to each bedside with new bedside monitors and overhead surgical lights; two existing isolation rooms were upgraded with anterooms and will be important during the respiratory viral season or pandemics; and an extra wing containing storage and office space.

Program Reviews

Two important reviews have been conducted over the past five years:

- Dr. Tex Kissoon reviewed acute care services in the Province of British Columbia.
- ECLS program (Dr. Heidi Dalton)

Cardiac Science Program

The cardiac science program is currently preparing a business case to take us forward for the next five years. At the same time, a new cardiac surgeon is being recruited. This will have important implications for the PICU as we replace and recruit. There is an increased recognition of the importance of postoperative cardiac PICU's in the management of postoperative cardiac surgical children, and the specialized training that is required. The future will likely see a cross appointment recruitment of a cardiac critical care specialist

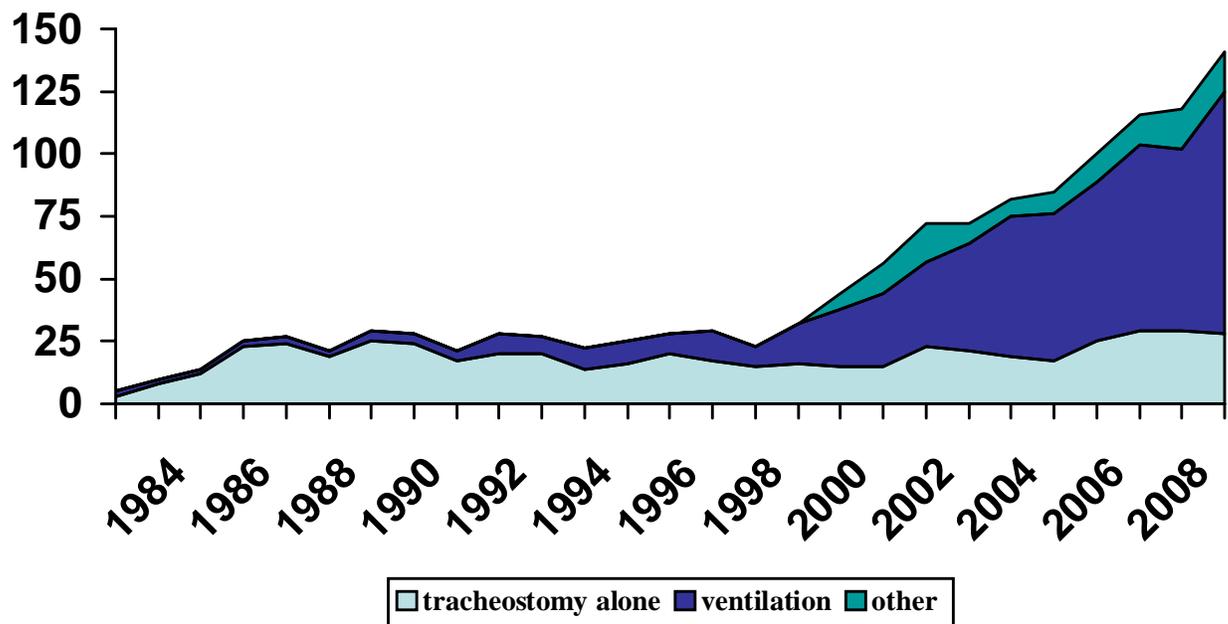
Contributions by Division members to Continuing Professional Development and Knowledge Translation

Dr. Bennett coordinates and contributes to a number of courses through CPDKT, including APLS and various emergency medicine conferences.

Figure 1: Home Tracheostomy and Home Ventilation Population 1982-2008

Active Patients 1982-2008

updated December 31, 2008



**DIVISION OF CRITICAL CARE
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ 4,000	\$ 2,000	\$ -	\$ -	\$ -
Clinical Trials	\$ 6,244	\$ -	\$ 14,898	\$ 7,415	\$ 6,760
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 110,167	\$ 93,364	\$ -	\$ 4,828	\$ -
Total	\$ 120,411	\$ 95,364	\$ 14,898	\$ 12,243	\$ 6,760

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	1	1	0	0	0
Clinical Trials	1	0	3	1	2
Contracts	0	0	0	0	0
Grants	4	4	0	1	0
Total	6	5	3	2	2

Division of Dermatology

Dr. Juliette Prendiville, Clinical Professor, Head

Faculty

Juliette Prendiville, BA, BAO, MBBCH, Clinical Professor, Head

Overview

The Division of Pediatric Dermatology was established following the appointment of Dr. Julie Prendiville, as pediatric dermatologist within the Department of Pediatrics at B.C.'s Children's Hospital in 1990. Prior to this dermatology services were provided at the hospital by Dr. Margaret Johnson and there was one dermatology clinic each week.

Introduction

The Division of Pediatric Dermatology has been expanded to a Province wide referral service for children with skin disorders. The clinical workload has increased every year with more than 3,000 patient visits to the dermatology clinic each year. The Division of Dermatology has established a program with the help of the Lions Laser Center for treating children with portwine stains and other vascular anomalies with the pulsed dye laser under general anesthesia in the operating room and with topical anesthesia and conscious sedation in the Medical Day Unit.

Challenges

The Division is challenged by increasing clinical workloads, teaching commitments, and academic endeavours.

Subspecialty Resources and Planning

- a) The Division has faced challenges in recruiting other academic faculty.
- b) Professional development is achieved by attendance at annual meetings of the American Academy of Dermatology and Society for Pediatric Dermatology as well as subscription to dermatology journals, correspondence with other pediatric dermatologists, and membership of the editorial board of three major dermatology journals. Assessment and goal setting is self-generated.

Clinical Care Commitment

The workload demand is very high. There are four dermatology clinics each week and one Vascular Anomalies clinic each month. The Division is related to the pediatric PBCU. There are some guidelines for care for management of atopic dermatitis. The Division of Dermatology has a 0.8 nursing commitment, a part-time University of British Columbia secretary and part-time clinic secretary. Clinical research is carried out by Dr. Prendiville and the clinic nurse, Joan McRury.

Teaching Involvement

Undergraduate education

Dr. Julie Prendiville provides regular lectures to 3rd Year UBC Medical Students at present. All of these lectures are evaluated and are believed to have been well received. Medical students also attend the dermatology clinics on a regular basis.

Resident education

The Division of Dermatology provides four lectures each year for pediatric residents, as well as informal teaching on the wards, and in the clinics.

Subspecialty education

The Division has had two subspecialty fellows within the past 12 years. The first was an honorary fellow from Germany with a part time commitment, who now has a university appointment in the US. The second was an overseas dermatologist from Taiwan, who practices pediatric dermatology in Taiwan. There has been no strategy in place to evaluate these trainees. There are no formal requirements.

Continuing Medical Education

The Division contributes to CME educational programs in terms of lectures, workshops and presentations at national and international meetings.

Scientific Development

The Division is involved in several clinical studies sponsored by drug companies. The Division is currently building expertise in the conduction of drug studies. There has been no other research funding. The ability to produce a large number of peer-review publications is limited by clinical responsibilities, lack of junior staff, teaching commitments and other academic pursuits.

When a suitable second faculty member is recruited it is expected that research and publication productivity will increase.

Governance, Administrative Responsibilities

The division is represented on the Subspecialty Training Committee at BCCH and on the undergraduate and residency training committees of the UBC Department of Dermatology. It is also represented on the editorial board of three major dermatology journals and on the executive board of a learned society.

Interactions and Collaborations

The Division of Pediatric Dermatology interacts and collaborates with surgical and pediatric divisions within the hospital as well as with the UBC Division of Dermatology.

Strategic Initiatives

The Division would like to continue to build close clinical relationships with other pediatric and surgical subspecialties within B.C.'s Children's Hospital. It is not known what potential issues are likely to arise from regionalization for this small subspecialty. More outreach programs might be possible when there is a second member of the division. Opinions are constantly sought from around the province regarding patient management; many are submitted through images transmitted through the e-mail Internet system.

**DIVISION OF DERMATOLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ -	\$ -	\$ -	\$ -	\$ -
Clinical Trials	\$ -	\$ 32,429	\$ 23,248	\$ 10,470	\$ 13,031
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ -	\$ 32,429	\$ 23,248	\$ 10,470	\$ 13,031

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	0	0	0	0
Clinical Trials	0	1	2	1	1
Contracts	0	0	0	0	0
Grants	0	0	0	0	0
Total	0	1	2	1	1

Division of Developmental Pediatrics

Dr. Nancy Lanphear, Clinical Associate Professor and Head

Faculty

Robert Armstrong, BSc, MSc, MD, PhD, FRCPC, Associate Professor, Department Head
 Ronald Barr, MA, MDCM, FRCPC, Professor
 Barbara Fitzgerald, MD, FRCPC, FAAP, Clinical Associate Professor, Assistant Dean
 Student Affairs
 Armansa Glodjo, MD, MSc, FRCPC, FAAP, Clinical Assistant Professor
 Jill Houbé, MD, MPhil, FAAP, FRCPC, Clinical Assistant Professor
 Osman Ipsiroglu, MD, MAS, MBA, PhD [Venia Legendi, Vienna Medical University],
 Clinical Associate Professor
 Nancy Lanphear, MD, DABP/DBP, Clinical Associate Professor, Head
 Christine Loock, MD, FRCPC, Associate Professor
 Elena Lopez, MD, MSc, FRCPC, FCCMG, Clinical Geneticist
 Carey Matsuba, MDCM, MHSc, FRCPC, Clinical Assistant Professor
 Elizabeth Mickelson, BScPT, MD, FRCPC, Clinical Associate Professor
 Anton Miller, MB, CHB, FRCPC, Clinical Associate Professor
 Tim Oberlander, MD, FRCPC, Professor
 Maureen E. O'Donnell, MD, MSc, FRCPC, Associate Professor
 Jacqueline Purtzki, MD, FRCPC, Clinical Assistant Professor
 Steve Wellington, MD, M.HSc, PhD, FRCPC, Clinical Assistant Professor
 Esias van Rensburg, MD, FRCPC, Clinical Assistant Professor

Overview

The Division of Developmental Pediatrics is a diverse faculty within the Department of Pediatrics. Our division partners include Sunny Hill Health Centre for Children, C & W, UBC and PHSA. Our members play important roles in the Faculty of Medicine and UBC through our commitment to education at the medical student, resident and subspecialty fellow programs. Our clinical work, education, research and advocacy/leadership initiatives include regional, national and international collaborations.

Introduction

Division Head: Nancy Lanphear, Medical Director CDBC program, Growth and Development Block Chair for FMED 2, developmental genetics, the young child with developmental concerns, education, the field of developmental behavioral pediatrics.

Senior Medical Director of Sunny Hill Health Centre: Maureen O'Donnell: physical disabilities; Recently completed secondment as Special Advisor to the Deputy Minister; Ministry of Health. Transforming health care and children and youth with special needs.

Mission

We strive to develop, share and utilize new knowledge that will enhance the health of children with developmental conditions and their families.

Goals

-We have a strong mandate to provide consultative and highly specialized services and educational initiatives for British Columbia.

-In addition, due to the high prevalence of developmental conditions in children who are at risk due to poverty and environmental situations, we play a strong advocacy role within our region.

-We work to develop and promote research in the care of children with developmental conditions and their families.

-We educate many levels of students including undergraduates, medical students, residents, and fellows both within our own fellowship and with Psychiatry and Pediatric Neurology.

-In our work within Sunny Hill, we assist our interdisciplinary partners in clinical care, and educational initiatives within the health sector and cross ministry with MCFD and Education.

Major Successes and Challenges

Clinical - Successes

The majority of our faculty work within the Sunny Hill Health Centre whose primary mandate is to provide one-of-a-kind provincial services to children and youth with special needs related to developmental conditions. We have been successful in garnering provincial funding to provide these services in an interdisciplinary setting.

Our clinical services are primarily diagnostic and assessment services for children with developmental and behavioral conditions, specialized interventions and services around functional needs for children with neuromotor conditions and both diagnostic and functional services for children with sensory impairments.

These specialized services are offered within the context of an academic health centre.

Developmental and Behavioral focus

Outpatient, outreach settings

–e.g. Autism, FASD, complex developmental and behavioral conditions, developmental genetics, children at risk due to social/environmental issues and children who have cleft palate.

Physical disabilities

Outpatient, outreach settings (14 beds)

–e.g. Tone Management including intrathecal baclofen; Feeding; Seating and Positioning; Assistive Technology

Inpatient: (14 beds) Inpatient including acute rehabilitation of children with neurodevelopmental conditions; children status post brain injury; and children with neurodevelopmental conditions for respite.

Clinical - Challenges

The majority of our clinical work occurs at the Sunny Hill Health Centre site, which is 6 km from BCCH. This represents a barrier to integration of services for families who see multiple subspecialists. We have been anticipating a move to the Oak Street Site for many years and it is still years in the future for this to become a reality. Close proximity with the divisions which provide care to similar populations of children would foster the creation of new service delivery models. In addition, families would be able to access diagnostic services such as laboratory or radiology on the same site.

Our clinical services consist primarily of diagnostic and assessment services for children with developmental and behavioral conditions and we need to consider the current specialized services as they relate to the needs of our pediatric colleagues and the families we serve to decide whether some follow-up services would be beneficial.

Infrastructure support for centralized scheduling, an electronic database and medical record would highly facilitate our ability to use physician and staff time efficiently and to access and share information in a timely manner.

Developmental and Behavioral focus

- Outpatient, outreach

e.g. Autism: we are awaiting an external review of our diagnostic BCAAN/PARC clinic. Although successful at meeting target numbers for our provincial contract, the numbers of referrals for possible autism continues to greatly outstrip our staff which provides these specialized assessments. In addition, no follow-up care was integrated into the budget for these programs and as in many developmental conditions, symptoms and issues change over time. CDBC (FASD, complex developmental and behavioral conditions) this program is a regional program with a very diverse diagnostic model. We have had limited capacity to complete full assessments with an interdisciplinary team due to the limited number of psychologists on staff. Our wait times are too long and follow up care is often difficult to establish particularly for those who have significant mental health needs.

Much of our work has significant overlap to schools and community services. These systems can have limited or changing resources; this can impact on our wait list and the types of evaluations which are referred to us via our medical colleagues.

Physical disabilities

- Outpatient, outreach settings
 - e.g. Tone Management including intrathecal baclofen; Feeding; Seating and Positioning; Assistive Technology;

Our 14-inpatient beds currently provide care including acute rehabilitation of children with neurodevelopmental conditions; children status post brain injury; and children for respite. There is a fluctuating census and due to the distance of our location from BCCH children cannot be transferred over that are not medically very stable. In addition, if a child deteriorates on our unit; they need to be transported back across town for more acute care.

Teaching - Successes

We have many learners and our entire faculty participates in the academic mission to teach within our clinical setting.

In addition, a number of our faculty have key leadership roles in the education of medical students:

FMED 2 Block Chair for Growth and Development (Lanphear 09)

Block Chair for Growth and Development (Fitzgerald prior to Lanphear)

Week Chair for Brain and Behavior (Oberlander)

Week Chair for School Aged, Growth and Development (Fitzgerald)

FMED 426 tutor (Houbé)

Evidence-based practice block chair (Matsuba; ending 2009)

Assistant Dean for Student Affairs (Fitzgerald)

Second Year INDE 420 Clinical Skills Lead (Loock)

Second Year INDE 420 Clinical skills teachers (Loock, Fitzgerald, Lanphear, Miller, Mickelson, Oberlander, O'Donnell, Glodjo, Lopez)

Other significant teaching endeavors:

Sleep(y) Rounds and Seminars (Ipsiroglu)

Mini Med School IX (Ipsiroglu)

Development of Sleep Health Trainer Course (Ipsiroglu)

Social Pediatrics (Loock)

CCSA Training FASD (Loock)

BCAAN Training Workshops held periodically for British Columbia (Wellington)

Pediatric residents have a month long requirement in Development (supervised by Van Rensburg, **all faculty** participate in clinical experiences).

We participate in the training of Pediatric Neurology and Psychiatry residents.

Royal College Subspecialty Residency training in Developmental Pediatrics

- One of the first in Canada; successful RCPSC accreditation
(SSR Program Director Jill Houbé)
- Sunny Hill Foundation for Children supports 2 trainees
- Leadership -Chair RCPSC specialty committee nationally (O'Donnell)

American Board of Pediatrics- Sub-Board of Developmental and Behavioral Pediatrics
(Dr Lanphear)

We are also engaged in teaching in continuing medical education as well on the regional, national and international arenas: specific societies include, APA/SPR, SDBP, CPS, CAPHC, BC Pediatric Society, AACPDM.

Teaching - Challenges

Our greatest challenge is to balance the many learners who come to our site.

Although Pediatric residents have a month long requirement in Developmental Pediatrics; this is also the time they may take vacation or go to a conference. Particularly for residents who anticipate practicing as consultant pediatrician we would advocate for further study in development potentially working within both our site and community practices. This has been briefly discussed with Dr. Jenny Druker, Pediatric Residency program director.

Royal College Subspecialty Residency training in Developmental Pediatrics

Our challenge is in recruiting Royal College eligible residents for training.

Research - Successes

Many of our faculty's research endeavors take place within the Centre for Community Child Health Research. Others consist of internal research initiatives related to our clinical programs or collaborative projects in which our staff works within another investigator's project.

Clinician Scientists:

- Barr -Shaken Baby Syndrome; early human experience biobehavioural research
- Oberlander -influences on the developing brain and behavioral outcomes

Clinician Researchers and examples of Others' Clinical Research:

- Armstrong -population health approaches; developmental risk
- Miller -health services research re child development; waiting times
- Houbé -Health Policy Research; neonatal/child outcomes & relationships to service
- Wellington -Autism; human genome; developmental trajectories

- Ipsiroglu–development of a sleep research agenda and sleep in children with FASD
- Lanphear-ADHD in girls with Turner syndrome
- Loock–development of a Social Pediatrics research agenda
- Mickelson- behavioral phenotypes
- Miller –health services research re child development; waiting times
- O’Donnell –health services research re child development; caregivers

Research – Challenges

Many of our faculty’s research endeavors occurs within the Centre for Community Child Health Research. Others are internal research initiatives related to our clinical programs or collaborative projects in which our staff works within another investigator’s project. Our challenge is to continue to secure stable funding for our senior researchers and to find new dollars to build our research capacity at the junior faculty level.

University Service

Faculty of Medicine Educational Research Centre (Armstrong)
 Faculty of Medicine Department of Pediatrics Faculty Appointment, Recruitment, Promotion and Tenure (DARPT) Committee (Armstrong, Oberlander, O’Donnell)
 Faculty of Medicine, Medical School, Promotions Committee (Fitzgerald)
 Search Committee Associate Dean Research (Armstrong 07)
 Chair External Review Department of Family Practice (Armstrong 07)
 Chair, Self-study Task Force Accreditation 2008: Faculty Committee (Armstrong 07)
 Search Committee Associate Dean, Professional Development (Armstrong 07)
 BMB Library Chair (Matsuba)
 MCC Test Committee (Matsuba)
 Department of Pediatrics Alternate Funding Plan Steering Committee on Data Collection and Reporting (Miller 05-07)
 Coordinator of Continuing Education Sessions CiCHR – (Miller – 07)
 Scientific Steering Committee, Child & Family Research Institute (Barr)
 Search Committee Chair, Academic Scientist for BC Injury Research & Prevention Unit (Barr – 04-06)
 Search Committee, Institute for Mental Health Chair in Child Psychiatry (Barr)
 Search Committee Chair, Director, BC Injury Prevention Research Unit (Barr -2007-present)
 Department of Pediatrics Executive Committee (Armstrong, O’Donnell)
 Department of Pediatrics Operations Committee (Armstrong, O’Donnell, Lanphear)
 Co-Chair Children and Youth with Disabilities in Society (CYDiS) Committee (O’Donnell 06-, Miller 06-)
 CYSN Mapping and Modeling Project Steering Committee (O’Donnell 08- Miller 08-)
 CN-CYR Steering Committee (O’Donnell 08- , Miller 08-)

University Service - Challenges

The challenge as with all academic endeavors is to balance all of the demands on our faculty. Many of our senior faculty members have many roles to play.

Health Care Service - Successes

Children's and Women's site redevelopment steering committee (Armstrong, O'Donnell)
 Child Health Executive Council Committee (Armstrong ongoing, Miller 04-06)
 Child Health Management (Lanphear, O'Donnell)
 Children's and Women's Committee with PHSA regarding practice guidelines for the care of infants with prenatal drug and alcohol exposure (Oberlander)
 Research and Education Advisory Council (Armstrong)
 Strategic Planning Task Force Dept of Pediatrics (O'Donnell)
 Strategic Planning Committee BCCH (O'Donnell)
 SHHC Ethics Committee (Houbé)
 Vancouver Coastal Cross Sectoral Children and Youth with Special needs working group (Lanphear, Mickelson, O'Donnell, Look)
 BC Healthy Children's Alliance (Look)
 Vancouver Coastal Health and MCFD Foster Screening Project (Look)
 Consultant Aga Khan University (Armstrong 07-08)
 Consultant "Safe & Healthy Beginnings" Project, American Academy of Pediatrics (Barr 05-present)
 BC Ministry of Health – Development of a Comprehensive Assessment for Children and Youth with Special Needs (Vancouver) Think Tank participant (Wellington 06)

Health Care Service - Challenges

Similar to the above many of our senior members are involved in key roles within BCCH, this provides an advantage to our division but also dilutes the other roles they can play within our structure.

Administrative - Successes

Head Department of Pediatrics (Armstrong)
 Interim Director, Centre for International Child Health (Armstrong)
 Organizing committee Boulton Initiative (Armstrong)
 Scientific Advisory Board Member, Centre for Developmental Science, Chapel Hill, NC (Barr 02-present)
 Advisory Board Member, Cornell Institute for Research on Children NSF (Barr 01-present)
 Member, NIMH "Fetal Neonatal" Network (Barr 03-07)
 Member, Research Advisory Committee, Michael Smith Foundation for Health Research (Barr 03-07)
 Member, Scientific Advisory Board, National Competence Centre (NCCR), Swiss Etiological Study of Adjustment and Mental Health (SESAM) (Barr 05-present)

Administrative - Challenges

Similar to the above, many of our senior faculty members are involved in key roles within BCCH, this provides an advantage to our division but also dilutes the other roles they can play within our structure.

Public Relations

Autism Community Training's (ACT's) First Annual Award for Service to the Autism Community in BC (Wellington 06)

Board of Directors, McCear Youth Foundation (Miller 06-)

Service to the academic community:

Canadian Pediatric Society,

Past President, Section on Developmental Pediatrics, Houbé 08

President, Houbé 07

Member at large, Executive Committee Develop Pediatrics, Miller, 04

Member at large, Developmental Pediatrics Section Executive,

O'Donnell 98-99

Vice-President, Developmental Pediatrics Section Executive,

O'Donnell 99-00

American Academy of Cerebral Palsy and Developmental Medicine,

Past President Bob Armstrong 04-06;

Chair elect Publication Committee Armstrong 06-07;

Chair Publication Committee Armstrong 07-

Member, Treatment Outcomes Committee O'Donnell 99-

Director, Board of Directors O'Donnell 04-07

International Pediatric Chairs Association

Secretary, Executive Committee Armstrong 06-

International Society of Infant Studies

Executive Council Barr 02-07

Joint BCAAN/CDBC

Provincial Clinical Operations Council Wellington 07-

Provincial Steering Committee Wellington 07-

Complex Developmental and Behavioural Conditions (CDBC)

Network Management Council Wellington 06-

Association of Medical School Pediatric Department Chairs

Executive Member, Armstrong 05-08

Royal College of Physicians and Surgeons of Canada

Chair, Developmental Pediatrics Specialty Committee O'Donnell 03-

Society for Developmental and Behavioral Pediatrics

Program Chair, Lanphear 07-

Program planning committee, Lanphear 04-06

Education committee, Lanphear 02-

Society for Pediatric Research

Senior member Armstrong 97-

Society for Research in Child Development
 Governing Council Barr 02-07
 Western Society for Pediatric Research
 Executive Council Member Armstrong 2005-
 Pediatric Chairs of Canada
 President Armstrong 05-07
 Past President 07-
 Canadian Child and Youth Health Coalition
 Co-chair Armstrong 04-
 FASD UBC Conference
 Planning Committee, Look
 Maternal infant Child Youth Research Network
 Steering Committee, Armstrong 06-
 Chair Funding Partnership Armstrong 07-
 BC Pediatric Society
 Executive Committee, Armstrong 00-
 Secretary Treasurer, Houbé
 Learning Disabilities Task Force, Houbé
 BC Autism Assessment Network
 Database Committee Wellington 05-07
 Child Health BC
 Steering Committee, Armstrong 05-
 Child Development and Rehab
 Database Committee Wellington 05-07
 Northwest Society for Developmental and Behavioral Pediatrics
 President, Houbé 08
 The early years Conference Planning Committee, Mickelson 06
 Child and Youth Health Population Performance Measures Advisory Working Group (with
 CCHSA and CAPHC and Child Health BC (Miller 07-)
 Symposium moderator or chair CAPHC (Armstrong 05, 06, 08)
 Conference Co-Chair CAPHC (Armstrong 06)
 Ohio Help Me Grow Task Force (Lanphear 04-08)
 Co-chair child find committee (Lanphear 04-08)

Scholarly Committees:

Editorial Board Developmental and Child Neurology (Armstrong)
 Editorial Board Child Health & Education (Barr)
 Editorial Boards, Human Nature: An Interdisciplinary Biosocial Perspective (Barr 90-
 present)
 Editorial Boards Developmental Psychobiology (Barr 97-present)
 Editorial Boards Applied Developmental Science (Barr 97-present)
 Editorial Boards Infant & Child Development (Barr 99-07)
 Research Advisor The Parent Review, TPR Media (Barr 04-06)
 Reviewer for multiple Journals (Lanphear, Houbé, Ipsiroglu, Oberlander, Miller, Barr)
 Armstrong on review panel for 20 organizations

Advocacy - Successes

The division sees the primary mission of our work as having an advocacy focus, since we work with individual children with developmental conditions and their families.

In addition to our cross-sectoral work with education, child welfare and health, we seek to ensure adequate supports for the children and families we serve.

A number of our members have also used their academic time to champion health care access and equitable service to the often-disenfranchised population who live in the downtown Eastside. Dr Loock has taken on a key knowledge transfer role within Social Pediatrics. Dr. Loock and Dr. Fitzgerald continue to work closely within preschool and school systems within Vancouver to serve as developmental consultants for children who would otherwise not be able to benefit from our services.

Working Group American Psychiatric Association and American College of Obstetrics and Gynecologists, draft statement on management of maternal depression during pregnancy, (Oberlander)

UBC Can Meds Health Advocacy Trainer (Houbé)

Boulton Initiative (Houbé)

Advocacy - Challenges

Advocacy work takes time and is seldom well compensated. It will continue as it is a passion for many division members, but again, the balance for each individual is important. The diversity of advocacy interests within our division can also dilute our ability to encourage changes within the key structures.

Academic Activities

Developmental Pediatrics	2005	2006	2007	2008
Referred Publications (Journals)	30	25	13	29
Books/Book Chapters	6	10	11	4
Invited Presentations	50	69	65	73

Strategic Initiatives including recruitment

We are not currently in an active recruitment phase but it will be important to have a 3-5 year plan on recruitment. Many of our faculty are in the mid career phase and have only a part time commitment to the division. In addition, senior members are the best funded and prolific in terms of research work and administrative involvement. A long-term vision will be to position the division to continue to play key roles in many areas, encourage growth of our mid career faculty and find Junior faculty to bring in the next generation of developmental pediatric practitioners.

Subspecialty Resources and Planning

As many of the children we serve are seen by multiple subspecialists, we need to consider how best to serve these children in the tertiary medical setting to avoid duplication of effort and to provide care in a holistic manner. This type of care would require infrastructure support to allow for easier communication, electronic charting to avoid needless search for reports and files, and creative scheduling systems to utilize professional time well. In addition, this type of shift from a single discipline would require trust among the professionals that the care is being provided and services actually optimized from a family perspective.

In our interdisciplinary work, it is particularly difficult to retain psychologists to work within an academic medical complex. It would be helpful to have further discussions with our psychology colleagues.

Clinical Care Commitment including quality improvement structure and achievements.

See Subspecialty Resources & Planning

In addition, the hospital and PHSA should truly show a commitment to change and provide both the infrastructure and vision to review how care is provided on many levels both inpatient and outpatient and to ensure that we are at best practice. Changes should be well thought through and after implementation; the effect reviewed with necessary modifications made. This type of quality change could make lasting and significant contributions to the care of children. It is an ongoing and dynamic process.

Teaching Involvement

We do not anticipate any significant changes within our teaching commitment on the undergraduate or graduate levels. We are considering a review of the types of venues in which developmental pediatrics is taught at the CME level within BC.

Research including major Interactions and Collaborations

Our research interests span many areas and we will continue to seek funding regionally, provincially and nationally. It also remains in our best interest to work collaboratively with the groups who serve similar children, which would include but may not be limited to Neurology, Genetics, General Pediatrics, CiCHR etc)

Administrative Responsibilities of division members

One shift will be the change anticipated for Dr Armstrong as he completes his role as Department of Pediatrics chair.

Community roles of division members

We anticipate no major changes in this at the current time but will continue to be active members in our community.

Contributions by Division members to Continuing Professional Development and Knowledge Translation

The Developmental faculty will continue to teach in continuing medical education on the regional, national and international arenas:

APA/SPR, SDBP, CPS, CAPHC, BC Pediatric Society, AACPDMD.

DIVISION OF DEVELOPMENTAL PEDIATRICS SCHEDULE OF RESEARCH OPERATING REVENUES					
Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$1,054,653	\$ 665,148	\$ 166,108	\$ 135,338	\$ 406,373
Clinical Trials	\$ -	\$ -	\$ -	\$ -	\$ -
Contracts	\$ 1,560	\$ 49,210	\$ 132,444	\$ 193,859	\$ 32,820
Grants	\$ 1,625,893	\$ 1,403,658	\$ 1,110,577	\$ 889,185	\$ 859,676
Total	\$ 2,682,106	\$ 2,118,015	\$ 1,409,129	\$ 1,218,382	\$ 1,298,868

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	7	6	4	3	2
Clinical Trials	0	0	0	0	0
Contracts	1	2	2	2	2
Grants	28	22	18	16	18
Total	36	30	24	21	22

Division of Pediatric Emergency Medicine

Dr. Ran Goldman, Associate Professor and Division Head

Gregory Baldwin, BSc, MD, FRCP(C), Clinical Associate Professor
 Adam Cheng, MD, FRCP(C), FAAP, Clinical Assistant Professor
 Michelle Clarke, MD, Clinical Instructor
 Margaret Colbourne, BSc, MD, LMCC, FRCP(C), Clinical Associate Professor
 Carolyn Davies, BSc, MD, FRCP(C), Clinical Assistant Professor
 Navid Dehghani, BSc, MD, FAAP, FRCP(C), Clinical Associate Professor
 Quynh Doan, MD CM MHS FRCP(C), Clinical Assistant Professor
 Lisa Dyke, BSc, MD, FRCPC, Clinical Instructor
 David Haughton, BA, MD, FRCP(C), Clinical Assistant Professor
 Geoffrey Hung, BSc, MD, FRCP(C), FAAP, Clinical Assistant Professor
 Simi Khangura, BSc, MD, FRCP(C), Clinical Assistant Professor
 Paul Korn, BA, MD, FRCP(C), Clinical Associate Professor
 Zoe Leatherbarrow, BSc MD FRCP(C), Clinical Instructor
 Christine Perreault, M.D.C.M. FRCP(C), Clinical Instructor
 Bruce Phillips, MD, FRCP(C), Clinical Assistant Professor

Overview

The Division of Pediatric Emergency Medicine has managed to become a leading Canadian Emergency Department in the last 5 years. Fulfilling its mandates within the Province of British Columbia and the Department of Pediatrics University of British Columbia, the Division continued to provide exceptional clinical care for a growing number of patients with illnesses of higher acuity, develop a comprehensive teaching program for trainees of all levels and of different professional backgrounds, as well as an active research program with successful grantsmanship and increase in the number and level of scientific publications. The future of the Division will include enhancing access to tertiary clinical care, as well as increasing academic capacity through internal and external collaborations.

The Division of Pediatric Emergency Medicine:

- Is responsible for providing clinical care for all levels of emergencies for children throughout the Lower Mainland, including psychiatric emergencies, provincial transfers and transports, and trauma patients;
- Has evolved to include outpatient treatment of disorders that traditionally required admission to the hospital, often through the use of clinical care pathways and guidelines;
- Provided leadership in the field of emergency care of sick and injured children, providing liaison with Emergency Departments and general pediatricians throughout the province;
- Provides a clinical teaching service and academic program for medical students, residents, and subspecialty trainees;

- Has a Royal College subspecialty training program in Pediatric Emergency Medicine;
- Collaborates with the other academic Emergency Departments in the province and in Canada, the transport Program, the trauma program and the disaster planning program.

Introduction

The Division of Emergency Medicine at BCCH is providing clinical care for the sick and injured children of BC. The services are provided by full-time pediatric emergency physicians as well as a conglomerate of pediatricians with a special interest in Pediatric Emergency Medicine. The previous five years have been marked by a continued effort to move the Division of Emergency Medicine forward as an academic Pediatric Emergency tertiary centre. The academic extension, development of a continuing medical education program, a simulation program, a comprehensive teaching environment and a fruitful research program have transformed the care provided to patients and the level of academic sustainability. The expanding roles of the members of the Division supported the vision crafted in the last decade and brought the Division to a new peak from both clinical and academic perspectives.

Highlight of Achievements

Operations

Over the last five years, we have witnessed an increase in the number of patients seeking care at BCCH Emergency Department. An almost constant increase in the acuity of patients has also been noticed. We continue to provide tertiary care and be a trauma centre for the children of BC.

Clinical Practice Guidelines

In collaboration with Child Health BC, the Division created several Clinical Practice Guidelines. These guidelines were disseminated to other health care providers in BC and supported the care of children all around the province.

Continuing Medical Education Program

An extended role in knowledge translation and providing provincial support to Emergency care was doable through an innovative and diverse program. The highlight of the CME program is the annual “Pediatric Emergency Update” in April of each year that draws participants from BC and other areas.

Simulation Program

During the last five years, an innovative and unique high fidelity simulation program was developed within the Division of Emergency Medicine. The rapidly growing program provides cutting-edge teaching to trainees and staff by allowing life-like experiences resembling the stressful situations during resuscitation. The Emergency Department plays a leading role in the developing field of Pediatric simulation and was able to provide first-hand experience, innovative scenarios and promote multinational research in the field.

Education

The education program that is run through the Pediatric Simulation program at BC Children's Hospital is targeted at promoting multidisciplinary learning in a safe, harm free environment.

Research

The simulation program is leading a multicenter simulation research collaborative that involves 14 working centers across North America.

Quality

Committed to high standards of clinical care, the Emergency Department developed a multi-faceted quality program. The quality program includes collaborations between all health care providers within Emergency, in the review of challenging cases, conduction morbidity and mortality conferences, collaboration with other divisions and with the Patient Quality Department within the hospital to ensure we are providing the best care for our patients.

Research

Understanding that high impact research is fundamental to the quality of patient care and its impact on children around the world has helped to promote research within the Division. Increased participation in national pediatric research networks, local collaborations within the Child and Family Research Institute and innovative methodology suited for the conditions in the Emergency Department allowed us to be highly productive in the publishing of medical literature. Increasing the number of peer reviewed original articles and book chapters as well as an increased number of presentations at national and international conferences, resulted in the provincial, national and international recognition of BCCH's research programs.

Academic Activities

	2004	2005	2006	2007	2008
Refereed Publications (Journals)	7	4	6	7	9
Books/Book Chapters	1	2	2	1	
Invited Presentations	8		1	13	15

Education

Pediatric Emergency has the highest number of trainees within the Department of Pediatrics. Providing almost 20,000 hours of direct and indirect teaching to hundreds of trainees is part of the vision of the Pediatric Emergency Department. The program is constantly highly rated by trainees allowing them, in a relatively short timeframe, to experience management of children with acute illness and injuries. These trainees, medical students, residents and Fellows flock to the Emergency to receive outstanding training.

Recently we were also the lead site for teaching a group of Pediatricians from China, who were on a six-month rotation in the ED at BCCH, as part of a larger initiative to develop pediatric emergency medicine in China.

- i) Teaching in a non-clinical stream involved multiple educational effort venues. Weekly divisional rounds for all trainees and faculty on cutting-edge pediatric emergency topics.
- ii) Teaching of other subspecialties such as Pediatrics, family Medicine and general Emergency medicine residents.
- iii) Involvement with third year medical students as part of their academic curriculum.

**DIVISION OF EMERGENCY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ -	\$ -	\$ -	\$ -	\$ 124,504
Clinical Trials	\$ -	\$ -	\$ -	\$ 30,576	\$ -
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 271,526	\$ 400,503	\$ 3,594	\$ 85,000	\$ 95,775
Total	\$ 271,526	\$ 400,503	\$ 3,594	\$ 115,576	\$ 220,279

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	0	0	0	1
Clinical Trials	0	0	0	1	0
Contracts	0	0	0	0	0
Grants	3	4	1	2	3
Total	3	4	1	3	4

Division of Endocrinology

Dr. Jean Pierre Chanoine, Clinical Professor and Division Head

Faculty

Shazhan Amed, MD, FRCPC, Clinical Assistant Professor

Jean-Pierre Chanoine, MD, PhD, ECFMG, Clinical Professor and Head

Dan Metzger, BSc, DABP, ABP, FRCPC, LMCC, Clinical Professor

Constadina Panagiotopoulos, BSc, MD, DABP, LMCC, Assistant Professor

Ralph Rothstein, BSc, MD, RCPC, FRCPC, AAP, Professor

Laura Stewart, MD, LMCC, FRCPC, Clinical Associate Professor, Subspecialty Program Director

Southern Medical Program

Elizabeth Rosolowsky, M.D., (Univ. of San Francisco) MPH, Clinical Assistant Professor

Website:

www.bcchildrens.ca/Services/SpecializedPediatrics/EndocrinologyDiabetesUnit/default.htm

Overview

Pediatric endocrinology is the discipline of pediatrics relating to most fundamental aspects of human physiology: the endocrine glands and their hormones. The Endocrine glands control growth (height and weight), sexual development, puberty and reproduction and daily metabolism such as maintenance of blood glucose and blood pressure. Type 1 diabetes is a common chronic condition affecting more than 2000 children in BC alone. As such, our subspecialty plays a major role in the health of British Columbian children. In addition, Endocrinology represents a key building block of the foundational learning and knowledge which medical students and health professionals acquire during their university training.

Introduction

Mission

The Endocrinology and Diabetes Division provides state of the art care to British Columbia children and families with diabetes or endocrine conditions, working in close collaboration with community health professionals (e.g., pediatricians, family doctors, dieticians, nurses and social workers). To bring specialty care closer to the patient's home community, the Division's focus is progressively shifting from delivering centralized clinical care at BCCH, to training health professionals and actively supporting the development of specialized clinics in health regions across British Columbia. Academically, the Division has a dedicated laboratory and clinical research program and

provides training to postgraduate medical trainees (Residents and Fellows), allied health professionals as well as families and children.

Goals

- To advance excellence in clinical care and teaching
- To implement a BC Provincial Network for clinical care of diabetes and endocrine disorders
- To develop nationally and internationally recognized laboratory and clinical research programs
- To graduate at least one Canadian fellow from our Royal College accredited subspecialty fellowship program every 3 years.

Major Successes and Challenges

Clinical: Successes

Our clinical unit at BCCH remains the only center providing tertiary care in pediatric endocrinology and diabetes in BC. We are available for consultation to family doctors, pediatric specialists and patients/families across the province on a 24/7 basis. We schedule more than 20 half days of clinic/week in Endocrine and Diabetes to serve all British Columbians. Over the last 5 years, the following important developments have taken place:

- Provincial program: The recruitment of Dr Amed in July 2008 has led, in collaboration with Dr B Peterson (Child Health BC) to the fast tracking of development of a provincial structure for diabetes care. The long-term goal of this project is to develop regional clinics in each BC Health region and offer optimal clinical care closer to home (diabetes and endocrinology). This will be achieved through training of local health care providers as well as through increased number of direct local community clinical care provided by our physicians.
- Development of a comprehensive Type 2 diabetes program: under the leadership of Dr D Panagiotopoulos, this program has increased in size to address the increased prevalence of Type 2 diabetes in youth (presently 100 patients with either glucose intolerance or Type 2 diabetes).
- Center for Healthy Weights Shapedown BC!: Dr Chanoine and Panagiotopoulos, in collaboration with Dr Hinchliffe, drafted BC guidelines for the treatment of childhood and adolescent obesity in a primary care as well as in a tertiary care setting. These guidelines led to the funding by the BC Government of the Centre for Healthy Weights. Shapedown BC, opened in September 2006. Every year, it provides care to some 100 families of overweight children.
- Community pediatric endocrinologists: Dr S Stock, after finishing her fellowship at BCCH, became the first pediatric endocrinologist to practice in the community (North Vancouver). In 2009, she was joined by Dr Rosolowski (Kelowna), who moved to the Okanagan following completion of her fellowship at Harvard (Boston). These developments are significant steps in achieving the goal of specialized Endocrine and Diabetes care closer to home.

-
- Insulin Pump program: The number of patients with Type 1 diabetes using an insulin pump has increased exponentially over the last 5 years and now represents close to 25% of all patients. This success is due to the pump training program developed by Dr Metzger and C Pepe (RN).

Challenges

- Our Division has only 2 FT dietitians for the diabetes program: 1 FTE assigned to the diabetes daycare program for the teaching of our 150+ new patients/year and 1 FTE in our Diabetes clinic. There is no regular dietitian support in endocrinology and these Endocrine patients do not receive optimal care (PCOs, hyperlipidemia, poor weight gain...).
- Limited Endocrine nursing: Endocrine nursing has increased by 0.2 FTE while the number of medical staff at the same time increased from 3 FTE to 5.5 FTE.
- There is no clinic psychologist despite the many patients in both Endocrinology and Diabetes that require psychology services.
- Electronic medical records. While progress has been made over the last 5 years (lab results, letters available on the intranet), there is presently no electronic medical record per se. Challenges that are specific to Endocrinology and Diabetes include the need to update the growth chart as well as a summary page at each visit.
- Admission of patients with diabetes. The merger of 2 pediatric wards at BCCH has limited the larger ward being able to maintain subspecialty care expertise in management of Diabetic Ketoacidosis. Nursing expertise and familiarity with the DKA protocols remains available on ward 3F. Because of the significant morbidity and mortality associated with DKA, all acute DKA patients are managed either in critical care areas (Emergency Department, PICU) or 3F. This necessitates patients moving off 3F, when the ward is full which, presents many difficulties.
- Multidisciplinary clinics are difficult to organize (oncology, genetics, renal) and would benefit our patients
- Transition clinics with our adult colleagues need to be developed.

Teaching: Successes

All Division members are involved in student, resident and fellow teaching. Recent successes include:

- Award for Excellence in Resident teaching to the Endocrinology and Diabetes Division.
- Development by Dr Rothstein, followed by Dr Stewart, Subspecialty Program Director since 2008, of formal weekly teaching sessions (2 hours) for our fellows, in addition to bedside and clinic teaching and to our regular conferences.

Challenges

Given the limited number of pediatric endocrinologists in the Division, the Division teaching focus is in areas of our unique expertise rather than in general pediatrics. The Division cannot accommodate all the teaching requests that come to it, particularly for clinical training in the clinic setting because of space limitation and limited support staff.

Research: Successes

The Division has benefited from the recent recruitment of Dr Shazhan Amed in 2008, which now brings the number of Division physicians with a significant time commitment to research to three (Drs Amed, Chanoine and Panagiotopoulos). In addition, Dr Angela Devlin PhD, nutrigenomics, became affiliated with our Division's research programs in 2008. These developments created a critical mass of knowledge and research expertise described below, in the field of childhood obesity and its complications (such as Type 2 diabetes). Recent successes include:

- development of Dr Panagiotopoulos as an independent investigator (CFRI clinical investigator award)
- peer-reviewed funding from national agencies to Drs Chanoine and Panagiotopoulos (CDA, CIHR, MSFHR, Lawson Foundation, Telethon...)
- increase in the overall number of peer-reviewed publications. More importantly, there is a focus on translational research (see 13.)
- creation in 2007 of the Twist and Shout Team [TS] by Dr Chanoine. This BC team of investigators is unified in a common, long-term goal "to study determinants of childhood and adolescent overweight at individual, family, community and population levels and develop targeted interventions that will translate into sustainable outcomes and healthy body weights". As of 2009, two collaborative projects have received funding from the Vancouver Foundation and CIHR.

Challenges

Overall, the hospital remains a non-friendly environment for clinical research. Major progress, thanks to the efforts of Dr A Junker has taken place, with a dedicated clinical research area in the new research building at CFRI. A research nurse is available for help and support with ethics submissions and the organization of research projects. However, many obstacles remain: competition for resources in the hospital (availability of the testing room for dynamic testing); difficulty to perform MRI studies due to heavy use of the existing equipment; absence of a user-friendly way to prepare a study budget involving staff, laboratory, and no UBC clerical support.

There is also no protected time for nurses and dietitians to permit them to be involved in their own research projects.

University Service: Successes

The Division has increased its commitment to medical student teaching: Dr Panagiotopoulos was Block Head in 2007-2008 for the 2nd year medical students and is now, similar to Dr Stewart, week captain. There is a major commitment to the preparation and organization of a full week of curriculum. D Yasui (dietitian) supports the Faculty of Land and Food Systems by supervising dietitian students. Dr Chanoine is a member of the Department of Experimental medicine.

Challenges

The University of British Columbia provides minimal clerical support for the development of teaching material

Health Care Service - Successes

Besides daily clinical care, Unit members have been heavily involved in the writing of national clinical guidelines for Diabetes (D Panagiotopoulos). Dr Chanoine is part of a national group writing the guidelines for the prevention and treatment of childhood obesity (published in CMAJ in 2007, PowerPoint version to be released in 2009). At BCCH, Drs Panagiotopoulos and Chanoine have drafted the guidelines for screening of patients going through the Centre for Healthy Weights.

Administrative: Successes

Despite major deficits in secretarial, clerical, and administrative support (see below), our unit has made significant progress in tweaking our limited resources to increase productivity.

- Dictation system: Dr Metzger in particular, has been instrumental in moving our division to the “computerized world” well in advance of other BCCH programs. This includes development and maintenance of a patient database as well as templates which facilitate the work of our transcriptionist. Over the last 5 years, BCCH has developed a central dictation system that did not effectively meet our needs. Dr Metzger, in collaboration with our Subspecialty Clinic Managers (J Brown, C Meakin), with support from Dr A Junker, adapted our existing system so that our clinic letters can be seen on the hospital system (EVE) and are distributed by the central system.

- Clerical support: in fall 2008, Dr Chanoine identified serious shortcomings in the existing administrative clerical and secretarial support to the Subspecialty Divisions. This has so far resulted in better training and availability of casual clerks, with the help from C Meakin.

Challenges

Administrative support to the Division remains poor, which is in line with the general situation at BCCH. Despite an increase in physicians from 3 to 5.5 FTEs, over the past 10 years, there has been no corresponding increase in clerical support. One FTE administrative secretary also supports all allied staff in our unit. Functional clarity in the managerial structure is also lacking.

Public Relations: Successes

Physicians and allied staff professionals are regarded as provincial/national experts in their area of interest and respond to regular media requests.

Fundraising: Successes

Our Unit is fortunate to have one endowment for Fellowship training as well as a smaller one for obesity research. We also receive limited donations to support diabetes research and education.

Challenges

The recent economic downturn has led to marked decreases in the rate of return of our two endowment funds. This is particularly challenging for the funding of our clinical fellows through the “Zell Fellowship endowment” and for obesity research through the “Chanoine-Alimenti Obesity Research endowment” as the amount of funding has decreased significantly for the academic year 2008-2009. Obesity and Type 2 diabetes, the research focus of the Endocrinology and Diabetes Unit, is not a typically “high profile” field that generates donations from patients and families.

Advocacy: Successes

Recent successful examples of advocacy for patients include:

- Reimbursement for insulin pumps in children and adolescents with diabetes
- Extension of coverage for growth hormone treatment during the transition period between adolescence and adulthood
- Nursing advocacy for the needs of children with diabetes at school
- Funding of the Shapedown Program

Strategic Initiatives including recruitment

With the recruitment of Dr Amed in July 2008, we now have 5.5 FTE Pediatric Endocrinologists. This recruitment represents a significant step forward in the provincial diabetes program, currently being developed in collaboration with Dr B Peterson, Child Health BC, and a critical mass of researchers with complementary interests in the field of childhood obesity and its complications.

Subspecialty Resources and Planning

Our Division remains an accredited Royal College accredited program and has been successful in attracting many fellows for clinical and research training. We aim at hosting 2-4 fellows simultaneously. We have recently moved from a 2-year to a 3-year Subspecialty program, with the third year dedicated to clinical/laboratory research or to enrollment in a Masters program. In addition to a clinical fellow position and to UBC funding (for Canadian subspecialty residents), we are fortunate to have access to an Endocrinology Fellowship endowment which provides some funding for foreign graduates.

Challenges include difficulties in recruiting Canadian Subspecialty fellows, in contrast to the number and quality of foreign graduates, and the insufficient yield of our endowment due to the current economic situation and the low interest rates.

Clinical Care Commitment including quality improvement structure and achievements.

Our Division remains heavily committed to Clinical Care, with 20 half-day clinics every week, and a 24/7 coverage for emergencies.

Quality improvement structure:

- Growth hormone (GH) committee meeting (1/mo): all patients who may require GH treatment are reviewed collegially. Our group also includes Drs Stock (North Vancouver) and Rosolowski (Kelowna), 2 community pediatric endocrinologists. This meeting clearly enhances the quality of the care of the patients. It also reflects a respectful relationship between our group and the BC government for the prescription of human GH.
- Gender meeting (1/mo), where all patients with genetic disorders of sexual differentiation are reviewed in a multidisciplinary fashion: urology, genetics, endocrinology, and gynecology.
- Diabetes meeting: the diabetes Team (nutritionists, nurses, social worker, endocrinologists) meets 1 every 2 months to review teaching and research aspects of our program.
- Case discussions or journal club: 1/week

All above meetings include fellows/residents/students

Teaching Involvement

In addition to daily teaching opportunities with medical students, fellows and residents in clinic, our division has a major commitment in the UBC Faculty of Medicine's curriculum. Drs. Panagiotopoulos and Stewart are both week captains, meaning that they organize and supervise a full week of the second year curriculum. At BCCH, Dr D Panagiotopoulos is a chair for 'Advances in Pediatrics'.

Research including major Interactions and Collaborations

Drs Chanoine, Panagiotopoulos and Amed's research interests all focus on childhood obesity and its complications. Dr Chanoine created the TS team (see above) which includes 13 investigators from the BC Children's Hospital and St-Paul Hospital, and from UBC and Simon Fraser University, providing a critical mass of researchers with interest in all aspects of childhood obesity at BCCH. Dr Chanoine's research focuses on the role of hormonal and nutritional factors in the development of childhood overweight. The main line of research includes laboratory-based projects aimed at understanding the physiological role of ghrelin, a potent orexigenic peptide during the fetal and early postnatal period, and clinical projects looking at the role of appetite-regulating hormones in the development and treatment of childhood and adolescent overweight. Dr Chanoine is also principal investigator of "Healthy Buddies", a peer-led curriculum aiming at preventing the development of overweight in elementary school children. At UBC, Dr. Chanoine is part of various networks of investigators in diabetes (Drs. B Verchere, Johnson, Kieffer), Nutrition (Dr S Innis) and genetics (Dr W Gibson). In Canada, Dr. Chanoine has also developed collaborations with Dr. G Ball (Edmonton) through the project ACORN (Addressing Childhood Obesity through Research and Networking), an initiative that aims at developing a Canadian network of Researchers. Recent international collaborations include projects on ghrelin during pregnancy with Dr. M Thorner (U of Virginia) and R Bogarin (a former fellow now in Costa Rica) and on insulin sensitivity (Dr M Hellerstein, U of California Berkeley). Dr. Chanoine is also the endocrinologist expert in a clinical research project on perinatal ghrelin metabolism (Nestle, Switzerland).

Dr. Panagiotopoulos's research focuses on the prevention and treatment of Type 1 and Type 2 diabetes. She is Clinical Core Director of the New Emerging Team in Childhood Autoimmunity and collaborates with basic (Drs. Ru Tan, Stuart Turvey, Peter van den Elzen, Jan Dutz, PJ Utz) and clinical (Drs. Lori Tucker and David Cabral) scientists at UBC. In a different group, Dr Panagiotopoulos collaborates with Dr B Verchere for the study of biomarkers in Type 2 diabetes. She is also involved in the Why Weight Project, a study looking at the effects of second generation antipsychotics on insulin resistance and weight in children and adolescents, in collaboration with Drs J Davidson and M Weiss in psychiatry. She is spearheading the development of a new **Metabolic effects of atypical antipsychotics in the pediatric population (MAAPP) Team** in this field that includes Drs. A Barr, R Procyshyn, L Masse and A Devlin. Dr. Panagiotopoulos also has an ongoing project in First Nation Communities in Northern BC with collaborations with Action Schools BC (Dr. PJ Naylor K Gaul at U Victoria and H MacKay at UBC).

Dr. Amed's academic interests include the epidemiology and prevention of type 2 diabetes in children, innovative modes of health service delivery to children with chronic disease, and evaluation of public health initiatives. She has recently completed a Canadian surveillance study for type 2 diabetes (Canadian Diabetes Association funding) in collaboration with the Canadian Paediatric Surveillance Program (CPSP) and the National Research System-College of Family Physicians of Canada (NaReS-CFPC). This study, the first of its kind in Canada, reported the incidence of type 2 diabetes (T2DM) in Canadian children in addition to information on the demographic features, clinical presentation and treatment of pediatric T2DM. She is working closely with Child Health BC to develop a provincial pediatric diabetes program in British Columbia. Recognizing the importance of evaluating and reporting the impact of new models of care, she will use existing provincial and national databases to determine if this provincial pediatric model of diabetes care will improve clinical (i.e. diabetes control, reduction of complications) and non-clinical outcomes in children with diabetes. Grant applications have been submitted to both the CIHR and the Canadian Diabetes Association to support this research. Dr. Amed is also collaborating with researchers at BC Children's Hospital (JP Collet, A Miller, M O'Donnell, S Ayedade) in the development of innovative methods of health service delivery to children and youth with complex chronic disease. She is involved in a workshop: "Toward optimal management of children and youth with chronic conditions," which has been funded by CIHR within the Partnership for Health System Improvement (PHSI) program where diabetes in children will be a focus. Lastly, she is collaborating with Jeffrey Johnson (University of Alberta School of Public Health and Policy) who is currently the PI on a CIHR-NDSS grant to validate an algorithm that will differentiate type 1 and type 2 diabetes in children and adults using BC administrative databases. Dr Amed also sits on the Scientific Working Group for the National Diabetes Surveillance System (www.ndss.gc.ca) which is affiliated with the Public Health Agency of Canada (PHAC). She is also preparing a chapter on T2DM in children for PHAC's publication "Diabetes in Canada" (release date October '09).

Governance

Our unit includes the following programs/activities/space:

- Administrative offices. Location: ambulatory care building, 4th floor
- Out patient clinics: > 20 half days per week. Location: ambulatory care building, 2nd floor.
- In patient admissions. No designated beds. Patients with diabetes are preferentially admitted to 3F, where expert help is available.
- Diabetes Daycare: where all families of patients with new onset diabetes are taught (150 new patients/year). Location: Medical Day Unit
- Metabolic Investigation Facility (MIF): where > 700 dynamic tests (GH stimulation tests, OGTT...) are performed annually. Location: Medical Day Unit.
- Clinical research space: where all students and research personal are working. Location: ambulatory care building, 4th floor
- Research laboratory (Dr Chanoine). Location: New Research Building, 4th floor (CFRI)

Meetings are called as follows:

- Division meeting (all): 1/1-2 months
- Physician's meeting (6 pediatric endocrinologists): 1/1-2 months
- Diabetes administrative meeting (physicians and diabetes care center staff [nurses, dietitians, social worker]: 1/month
- Subspecialty fellowship meeting (physicians and fellows): 1/month

Administrative Responsibilities of Division Members

Dr Chanoine: Div Head

Dr Stewart: Subspecialty Fellowship Program Director

Dr Metzger: Medical Student rotations

Community roles of division members

- Physicians, nurses and dietitians play important roles in various associations at the local, provincial and national levels. For instance, in 2009:
 - Royal College Examination panel (D Metzger)
 - Canadian Diabetes Association (Diabetes Education Section, Vancouver Chapter, Treasurer (S Hermann, RN), Medical Director diabetes camp (Dr D Metzger), Grant review committee (Dr D Panagiotopoulos), Clinical/scientific section, executive committee (Dr D Metzger), Clinical Practice Guidelines (Dr D Panagiotopoulos)
 - Canadian Society for Endocrinology and Metabolism (Chairman of the website committee (Dr D Metzger)
 - Canadian Obesity Network (Head of the Pediatric Section (Dr JP Chanoine))
 - Canadian Pediatric Endocrine Group (President (Dr JP Chanoine))
 - Editorial boards of scientific journals: Hormone Research, Canadian J Diabetes (Dr Chanoine)
 - Reviews to numerous scientific Journals (Drs Chanoine, Metzger, Amed, Panagiotopoulos)
- Diabetes Camp is organized every year for children and adolescents (July 1-15) as well as for families (last week of August). Physicians, nurses, dietitians and residents participate.
- Service to the patients through the development of resources (Type 1 and 2 diabetes, Endocrine conditions) that are posted on our Division website. Our home page, developed and maintained by Dr Metzger, is the 15th most often visited website at BCCH. In December 2008, the site received 691 "visits" and 2928 "views". Handouts for patients and professionals are downloaded hundreds of times. In December 2008 alone, I note: Insulin pump handout 779 downloads, #1 for all BCCH, the manual for Basal-Bolus insulin treatment 632 downloads, and so on. This website represents a unique service to the community of patients and health professionals across BC and Canada.

- Newspaper, TV and radio interviews on topics related to our research or clinical aspects in pediatric endocrinology.
- Finally, our endocrine nurses are recognized experts in their field and organize regular half days for children and families on topics such as AIS (androgen insensitivity syndrome), Turner syndrome, CAH (congenital adrenal hyperplasia).

Contributions by Division members to Continuing Professional Development and Knowledge Translation

All Pediatric Endocrinologists contribute to Continuing Medical Education throughout the Province on a regular basis.

Achievements in knowledge translation over the last 5 years include:

1. Dr Chanoine supervised the development of an elementary school program (“*Healthy Living: Children Teaching Children to Go Move, Go Fuel and Go Feel Good*”) that has been successful in improving healthy living knowledge and BMI in a population of elementary school children. This copyright program has been implemented in 40 BC schools thanks to an \$822,000 grant from the Provincial Health Service Authority. It is presently available for sale and more than 150 kits have been ordered since its final version was released for sale in the fall of 2008 (www.healthybuddies.ca)
2. Dr Panagiotopoulos investigated in 2006 the effect of second generation antipsychotics on glucose metabolism in young patients followed in psychiatry at BCCH. This has resulted in novel guidelines that are now implemented and have led to early recognition of metabolic complications of these medications as well as preventative measures that are part of daily psychiatric practices.
3. Dr Metzger and H Nichols developed a new on line module for insulin adjustment (basal bolus therapy). This module is posted on our Division Website.

Academic Activities

Endocrinology	2005	2006	2007	2008	2009
Refereed Publications (Journals)	1	6	12	8	8
Books/Book Chapters	1	0	2	0	0
Invited Presentations	0	3	4	0	1

**DIVISION OF ENDOCRINOLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ -	\$ -	\$ 70,000	\$ -	\$ -
Clinical Trials	\$ 27,857	\$ 32,620	\$ 32,546	\$ 13,546	\$ 18,912
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 459,208	\$ 406,800	\$ 466,702	\$ 756,854	\$ 557,352
Total	\$ 487,065	\$ 439,419	\$ 569,248	\$ 770,399	\$ 576,264

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	0	1	0	0
Clinical Trials	4	4	3	3	3
Contracts	0	0	0	0	0
Grants	9	7	12	19	16
Total	13	11	16	22	19

Division of Gastroenterology

Dr. Kevan Jacobson, Clinical Associate Professor and Division Head

Faculty

Collin Barker, BSc, MD, FRCPC, DABP, LMCC, Clinical Assistant Professor

Eric Hassall, MD, FRCPC, FACG, Professor

David Israel, BSc, MD, Clinical Professor

Kevan Jacobson, MBBCh, FRCPC, Clinical Associate Professor and Acting Head

Mark Kovacs, MD, FRCPC, Clinical Assistant Professor

Mark Riley, MD, FRCPC, Clinical Assistant Professor

Richard Schreiber, BSc, MD, CM, LMCC, FRCPC, Clinical Professor

Laura Sly, PhD, Assistant Professor

Bruce Vallance, PhD, Associate Professor

Overview

The division of gastroenterology consists of the only certified pediatric gastroenterology sub-specialists in British Columbia specifically trained to provide tertiary and quaternary clinical care to the children and youth of British Columbia with advanced gastrointestinal, pancreatic, liver and nutritional disease. The services provided are essential to the health and well-being of the children and youth of British Columbia where over 60% of patient contacts involve children with chronic gastrointestinal diseases requiring specialty care.

History

The Division of Gastroenterology was established at BC Children's Hospital in 1984 by Dr. Eric Hassall. As the solo member of the division, he developed the GI clinical service and procedural unit. Dr. David Israel joined the division in 1990, Dr. Rick Schreiber in 1997, Dr. Kevan Jacobson in 1999 and Dr. Collin Barker in 2002. Dr. Bruce Vallance was recruited in 2003 as our first full time basic science researcher. Dr. Laura Sly was recruited as the second full time basic science researcher in January 2008. Dr. Mark Kovacs has been a part time clinical locum since 1999. Dr. Mark Riley joined the division as a part time locum from January 2009.

Introduction

Mission

To ensure excellence in the clinical care, education and research of gastrointestinal, liver, pancreatic, biliary and nutritional disorders in children and youth of British Columbia.

Goals

- i. to provide exemplary clinical care to the children and youth of British Columbia (Improve clinical outcome, quality of life, burden of disease and health).
- ii. To enhance and expand our research in inflammatory bowel disease (IBD), liver disease, celiac disease, acid peptic disease and nutritional disorders.
- iii. To establish a nutrition program for the children of BC Children's Hospital and then to expand into a provincial program.
- iv. To enhance the GI fellowship program.
- v. To strengthening education in IBD, liver disease, celiac disease, acid peptic disease and nutritional disorders (undergraduate, post graduate levels, children and families).
- vi. To strengthen public health policy in IBD, liver disease, celiac disease, acid peptic disease and nutritional disorders.

Major Successes

Clinical – Major Successes

Patient Care

The GI division continues to provide comprehensive inpatient and outpatient services to the children and youth of British Columbia. The division provides 24 hour service 7 days per week. Approximately 2800 patients are seen in the outpatient clinic annually with \pm 1000 new consults and 1700 follow-ups. We are the primary or consulting physicians for approximately 345 inpatients, with 168 MDU visits and 102 ER consults annually.

Under the supervision of Dr Kevan Jacobson, the Division has developed an Inflammatory bowel disease (IBD) database, which records information on IBD patients. Through the IBD Database, patients are monitored and followed longitudinally. The epidemiology of disease and patterns of care are examined, therefore improving the quality of patient care. The division is about to launch an IBD website which will provide clinical information for our patients with IBD.

Nephrology, Cardiology and Gastroenterology (Dr Rick Schreiber) have established the highly successful Multi-organ transplant team/ clinic.

Dr Schreiber and Dr Andre Mattman have established a provincial laboratory policy for the assessment of bilirubin levels in neonates and early infants.

The NASPGHAN executive has requested Dr. Hassall to Chair the committee to re-examine guidelines for indications for pediatric endoscopy.

Procedures

The division is the sole provider of GI investigational and therapeutic procedures for the children of British Columbia. Approximately 900 procedures are performed annually. The renovation of the 1K-6 endoscopy suite was recently completed. Endoscopy procedures with anesthesia support are now being performed in 1K-6 on Tuesdays and Thursdays.

This renovated space will enhance patient care for children and youth of British Columbia. Improvements to the suite will improve efficiency and we anticipate will result in an increase in number of procedures performed per year thus decreasing the length of time a patient may have to wait to have a procedure. The upgrading of equipment (e.g. high definition monitor system for endoscopic procedures) will enhance visualization and improve patient care.

Challenges

Health care delivery is limited by the number of personal within the division. Physician recruitment is underway which will help alleviate the current workload situation. The division has four full time physicians doing the large part of the work (inpatient and outpatient service, teaching), one physician who provides only outpatient service and two community physicians work part time in the division. At present, BCCH does not have a nutrition program to support the patients at BCCH or the children within the province. Development of a nutrition program is a priority for the division. A targeted recruitment is underway and the division aims to have a physician in place by July 1, 2009 to establish the nutrition program.

Continued support for the outreach clinics is limited by the limited number of physician within the division, however, the recruitment of the additional two physicians will allow the division to enhance this initiative.

The clinical workload exceeds the capacity of the nursing staff. The division is supported by **one nurse clinician**: Kathy Evans, **1.0 FTE**, and one clinic nurse Lori Lonergan, **1.0 FTE**, filling in for Marliss Riou who will return from maternity leave in May 2009. The limited staff reduces the division's capacity to provide a holistic approach to patient care. The recruitment of the nutrition physician with an additional one FTE **nurse clinician** will help alleviate our present crises.

The endoscopy program is restricted by the limited nursing support. Tania Ferraro is the procedure nurse (0.8 FTE) who is filling in for Bobbie Delbrouch currently on leave until the beginning of April. She is responsible for the administration and operation of the procedure unit. Katherine McIntyre (**0.6FTE**) is the **procedure nursing aid**. Patient bookings are undertaken by the endoscopy nurse, reducing her time to concentrate on

patient procedures and patient education. Discussions are underway with administration to obtain additional secretarial support for the administrative tasks.

Preeti Vekaria (**0.8 FTE**, filling in for Agnes Kalmar who is on maternity leave) provides **nutritionist** consultation to our patient population (inpatients and outpatients). Dr Armstrong has agreed to increase the position to a **one FTE** position however, dietician support within this institution is limited. It is expected that with the nutrition physician recruitment, the division will be allocated an **addition 1 FTE** dietician.

The division has **two clinical secretaries (2.0FTE)** responsible for all outpatient clinic activities. The two secretaries remain overwhelmed with the clinical load. Sporadic additional support has been provided to help with record management, clinic preparation and basic office management.

Currently the division has no social work or psychology support. This lack of support severely restricted the division's ability to provide a holistic approach to health care. At least 60% of the GI division's patients have chronic disease with need for support from these two disciplines.

Teaching - Successes

Subspecialty resident training

The division offers a three-year subspecialty program (2 years clinical and 1 year research). The program is one of six Royal College accredited programs in Canada. We train 3-5 fellows per year. Each of our graduates has secured academic positions in Canadian, US, Australia or European university centers. The overall goal is to train fellows for an academic career in pediatric gastroenterology. The program provides clinical, procedural and research training. The trainees are all expected to participate in research and to present their work at national and/ or international meetings. The trainees participate in CAG and NASPGHAN sponsored meetings for North America GI trainees.

Pediatric resident training

The division provides training to pediatric residents as part of the pediatric residency program. The division presently receives 1-2 residents per cycle. Pediatric residents are encouraged to participate in GI research.

Undergraduate/Postgraduate education and CME activity

Medical students from UBC and other institutions across the country have the opportunity to do electives in the GI division. The division receives 4-6 students per year.

Members of the division provide didactic teaching sessions to UBC students, two Advances in Pediatric sessions per year, along with one to two departmental grand rounds sessions every year. Division members present to the pediatric residents and medical

student pediatric academic days. Evening teaching support is also provided for the senior residents during their Royal College exam preparation. Members of the division regularly lecture as faculty at UBC and other University sponsored CME courses. We have been invited as “expert” faculty to teach at both national and international meetings. Several members of the division are members of National and International advisory boards. Dr. Barker is currently a member of the education committee for the Canadian Association of Gastroenterology. Dr Barker recently redeveloped the INDE GI history taking lecture with new objectives.

Challenges

All physicians in the division are committed education, however the limited number of physicians combined with the full work load limits our ability to provide additional educational support (support to the community and within the institution). The recruitment of additional physicians with expertise in hepatology, education and nutrition will allow the division to fulfill this goal.

Research - Successes

The mandate for GI research program has been to become a leader in the development of innovative strategies for the prevention and treatment of intestinal and liver disease in children, and for supporting the children in reaching their maximum potential for physical and psychological growth, development and health.

Our IBD program, consisting of both bench and clinical research, has expanded exponentially since 2005. We have two basic scientists: Dr Bruce Vallance and Dr Laura Sly, a clinician scientist: Dr Kevan Jacobson, a research associate, Dr Victoria Conlin, four technicians, three post doctoral fellows, six PhD students and 1 coop student. We have excelled in our work examining bacterial epithelial interactions (innate responses in animal models of IBD), the role of diet in modulating epithelial barrier function/ immune response in animal models of IBD, epidemiology of pediatric IBD in British Columbia. We have established a network of collaborators within both Canada and the United States. Our research group established citywide IBD rounds, which continue to grow and be well attended. The rounds provide a forum for presentations by students, development of collaborations and exchange of knowledge.

Dr Bruce Vallance received the Canadian Association of Gastroenterology Young Investigator Award in 2007.

Dr Schreiber has established a National biliary atresia registry collecting outcome data on every case of biliary atresia in Canada.

We have received several external operating grant awards in support of our basic science research program (CIHR, CCFC, NSERC, and CFRI). Dr Vallance has been awarded a CRC Chair (Tier 2) and is supported by CHILD and the Michael Smith Foundation of Health Research. Dr Jacobson is a senior clinician scientist supported by CFRI, the

foundation and CHILD. Dr Sly recently received a Canadian Association of Canada (CAG)/ CIHR transition award.

Attending physicians are also involved with several clinical research studies including the role of TTG in the diagnosis of celiac disease; the incidence of celiac disease in patients with cystic fibrosis, clinical outcome markers for biliary atresia, long term outcome of omeprazole therapy in children with peptic ulcer disease, diagnostic tools in IBD (MRI and capsule endoscopy), epidemiology of IBD in BC. Dr Jacobson is involved in several multi-centre therapeutic trials in patients with IBD.

Challenges

We need to hire additional clinician scientists/ basic scientists to support the research mandate of our division.

Space allocation, and adequate funding, remain the most significant challenges for our research expansion.

Ongoing support from the CHILD foundation is required to ensure a successful continuation and expansion of our research program.

University - Successes

Drs Vallance, Sly and Jacobson are members of the Experimental medicine program at UBC. All three individuals are involved in the education and training of basic scientists at various levels (summer student, scoop students, master students, graduate students and post-doctoral fellow (lab-based training, lectures, rounds courses e.g. MEDI 530).

Health Care Service – Successes

The GI division provides a comprehensive inpatient and outpatient service to the children and youth of British Columbia with gastrointestinal, liver, pancreatic, biliary and nutritional disorders. The division provides 24-hour service 7 days per week. The physician on the in-patient service provides primary care to patients admitted directly under GI and a consolatory service to the CTU, hematology, surgery, neurology, ICU, NICU, intermediate care nursery and the ER. All physicians attend outpatient clinics, do endoscopy procedures, and see patients in the MDU.

Administrative - Successes

Dr Israel stepped down as the Division Head as of July 2008 after 12 years in the position (1996-2008). Dr Israel was instrumental in expanding the division from two to five physicians.

Dr Jacobson took over as Acting Head of the GI division as of September 2008. Dr Jacobson has been instrumental in the development of the GI division clinical and basic

science IBD research program. Dr Jacobson administers the pediatric GI division IBD database, which Dr Jacobson established together with Victor Espinosa.

Dr Schreiber stepped down as the Pediatric GI Fellowship Program Director in November 2005. Dr Schreiber was instrumental in the program receiving Royal College Accreditation.

Dr Schreiber undertook a citywide review of the nutrition services offered by the city (BC children's hospital, Sunnyhill, adult nutrition program). Dr Schreiber provided a summary of resources, as well as a structure and plan for the initiation and implementation of a nutrition program at BCCH. The recruitment of a physician lead with expertise in nutrition to head our new nutrition program at BCCH is a pivotal part of the plan.

Dr Barker took over from Dr Schreiber as the Pediatric GI Fellowship Program Director in November 2006. In this capacity, Dr Barker has revised the program in compliance with new CanMEDs format with two-year rotating curriculum, objectives for all rotations and evaluations.

Division members continue to be actively involved in **provincial, national and international committees:**

Dr Israel:

BCMA- Society of sub specialty board member- 2006-2008
Department of Pediatric practice plan
BCMA- alternative funding committee
Member Pediatric Gastroenterology Division Fellowship Committee

Dr Hassall:

First International Gastrointestinal Eosinophilic Research Symposium (FIGERS) committee on endoscopy, 2006-2007
Consultant to Center for Drug Evaluation & Research, Federal Drug Administration [FDA], Rockville, MD, USA. 2002- present
Combined NASPGHAN /ESPGHAN for the development of Guidelines for GE Reflux Disease, 2007- 2009
Global Consensus Group on Pediatric GERD Definitions, 2007-2009.

Dr Schreiber:

Medical Advisory Committee, Canadian Liver Foundation, 2002- 2006
Member Board of Directors, Canadian Liver Foundation, 2004-2006
Chair Partnership 2000 Coast to Coast, UIA Canada (volunteer non medical activity), 2004- 2007
Member, European biliary atresia registry group, 2004-to date

Member, Board of Governors, Canadian Association for the study of liver disease, 2006- to date

Member, Research Advisory committee, Canadian Liver Foundation, 2006- to date

Chairman, Student Grant committee, Canadian Liver Foundation, 2006- to date

Chairman, Canadian Liver Foundation summer studentships program, 2007- to date

Member Pediatric Gastroenterology Division Fellowship Committee

Member of the Provincial HEN (home enteral feeding program)

Member of the provincial advisory committee for viral hepatitis

Dr Jacobson:

Member BC Neonatal Nutrition Committee 1999- to date

Member, Canadian Helicobacter Pylori study group, 2002- to date

Chairman, Public education committee NASPGHAN, August 2003-September 2006

Chairman BC Pediatric Grand Rounds Committee, 2003-2006

Co-chairman BC Pediatric Nutrition Committee, 2005- to date

Member, BC Pediatric Grand Rounds Committee, 2006- to date

Member Royal College of Physicians and Surgeons Pediatric GI Fellowship Examination Board, September 2007- to date

Member Royal College Pediatric GI Fellowship Examination Committee, 2007- to date

Executive Board Member of the CCFC Scientific and Medical Advisory Council (SMAC), September 2008- to date

Member organizing Committee CCFC IBD 2009

Member of oversight committee and PI at BCCH - Genetic, Environmental, Microbial (GEM) contribution to IBD project

Member Pediatric Gastroenterology Division Fellowship Committee

Chair Pediatric Gastroenterology Division Research Committee

Local organizing Committee member CDDW, Vancouver 2011

Dr Collin Barker:

C&W Research Review committee member, 2003-2006

Member of the Specialty Committee in Gastroenterology for Royal College of Physicians and surgeons of Canada, 2006- present.

Canadian Association of Gastroenterology Education committee, 2007- present

Chair Pediatric Gastroenterology Division Fellowship Committee

Dr Bruce Vallance:

Member of Oversight Committee – Genetic, Environmental, Microbial (GEM) contribution to IBD project, 2006- to date

Chair of Research Capacity Building, CCFC, September 2008- to date

Executive Board Member of the CCFC Scientific and Medical Advisory Council (SMAC), September 2008 to date

Member of the CFRI Animal Users Committee 2005 – to date

Member of the Pediatric Gastroenterology Division Research Committee 2005 – to date

Member of the Pediatric Gastroenterology Division Fellowship Committee 2005 – to date

Dr. Laura Sly:

Committees- OH&S at the CFRI

Member FOCIS (Federation of Clinical Immunological Societies) Centers of Excellence (FCE)

Member of the Pediatric Gastroenterology Division Research Committee

Co-organizer of the FOCIS sponsored educational program centered on the macrophage

Challenges:

The division remains sorely understaffed. The workload far exceeds the capacity of the present support staff resulting in overworked and overstressed individuals. The division has had one administrative secretary for the past 10 years despite the increase in the number of physicians. A **single administrative secretary (1.0FTE)** provides secretarial support to all physicians in the division.

Fundraising - Successes

Dr Schreiber has been involved in community fund raising.

Challenges

The CHILD foundation has been a major source of revenue for the GI division's research program. Discussions are underway between CHILD and the GI division to determine ways of enhancing support, without which the division will have limited capacity to expand the program.

Advocacy - Successes

Dr Schreiber and Dr Andre Mattman have established a provincial laboratory policy for the assessment of bilirubin levels in neonates and early infants.

The division is about to launch an IBD website that will provide clinical information for our patients with IBD.

The division has organized an annual IBD family day at BCCH to provide a forum for communication, education and interaction with families and children with IBD

Divisional members have promoted disease awareness through various modes of communication: media interviews including newspaper, radio and televised interviews, presentations at volunteer organization meetings (e.g. Crohn's and Colitis foundation of Canada local chapter meetings and meeting in other western provinces (e.g. Alberta).

Advocacy

Limited by physicians numbers.

Public Relations

Communication within the province between the GI division and community physicians remains a challenge. Steps are being undertaken to improve communication, education and support to the community.

Strategic Initiative including recruitment

1. Given that we are the only unit in the province to provide gastroenterology care to children, there is a need for our division to provide clinical outreach to communities beyond the lower mainland especially to Vancouver Island, the north and the interior. Stronger ties with these regions will also fulfill the education mandate. Additional human and financial resources are necessary for this initiative.
2. Active physician recruitment is underway. The division aims to recruit two physicians by July 2009. One physician will take an active role in the community outreach initiative, strengthening ties with the community physicians as well as educating and empowering the community. The physician will work together with Child Health BC. The mandate for the second physician will be to develop a nutrition program at BC Children's hospital. The nutrition program will work seamlessly with the GI program and the division will become known as the division of Gastroenterology, Hepatology and Nutrition. The nutrition program will initially support the children at BC children's hospital but will then expand into a provincial nutrition program.
3. Expansion of the division research program. Space, equipment and personnel are required for this initiative. The CHILD foundation has been very successful with fundraising and we are in discussions with the CHILD foundation to secure ongoing financial support.

Subspecialty Resources and Planning

See above

Clinical Care Commitment including quality improvement structure and achievements

The GI division is in the process reorganizing clinics into disease specific/ complex disease clinics (including inflammatory bowel disease, liver disease, upper GI disease and celiac disease). In addition, an inflammatory bowel disease transition clinic is being established. The establishment of such clinics will allow the division to incorporate limited resources essential to the care of the children with complex chronic disease (e.g. social work, psychology, pharmacy, nutrition). In addition, the division will improve communication with and education of community physicians empowering physicians to care for the children within the community and to allow for the appropriate and timely referral to GI (e.g. patients with constipation to be seen by physicians within the community with timely referral should the physician deem it necessary).

Teaching involvement

The division is committed to ongoing education at an undergraduate/ postgraduate level, subspecialty residents, pediatric residents, nurses and dieticians. Division members are extensively involved in resident education at the national level serving on the education committee for the Canadian Association of Gastroenterology (CAG) and the organizing committee for the annual national gastroenterology resident in training course sponsored by CAG. Drs. Hassall, Jacobson, and Schreiber have each received teaching awards in recognition for their outstanding efforts in education and training of medical students, residents and fellows.

Research including major interactions and collaborations

Interactions and collaborations

- **Dr. Schreiber**
 - PI for a national biliary atresia registry collecting outcome data on every case of biliary atresia in Canada. The first article was recently published in the Journal of pediatrics.
 - Research collaboration with Dr Orlee Guttman, Dr Vikki Ng and Dr Eve Roberts (Hospital for Sick Kids, Toronto), Dr Collin Barker (BCCH), Dr Steve Martin and Dr Fernando Alveraz (St Justine Hospital), Dr Decker Butzner (University of Calgary), Dr Veronique Morrinville and Dr Najma Ahmed (McGill), Dr Mohsin Rashid (IWK, Halifax), Dr David Mack (Ottawa), Dr Jeffrey Critch (Memorial University), Dr Garth Bruce (Saskatchewan), Dr Herbert Brill (McMaster University Medical Center), Dr Anthony Otley (IWK, Halifax), Dr Claus Petersen (Hanover), Dr Deidre Kelly (Birmingham, England), Dr. Kevan Jacobson (BCCH, CFRI, UBC), Dr Rob Rassekh (BCCH, CFRI), Dr Senger (BCCH), Dr Mason Bond (BCCH), Dr JP Collet (BCCH, CFRI, UBC), Dr Janusz Kraczowski (CFRI, UBC), Dr Vincent Arockiasamy (Prince George), and Dr Mei Hwei Chang (Taiwan).

- **Dr. Israel**

- Co-investigator on a CIHR sponsored study of the genetics of IBD.
- Co-investigator on Pacific Northwest IBD database based at Cedar Sinai, Los Angeles, California.
- Collaboration with Dr Devendre Amre and Dr Ernie Seidman (McGill), Dr Charles Bernstein (University of Manitoba), Dr Marla Dubinsky (UCLA).

- **Dr Hassall**

- Research collaboration with Dr David Owen, Dr Haashem el-Serag, Dr Oana Popescu, Dr T Gunasekaren, Dr SR Orenstein, Dr W Furmaga-Jablonska, Dr S Atkinson, Dr M Raanan, Dr Kerr W, Dr El-Serag HB.

- **Dr. Jacobson**

- As PI on a national study on H. pylori in children, Dr Jacobson completed and recently published the article in the Canadian Journal of Gastroenterology.
- As chair of the CAG Pediatric committee completed a National Pediatric GI workforce survey, which was recently published in the Canadian Journal of Gastroenterology.
- Steering committee member and local PI of the GEM project
- Organizing committee member CCFC IBD 2009
- Executive Board Member of the CCFC Scientific and Medical Advisory Council (SMAC),
- Research collaboration with Dr. Alison Buchan (UBC), CDRD (Dr Robert Young and Robert Fraser), Dr Sheila Innis (CFRI), Dr Bruce Vallance (BCCH, CFRI, UBC), Dr Laura Sly (BCCH, CFRI, UBC), Dr Karen Madsen (University of Alberta), Dr James Waschek (UCLA), Dr Michael Blennerhassett (Queens University), Dr Bill Sahl (VGH, UBC), Dr Ted Steiner (VGH, UBC), Dr Megan Levings (VGH, UBC), Dr Ernie Seidman (McGill), Feizabadi MM, Djazayery A, Mirshafiey A, Eshraghian MR, Yeganeh SM, Sedaghat R (Terhan University, Iran), Dr Douglas Jamieson (BCCH), Dr Collin Barker (BCCH), Dr Rick Schreiber (BCCH, UBC), Dr David Israel (BCCH), Dr Susan Albersheim (BCCH), Dr Avash Singh (BCCH), Dr Philippe Chessex (BCCH, CFRI, UBC) and new collaboration with Robert Enns (St Paul Hospital), Dr Eva Thomas (BCCH), Dr Scott Henwick (BC Biomedical Laboratories) and Dr Colette Pienaar (LifeLabs).

- **Dr. Barker**
 - Co-investigator in the National Collaborative Celiac study
 - Research collaboration with Dr. Kevan Jacobson (BCCH, CFRI, UBC), Dr George Davidson (BCCH, UBC), Dr Rick Schreiber (BCCH, UBC), Dr Orlee Guttman (Hospital for Sick Kids, U of T), CIBMTR Database (BMI & Storm Cell transplant patients).

- **Dr. Vallance**
 - Steering committee member of the GEM project
 - Executive Board Member of the CCFC Scientific and Medical Advisory Council (SMAC)
 - Research collaboration with Dr Kelly McNagny (UBC), Dr Doug Matsell (BCCH, CFRI, UBC), Bill Sahl (VGH, UBC), Ted Steiner (VGH, UBC), Isabella Tai (BCCRC), Jan Dutz (CFRI), Dr. Kevan Jacobson (BCCH, CFRI, UBC), Dr Laura Sly (BCCH, CFRI, UBC), Dr Michael Grigg (VGH, UBC), Michael Hayden (CMMT), Dr. Brett Finley (UBC), Dr Karen Madsen (University of Alberta), Dr Leigh Knodler (NIH), Dr Jose Puente (Mexico), Dr Mike Surette (University of Calgary), Dr Chris Chadee (University of Calgary), Xiaoxia Li (Cleveland clinic), Dr Anne Rheul (Novartis, Switzerland), Dr David Artis (U Pen), Dr Samantha Gruenheid (McGill), Dr Julian Guttman (SFU), Dr John Brummel (Hospital for Sick Kids, Toronto), Dr Robert Brunham (BCCDC), Dr Alan Aderem (Institute for systems Biology, Seattle), Dr Anna Velcich (Einstein Institute, New York).

- **Dr. Sly**
 - Research collaboration with Dr. Kevan Jacobson (BCCH, CFRI, UBC), Dr Bruce Vallance (BCCH, CFRI), Pamela Hoodless (TFL, BCCRC, UBC), Gerald Krystal (TFL, BCCRC, UBC), Ted Steiner (Infectious Diseases, UBC), Megan Levings (Transplant immunology, UBC), Neil Reiner (Infectious Disease, UBC), Catherine Pallen (CFRI, UBC), Kirk Schultz (CFRI, UBC), David Speert (CFRI, UBC).

Governance

The Division Head is responsible for the overall clinical, research and academic operations of the division. The UBC Subspecialty Program Director oversees the fellowship training program. The Division Head directly reports to the Head of the Department of Pediatrics who has the ultimate authority for all physician related clinical, research, academic and administrative activities in the division. The PBCU (Patient Based Care Unit) administers all operational aspects of the division's clinical activity including budget, hiring and supervision of non-physician staff (e.g. nurses, nursing aids, allied health professionals and secretaries), allocation of clinic space and management of all 'office' related activities.

Physician financing

The four full time members of the division function as a practice group. This financing structure affords the ability to assign protected time for research, teaching and administrative duties in accordance with the clinical needs and deliverables of the division as well as the career goals of individual physicians. All salary funding support for the members of the division, derived from a variety of sources including UBC, C&W, MSC, CHILD Foundation, Michael Smith Foundation, CFI, are pooled into the division. All fee-for-service billings earned by the division members are pooled into a private partnership PEDS GI account. Salaries for the division members are determined by BCMA rate scales and then distributed accordingly from the division salary pool and PEDS GI fees for service account. The division eagerly awaits the Department of Pediatrics Practice Plan (DPPP) to be approved and implemented.

Administrative responsibilities of division members

Dr Jacobson as acting Division Head is responsible for the overall clinical, research and academic operations of the division. Dr Jacobson manages the GI division IBD database and is setting up an IBD educational website for patients and families.

Dr Barker is the UBC Subspecialty Program Director. He oversees the fellowship training program. Dr Barker revised the program in compliance with new CanMEDs format with a two-year rotating curriculum, objectives for all rotations, and evaluations.

Dr Barker coordinates the outpatient clinic schedule and physicians on call schedule. Dr Barker is developing the Celiac disease program

Dr Israel together with Dr Jacobson is helping develop the IBD program.

Dr Schreiber is developing the liver program.

Dr Hassall is involved in helping upgrade the endoscopy program and is developing the upper GI disease (eosinophilic disease) program.

Dr Vallance, Sly and Jacobson lead the IBD research program and are all involved in the administration and expansion of the program.

Community roles of division members

Dr Schreiber has been involved in community fundraising. Dr Jacobson sits on the Board for IDEAS (a private organization that focusing on increasing awareness for patients with IBD). Division members provide education to the community through local disease specific chapters (e.g. celiac disease society, local IBD chapters, CCFC educational days), disease specific family educational days (e.g. IBD), community lectures (to pediatricians, family doctors, gastroenterologists).

Dr Israel and Dr Schreiber provided support to the outreach clinic at Nanaimo Hospital coordinated by Child Health BC. The GI division will revitalize this initiative now that the clinic space has been renovated. The division is also committed to providing additional support to other community clinics established by Child Health BC.

The targeted recruitment of additional physicians to the division will allow the division to fulfill its mandate to enhance communication with the community (physicians, patients and families), to provide additional support and education to the community and to facilitate care within the community and at BC Children's Hospital.

Contribution by division members to continuing professional development and knowledge translation

Division members attend and present locally, national and international at various scientific meetings, advisory board meetings, consensus conference meetings, provincial and local educational rounds, journal club, advances in pediatrics and grand rounds.

Academic Activities

Gastroenterology	2005	2006	2007	2008	2009
Refereed Publications (Journals)	17	16	18	23	1
Books/Book Chapters		1	1	9	
Invited Presentations					

**DIVISION OF GASTROENTEROLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ -	\$ -	\$ -	\$ -	\$ -
Clinical Trials	\$ 55,707	\$ 33,985	\$ 17,119	\$ 14,446	\$ 69,189
Contracts	\$ -	\$ -	\$ -	\$ 11,040	\$ 145,000
Grants	\$ 1,137,984	\$ 716,204	\$ 619,736	\$ 1,108,943	\$ 1,074,444
Total	\$1,193,691	\$750,189	\$636,855	\$1,134,429	\$ 1,288,632

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	0	0	0	0
Clinical Trials	1	1	3	3	6
Contracts	0	0	0	1	1
Grants	19	18	16	21	25
Total	20	19	19	25	32

Division of General Pediatrics
Dr. Paul Korn, Clinical Associate Professor and Head
Faculty
Vancouver Coastal Health Authority

Victoria Atkinson, MD, FRCP(C), Clinical Assistant Professor
 Godfrey M. Baumgard, MBChB, FRCP(C), Peds, Clinical Professor
 Bernard Jack Behrmann, MBBCH, LMCC, FRCP(C), Clinical Assistant Professor
 Mary Ann Beimers, B.Sc., M.D. (McM.), FRCPC, Clinical Assistant Professor
 Nazmudin M. F. Bhanji, MD, FRCP(C), FAAP, Clinical Associate Professor
 David Brabyn, M.B., Ch.B., FRCPC, FAAP, LMCC, Clinical Assistant Professor
 Karli Breikss, M.D. (UBC), FRCPC, FAAP, Clinical Assistant Professor
 David M. Chan, FRCP(C), Part 1, FAAP, Fellow: Hong Kong Academy of Medicine,
 Fellow: Hong Kong College of Pediatrics, Clinical Professor
 Melvin I. De Levie, MD, FRCP(C), Peds, Clinical Associate Professor
 Jennifer Druker, MBChB, ECFMG, DCH, FRCP(C), Clinical Associate Professor
 Robert J. Everett, BSc, MD, LMCC, FAAP, FRCP(C), Clinical Assistant Professor
 Michael Clifford Fabian, M.B.Ch.B. (S.Africa), Clinical Assistant Professor
 Anne Q. Feng, MD FRCPC, Clinical Assistant Professor
 Jane Finlay, BSc, MLS, MD, DAAP, FRCP(C), Peds, Clinical Assistant Professor
 Joan A. Fraser, MBChB, LMCC, CCFPC, FRCP(C), Clinical Associate Professor
 Shawn George, B.Sc. (UCLA), M.D. (UBC.), RCPSC, LMCC, Clinical Instructor
 Balbinder Gill, M.B.B.S.(India), Clinical Assistant Professor
 Keyvan Hadad, BSc, MD, MHSc (current), Clinical Assistant Professor
 Jane Hailey, BA, MA MB Bchir, Clinical Associate Professor
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 Professor
 L. Jean Hlady, OC, MS, MD, FRCP(C) (Peds), FAAP, FCCMG, Clinical Professor
 Nita Jain, BSc, MD, ABP, General Pediatrics, Clinical Assistant Professor
 Nasir Jetha, MD, FRCP(C), Clinical Associate Professor
 Yigal Kaikov, M.D. 1978 Tel Aviv (Israel), Clinical Assistant Professor
 Nicole S.E. Kent, BA, MD, FRCP(C), (Peds), Clinical Assistant Professor
 Paul M. A. Korn, BA, MD, FRCP(C), Diplomate, ABP, Clinical Associate Professor and
 Division Head
 Leora Kuttner, BA Hons, MA, PhD, Clinical Professor
 Joseph Lam, Clinical Assistant Professor
 Wai-ying Lee, Clinical Assistant Professor
 Howard Liang, MBBS, DCH, MRCP(UK), DCH(Lon), FAMHK(Ped), Clinical Assistant
 Professor
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 Peter Louie, Clinical Instructor
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 David G. Riddell, BSc, MD, FRCP(C), Clinical Professor
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 Harold Benjamin Siden, AB, Post BA, Med, MD, FRCP(C), MHSc, Clinical Associate Professor
 David F. Smith, MD, FRCP(C), Associate Professor
 Erik Nathan Swartz, BSc., (UBC), M.D. (UBC), FRCPC, Clinical Associate Professor
 Clementine Tang, B.Sc., M.D.C.M. (QC), Clinical Instructor
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 Joyce Yu, Clinical Assistant Professor
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Fraser Health Authority

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 Paramjit Bhui, Clinical Instructor
 Ruby Chan, BScN, MD, FRCP(C), FAAP, Clinical Assistant Professor
 Yee-Nga Yong Kwee, M.B. , B.S. 1971 Singapore, Clinical Assistant Professor
 Susan Kalaher, M.D. 1992 McMaster, Clinical Assistant Professor
 Kwame Danso, FRCP(C), Peds, Clinical Instructor
 Didi Vladimira Harries, M.D. 1983 – Palacky (Czech Rep), Clinical Assistant Professor
 Denton Hugo Hirsh, Clinical Instructor
 Zoltan Horvath, M.D. 1995 Ottawa, Clinical Assistant Professor
 Vinod Kesavan, M.B.B.S., M.D., Clinical Assistant Professor
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 David Ou Tim, Clinical Assistant Professor
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 Antoinette Maria van den Brekel, M.D., C.M. 1991 McGill, Clinical Assistant Professor
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Interior Health Authority

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Vancouver Island Health Authority

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 Keith Michael Menard, M.D. 1994 Manitoba, Clinical Assistant Professor
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 Brian Russell, Clinical Assistant Professor
 Jeffrey Alan Simons, MB BS, FRCP(C) (Peds), Clinical Associate Professor
 Jonathan Slater, Clinical Assistant Professor
 Cherrie Rose Tan-Dy, Clinical Assistant Professor
 Richard Taylor, MB BS (UK), FRCPC, Clinical Assistant Professor
 Suresh Rajkumar Tulsiani, DCH, FAAP, FRCP(C) (Peds), Clinical Assistant Professor
 Thomas F. Ward, BA (Sask.), M.D. (Sask.) FRCPC, Clinical Associate Professor

Northern Health Authority

William Abelson, Clinical Assistant Professor

Marie Hay, DCH, MRCP, LMCC, FRCP(C), Clinical Assistant Professor

Andrew G. D. Henderson, MBBS, FRCP(C), Peds, Clinical Instructor

Kirsten Karen Miller, B.Sc., B.Phe. (Queens), M.D.(Ottawa), L.M.C.C., FRCPC, Clinical Instructor

Jeffrey Alan Simons, MB BS, FRCP(C) (Peds), Clinical Associate Professor

Overview

The Division of General Pediatrics within the Department of Pediatrics of the University of British Columbia has continued to expand and develop over the past five years with major, new initiatives designed and implemented, focusing on the promotion of child health. The Division membership has not only continued to embrace its traditional role as leaders in clinical care and medical education at Children's & Women's Health Centre of BC, but has forged new partnerships with Pediatricians and Child Advocates throughout the region and province.

Introduction

The Division of General Pediatrics continues to be the largest division within the Department of Pediatrics. Over the past five years, there have been few retirements. There has been significant rejuvenation with the addition of new Pediatric Graduates, both at Children's & Women's Health Centre of BC, and within Pediatric Centres throughout the province. With the emergence of the Distributed Medical School, University of British Columbia has partnered with smaller communities within British Columbia, and Generalists have become increasingly involved as key educators both at the undergraduate and postgraduate levels. There has been great enthusiasm in developing a province-wide education program, and all our faculty have been provided with an academic appointment.

Division members have played a key role with Child Health BC, representing and promoting the healthcare needs of children throughout the province. The Division has partnered with the Division of Pediatric Emergency Medicine and has been active in developing Pediatric Practice Guidelines for common pediatric diagnoses.

The Division was successful in obtaining funding for two new General Pediatric positions, which remain open.

Challenges

Recruitment for new hospital/university based pediatricians, have been unexpectedly challenging. In spite of broad advertising, there has been little interest by mid or later career pediatricians in bringing their expertise to the University of British Columbia. A

second recruitment round was initiated, and expectations have changed somewhat to recruit pediatricians who are less experienced, but who possess a skill set and commitment to the development of an evolving Division.

Increasingly complex patients are admitted to the inpatient units at BC Children's Hospital, with correspondingly fewer resources. Significant concern has been raised about the quality of care for a population requiring more sophisticated expertise. It has become obvious that this patient population continues to be best served by local community pediatricians on a long-term basis. During hospitalization, however, these patients often require more intense intervention, which may be beyond the scope of practice of non-hospital based community pediatricians.

There are ongoing concerns about the delivery of Newborn Care throughout the region and province. Providing continuous, uninterrupted delivery of care in Case Rooms and Nurseries throughout the Vancouver Coastal Health Region and the Province has been challenging. There appears to be less interest by our new graduates to provide this type of coverage. Several initiatives investigating how to best resolve a possible impending crisis have been reviewed, and discussions are currently ongoing with new ideas frequently solicited.

Concerns regarding the number of senior housestaff available to deal with the growing complexity of patients on the inpatient units at BC Children's, have been raised, and plans are underway to develop a new Hospitalist System within the institution.

Clinical Care Commitment

The Division of General Pediatrics provides Clinical Care in a variety of venues:

a) Inpatients

The Clinical Teaching Units (CTU) are primarily managed by the Division of General Pediatrics. There are two teams, each consisting of 18 beds. Each team has a designated Attending Pediatrician, with housestaff consisting of a Senior Pediatric Resident, two Junior Pediatric Residents, and four Medical Students. After significant planning, Patient and Family Centred Rounds have been introduced as the standard of care. The CTU Supervising Pediatrician now covers the units two weeks at a time, rather than in one-month blocks. Generalists in this position have committed to greater time on the units, and are now physically present in the hospital every morning, to primarily cover the Residents' Academic Half Day every week. There are approximate 2,000 admissions to the units during the year.

The Case Room and Newborn Nurseries remain extremely busy. General Pediatricians are involved in the care of over 6,000 infants per year both on the ground floor (Delivery Suites and Intermediate Nursery), and in the regular nurseries on the second floor of BC Women's Hospital.

With the new partnership agreement between Children's & Women's Health Centre of British Columbia and Providence Health Care, the Division of General Pediatrics has had

an increasing presence in the development and functioning of Newborn Services at St. Paul's Hospital. This program is expanding.

BC Children's and Women's Hospital and Richmond Hospital have developed close links, and the Department of Pediatrics played a major role in recruiting two new General Pediatricians at Richmond Hospital to provide care to a growing population. The Department of Pediatrics works with the Administrative Team at Richmond Hospital to further develop their Pediatric Program, primarily ensuring full coverage for their Case Room and Newborn Nurseries.

The Inpatient Program at our affiliated hospice, Canuck Place, is run entirely with members of our Division.

b) Outpatient Care

Community Pediatricians in private pediatric practice continue to welcome trainees into their offices.

The General Pediatric Clinic has had increasing numbers of patients, with a full compliment of undergraduate and postgraduate trainees. Recently, the Children's & Women's Health Centre of British Columbia Nurse Practitioner Program has had a presence in the clinic. They have focused on complex patients and primary pediatric care.

General Pediatricians continue to play a leadership role with several subspecialty clinics including Child Protection (both at BC Children's Hospital and Surrey Memorial Hospital), the Craniofacial Clinic, and the Spinal Cord Clinic. Burn patients requiring on-going dressing care are supervised by Generalists in the Medical Day Unit.

The partnership with Richmond Hospital was developed to provide clinical and teaching space for the Department of Pediatrics. Richmond Hospital supported the construction of an Outpatient Pediatric Clinic, and two, hospital-based General Pediatricians are currently in charge of the clinical and educational mandate of that clinic. Both of these clinicians have prominent positions within the Undergraduate Education Program (Clinical Skills Director; Director, 4th Year Undergraduate training).

General Pediatricians remain committed to underserved populations in the Downtown Eastside, and provide consultant pediatric care at Sheway. A proposal requesting significant expansion of this program has been submitted to the government. The Nurse Practitioner Program has close liaison with the Division of General Pediatrics for this population.

c) International Partnerships

Generalists continue to provide clinical care and teaching for a variety of programs throughout the province and the world. Generalists still provide pediatric consultations for underserved areas within BC. Several Division Members have taken an active role in

providing pediatric expertise in far reaching countries throughout the world including India, Africa, and South East Asia.

Teaching Involvement

Division Members remain active in all levels of education within the Department.

Generalists hold all the highest positions, including Head, Medical Education, Heads of the Clinical Skills, Third and Fourth Year Undergraduate Programs and the Pediatric Residency Training Program. Generalists are also involved in developing a yearly CME in General Pediatrics/Family Medicine.

Most of the Division Members are actively involved in bedside teaching for Undergraduates and Postgraduates.

Many members have had leadership roles within a variety of societies including the Canadian Pediatric Society, the Northwest Pediatric Society, the American Academy of Pediatrics, the BC Medical Association, and Child Health BC.

Scientific Developments

Several members of the Division have been involved with community research.

The plan of developing a strong research ethos within the division has been hampered by difficulties in recruitment of individuals who have the skills and resources to provide leadership in this area.

Governance, Administrative Responsibilities

Significant progress was made in linking Pediatric sites with the development and implementation of a formal partnership with Providence Health and an informal Partnership with Richmond Hospital.

Strategic Initiatives

- a) Development of a comprehensive Complex Patient Service within BC Children's Hospital providing local, regional, and provincial liaison, including recruitment of individuals with expertise in this area.
- b) Development and recruitment of a Hospitalist Program to provide clinical support for high-risk patients admitted to the inpatient units on the third floor of BC Children's.
- c) Recruitment of a Clinical Investigator and Clinical Leader at BC Children's.
- d) Further develop a strong clinical and teaching program for Newborn Services at St. Paul's Hospital.

-
- e) Develop comprehensive General Pediatric services for Children living in Vancouver, Downtown Eastside.
 - f) Provide additional resources for children and families living in the Downtown Eastside.
 - g) Recruitment of a new Head of the Division of General Pediatrics.
 - h) Recruitment of a new Head of the Child Protection Service Unit.

**DIVISION OF GENERAL PEDIATRICS
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ -	\$ -	\$ -	\$ -	\$ -
Clinical Trials	\$ -	\$ -	\$ -	\$ -	\$ -
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 187,261	\$ 357,468	\$ 71,265	\$ 349,602	\$ 684,155
Total	\$ 187,261	\$ 357,468	\$ 71,265	\$ 349,602	\$ 684,155

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	0	0	0	0
Clinical Trials	0	0	0	0	0
Contracts	0	0	0	0	0
Grants	1	5	2	4	9
Total	1	5	2	4	9

Division of Hematology/Oncology/BMT

Dr. Paul Rogers, Clinical Professor and Head

Faculty

Mason Bond, BSc, MD, FRCP(C), Clinical Associate Professor

Chairman, Mortality and Morbidity and QA Committees, Acting Head for Clinical duties

Leslie Cohen, B.Sc.(Med)Hons., MB,ChB, Clinical Associate

Jeffrey Davis, B.Eng., MD, Clinical Associate Professor

Bone Marrow Transplant Director

David Dix, MBChB, FRCPC, FAAP, Clinical Associate Professor

Director, Sub-specialty Training Program

Sandra Dunn, BS, MS, PhD, Associate Professor

Christopher Fryer, LRCP MRCS, DMRT (T) FRCP(C), Clinical Professor

Director of the Provincial Pediatric Oncology/Hematology Network

Juliette Hukin, MBBS FRCPC, Clinical Associate Professor, Director, Neuro-Oncology Program

Yigal Kaikov, MD, Clinical Assistant Professor

Catherine Pallen, BSc, PhD, Professor

Elaine Peddie, MBChB, CCFP, Clinical Associate

Derek Prevost, MD, FRCP(C), Associate Member

Director, Pediatric Oncology Program, Fraser Health

Sheila Pritchard, B.Med.Sci, BM, BS, FRCP(C), Clinical Associate Professor

Director of the Long Term Follow-Up Program

Rod Rassekh, MD, MHSc, FRCP(C), Clinical Assistant Professor

Director, Supportive Care

Hanna Lotocka-Reysner, MD, FRCP(C), Palliative Care Specialist, Associate Member

Paul Rogers, BSc, MBChB, FRCP(C), FRCP(Lond) MBA, Clinical Professor

Division Head and Medical Director

Kirk Schultz, BS, MD, Professor

Director, Research

Evan Shereck, MD, Clinical Assistant Professor

Director, Thrombosis Service

Poul Sorensen, BSc, MD, PhD

Caron Strahlendorf, MBBCh, FCP(Paeds), Clinical Associate Professor

Director of Apheresis Program

Lucy Turnham, MD, Clinical Associate

Marianne Willis, MBChB, Clinical Associate

John Wu, MSc, FRCP(C), Clinical Professor

Director, Complex Hematology

Overview

The program of Pediatric Hematology/Oncology and Bone Marrow Transplantation continues to expand. We operate under the joint mandate of both Children's & Women's Hospital as well as that of BC Cancer Agency. We have a provincial responsibility for the care of all children diagnosed with a malignancy or acute and chronic benign hematological disorders, as well as the conduct of stem cell transplantation for both benign and malignant conditions. We are the only program and institution in British Columbia to supply this tertiary and quaternary service. Our Provincial Pediatric Oncology/Hematology Network of British Columbia continues to function as an entity providing improved communication and education to other hospitals, physicians and nurses around the province who assist in the administration of care. We are attempting to develop four secondary centers the center of which, Surrey Memorial Hospital, is most developed. Secondary services are also delivered in Victoria and we hope to enhance facilities in Kelowna and Prince George.

Our educational responsibilities are focused on our subspecialty program, which is the second largest program in Canada, training more Canadian graduates over the last ten years than any other subspecialty hematology/oncology program in Canada.

Our clinical and basic research program has significantly expanded. Our major clinical endeavors continue to be through the conduct of clinical trials within the Children's Oncology Group (COG), the Canadian Research Group, C17, & The Pediatric Bone Marrow Consortium (PBMTC). The research laboratories of Drs Sorensen, Schultz, Dunn and Pallen have all been highly successful in external peer review grants.

Introduction

Mission/Vision

We aspire to be the academic, knowledge-generating, provincial tertiary/quaternary referral center of excellence for the comprehensive care of patients with malignant and hematological disorders.

Goals

(i) Clinical

Expand our provincial organization to enhance comprehensive and integrated interdisciplinary care of children with cancer and blood disorders. We desire to facilitate interdisciplinary care between tertiary and community centers, develop provincial-wide partnerships, and support our community partners; develop the necessary infrastructure and resources for the long-term surveillance of survivors; and enhance collaboration with our adult colleagues to improve care to adolescents and young adults with cancer. The Provincial Pediatric Oncology Hematology Network (PPOHN) provides the avenue to accomplish these goals.

(ii) Education

Further enhance our subspecialty training program that our trainees can enter the Clinician Investigator Program and become clinician scientists.

(iii) Research

Expand our research activities by enhancing our infrastructure for the support of clinical research and the development of a clinical experimental therapeutics program (Phase 1 trials). Focus our laboratory research endeavors on tumor biology and tumor immunology. We intend to recruit three clinician scientists over the next two years.

Major Successes and Challenges**Clinical - Successes**

Due to the continuing increase in inpatient numbers, we have increased our inpatient beds. In 2008, we opened ward 2B with the intent of this becoming a predominantly adolescent ward. This resulted in a reduction of beds on 3B, to allow all single-bedded rooms with an overall increase of beds on 2B and 3B to 24 inpatient beds. Due to the significant donation of Mr. Djavad Mowafaghian, our outpatient unit was improved and enlarged. We moved into this improved space in 2006.

We were successful in achieving full accreditation by the “Foundation for the Accreditation of Cellular Therapy” (FACT) for the conduct of haemopoetic stem cell therapies under the leadership of Dr Davis

Challenges

The clinical service continues to expand as documented by Decision Support Services. All indicators of inpatient numbers, length of stay, outpatient visits, number of procedures, and chemotherapy administrations continue to rise on an annual basis. Clinical staff and allied health care staff are significantly taxed in dealing with this increasing workload. A major weakness in the safe delivery of care is the lack of in-house physician coverage for our inpatient wards during evenings, weekends, and statutory holidays. We are also concerned about support services supplied by pathology and diagnostic radiology, and their ability to supply timely services and reports. The loss of the Molecular Oncology Service laboratory and its director, Dr. Poul Sorenson, has impacted on our ability to deliver the best diagnostic service. The potential threat of PHSA labs downgrading our pathology services at BCCH could also have deleterious impact on our clinical service as well as our academic profile. There has also been insufficient provision of Radiation Oncology time devoted to pediatrics.

Despite the improvement in space, with the addition of seven extra beds and the enhancement of our outpatient facility, the increasing numbers continue to place a high demand on our allocated space. We have between 1 to 5 patients on other wards, which raise the concern of nursing when they are not familiar with oncology or complex hematology patients. Our clinical service has significant deficits of which the two most

highlighted are: inadequacy of our long-term follow-up and transitioning of long-term follow-up patients. There is also concern that the treatment given to older adolescents and young adults, who have pediatric-type malignancies, may not offer the best outcome and utilizing pediatric protocols would be more appropriate. This has become an international concern as the survival of the older adolescent and young adult has shown least improvement compared to younger and older cohort of patients.

The lack of a fully functional and integrated medical record is disconcerting and contributes to the difficulties and complexity of interdisciplinary care between tertiary and community centers.

Teaching – Successes

The Royal College of Physician and Surgeons reviewed our subspecialty program in January 2008. We were extremely gratified to be fully approved with no weaknesses identified. The Royal College approved an extension of the training program to a 3 year period. The first 3-year cohort completed their training in July 2008 and two of our graduates were successful in the first pediatric hematology/oncology fellowship exams. We have been highly successful in attracting Canadian graduates into the subspecialty program, which has more Canadian graduates in training than any other program in Canada. We continue to be active within the training program for General Pediatrics and for students from medical schools.

Challenges

Despite the successes of our training program, a major challenge is inconsistent funding to ensure that a critical mass of fellows is maintained.

Research - Successes

Our clinical and laboratory research activities continue to expand. We currently hold approximately \$3.2 million in external grant funding. A program plan has been formulated and approved, with the intention of increasing laboratory research program to a total of eight senior scientists.

Challenges

A critical challenge to research is to ensure that significant funding and dedicated space are available for the recruitment plans. A challenge will be the expansion of our clinical research program to embrace experimental therapeutics and the conduct of phase I trials.

Successful recruitments

Dr. Rod Rassekh and Dr. Evan Shereck joined our Division with a special interest, respectively, in neuro-oncology and thrombosis.

Dr. James Lim will be shortly commencing as a basic scientist within the Children's Cancer Research Program (CCRP) at CFRI.

Administrative - Challenges

Administrative infrastructure is inadequate, impairing our ability to have appropriate workload statistics. Closer financial scrutiny of both clinical and research budgets is required. There is inconsistency of secretarial support to assist physicians in non clinical duties.

Public Relations - Successes

Division members remain active in community events, and have been invited to speak to several organizations, such as the Canadian Cancer Society and Leukemia/Lymphoma Society. Several media interviews have been conducted highlighting the advances in care.

Fundraising - Successes

The Division and Program is extremely grateful to the efforts of the Children's Hospital Foundation in supporting the clinical and research endeavors of this program. Two significant fundraising events are the Balding for Dollars and Childrun, which have raised over a million dollars in the last year. These funds contribute significantly to the operations of our research program within CFRI. The Cuccione Foundation donated \$3 million via the provincial government for the establishment of a laboratory bearing Michael Cuccione's name.

Advocacy - Successes

Mr. Dan Mornar has been a role model to many institutions across Canada as a Patient/Parent Advocate. A number of institutions have requested his advice in instituting a similar program. He has recently become a Board Member of the Childhood Cancer Foundation, Candlelighters Canada. He has established the parents support group and a Survivors Group both of which is now incorporated.

Strategic Initiatives

Clinical

The provincial plan is to expand the four secondary centers of Surrey, Victoria, Kelowna, and Prince George, which will require appropriate commitment from the health care authority. BCCH will remain the tertiary/quaternary center for the diagnosis and plan of management for children with malignancies and complex hematological disorders. Expansion of stem cell transplantation and the increased use of biological therapies is expected.

Long Term Follow-Up

Engage the Family Practice Oncology Network to assist in the follow-up of these at-risk patients. A provincial plan has been submitted for the long term surveillance of all survivors.

Research:

A strategic plan for the enhancement of research endeavors has been submitted. The plan is to recruit in the research areas of cancer biology and tumor immunology. The research program has its base at Children's Hospital and CFRI, but we are also closely associated with the BC Cancer Agency Research Institute as well as other groups within the University of British Columbia. The intention is to further these alliances and partnerships.

Subspecialty Resources and Planning

Critical mass of six subspecialty residents/clinical fellows is required to ensure continuity of training rotations and appropriate involvement in the clinical service. The expansion of research training beyond the initial three years is required. The intention is to encourage trainees to utilize the available clinician investigator program.

Clinical Care Commitment

The Quality Assurance Program is established and clinical audits are being conducted. Quality improvements are made within the program; however, external constraints have impaired some of these improvements. An example of this is the delay in developing pre-written chemotherapy orders, which is common at other institutes.

Teaching Involvement

We are the second largest subspecialty training program in Canada. This has recently been increased to a three-year training program in place of the original two year program. The Division is actively involved in general pediatric training with rotations of pediatrics on the inpatient wards and recently commencing a separate rotation on our outpatient clinic. We have medical students attending our clinic and elective rotations on the ward.

Teaching Excellence

Our Division has been recognized by General Pediatrics for its excellence in teaching and individual division members have been honored as well.

CME Activities

Faculty members are actively involved in the CME activities of the university.

Governance

The Division of Pediatric Hematology/Oncology and Stem Cell Transplant functions as a specific program within the hospital setting. The Division Head is both the academic and clinical medical director of the program. All physicians within the program have allocated specific areas of responsibilities as indicated on the list of physicians at the beginning of this report.

The clinical division conducts weekly business meetings and annual retreats. The research group holds monthly meetings. We have inter-laboratory meetings. The Division is a joint division of both C&W Hospital and the University of British Columbia, and all members hold a university appointment. Division members also hold consulting appointments at the BC Cancer Agency. As such, we are the designated Pediatric Tumor Group of BCCA.

Interactions and collaborations

The Division and Program have close intra-hospital collaborations with the hematopathology and the anatomic pathology groups. Associate members of the Division are Drs. Wadsworth and Ford. The Division, together with key personnel from other departments within Children's Hospital, forms the Pediatric Tumor Group of the BC Cancer Agency and Children's Hospital. This group has the mandate for the care of pediatric malignancies in the province and the supply of systemic therapy. Radiation Oncology is undertaken by Dr. Karen Goddard who has an associate appointment within the Division. Dr. Mary McBride has an associate appointment as an epidemiologist and is the leader of the NCI supported linkage studies for the evaluation of health care utilization of long term survivors. The Council of Pediatric Hematology/Oncology Medical Directors of Canada, which has now changed its name to C17, is a growing and important national organization. We have membership on the executive of that Council as well as on the scientific advisory committee for research endeavors of C17. We are a

major contributor to the Children's Oncology Group (COG), which is the largest cooperative clinical trials group for pediatric cancer in the world. We have several leadership positions within COG and rank within the top 15th percentile for patient registration on trials. Dr. Kirk Schultz is Chairman of the Pediatric Bone Marrow Transplant Consortium and thus we have significant involvement within that group.

Academic Activities

Hematology/Oncology	2005	2006	2007	2008	2009
Refereed Publications (Journals)	10	44	37	39	21
Books/Book Chapters			3	1	
Invited Presentations	41	37	28	28	36

**DIVISION OF HEMATOLOGY/ONCOLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ 261,928	\$ 357,325	\$ 292,124	\$ 241,063	\$ 204,220
Clinical Trials	\$ 12,466	\$ 1,000	\$ 43,214	\$ 74,559	\$ 239,793
Contracts	\$ 181,878	\$ 143,416	\$ 20,079	\$ 22,069	\$ -
Grants	\$ 1,039,828	\$ 998,862	\$1,866,346	\$ 1,750,212	\$ 1,643,433
Total	\$ 1,496,099	\$ 1,500,603	\$ 2,221,762	\$ 2,187,903	\$ 2,087,446

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	7	7	7	8	6
Clinical Trials	1	1	7	12	12
Contracts	2	1	3	1	0
Grants	15	12	23	24	25
Total	25	21	40	45	43

Division of Infectious and Immunological Diseases

Dr. David Speert, Professor and Head

Faculty

Ariane Alimenti, MD, Clinical Assistant Professor
Julie Bettinger, PhD, MPH, Assistant Professor
Meena Dawar, MD, Clinical Assistant Professor
Simon Dobson, MBBS, FRCP(C). Clinical Associate Professor and Head of the Infectious Diseases Training Program
Jack Forbes, MB ChB, FRCP(C). Clinical Professor. Co-director of the Oak Tree Clinic
Edgardo Fortuno, III, PhD, Research Associate
Anne Junker, MD, FRCP(C). Associate Professor. Associate Head for Clinical Research, Child and Family Research Institute
Tobias Kollmann, MD, PhD. Assistant Professor
Laura Sauvé, MD, MPH, FRCP(C). Clinical Assistant Professor
David W. Scheifele, MD. CIHR-Wyeth Chair in Vaccinology and Head of the Vaccine Evaluation Centre
David P. Speert, MD. Sauder Family Chair and Division Head
Richard Stokes, PhD. Associate Professor
Stuart Turvey, MBBS, DPhil, FRCP(C). Assistant Professor

Associate Faculty

Rusung Tan, MD, PhD, FRCP(C), Associate Professor, Dept. of Pathology
Eva Thomas, MD, PhD, FRCP(C), Associate Clinical Professor, Dept. of Pathology

Overview

The Division is composed of infectious diseases and immunology consultants, clinician/investigators and full-time scientists who advance the clinical research conducted by the team. The Division is proud of its fully accredited training program in Pediatric Infectious Diseases, approved by the Royal College of Physicians and Surgeons of Canada, and trains many graduate students and post-doctoral scientists who seek a career in this field.

The Division of Infectious and Immunological Diseases (I&ID) was derived from the amalgamation of the divisions of infectious diseases and immunology in 1991. This provided a unique opportunity to pool resources and expertise in these two closely related subspecialties and to create a division in which an integrated approach to clinical problem solving (both at the bedside and in the laboratory) is facilitated. The model has worked very well and has improved the quality of inquiry in both of the clinical disciplines.

Dr. Aubrey Tingle established the Division of Immunology in 1974. As his research and administrative duties increased over the ensuing ten years, Dr. Anne Junker joined him, assumed many of the clinical duties of the division, and established an independent research program. Dr. David Matheson was recruited to join the division in 1986 at which time Dr. Tingle assumed the fulltime position of Director of the Research Division of BC

Children's Hospital. He subsequently took on the position of Director of the BC Research Institute for Child and Family Health and VP Research Children's and Women's Hospital. Dr. Matheson became VP medicine, BC Children's Hospital in 1989 and Dr. Junker assumed the headship of the Division of Immunology. Dr. Tingle subsequently assumed the presidency of the Michael Smith Foundation for Health Research (the provincial funding agency) to which he committed all his time until his retirement this year.

Dr. David Scheifele established the Division of Infectious Diseases in 1977. Dr. David Speert was recruited as the second division member in 1980 and Dr. Simon Dobson joined the division in 1991. Dr. Jack Forbes joined the division in 1989 and established the Oak Tree clinic in 1994 for the treatment of mothers and children with HIV infection. Dr. Scheifele was appointed as the inaugural Sauder Family chair of Pediatric Infectious Diseases in 1996 and then as the CIHR-Wyeth chair of vaccinology in 2004. Dr. Speert was appointed as the second Sauder Family professor in 2007.

In 1991, the divisions of Infectious Diseases and Immunology were amalgamated to form the Division of I & ID. The division is now composed of Drs. Speert, Scheifele, Dobson, Kollmann and Sauvé – practitioners of infectious diseases; Drs Junker and Stuart Turvey – practitioners of immunology, Drs. Jack Forbes and Ariane Alimenti – Pediatric HIV specialists at the Oak Tree Clinic for the care of HIV exposed and infected children, Drs. Richard Stokes and Julie Bettinger – PhD scientists; and many trainees – subspecialty clinical, predoctoral and postdoctoral.

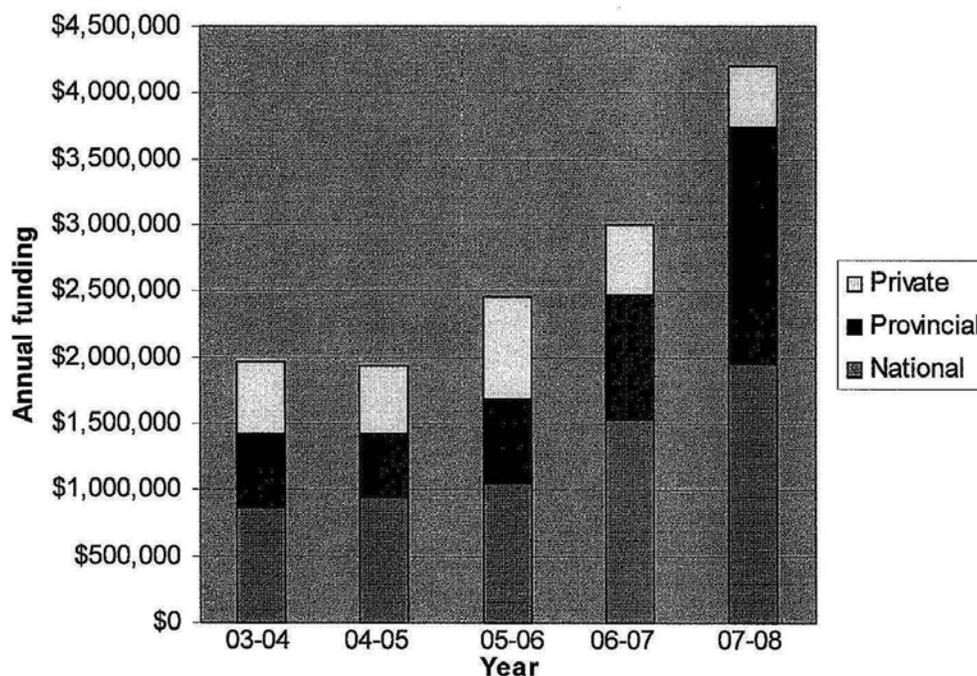
Introduction

The Division of I&ID is research-intensive, striving to deliver the best clinical care in a setting of inquiry and discovery and to be the best of its kind in Canada. Each clinical member of the Division endeavors to excel in clinical care, research and teaching.

Scientific Development

The Division of I&ID continues to be a highly research-intensive group and is proud of its multiple publications and presentations, and of a research reputation with national and international recognition. Funding has been obtained from local and national peer-review agencies including the Canadian Institutes for Health Research (CIHR), the Canada Foundation for Innovation (CFI), Genome Canada/Genome BC, the Burroughs Wellcome Foundation, Canadian Foundation for AIDS Research and the Networks Centres of Excellence (Canadian Bacterial Diseases Network and Allergen), Provincial funding including the Michael Smith Foundation, BC Medical Services Foundation and the Ontario HIV Treatment Network and from private sources (see figure 1). External grant funding for 2007-8 was \$4,208,530, In addition, \$11,820,000 was awarded from CFI and matching agencies to support the construction and equipping of CUPIC.

Figure 1. External Grant Funding for the Division of Infectious and Immunological Disease



Dr. Jan Ochnio, who retired this year, received an investigatorship from the Michael Smith Foundation for Health Research. A second full-time scientist, Dr. Rick Stokes, received scholarship funding from the B.C. Lung Association and CIHR. Dr. Scheifele held the Sauder Family Professorship in Pediatric Infectious Diseases and has recently been designated the CIHR-Wyeth Chair in vaccinology. Drs. Tobi Kollmann and Stuart Turvey obtained career awards from the Canadian Child Health Clinician Scientist Programme, and Dr. Kollmann holds a career award from the Burroughs Wellcome Foundation.

The Vaccine Evaluation Centre, under the direction of Dr. Scheifele and with the active involvement of Drs. Dobson, Bettinger, Wootton, Sauvé, Kollmann, Speert and Ochnio, continues to make important advances in vaccine research and is the preeminent program of its kind in Canada. A number of major initiatives were embarked upon in the past five years including the creation of a national group, the Canadian Association for Immunization Research and Evaluation (CAIRE), under the direction of Dr. Scheifele. Among many other initiatives, the Centre initiated and completed an ambitious clinical trial to evaluate adverse events from influenza vaccinations and has completed a phase I trial of an experimental adjuvant for immunization against hepatitis. Drs. Simon Dobson, Meena Dawar and Tobi Kollmann are part of a provincial Human Papillomavirus research group that amongst other studies has brought in a \$1.8 million grant to carry out a clinical trial of a childhood HPV vaccine schedule at the Vaccine Evaluation Centre.

Research in the causes of bacterial infection and host defense continues to flourish in the laboratories of Drs. Stokes and Speert. Dr. Stokes has the only class III animal containment facility in Vancouver for the study of tuberculosis and has made important observations on the pathogenesis of tuberculosis. Dr. Speert completed phase I and II human clinical trial on aerosolized dextran, a sugar-based drug which enhances the lung defenses of people with cystic fibrosis (CF) against *Pseudomonas aeruginosa*. It is believed that Dextran is the first new, potential human therapeutic agent to be fully developed within this Department of Pediatrics. It offers people with CF new hope of protection against bacterial infection. Dr. Turvey launched a new program to understand the role of innate immunological defenses in control of pneumococcal infections and in the control of inflammation in cystic fibrosis and Dr. Kollmann's laboratory has developed novel assays for interrogating the immune system of neonates and is developing an intracellular based vaccine strategy for immunizing neonates against infections which are still rampant in the developing world.

New collaborations between the Turvey and Kollmann laboratories are supporting the immunological evaluation of children who will enter a Canada-wide birth cohort study to understand the determinants of asthma, the "Canadian Healthy Infant Longitudinal Development (CHILD) study". This is a CIHR-funded \$12-million Canadian birth cohort that will recruit 5,000 families across the country to investigate the origins of the current asthma and allergy epidemic. Dr Turvey is co-PI of this project and site leader for BC while Dr Kollmann is leading the immunological analysis of CHILD subjects.

A new birth cohort study is under development in the Western Cape Province of South Africa. Drs. Speert, Kollmann, Sauvé and Scheifele have played a critical role in partnering with the two medical schools in Cape Town (University of Cape Town and Stellenbosch University). This is the first major collaboration between the two South African medical schools and the first major international initiative of the division of I&ID. The project is a direct development of CUPIC with the goal of determining the factors, which differentiate between children who become ill and those who remain healthy in a very unhealthy environment. The Drakenstein sub-district of South Africa was chosen for the study because of the high burden of illness, relative sophistication regarding observational research and proximity to Cape Town. A pilot study to investigate respiratory illnesses (pneumonia and wheezing illness) will be rolled out in the next year, followed by the full cohort study in which 30,000 participants will be enrolled and followed for 20 years. Clinical observations will be correlated with dense human genomic analyses, stool microbiome analyses, environmental, nutritional, psychosocial and developmental assessment. This is the first of its kind study in a resource-limited setting and will provide opportunities for multiple collaborative opportunities and challenges over the coming years. Studies on HIV exposed but uninfected infants will be initiated by Drs. Kollmann and Speert in Cape Town early in 2009.

Clinical research programs in HIV/AIDS have been developed for pilot and multicentre studies for women and children with funding from several sources, including CIHR, the BC Medical Services Foundation and CANFAR. The Oak Tree is a key partner in a team

program awarded a major Emerging Team CIHR grant to investigate mechanisms of aging following antiretroviral exposure. Drs Forbes and Alimenti are national coordinators of the Canadian Perinatal HIV Surveillance Programme and conduct studies with the Canadian HIV Trials Network (CTN), and the Canadian Pediatric AIDS Research Group. They are recent recipients of a CIHR grant for multicentre study of HPV vaccine in HIV infected girls and women.

Challenges

The Division of I&ID is at an important juncture, as it matures into one of the largest Divisions of its kind in Canada. Opportunities exist to expand the Division and exciting interdisciplinary programs are planned within the Hospital, the University and beyond. To seize these opportunities and allow for succession planning, new faculty recruitment is the top priority. Three members of the division (Scheifele, Forbes and Speert) will reach 65 years of age within the next five years. To maintain current excellence and continued maturation and growth, the Division is setting its sights on accomplishing the following goals:

- 1. *Recruit a new head of the Division*** – Dr. Speert has headed the division since 1991 and has taken on many additional responsibilities during his tenure as head. He is eager to step down as division head, but only if a suitable clinician-scientist who wishes to continue to build the division can be found. The highest priority for the division is to recruit externally a new head of the division and to provide him or her with a package sufficient to attract the very best.
- 2. *Recruit a Junior Faculty member in infectious diseases.*** The I & ID division was the first in the department of Pediatrics to introduce a senior fellowship/junior faculty position. The first trainee (Dr. Susan Wootton) was recruited to this division in 2005 and was recruited to the University of Texas in Houston in 2007. Dr. Laura Sauvé joined the division in 2007 and will finish her advanced training in 2010 or 2011. There is an urgent need to identify funds to retain our very best senior trainees for tenure track positions should they prove to be highly successful during their final years of training.

3. *Develop stronger interdisciplinary research initiatives with the broader Infectious Diseases and Immunology communities in Vancouver.* Very strong linkages with the program in Medical Microbiology, Dept. of Pathology have been forged over the past four years under the leadership of Dr. Eva Thomas, and many opportunities for collaboration now exist. These opportunities continue to be seized through research, clinical and administrative initiatives. The model of collaboration is being expanded, particularly in Immunology, with the addition of Drs. Turvey and Kollmann. In addition, the CIHR team grant in HIV therapy and aging has recently been established between the Oak Tree Clinic, Helene Cote's pathology laboratory at UBC and the Dr Peter Landsdorf's laboratory at the BC Cancer Agency. Many opportunities exist to collaborate with the broader community with a common interest in inflammation, and collaborative programs have been forged around diabetes, rheumatoid diseases and gastroenterology. These programs are all under the Infectious Diseases and Immunology cluster "umbrella" of the Child and Family Research Institute and should be enhanced under the headship of R. Tan (Associate member of the Division of I&ID). Further collaborations should be nurtured with the BC Centre for Disease Control and with the Division of Infectious Diseases, Dept. of Medicine, UBC. Initiatives such as the Michael Smith funded Vaccine Evaluation team, headed by Dr. Scheifele, have engaged members from each of these units. This should be taken as a model of local collaboration and emulated.

4. *Develop the Centre for Understanding and Preventing Infection in Children (CUPIC) and plan space development and recruitment.* CUPIC has grown out of ongoing discussions among members of the broad community of like-minded clinicians, scientists and clinician-scientists on the Oak Street site. A powerful collaborative group has developed, as have many collaborative research initiatives. This group (headed by Dr. Speert) has attracted many colleagues from other sites and has enhanced the research productivity of those on site. As a result of these successes and a broader vision that was developed, an \$8.2 million application to the Canada Foundation for Innovation (CFI) was approved for funding in 2006. An additional sum of \$3 million was granted by the Mining for Miracles charitable group to allow full development of the CUPIC infrastructure. CUPIC will be the first centre of its kind in Canada where child health scientists (both wet and dry laboratory) will be located side by side in a state of the art facility to answer the question, "why do some children become ill and others remain healthy when exposed to the same environmental challenges?" CUPIC will occupy the 5th floor of the new Translational Research Building and will contain an immunology research suite, a biolevel two research laboratory, a containment level three research laboratory, a clinical research unit (the vaccine evaluation centre) and a separate clinical studies unit on the ground floor. With adjacencies to the newly completed diabetes research unit (on the fourth floor) there will be optimal use of shared state of the art imaging and flow cytometry facilities. Sufficient laboratory space should be available to recruit two additional investigators, an essential feature in succession planning.

5. *Obtain stable salary support for the two PhD scientists who are on grant tenure track.* PhD scientists provide a critical component of research within the division, but

their salary support is not obtainable through the Department of Pediatrics alternative payment plan. Both Drs. R. Stokes and J. Bettinger have been successful in garnering soft funds for their salaries, but such awards are becoming increasingly competitive, especially at more senior levels. Some secure funds for these essential members of the division should be identified.

6. *Expand the medical fellowship/subspecialty residency program.* The training program in I&ID has been very successful and is now a victim of its success with more qualified applicants than can be accommodated. Furthermore, there is a real need for clinician-scientists throughout Canada, North America and the world. A key goal of the division is to secure sustained funding for two new trainees per year who will continue in the program and will secure their own independent funding for years three and beyond. We would like to recruit additional senior subspecialty trainee/junior faculty in 2009 who will continue in the program until they are fully trained for positions elsewhere or in Vancouver. In addition, currently there is no Fellowship training program in Clinical Immunology and Allergy in BC. Plans are in place to start a Royal College approved program in 2010 and this is fully supported by Drs Junker and Turvey.

7. *Finalize the integration of Vaccine Evaluation Center activities with the National Immunization Strategy.* Dr. Scheifele has been at the forefront of vaccine evaluation and policy in Canada and will continue to be a key opinion leader in development and institution of a national immunization strategy. He is the founding director of the Canadian Association for Immunization Research and Evaluation (CAIRE), which has done a superb job of unifying experts in immunization across the country. The activities of this group should be expanded to create a Canadian “single voice” for vaccine evaluation and delivery. CAIRE is providing the framework for a national Influenza Research Network, which will provide essential infrastructure support for the vaccines dimension of Pandemic Preparedness.

8. *Explore merger of I&ID with the Division of Allergy.* The Division of I&ID has been encouraged by Dr. Bob Armstrong to explore merging with the Division of Allergy. The proposed merger is prompted by the close connection between the disciplines of Immunology and Allergy. A merger would enhance the capacity for training in the joint disciplines of Allergy and Immunology. The proposed merger is prompted by the Canadian and American fellowship training programs that graduate specialists dually qualified in Allergy and Immunology. Recent faculty recruited (Dr. Turvey in Immunology and Dr. Chan in Allergy) are fully qualified Allergy-Immunologists. A UBC Allergy-Immunology Royal College specialty training program is being planned by the current adult and pediatric practitioners. A merger would enhance the capacity for training in the joint discipline of Allergy and Immunology and would provide a large academic “home” for new recruits to the allergy group. A position for a clinician-scientist in allergy is currently vacant, but recruitment would be difficult if the incumbent were not to join an academically strong group with a critical mass of clinician-scientists. Space is available in CUPIC for the recruitment, so many factors favour the merger. There are a number of other

considerations, which may be counter-productive in the proposed merger. For instance, the division would grow to a size and breadth in which a common purpose might be lost; whereas there is close intellectual and clinical connectivity between the disciplines of allergy and immunology, the same is not definitely true for infectious diseases and allergy. The factors, which favoured the initial merger of infectious disease and immunology, may therefore not be as compelling for the proposed merger. The proposed merger would put new stresses on the division head and the administration, especially with the imminent roll out of the alternative payment plan.

Interaction, Collaborations & Strategic Initiatives

- **IMPACT.** The Immunization Monitoring Program Active was initiated by Dr. David Scheifele and is now a model for active surveillance of adverse reactions to immunizations as well as the occurrence of vaccine preventable diseases. It has secured ongoing Federal funding and now employs a part-time epidemiologist (Dr. Julie Bettinger, an assistant professor in the division).
- **CAIRE.** The Canadian Association for Immunization Research was launched by Dr. Scheifele with funding from CIHR. It is now in a perfect strategic position to help guide the development of a national immunization strategy.
- **CBDN.** The Canadian Bacterial Diseases Network was one of the first Networks Centres of Excellence; Drs. Speert and Stokes were members since its inception in 1990 until it was phased out in 2005; Speert was Vancouver node director and Stokes directed the national TB core facility. Through support of CBDN Speert developed aerosolized dextran and brought it through the completion of Phase II human clinical testing.
- **CUPIC.** Centre for Understanding and Preventing Infections in Children. This ambitious program was founded in the past five years bringing together all scientists on the Oak Street site with interests in infectious diseases and immunology. Infrastructure funds have been obtained from CFI and from the Mining for Miracles Foundation.
- **South African Collaboration.** This new program is described above. Funds have been obtained from the Peter Wall Institute for Advanced Studies, The Martha Piper Fund, the Blue Sky Foundation and from private donations. Funds are being solicited from the Peter Wall Institute Major Thematic grant program, from Genome BC and from the Blue Sky Foundation for the pilot study.
- **Canadian Asthma Cohort Study.** A major grant from CIHR is funding this initiative for which Dr. Turvey is the Vancouver node leader. Dr. Kollmann will perform the immunological evaluation and is applying with Dr. Speert to Genome BC to obtain funds for microbiomed studies of stool specimens of participants in Canada and South Africa. This will provide a unique opportunity to determine the potential role of microbial colonization in induction of wheezing illness of infancy and childhood, comparing participants in a resource limited and resource rich setting.

- Canadian Child Health Clinician-Scientist Program. This program was introduced about five years ago and Dr. Speert was appointed the Vancouver node coordinator. The program has been highly successful and has promoted the training of clinician-scientists at the doctoral, post-doctoral and early career development stages. Two faculty members in I&ID (Drs. Turvey and Kollmann) are recipients of early career development awards and Dr. Turvey has assumed the role of de facto Vancouver node leader.
- Canadian Perinatal HIV Surveillance Program. This program, started in 1990 by Dr Jack Forbes and Dr Susan King, provides active surveillance from 21 pediatric centres throughout Canada on infants born to HIV positive mothers. It is funded by Public Health Agency of Canada and has over 2,500 mother/infant pairs in the database. An annual report is published in HIV and AIDS Canada Surveillance Report and has generated 22 abstracts and two published articles. Drs Forbes and Alimenti have been the national coordinators of this program since 2004.

Research Collaborations

Each of the members of the division has multiple local, national and international research collaborations. The South African collaboration is an example of one. Other examples include (but are not limited to) the Michael Smith Foundation funded Vaccine Evaluation group, Genome Canada/Genome BC collaborations among Drs. Hancock, Finlay, Speert and Turvey, a pandemic influenza preparedness research initiative headed by Dr. Scheifele, and the MSFHR-funded BC team to Study the Origins of Asthma and Allergy led by Dr Turvey. Numerous collaborations relating to HIV/AIDS have been established over the past several years including the Canadian HIV Trials Network (CTN), the Canadian Pediatric AIDS Research Group, an Emerging team on mechanisms of aging following antiretroviral exposure (CIHR), and a multicentre study of HPV vaccine in HIV infected girls and women (CIHR). Stokes is in the CTBR (Centre for TB Research) a group of 10 UBC based researchers interested in TB funded by a Michael Smith Team start up grant.

Subspecialty Resources and Planning

The Division of I&ID has a very successful subspecialty training program, with “graduates” now occupying permanent academic positions in Canada, the US, Great Britain, Australia and Israel. One trainee (A. Pollard) has recently been named the Professor of Pediatric Infectious Diseases and Immunology at Oxford University. PhD scientists who have received postdoctoral training in the division also hold academic positions in Great Britain (D. Davidson is senior lecturer at the University of Edinburgh), Australia, Sweden, West Bank, Taiwan, Japan and Iran.

One major challenge to maintaining a strong program in postgraduate education is securing sustained funding for salaries. Our plan is to enroll one to two new clinician-scientist trainees annually. Funding for research activities of these trainees will be from secure divisional funds, but their salaries will be obtained from external competitive

sources whenever possible. Sources of such funding include the CIHR, Michael Smith Foundation and the Canadian Child Health Clinician-Scientist Training program

Clinical Care Commitment

Members of the Division deliver a variety of programs for the treatment of children and youth with infectious and immunological diseases. The following services are provided with around the clock coverage:

- Infectious Diseases consultation service – in-patient and out-patient;
- Immunology consultation service – in-patient and out-patient;
- Oak Tree Clinic - a unique facility in Canada providing care to women, pregnant women with HIV-AIDS and their children (infected and exposed);
- Infection Control Service – of which Dr. Dobson is one of four physician members providing service to Children’s Hospital; and
- Delivery of influenza vaccination to all staff of Provincial Health Service Authority institutions.

These clinical activities continue to expand, given the increasing complexity of infectious complications in immunocompromised children, the emergence of antibiotic-resistant “superbugs”, the spread of infections within the hospital, preparedness for a major viral epidemic and the risks of, and preparedness for, bioterrorism. The Oak Tree Clinic is a combined pediatric, adult and obstetric infectious disease program providing HIV care to over 500 patients and has successfully implemented a provincial program to prevent perinatal HIV transmission – the transmission rate has decreased from 22% in 1994 to <1% in 2007. Division members have been instrumental in developing quality of care indicators related to infection control, hospital-acquired blood stream infections, and venous access devices, along with site-wide approaches to the use of PDA tools for the input of abstracted clinical information. With the high profile and topicality of the medical issues within this Division, advice is increasingly sought locally, nationally and internationally. For example, Dr Jack Forbes is a pediatric technical consultant with Elizabeth Glaser Pediatric AIDS Foundation in Africa since 2003 and has been involved in HIV care and treatment programs and operational research projects in Zimbabwe, Zambia and Kenya.

Teaching Involvement

The Pediatric Infectious Diseases training program continues to be fully accredited by the Royal College of Physicians and Surgeons of Canada and currently has three full-time clinical trainees. Over the past eight years, Dr. Entesar Hussain completed her training, was certified as a specialist in Pediatric Infectious Diseases by the College after passing the examination, and is now the sole infectious diseases consultant in Kuwait. Dr. Andrew Pollard completed his training and took up a faculty position at the University of Oxford and heads the Oxford Vaccine Group. Dr Nigel Curtis is Head of Infectious Diseases at Royal Children's Hospital, Melbourne. Dr Michael Starr has taken up a faculty position at Royal Children's Hospital, Melbourne, Dr. Rolando Ulloa-Guiterrez finished his training in 2005 and returned to Costa Rica for a staff position in pediatric Infectious Diseases which he now heads, Dr Susan Wooton joined the staff at the University of Texas in Houston and Dr Stephane Paulus took a staff position in Liverpool, England. Furthermore, multiple PhD students and postdoctoral trainees have completed their tenure in Vancouver and have assumed positions in Canada, the USA, France, Sweden, the United Kingdom and Australia. Finally, Dr. Meena Dawar was the first field epidemiologist trainee in vaccinology in 2006-2008.

Members of the Division are very active in intramural and extramural educational programs. The Infectious Diseases elective is very popular with residents and medical students and it continues to be very highly rated. Teaching by members of the Division is a regular feature of both the residency academic half day and the medical student curriculum. An additional lecture for medical students entitled "Antibiotic Resistance: Implications for Prescribing" has just been introduced to the curriculum. In 2000/01, the Division was honoured by the residents and staff for Outstanding Pediatric Grand Rounds presentations, having given all of the four most highly rated Grand Rounds during that year. This was the only year such an award was given. Over the past six years, member of the Division have won the "Ivory Tower Award" three times for the outstanding academic faculty member in the Department. Finally, a laboratory in the division has been honoured as the best research team in the Department.

The Infectious Diseases group, with leadership from Dr. Dobson, initiated an ambitious postgraduate training program in collaboration with Fudan Children's Hospital in Shanghai in 2007. Three members of the division (Drs. Dobson, Speert and Paulus) each spent 3 weeks tutoring five junior Chinese Pediatric ID consultants in Shanghai. The trainees then spent six months in Vancouver learning the North American approach to practice of tertiary care Pediatric ID. A further six months of training will be conducted in Shanghai after which the trainees will become the trainers. This program has not yet been evaluated however; the trainees have been extraordinarily enthusiastic about the experience.

Members of the faculty teach in the patient-based learning program for first year medical students. In addition several faculty members teach undergraduate and graduate courses in Microbiology and Immunology and in Pathology and Laboratory Medicine.

Governance, Administration Responsibilities

- **Speert** – Head, Division of I&ID; Associate Head, Centre for Microbial Disease and Immunology Research, UBC; Assistant Head (Research), Dept. of Pediatrics, Vancouver Node Director, Canadian Bacterial Diseases Network, Chair CIHR Microbiology and Infectious Diseases grants committee, Director Centre for Infectious and Inflammatory Diseases, CFRI., member Institute Advisory Board, Institute for Infection and Immunity, CIHR. Member, Faculty Appointment, Promotion and Tenure committee, Dept. of Pediatrics, UBC.
- **Scheifele** - Canadian Association for Immunization Research & Evaluation (Chair), Planning committee for 2004 National Immunization Conference (scientific co-chair), CPS Immunization Monitoring Program, Active (IMPACT) (co-PI), National Advisory Committee on Immunization (liaison member), Editorial board, Paediatrics & Child Health, Clinical Research Council, C & W Hospital/BCRICWH, Faculty Appointments & Promotions committee, Department of Pediatrics, Pharmacy & Therapeutics committee, C & W Hospital
- **Junker** – Senior Medical Director, BCCH Medicine Specialty Programs; Associate Director (Clinical Research) CFRI ; Executive and Implementation Team Member of MSFHR BC BioLibrary infrastructure platform; Steering Committee member Canadian Mother Infant Child Youth Research Network (MICYRN)
- **Dobson** - Canadian Association for Immunization Research & Evaluation (Steering Committee member), Planning committee for 2004 and 2006 National Immunization Conferences, CPS Infectious Diseases and Immunization Committee, BC Immunization sub-committee, National Advisory Committee on Immunization, Antibiotic use sub-committee of the Pharmacy & Therapeutics committee, C&W Hospital, Infection Control Committee.
- **Forbes** – Medical co-director Oak Tree Clinic, Drug Evaluation and Therapy Committee BC Centre for Excellence HIV/AIDS, Canadian HIV Trials Network (Satellite Director), Canadian Pediatric AIDS Research Group (past chair and executive member), Canadian Perinatal HIV Surveillance Program (national coordinator), Scientific Advisory Committee on HIV Therapies, Health Canada, Infection Control Committee (C&W)
- **Stokes** – BCCHF Telethon- New Research Committee, CIHR Grants Committee (Microbiology and Infectious Diseases), UBC Biosafety Committee, UBC-Life Sciences Building/Biological Containment Level 3 Facility Steering Committee, CFRI Animal Users Committee
- **Turvey** - Chair, BCCH Telethon Awards competition; Chair, 2008-09 Dept of pediatrics Strategic Planning Committee, Canadian Cystic Fibrosis Foundation Executive committee and scientific subcommittee
- **Kollmann** - Director, Flow Cytometry Facility, CFRI; Member Antibiotic Use Committee, BC Children's Hospital; Member, Public Health Agency of Canada Vaccine Vigilance Technical Advisory Committee
- **Bettinger** – British Columbia's; Vaccine Safety Working Group, Women's Health Research Institute Catalyst Grant Committee, Women's Health Research Institute Infrastructure Grant Committee, CIHR International Opportunities Grant Reviewer.

- **Sauvé** – Canadian Pediatric Society International Child Health section (Vice president); BC Tropical Medicine Expert Group (Pediatric tropical medicine lead).

Review of the Division of I&ID

In 2008 the Division of I&ID was reviewed by a mixed internal/external review team. The executive summary reads as follow:

“The Division of Infectious and Immunological Diseases has established an outstanding reputation in research, clinical care and teaching in Canada through the leadership of David Speert, the division head, of over 15 years. A strong collegial relationship exists among members of the Division and between the leaders of the Department of Pathology and that of the Division.

The Division faces a period of transition as several senior members approach retirement. Given the high profile of the accomplishments of the Division, the Department should strive to recruit a new Division Head who is a well-established clinician-scientist with a proven record of accomplishment and leadership skills. The current Divisional structure functions well. Any thought of reorganizing the Division with additional elements should be on hold until a new Division Head is recruited.

Jack Forbes is a Canadian leader in Pediatric AIDS. Planning for his post retirement replacement should begin early with the new CEO of the BCWH in order to ensure a smooth transition and integration of the new person into the clinical and research roles of the Division of Infectious and Immunological Diseases. The co-medical director administrative structure for the Oak Tree Clinic should be preserved.

A review of the responsibilities of the Infection Control Service should be undertaken to ensure that appropriate compensation is received and that service demands do not detract from the academic mission of the Division.

The relationship of the Division to the CFRI was strained at times in the past, particularly around issues related to space and programming in the new translational research building. These problems have now been substantially resolved. While beyond the perspective and mandate of this review, one way to understand these issues would be at the time of the next scheduled review of the Research Institute.”

Academic Activities

I&ID	2005	2006	2007	2008	2009
Refereed Publications (Journals)	32	20	30	23	26
Books/Book Chapters	2	1	5	2	3
Invited Presentations	22	20	22	22	17

DIVISION OF IMMUNOLOGY & INFECTIOUS DISEASES SCHEDULE OF RESEARCH OPERATING REVENUES					
Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ -	\$ -	\$ 15,000	\$ 69,688	\$ 78,132
Clinical Trials	\$ 445,044	\$ 503,597	\$ 255,416	\$ 61,496	\$ 500,738
Contracts	\$ 26,312	\$ 25,806	\$ 546,132	\$ 253,732	\$ 191,840
Grants	\$1,596,265	\$2,035,514	\$ 2,484,772	\$3,022,805	\$2,688,984
Total	\$ 2,067,621	\$ 2,564,917	\$ 3,301,320	\$ 3,407,721	\$ 3,459,693

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	0	1	2	2
Clinical Trials	8	7	3	3	6
Contracts	4	3	3	5	5
Grants	41	41	47	53	62
Total	53	51	54	63	75

Division of Neonatology

Dr. Philippe Chessex, Professor and Head

Faculty

Susan Albersheim, MD, PhD, Clinical Professor: Chair Newborn Nutrition Committee; Philippe Chessex, MD, Professor: Division Head and Medical Director of Newborn Care Program;

Ruth Grunau, PhD, Professor: Scientist

Horacio Osioviich, MD, Clinical Associate Prof: Director Residency and Fellowship Program

Sheila Innis, PhD, Professor: Scientist; investigations in nutrition and development;

Pascal Lavoie, MD, PhD, Assistant Professor Clinician Scientist

Brian Lupton, MD, Clinical Associate Professor, Medical director of the NICU

Avash Singh, MD, Clinical Assistant Professor, Co-director ECMO program

John Smyth, MD, Clinical Associate Professor

Rebecca Sherlock, MD, PhD, Clinical Assistant Professor

Alfonso Solimano, MD, Clinical Professor: Medical Director Provincial Specialized Perinatal Services

Anne Synnes, MD, MHSc, Clinical Associate Professor; Director of the neonatal follow-up clinic

Michael Whitfield, MD, Professor

Retired or relocated:

Angela Devlin, PhD relocated in the Division of Endocrinology in 2008 in view of her closer ties with individual investigators in that Division.

Shoo Lee, MD, PhD, Professor, founder and director of the Canadian Neonatal Network, relocated in Edmonton in 2005.

Overview

Neonatology is a Pediatric subspecialty responsible for providing care to the sickest babies born in the Province of British Columbia. The Division of Neonatology provides 24-hour urgent patient care, consultation, triage, transport, follow-up of survivors, teaching, outreach and research for the benefit of infants and their families throughout the province of British Columbia. The Division sits at the cross roads between Children's and Women's Hospitals where it belongs to an integrated perinatal program. The academic Division and the hospital Program of Neonatology are very closely linked and entwined in running one of the largest and busiest nurseries in Canada. It is the only referral center in BC providing the full complement of subspecialties, including pediatric surgery and ECMO. Beyond the birth process, the complexity of the aftercare of these babies and their need for complex pediatric care drives the outcomes of the patients. Therefore activities in Neonatology profoundly impact the Department of Pediatrics, the activities in BC Children's Hospital, the Provincial ambulance system, the flow of patients in labor and delivery suites and neonatal units throughout the Province. With the current 25% rise in the rate of prematurity and the rapidly rising birth rate in BC, the importance of neonatology continues to grow as these babies who are at risk of death or long term

disability cause a huge burden to parents and society with high ongoing costs to the health care and education systems.

With the rapid pace of innovation occurring in this field it is one of the most exciting but also challenging environments in which to develop professionally.

Introduction

Mission

Excellence and leadership in patient care, education and research for the benefit of neonates and their families -locally, -provincially, -nationally, and -internationally.

Goals

Operational excellence

Knowledge and innovation

Prevention, promotion and protection

System wide improvements

Major Successes and Challenges

Clinical - Successes

In Neonatology, the feeling remains that we can make it happen. The Division/Program of Neonatology is blessed with ongoing commitment to the highest quality of care by staff at all levels. In spite of many challenges this dedication and empathy towards our baby-patients and their families is proof that success in a system like ours depends more than ever on the strength of each individual.

We have managed to maintain a stable length of stay, despite the increasing number of smaller preterm infants, which are surviving. This is a tribute to the efforts contributed at all levels to find innovative ways to improve care (early nutrition, new modes of ventilation, home oxygen, family centered care, discharge planning). A structured approach to quality improvement (see # 7) has led to a number of successes such as:

- maintenance of work environment where good multidisciplinary collaboration is reflected in quality care and safety
- establishment of a satellite pharmacy to decrease medication errors
- establishment of a complex nutrition multidisciplinary team that has led to decrease in the number of hepatic complications and length of stay in babies with intestinal failure (published data)
- implementation of a new strategy to monitor and treat aggressively and to evaluate the outcome of asphyxiated babies, associated with reported evidence of promising results
- decrease in the number of line infections

- the survival of ever sicker babies; according to the reports from the Canadian Neonatal Network we have one of the highest levels of acuity in the country.

However, these successes hide some critical flaws that go unrecognized because of the focus on cost-efficiency:

- excessive number of transfers of babies and families around the Province
- increasing number of resignations of experienced staff
- limited community services for aftercare

Challenges

After a steady decline in births over the past ten years, this number started to rise again in BC in 2006 and 2007. This was predicted in a report prepared by Shoo Lee for the Ministry of Health in early 2003. The same message was delivered two years later by a consulting firm from Ontario. Further to the increasing birth rate, the number of infants born prematurely as well as babies born with malformations requiring surgical interventions are rising for multiple reasons, including: maternal age, decreased perinatal mortality, multiple births, etc. We are, however still functioning with approximately the same number of NICU beds as we had 10 years ago. We are coping by sending babies out of Province followed by a huge exodus of BC health care dollars. The apparent lack of action by the Ministry of Health is frustrating and undermines morale.

A large proportion of activities in neonatology consist in coordinating bed utilization around the Province through active triaging. The need arises from the high bed occupancy a result of BC having the lowest number of level II and level III beds in Canada per 1000 births. The proportion of premature infants and neonatal surgical conditions like gastroschisis are increasing in BC as well as in Canada, thus placing increasing strain on limited resources.

This situation tends to undermine physician leadership that is too busy dealing with staffing issues and managing bed crises. Their role is compromised when, in order to accommodate lack of capacity, physicians are unable to offer care in the Province, or when patients have to be transferred out of the nursery to a lower level of care in an untimely fashion, or transferred either further from home or multiple times. Before reaching home, some sick babies are transferred up to six times between institutions, which accounts for the apparently efficient bed utilization rate of 92% observed across the entire Province. This number reaches 97% in the level III nurseries. Although this must appear as a success to administrators in charge of containing costs, in reality, it represents an inefficient way of running the system. It reflects a critical lack of capacity in our system, which health economists recommend should be closer to 75% for efficient functionality, i.e. without multiple, further-from-home, premature/untimely, or out-of-province transfers. The birth of preterm infants and sick babies creates a huge burden on society and families. The unwillingness or inability to remedy the critical failure in system capacity represents a *defacto* policy involving discrimination against women. They suffer the consequences of having to deliver far from home or outside of country;

they are most often the ones having to cope with the multiple transfers of their sick babies with the emotional and social trauma that this inevitably causes.

Teaching - Successes

The Division is involved in undergraduate (PBL, DPAS, Clinical skill, electives), postgraduate (residents, fellows, international medical graduates) education at UBC as well as the training of other allied health professionals such as the members of the transport team. The Division is also involved in initiatives of continuing medical education at provincial and international levels (ACoRN, NRP, invited speakers). The training program had its accreditation renewed in 2007 thanks to the excellent work by the director of that program, who was instrumental in implementing several new tools to evaluate the ongoing progress of our trainees.

To alleviate potential concerns related to adverse outcomes of this at risk population of infants we rely on the reports from the Neonatal Follow-Up Program in evaluating treatment modalities. Consensus was obtained among those involved in the decisions to resuscitate on issues pertaining to limits of viability. This is a tribute to the work of our Neonatologist-Ethicist and the follow-up clinic in providing valuable outcome data to guide decision making for difficult situations. Recommendations regarding delivery room management and Parent Information Sheets have been developed, tested and published in the BC Medical Journal in 2008 to better inform families and practitioners on our rapidly evolving field of medicine.

The ACoRN program was developed locally and implemented as a very successful educational initiative across BC, and on national and international levels. It provides a systematic approach to the identification and management of babies requiring stabilization. This program was designed for practitioners who may be called upon to care for at-risk babies and their families, regardless of experience or training in neonatal emergencies. Over the past five years, there has notable progression of ACoRN in many small and mid-sized communities in BC. In exit surveys, trainees indicate that they are more comfortable managing babies and they work better as teams; babies are also found by our transport team to be in better shape than ever before. Furthermore, invitations by managers and clinical leaders are extended to us for repeat performances in many communities.

The biggest strength of this Division is its large number of trainees who stimulate staff to offer the best of their professional expertise. We have some promising trainees, one who is completing a Masters degree in education. This will very nicely complement the strength in outreach education, which has produced the National and International reputation of the Division over the years. Several educational projects are underway to evaluate the communication skills of physicians relative to interactions with families of patients in consultations and care conferences.

Challenges

The physician group is too busy dealing with staffing issues and managing bed crises in order to concentrate on academic deliverables.

One of the biggest successes of the Division over the years was outreach education. This partnership between the program and the BC Perinatal Health Program (BCPHP) was seen as an important strategy to cope with a very centralized system and the reality of having the lowest number of level II and III beds in Canada per 1000 births. By teaching staff in peripheral hospitals to resuscitate (NRP program) and to stabilize babies (ACoRN) the Division was involved in a very active and successful outreach program. However, following an operational review in 2006, the resources used by the Neonatology Program for this Provincial activity were deleted. This gap has left us with a debilitated sense of purpose and a growing deficit in maintaining a Provincial system that is working towards ensuring consistency and standardization of care. In the long run, this deficit in education creates the potential risk of seeing an increase in our needs for transfers of sicker patients to higher levels of care and therefore further taxing limited resources.

Research - Successes

The Division is committed to sustaining an academic environment recognized for its national and international leadership. Research activities are being pursued in the NICU by nursing, medicine, dieticians, pharmacy, psychology, OT and RT. New knowledge resulting from this multidisciplinary effort is widely disseminated in peer-reviewed publications, scientific meetings, and locally during nursing education days and academic days.

With the growing number of research projects in the Neonatal Intensive Care Unit, a new structure was established to coordinate this activity; up to 27 active clinical projects are conducted at any given time in this NICU. The vast majority of the projects are investigator driven, with only a few industry-sponsored projects. Most of the work is directly patient-related, although we are also involved in bench research. Multicentre trials are being initiated and led by investigators from the Division of Neonatology.

The Division has been very fortunate to benefit from the input of world-renowned scientists such as Ruth Grunau, Sheila Innis and Angela Devlin. Over the past 5 years, two of these scientists (Ruth Grunau and Sheila Innis) have contributed 75 peer-reviewed publications, 74 abstracts, 84 invited presentations and \$ 9.2 million in funding as principal investigators. They have kept the Division at the cutting edge of innovation in nutrition, pain research and metabolism. This intellectually stimulating academic environment has led to the burgeoning of many new projects led by clinicians in the nursery. We have slowly but surely changed the mind set towards research in the NICU. Auditing, evaluation and research have become part of our normal daily activities that are more intertwined with the clinical responsibilities.

The Division has a qualified group of health researchers who are involved in trans-disciplinary activities to optimize treatment strategies aimed at minimizing long-term effects of prematurity. By decreasing complications of prematurity, we manage to shorten length of hospital stay, optimize utilization of available resources and more importantly, decrease the burden for individuals and families. For example, chronic lung disease of prematurity represents the most common cause of long-term disability in preterm infants. Members of our group have reported that the risk of developing this complication can be reduced by 30% by simple modifications in nutrient and/or ventilatory support. The team has also been successful at identifying modifiable antenatal risk factors associated with disease susceptibility for complications of prematurity such as white matter brain injury and its ensuing neuro-developmental disability.

During the past five years, the members of the Division have published a total of 149 peer-reviewed publications and 197 abstracts.

Challenges

The physician group is extremely occupied dealing with staffing issues and managing bed crises to concentrate on academic deliverables.

Changing work habits of the younger generation is a forthcoming challenge. With the recent application of a ruling in the European Union limiting the number of hours that trainees and physicians can work, it appears that many more people will be needed to handle the workload. We are at risk of seeing this type of restriction affect our practice in the very near future. This will have challenging implications in Critical Care areas where busy clinical activities operate around the clock. Furthermore, new contractual arrangements will encourage people to perform shift work. We anticipate that this will affect participation of Neonatologists in academic and scholarly activities that are fundamental for remaining at the forefront of competitiveness and productivity.

University Service - Successes

Dr. Michael Whitfield is a leader in the Undergraduate Medical Program in the Course Directorship of the Doctor Patient and Society course in first and second year. He serves on a variety of committees in the Undergraduate Medical Program, including the Curriculum Committee, and Promotions Committee, as well as DPAS committees, and a number of appointment committees. Dr. Whitfield set up and is Faculty co-chair of the DPAS Community Advisory Board; an important developing interface between the faculty of Medicine and the community it serves. He has been the proponent of innovative curricular options in DPAS 420 with the creation of a Community Service Learning Option which runs throughout the second year. More than half the expanded medical class at the three sites (Vancouver, Prince George, Victoria) is now involved in the Community Service Learning Option or the Self Directed Project Option (run by Dr. Gary Poole). The focus of these options is to provide motivated medical students with experiential learning relevant to the care of underserved populations in the real world. He

is tutor and mentor to the students running the Global Health Initiative (a student led international health organization). Dr. Whitfield is also Departmental Mentoring Champion in the Department of Pediatrics and is a member on the departmental promotions and tenure committee.

For ten years, Dr. Smyth has been Week Chair of Week 2, Fetal-Neonatal Transition in the Nutrition, Growth & Development block of the MD Undergraduate Program (FMED 428).

Challenges

The University is not stepping up to challenge of the Ministry of Health (MoH) regarding the restrictions that the MoH puts on academic activities essential to maintaining patient care at the forefront of development and innovation. Excessively heavy administrative process is a major hindrance to creativity, productivity and recruitment.

Health Care Service - Successes

Dr. Alfonso Solimano has been actively involved in an effort to improve the relevance of the BC Bedline services in managing the flow of sick babies across the Province. He was also involved in the latest external review of the Provincial Perinatal System, conducted in early 2008. While we await the recommendations of this report, capacity issues remain critical across the Province. Dr Solimano closely collaborates with the Provincial Specialized Perinatal System (tertiary level services) and the BC Perinatal Health Program (primary level services) to standardize clinical services by implementing educational strategies, as well as procedures and therapeutic guidelines to improve Perinatal care across the Province.

Challenges

The Division of Neonatology has little influence on decision-making processes at the Provincial level. Clinicians are prevented from delivering our message to those who can make a difference at the decisional level. When meetings occur with Ministry representatives, the medical lead for provincial issues is not invited to attend. When the Ministry of Health visits the NICU, not a single leadership member of the Division or the Program of Neonatology is invited to escort the visitors. The lack of transparency at every level relative to resource limitations creates a huge disconnect between public expectations and our ability to satisfy service demands.

Administrative -Successes

The administrative structure of the Division has improved through sharing the role between a Medical Director, Dr. Brian Lupton, a Medical Leader of Provincial Affairs, Dr. Alfonso Solimano and the Division Head, Dr. Philippe Chessex. However, the authority of the Provincial role to enact changes at a Provincial level remains unclear.

Challenges

With emphasis on structure and process rather than on results, the entire system becomes inefficient. Too much time is spent on creating a paper trail rather than on improving patient care. For example, instead of working to free up a neonatal bed to prevent an out of Province maternal transfer, the administrative tendency is to discuss process rather than to immediately repatriate a baby ready to return to its original Province. New administrative loopholes are continuously added to the system at the risk of losing a precious recruit for the Division, the Department and UBC. There is no accountability for the inefficiency of the process because of the multiple levels of existing bureaucracy: The Ministry of Health, PHSA, UBC, BCCH and the Department of Pediatrics.

Public Relations - Successes

Dr Albersheim has a PhD in ethics and has been involved in informing the public through various communication strategies such as: scholarly publications, lay press, and public forums about decision making at the limit of viability for the smallest premature infants.

Dr Brian Lupton has, on repeated occasions been invited to provide expert information about issues of public interest occurring in the NICU through the media.

Challenges

Public Relations are closely managed by the organization. For example during the media frenzy around the sextuplets, the organization took advantage of the media coverage to create publicity about the Hospital, rather than informing the public that this episode had been a Provincial success in managing bed capacity.

Fundraising - Successes

Over the past five years, the Division has received Principal Investigator funding from agencies such as CIHR, NIH, MSFHR, BC Lung, CFRI research totaling \$12.5 million. Members of the Division are associated as co-investigators in studies totaling \$ 50 million over 5 years.

Challenges

With the growing pressure on health care dollars, funding will need to follow the patient. This would protect funding for perinatology and make Health Authorities more accountable for accepting repatriation closer to home of their constituents sent to the tertiary care centers in the lower mainland. However, the Health Authorities are very concerned that with funding protected for perinatology they may lose flexibility in adapting to unforeseen emergent situations related to other types of patients.

Advocacy - Successes

Dr. Whitfield is an advocate for the development of educational materials to highlight the needs of underprivileged populations in the medical curriculum. Dr. Alfonso Solimano is advocating at MOH and PHSA to establish a Provincial Division of Neonatology having the authority to standardize and coordinate care, human resources, patient flow and audits across Health Authorities.

Challenges

After three reviews, numerous highly publicized-out-of Province transfers, as well as several critical events, the Ministry recognizes the need for additional level II and III neonatal beds; however, the political will is missing and an action plan is required.

Strategic Initiatives including recruitment

Recruitment. The population of physicians practicing neonatology is aging. Similarly, a number of Pediatricians attending deliveries in peripheral hospitals will soon be retiring. There is a serious need for a steady recruitment stream. This will remain a challenge in the context of budgetary constraints in a health care system that is not based on a market economy. The recruitment of young and promising clinician scientists will bring renewed energy and promise for further improving the care of the sickest babies in the Province of British Columbia. To prepare for tomorrow's changing of the guard we created a new junior staff program to train young promising physicians to provide us with visibility and the reputation to attract eager rising stars who will pursue successful academic careers in Neonatology in British Columbia. The first two junior staff recruits, Pascal Lavoie (start date 2006) and Rebecca Sherlock (start date 2007) were able to secure external salary support. They have brought renewed curiosity and excitement in clinical and educational activities and in bench and clinical research. They have submitted applications for operating grants in order to establish themselves as investigators. They are creating a new momentum in the Division with a flurry of projects and publications.

The need to recruit new staff is not limited to the physician group. Nurses and Neonatal Nurse Practitioners are going to become an even rarer commodity. We still have a long

way to go to establish a NNP program in BC. We are losing to the US trained NNP, who, for administrative and political reasons are unable to practice in this Province.

High dependency unit. Joint decision-making and communication affecting the flow of patients between Children's and Women's hospitals require improvement to meet some of the bed capacity challenges in Neonatology. Complex patients in Neonatology who have reached the BCCH admission age continue to occupy beds in Neonatology because subspecialists are not comfortable looking after them on wards in Children's Hospital. There are budget and human resource implications to those transfers for which innovative solutions are required. The solution to these ongoing issues is the creation of a high dependency unit, to be shared with PICU and Surgery, increasing benefits and efficiencies. The Division has put forth a business case, but at this time, the two hospitals do not appear to be prepared to work together on this project.

Relocation of Neonatology within Children's Hospital. Improved internal, as well as provincial and academic functions are the main arguments in support of this strategic initiative:

- Though significant NICU admissions arrive from the maternity area, the predominant drivers of the bed occupancy and NICU patient outcomes include the complexity of infants' aftercare needs and their need for complex pediatric care. Antenatal consultations and resuscitation services represent an important but smaller load of activities relative to services provided in Children's Hospital. Successful and efficient day-to-day functioning of the NICU relies on seamless access to integrated pediatric and pediatric surgical subspecialty expertise 24 hours/day, 7 days/week. Efficient utilization of clinical resources for complex patients requires ready access to the specialized pediatric bed pool and services available within the Children's Hospital as well as discharge to secondary level neonatal units throughout the province. Optimal care and earliest discharge is only possible for many patients when there is close integration of neonatal and specialist expert pediatric services.
- Pharmacy services, nutrition, respiratory therapy, and occupational therapy are services used by NICU administered out of Children's Hospital. Sharing ECLS resources and population with PICU is complicated by different hospital administrations and subject to different corporate priorities. Nursing training for NICU is directly related to Pediatric training; nurses can potentially float between NICU and PICU more readily than they can between NICU and labor and delivery. Quality and safety issues within neonatal acute care are different from those at Women's; they are significantly lined up with those at Children's.
- Neonatal bed availability for level II and III patients across the Province is closely linked to the Neonatology's ability to decant aging hospitalized patients from NICU to Children's Hospital. This will be improved if we are under the same administration. Availability of community health services for patients who are discharged home must be a major focus to improving integration closer to home. In

order to achieve this aim, Neonatology needs to link with Child Health BC which is under the administration of Children's Hospital. Child Health BC is working on building that capacity in community health services.

- NICU is central to the site redevelopment of Children's Hospital. NICU is part of the acute services requiring immediate adjacencies to key services provided at Children's Hospital. The new and enlarged NICU will need to be within close proximity to all key services in BCCH such as OR, imaging, PICU and the delivery suites.
- Division members work and interact with researchers in the CFRI rather than the Center for Women's Research. BC Children's Hospital Foundation enjoys showcasing Neonatology while the Women's Hospital Foundation focuses on issues other than maternity and perinatology.

Subspecialty Resources and Planning

This has been a time of change in our Division as Shoo Lee, who was the founder of the Canadian Neonatal Network, departed for Alberta at the end of 2005. Clive Meintjes who was one of the pillars and the spirit of the NICU, passed away in 2007. Paul Tsze who was also a mentor for so many people retired in 2007, leaving a huge gap to fill. Emily Ling who was part of the old school who had done so much for the Division and for UBC retired at the end of 2007.

The junior staff program led to the successful recruitment of Dr. Pascal Lavoie who joined the Division as a new full time Neonatologist in 2008. Dr. Lavoie has a passionate commitment to improve clinical care. Pascal earned a Clinician Scientist award from the Child and Family Research Institute (CFRI) to help tighten our synergistic activities between basic science, clinical research, health services delivery and population health.

Over the next five years, the Division will be facing recruitment challenges because of retirements, and the need for a changing of the guard.

Faculty

The 13 Division members (see list below) comprise clinicians (neonatologists), grant funded clinician scientists/investigators and scientists (4 PhDs). The clinical coverage is ensured by neonatologists supervising residents as well as appropriately trained medical staff (6-8 clinical assistants and 6-8 fellows). List of Division members:

Susan Albersheim, MD, PhD, Clinical Prof: Chair Newborn Nutrition Committee; ethicist; investigations in decision making in Neonatology;

Philippe Chessex, MD, Prof: Division Head and Medical director of Newborn Care Program; medical advisor on the Provincial Specialized Perinatal Services program; investigations in neonatal nutrition;

Ruth Grunau, PhD, Prof: Scientist; investigations in pain and neurodevelopment;

Horacio Osioovich, MD, Clinical Associate Prof: Director Residency and Fellowship Program; investigations in inflammation and pain control;

Sheila Innis, PhD, Prof: Scientist; investigations in nutrition and development;

Pascal Lavoie, MD, PhD, Assistant Professor Clinician Scientist;

Brian Lupton, MD, Clinical Associate Prof: Medical director of the NICU; chair perinatal mortality review committee; liaison with BC Reproductive Care Program (BCPHP); investigations in neonatal neurology;

Avash Singh, MD, Clinical Assistant Prof: co-director ECMO program; chair of the transport committee; Industry sponsored research; investigations in respirology;

John Smyth, MD, Clinical Associate Prof: chair of the Pharmacy and Therapeutics committee; co-chair of the resuscitation committee; liaison with the Canadian NRP committee (neonatal resuscitation program); investigations in respirology;

Rebecca Sherlock, MD, PhD candidate, clinical trials and epidemiology, junior staff;

Alfonso Solimano, MD, Clinical Professor: Medical Director Provincial Specialized Perinatal Services, co-chair Critical Care committee; president and past-president of the section of Neonatal Perinatal Medicine of the CPS; Chair of the National NRP committee, investigations in respirology and local or co-PI in national/international multicenter RCTs;

Anne Synnes, MD, MHSc, Clinical Associate Prof; director of the neonatal follow-up clinic; chair of the Canadian Neonatal Follow-up Network; co-chair of local data collection; investigations in child development; site investigator for EPIC; site coordinator for CNN (Canadian Neonatal Network);

Michael Whitfield, MD, Prof; course director Doctor Patient & Society and expansion of undergraduate medical program at UBC; active member of the follow-up clinic; investigations in child development and in pain.

Retired or relocated:

Angela Devlin, PhD relocated in the Division of Endocrinology in 2008 in view of her closer ties with individual investigators in that Division.

Shoo Lee, MD, PhD, Professor, founder and director of the Canadian Neonatal Network, relocated in Edmonton in 2005.

<i>Clinical Associates</i>	<i>Clinical Fellows</i>	<i>Pediatric Residents</i>
Dr. Shelagh Anson Dr. Anne Antrim Dr. Heidi Budden Dr. Margaret Choi Dr. Shawn George Dr. Elizabeth Grant Dr. Joanne Jia Dr. Paul Tsze Dr. Rosemary Binnie Dr. Rod Bucke Dr. Debbie Gilmer Dr. Joanna Rotecka Dr. Jennifer Retallack Dr. Niki Radziminski Dr. Birgitta Samuelson Dr. Mumtaz Virji Dr. Judy Wolfe Dr. Sunita Nayar-Kingwell Dr. Anne Feng Dr. Peter Louie Dr. Clive Meintjies Dr. Stephane Paulus Dr. Denton Hirsh	Dr. Shangqin Chen Dr. Gregor Kaczala Dr. Helen McElroy Dr. K.K. Ramesh Dr. Nawaf Al Dajani Dr. Vincent Arockiasamy Dr. Gustavo Pelligra Dr. Ori Hochwald Dr. Emad Kassas Dr. Ziad Abu Sharar Dr. Xiaolan Zhang Dr. Ahmed Moussa Dr. Akhil Deshpandey Dr. Ayala Gover Dr. Renata Lopes Dr. Demian Chernizky	Dr. Hasan Marghalani Dr. Karen Trudel Dr. Mona Singal Dr. Kelsey Inrig Dr. Cherry Mammen Dr. Helen Wong Dr. Nicole Radziminski Dr. Svjetlana Ruzic Dr. Kalfalla Zubi Dr. Paul Enarsen Dr. Gita Wahi Dr. Kathy Wong Dr. Abdullah Al Abbas Dr. Jeff Bishop Dr. Musbah Emhamed Dr. Paul Gibson Dr. Kevin Harris Dr. A. AlHammadi Dr. Rini Jain Dr. Adam Bretholz Dr. Jane Ng Dr. Sia Michoulas Dr. Kathryn Ng Dr. Rosemary Binnie Dr. Jacob Rozmus Dr. Anita Lau Dr. Jody Snook Dr. Ai Lin Tiah Dr. Michael van Manen Dr. Nina K. Bansal Dr. Alfred Yeung Dr. Cristina Bigg Dr. Alexandra Zorzi Dr. Tammie Dewan Dr. Joanne Jia Dr. Kristen Ebbert Dr. Jenny Chow Dr. Shelina Jamal Dr. Tommy Gerschman Dr. Hosam AlThagafi Dr. Sadhana Balakrishnan Dr. Scott Cameron Dr. Mariana Deevska Dr. Seemi Essa Dr. Deepak Manhas Dr. Shreya Moodley Dr. Julia Panczuk Dr. Jonathan Sam Dr. Joanne Yeung Dr. Vicki Leung

<i>UBC Students</i>	<i>Other</i>	<i>Staff</i>
Akira Shimabukuro Edwin Lee Bolster Nerissa Tyson Robin Williams David Reed Elsa Fiedrich Andrew Scott Lindsey Stockdale Oriana Ramos-Paque Ryan Lam Ilana Sanderson Daniela Caprara Jeff Plant Lorine Pelly Kimberly Suvajdzic Jagmeet Bhogal Francine Ling Sarah Coad Claire Barber Dianna Llouie Tiffany Wong Jeff Plante Jane Oh Amy Robinson Fiona Yamashita Andrea Heath Emily-Kate Higgins Rebecca Brown Ping Yee Au Elizabeth Hoepfner Ryan Falk Kelly Luu	Dr. Cheryl Humes (Skills Enhancement) Dr. Ahmed Moussa (Elective, St. Justine Hospital, Montreal) Dr. Ziad Abu Sharar (PICU Fellow) Dr. Elisa Guerrero-Patino (Neonatal Fellow Mexico) Dr. Craig Bury (MFM Fellow) Dr. Turki Gasim (MFM Fellow) Dr. Chantal Meyer (MFM Fellow) Dr. Paul Thiessen (Medical Director, Intermediate Nursery)	Amanda Bonnell Jennifer Claydon Hannah Chiu Peter Atkins Jill Belluomini Kitty Ching Karen Mason Simar Toor Jennifer Zander

Clinical Care Commitment including quality improvement structure and achievements.

Direct patient care involves consultations (700/yr), high risk resuscitation (350/yr) as well as secondary, tertiary and quaternary levels of care in the 47 bed NICU in BC Women's Hospital (BCWH). The workload has been steadily increasing from 14000 to 16000 patient/days/year, of which over 35% are babies weighing less than 1000g. BCWH is the only site providing quaternary care for neonates in British Columbia. This involves babies requiring one of a kind medical/surgical multidisciplinary diagnostic and therapeutic interventions such as extracorporeal life support (ECMO=100 patient days per year). The work load of this last program is shared with ICU.

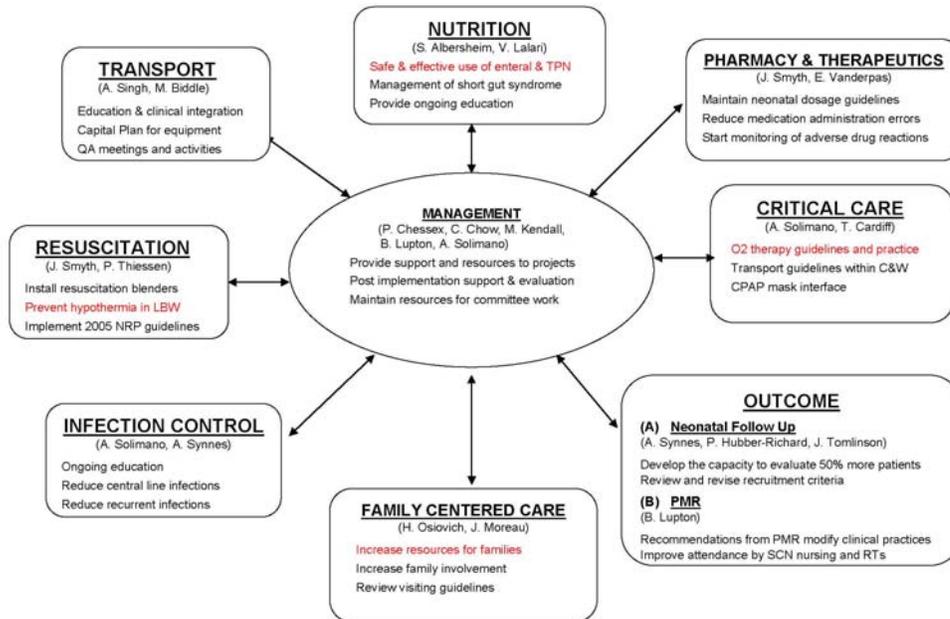
Indirect patient care involves quality improvement activities such as mortality and morbidity reviews, guidelines development in conjunction with the other provincial level 3 units and with other medical and allied health subspecialties.

Triaging involves 750 provincial transports/yr and telephone consultations (1150/yr), daily bed utilization by the neonatologists at BCWH using information gathered from level 2 and level 3 nurseries through out the province. Consultation with the referring physicians is essential to support local management when appropriate, and to give advice during stabilization of babies who need to be transported. This allows for the most efficient use of resources and for the earliest possible transfer of babies to facilities closer to home.

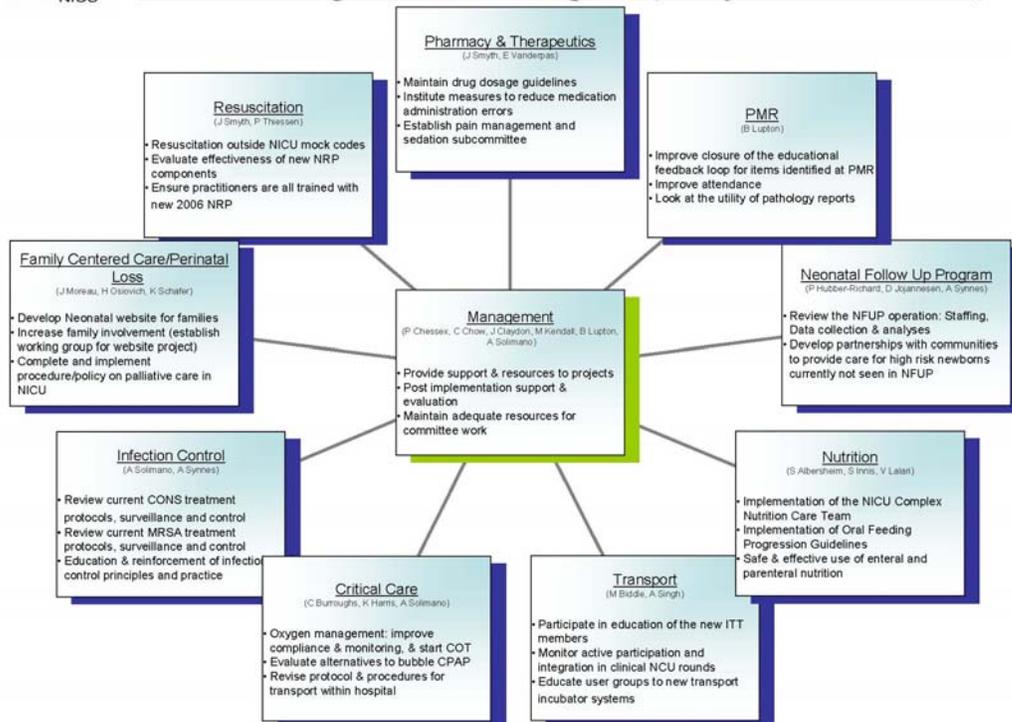
Follow-up consists in continued care, audit and assessment of special needs for neonates at the highest risk of physical as well as developmental disabilities and/or complications. This outpatient activity is currently limited to the smallest and most at-risk infants. The number of annual visits is 351. This program is critical in assisting in planning support for later specialized medical and educational programs. This program has been a key component in providing information to parents and physicians in relation to decision making around viability and the long-term impact of certain complications. It also helps in assessing the appropriate use of resources in intensive care.

The Division participates in a quality improvement structure which comprises work performed in nine committees (see appendices: road maps to quality care) reporting on a regular basis to a management team on issues in the NICU. Objectives and deliverables are set and results are reviewed on an annual basis. The management team is responsible for the implementation of the quality improvements proposed by the various committees (Infection, Nutrition, Patient Flow, Pharmacy & Therapeutics, Resuscitation, Critical Care, Quality, Model of Care, Outreach).

Newborn Care – 2006-2007 Roadmap to Quality Care

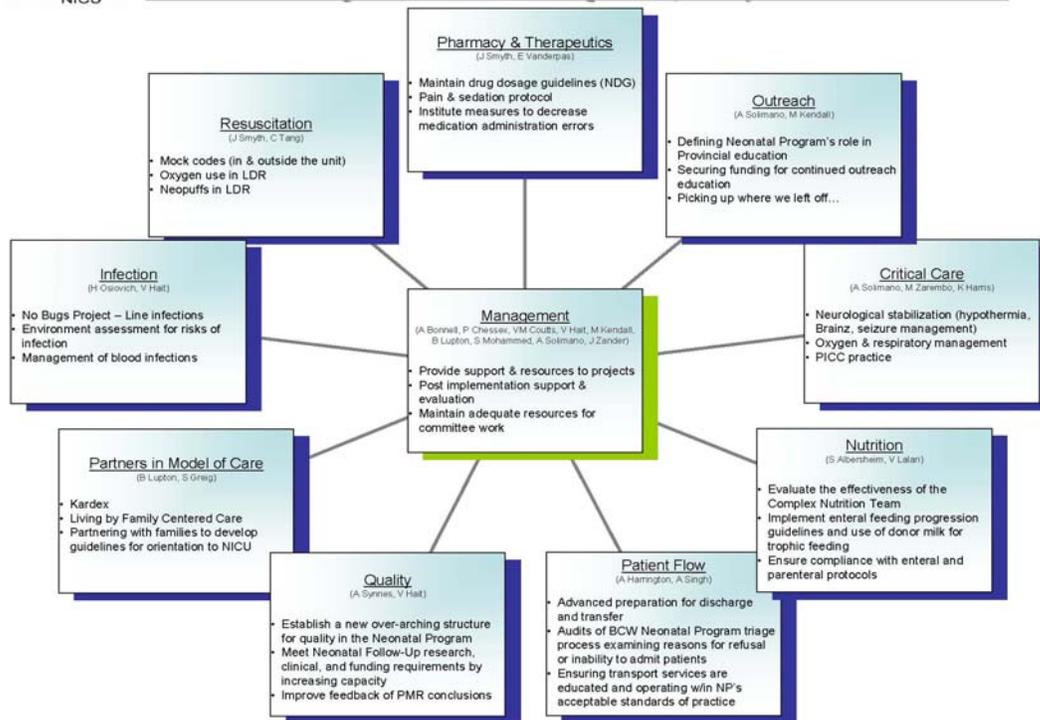


Neonatal Program – Road Map to Quality Care 2007/2008





Neonatal Program – Road Map to Quality Care 2008/2009



Teaching Involvement

Pre/postgraduates: The core of the educational activity is provided to Pediatric Residents, Subspecialty Residents and Fellows in neonatology. The training of residents from other programs is supported by providing elective rotations. This represents a workload of 550h/y for undergraduates, 750h/y for postgraduates, 1000h/y for fellows during the academic day.

Allied health professionals: Medical education is provided either as formal teaching and/or CME to nursing, respiratory therapists, members of the infant transport team, pharmacists.

CME: the Division is involved throughout the Province in teaching neonatal resuscitation and stabilization, as well as management of common neonatal problems. In collaboration with the BC Reproductive Care Program, we are involved in development and management, educational initiatives and guideline development. The neonatal follow-up program provides educational sessions with community health professionals concerning "aftercare" of high-risk infants and long-term results of treatments. These educational sessions have included advocacy at various Government levels (Ministries of Health, Education, Children & Families) for "aftercare services" in school for ultra high-risk survivors of neonatal care. ACoRN is a multidisciplinary educational program that teaches around the Province in a very systematic fashion the Acute Care Of the at Risk Newborn.

International Health: Lectures in the Peoples Republic of China, Uganda, Singapore, Argentina, Peru, Mexico, Brazil, Organization of International symposia in China and an

ongoing CPS endorsed training program in neonatology in Shanghai Children's Hospital. The visibility of this Institution has also been highlighted through lectures given in France, Scotland, Finland, Switzerland, Britain and the USA.

Research including major Interactions and Collaborations

Our researchers have demonstrated expertise in the four pillars of research specified by CIHR: basic science (i.e. inflammation and oxidants), clinical research (i.e. randomized controlled trials, neonatal brain imaging), health services research (i.e. ACoRN-community outreach) and population health (i.e. Neonatal Follow-up). Through our synergistic research activities we aim to have the following outcomes:

- characterize biological markers, from DNA, imaging, and tissue samples, to predict individual susceptibility to complications of prematurity
- to evaluate the interactions between mechanisms, diseases and outcomes of prematurity
- reduce the incidence of chronic lung disease and brain injury to improve neuro-developmental outcome
- decrease the deleterious long-term consequences of physical pain and posttraumatic effects of caring for a disabled child.

Governance

Dr. Philippe Chessex is a member of the Department of Pediatrics Operations, as well as a representative for Neonatology on the BCWH executive committee

Administrative Responsibilities of division members:

Hospital:	Head Nutrition Research Program ECMO program assistant director CIHR team in Children's Pain, site investigator Hospital Transfusion Program Chair: Nutrition committee Chair: Neonatal Nutrition committee Management team Neonatal program MFM quality and Safety Expert advisory committee site redevelopment Child Health Management team Research Ethics review committee Critical Incident Stress Management Team Steering Committee, Neonatal Revitalization Project, Neonatal Program Hospital Accreditation Perinatal Mortality Review, Neonatal Program Late Terminations Committee
UBC:	Clinical Faculty Affairs Doctor-Patient Society Undergraduate Medical Curriculum; Expansion of the Medical School

Faculty of Medicine Mentoring Programme, Department of Paediatrics
 Academic Advisor Programme, Faculty of Medicine
 Faculty Appointments Reappointments Promotion and Tenure
 Neurobiology & Mental Health Theme, Child and Family Research Institute

- Province:** BC Perinatal Health Program: perinatal Database; surveillance
 Transport team
 Tertiary Perinatal Services Planning
 Optimal birth BC
 RSV immunoprophylaxis task force
 Transport operations committee
 Provincial Specialized Perinatal Services planning
- National:** Director, Canadian Neonatal Follow-up Network
 Chair, Perinatal Follow-up Committee, Canadian Pediatric Society (CPS)
 Steering committee fetus and newborn committee CPS
 Steering Committee Canadian Perinatal Network
 Steering Committee, Maternal-Infant Care network
 Executive director ACORN Neonatal Society
 President and past-president section Neonatal Perinatal Medicine CPS
 CIHR: internal and external grant reviewing
 Chair Canadian national NRP committee
 Vice-chair Neonatal/Perinatal fellowship training committee
- International:** AAP district VIII scientific committee
 Liaison American Academy of Pediatrics
 US Food & Drug Administration
 National Academy of Sciences

Community roles of division members

Dr. Mike Whitfield is co-chair of the UBC Community Advisory Board. This Board provides the University with a forum to obtain input from representatives of the community it serves. Dr. Whitfield is also member of the steering committee and Database committee of the Provincial Infant Development Program, the Provincial steering committee for BC Ministry of Children and Family Development, and the BC Infant Development Programme. Dr. Susan Albersheim has regular involvement with the lay community about issues surrounding ethics.

Contributions by Division members to Continuing Professional Development and Knowledge Translation

The Division Members have been invited speakers on 220 occasions over the past 5 years while contributing to continuing professional development and knowledge translation.

Academic Activities

Neonatology	2005	2006	2007	2008	2009	Total
Refereed Publications (Journals)	34	42	42	31	20	169
Abstracts	58	47	37	31	17	190
Books/Book Chapters	4	2	2		8	8
Invited Presentations	50	45	69	56	11	231

**DIVISION OF NEONATOLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ 73,470	\$ 33,905	\$ 38,472	\$ 174,885	\$ -
Clinical Trials	\$ 133,481	\$ 155,349	\$ 209,672	\$ 35,614	\$ 73,322
Contracts	\$ 128,182	\$ -	\$ -	\$ 465	\$ 901
Grants	\$ 2,480,284	\$ 1,788,935	\$ 1,081,696	\$ 1,366,576	\$ 1,611,711
Total	\$ 2,815,418	\$ 1,978,190	\$ 1,329,840	\$ 1,577,541	\$ 1,685,934

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	3	2	2	2	0
Clinical Trials	2	5	5	2	2
Contracts	3	0	0	1	1
Grants	44	38	25	26	29
Total	52	45	32	31	32

Division of Nephrology

Dr. Douglas Matsell, Associate Professor and Head

Faculty

Janis M. Dionne, MD, FRCPC, Clinical Assistant Professor
Cherry Mammen, MD, FRCPC, Locum Tenens
Douglas G. Matsell, BSc, MDCM, FRCPC, Associate Professor and Head
Mina Matsuda-Abedini, MDCM, FRCPC, Clinical Assistant Professor
Malcolm Ogborn, MD, FRCPC, Clinical Professor
Peter Trnka, MD, FCPAC, Clinical Assistant Professor
Colin T. White, BSc, MD, FRCPC, Clinical Assistant Professor

Overview

The Division of Nephrology in the Department of Pediatrics at the University of British Columbia has experienced significant change over the past 30 years. Its goals include delivering optimal, full service, state-of-the-art clinical care, complemented by relevant clinical and basic research of childhood kidney disease. The Division provides tertiary level care in the diagnosis and management of children with acute and chronic renal problems, including congenital and developmental kidney abnormalities, fluid and electrolyte abnormalities, urinary tract infections, hypertension, glomerulonephritis, nephrotic syndrome and renal tubular dysfunction. With the shifting advances in research and diagnostics, a growing emphasis has been placed on the diagnosis, optimal care, and research into developmental abnormalities of the fetal kidney and their impact on the growing child. Division members are engaged in internal and externally funded clinical and basic research and make important contributions to the educational mandate of UBC.

Major Successes and Challenges

The past six years have represented a period of important transition and development for the Division of Nephrology. As outlined in the previous Departmental review, the most significant threat to the future development and sustainability of care to children of British Columbia with kidney disease was the inability to recruit into the division, and to provide appropriate succession planning at a time when the senior members of the Division were retiring or were nearing the age of retirement. The Department recognized this as a recruitment priority and in 2003, a new Division chief and junior faculty were hired to join the Division.

A number of issues, which continue to threaten the ability of the Division to deliver its mandate of clinical, research, and education, remain unresolved. In particular, progress in the development of essential clinical care initiatives, as highlighted below, have been accomplished despite the BC Children's Hospital and have been affected almost entirely through advocacy and leadership in the BC Provincial Renal Agency and BC Transplant.

Clinical - Successes

- *Development of a Pediatric Renal Resource Funding Model* that has justified two significant increases in the operating budget of the ambulatory care clinic for children with Chronic Kidney Disease. We have expanded our FTE positions in specialized clinic and dialysis nursing, social work, nutrition, psychology, clerical, and pharmacy.
- *Development of Clinical Outcome Measures* to highlight the improvements in clinical care resulting from this increased funding, with the concurrent development of a Pediatric “Balanced Scorecard” to report to the Provincial Renal Agency Executive, to justify the current level of Program funding and further increases in this budget.
- *Development of a Pediatric Solid Organ Transplant (SOT) Clinic* business plan with a successful operating funding request to PHSA/MOH.
- *Establishment of a Multi- and Interdisciplinary SOT Clinic* serving children and their families with kidney, liver, and heart transplants, and consisting of dedicated clerical, nursing, psychology, nutrition, and pharmacy services, which were previously nonexistent. Specialists in Nephrology, Cardiology, Gastroenterology, and Infectious Diseases attend the clinic, interacting directly in the clinic to share their expertise, and following the clinic, formally meet as a team, for patient care discussions.
- *Establishment and Expansion of Nephrology Regional Care Clinics* in Prince George in the Northern Health Authority, with the arrival of Dr. Malcolm Ogborn, whose primary appointment is with the University of Northern British Columbia as Associate Dean of Clinical research, and who is cross-appointed to the Department and Division.

Challenges

- Lack of a transparent, fair, and equitable process by the BC Children’s Hospital for the allocation of resources and for determining funding priorities for the delivery of ambulatory pediatric care, including care for children with kidney disease. This has resulted universally in under-funding of outpatient clinical care, including nursing, clerical, psychology, and social work.
- Some potential improvement with the AFP, and although no national benchmark exists, the number of pediatric nephrologists in British Columbia per patient population continues to fall well below that of most other centers in Canada.
- Lack of successful recruitment and succession planning in cardiovascular surgery has resulted in an ongoing threat to the renal transplant program. Their collaboration with our Urology surgeons has contributed to our Center’s excellent renal transplant outcomes.

Research - Successes

- *Development of a vibrant, enthusiastic, and successful research program in Nephrology.* Division members are involved in at least 19 clinical and/or translational basic research programs, the majority of which are supported through external, internal, or industry-sponsored research funds.
- Maintained ongoing support for a dedicated full time *clinical research coordinator*.
- Establishment of a functional monthly *clinical research meeting*.
- Continued successes in securing external and internal *research funding* as well as participation in international multicenter clinical trials with continued *publication* productivity.
- *Invited presentations* locally, provincially, nationally, and internationally.
- Establishment of *visiting speaker program* funded through PRA funds.
- Continued support for *pilot projects* through PRA seed funding.
- Successful funding of Nephrology Fellows' trainee *postgraduate research training*, including through the UBC CIP Program, and the BCT/CIHJR Program in Transplant Research.
- Membership on research advisory and scientific grant committees.

Challenges

- Continued lack of infrastructure support for conducting clinical research, and in particular, for clinical trials.
- At the Departmental level, a lack of transparency in the availability of support for clinical research in general.
- Presently, the process of developing clinical trials protocols, research ethics approval, and the development of inter-institutional contracts is prohibitively complex, and time and resource consuming. This issue has become a major frustration and serves as a disincentive for growth, progress, and success in clinical research.
- Successful recruitment of a dedicated research scientist.

Administrative – Successes

- Dedicated clerical and database funding as part of the Pediatric Funding model for the CKD out patient clinic

Challenges

- The lack of appropriate administrative support continues to be a major operational issue, which has not been addressed, and no progress has been made since the last review.

As previously outlined, there is insufficient secretarial and clerical support within the Division to support the routine day-to-day activities and needs of all faculty members, not to mention those related to the expansion of the clinical, research and education mandates, and those related to the recruitment of new faculty.

Subspecialty Resources and Planning

In 2003, the Division of Nephrology entered into its own funding plan, which divorced remuneration from fee for service earnings. Consequently, the Division has expanded to 4.2 FTE, with a clearer definition of the roles of its faculty members. However, the long-term plan of expanding the Division to 5.0 FTEs, in step with the strategic and research planning for the Division and for the Department, has yet to be achieved.

Clinical Care Commitment

The Division of Nephrology continues to be the primary provider of care for children in the province with complex kidney problems. Over the past 30 years, the Division has experienced significant demand on its services, and presently sees approximately 2000 ambulatory care visits per year. These visits include new referrals, follow-up evaluations, and visits by patients with chronic kidney disease (CKD) and those who have received kidney transplants. The Program provides comprehensive full service care for children with kidney disease. We have a population of approximately 120 children with CKD while our dialysis population numbers between 10-15 children divided between the two modalities of hemodialysis and peritoneal dialysis, and accounting for another 700 outpatient visits to the dialysis unit. We perform approximately 8-12 kidney transplants per year and provide care for an active transplant program of over 50 children.

The Division has successfully transitioned to a Shared Care Program where a roster of physicians shares patient care. The physician on service and/or on call attends to the care of the hospitalized patient.

In step with the development of the Pediatric Renal Resource Funding Model, and in order to gain efficiencies in the provision of outpatient care, clinics have been developed to provide specialty care, such as the renal transplant and the chronic kidney disease clinics.

Inpatient and outpatient clinical care conferences occur weekly. These are multidisciplinary, and alternate to include dialysis, chronic kidney disease, and transplant patient care conferences. Given the complexity of end stage renal disease care and the importance of long-term care planning, the position of Director of Dialysis has also been created, with the mandate, in part, to ensure the optimal care of children progressing to end stage renal disease and of those already on dialysis.

Teaching Involvement

Members of the Division are actively involved in all levels of the UBC undergraduate medical school curriculum including leadership roles in first year (FERGU) and third year (INDE 410) teaching. As well, the Division continues to offer elective teaching to students from UBC and other universities.

Postgraduate training for Pediatric residents is an integral component of the Nephrology out patient teaching experience. Pediatric residents rotate through an elective rotation in Nephrology ambulatory care.

The Division offers a Royal College of Physicians and Surgeons accredited training program in Pediatric Nephrology. Presently there are five fellows in training. The Fellowship Program consists of two years of training with the first year being primarily a clinical year. The second year offers elective time, consultation, and the opportunity to engage in clinical or bench research. Flexibility is built into a possible third year, depending on the interests of the trainee and contingent on securing appropriate funding.

Division members participate in a number of Nephrology-specific teaching rounds including weekly Clinical Teaching Unit rounds, weekly in-patient rounds, bi-weekly Nephrology journal clubs, bi-weekly combined urology/radiology/nephrology rounds, monthly kidney biopsy rounds, annual Pediatric Grand Rounds, and Advances in Pediatrics.

Scientific Development

The Division continues to be involved in international, multi-center, collaborative research trials including an NIH sponsored longitudinal outcome study of children with chronic kidney disease (CKiDs).

Clinical research is promoted as a Divisional activity and responsibility. Progress within the various collaborative trials is discussed and reported on a regular basis at an operational level at the Divisional meetings. In addition a clinical research meeting has been developed. The Division meets twice monthly to discuss with the clinical research coordinators and site investigators the details of progress in the clinical trials, to discuss potential involvement in upcoming clinical trials, to discuss potential clinical research within the Division, and to involve trainees in the process.

The Division has also been successful in conducting and promoting basic translational research with a number of internally and externally funded projects underway. These include several clinically relevant approaches to study abnormal kidney development, employing human, animal, and cell models.

Work is presently focused on a needs-based reform of pediatric nephrology subspecialty teaching and curriculum for pediatric residents.

The Division received funding for its research efforts from the Canadian Institutes of Health Research, the National Institutes of Health, the Kidney Foundation of Canada, the Dean of Medicine and Establishment Awards, the Children's Hospital Foundation Telethon, training grants from National Science and Engineering Research Council, CIHR, and the UBC Clinical Investigator Program, and summer studentship awards from the Child and Family Research Institute.

The Division continues to provide elective and research training to undergraduate and postgraduate students.

Governance, Administrative Responsibilities

Division members are active participants in Hospital and Provincial committees, including BC Children's Hospital representatives on the Operating, Medical Advisory, and Executive Committees and Pediatric Medical Directorships of the British Columbia Provincial Renal Agency and British Columbia Transplant.

Academic committee membership and leadership includes participation as Examiners for the Royal College of Physicians and Surgeons of Canada in both the Nephrology and Pediatrics Sections, and as committee members of the UBC Year 1 and 2 Promotions Committee, the Department of Pediatrics Promotion Committee, the UBC Admissions Committee, the AMGEN Western Canadian Kidney Research Program Executive Committee, the International Pediatric Nephrology Association Scientific Program Committee, the Vancouver Coastal Health Research Institute Venture Grants Review Committee, the Alberta Heritage Foundation for Medical Research Grants Committee, the National Kidney Foundation's Kidney Disease Quality Initiative Workgroup, and the Evidence Based Practice Committee Report to the US Agency for Healthcare Research and Quality.

Interactions and Collaborations

Among important local, provincial, national and international collaborations, the Division of Nephrology actively participates in regular meetings and enrollment of patients in the databases of PROMIS of the Provincial Renal Agency, the BCT transplant database, the Canadian Organ Retrieval Registry (CORR), and the large North American Pediatric Renal Transplantation registry (NAPRTCS). These interactions are for the most part multi center and serve to improve patient outcome through collaboration and clinical research.

Strategic Initiatives

An important strategic initiative for the Division continues to be recruitment of a clinician scientist to expand the present Nephrology FTE to 5.0.

Research initiatives as outlined above include assuming a very visible role in collaborative clinical research trials, supported by the activities of a full time dedicated clinical research coordinator.

Expansion of the Division's basic science activities to involve the training of graduate students and post-doctoral fellows, with the addition of a second Principal Investigator.

In the clinical setting, continued advocacy for the development of centralized, shared, ambulatory care clerical support will continue, as well as expansion of Psychology support for clinical care and clinical research.

With the help of senior leadership in the department, and in order to fulfill the mandate of the Departmental Practice Plan Deliverables, the Division will continue to develop plans for the delivery of Pediatric Nephrology regional care clinics throughout the Province.

Academic Activities

Nephrology	2005	2006	2007	2008	2009
Refereed Publications (Journals)	9	5	4	17	4
Books/Book Chapters	0	0	0	0	0
Invited Presentations	9	9	7	9	4
Total	18	14	11	26	8

Grant Funding

	2004	2005	2006	2007	2008
Internal Grant Funding	120,000	120,000	0	15,000	15,000
External Grant Funding	212,402	99,513	162,268	187,488	164,174
Industry Grant Funding	0	0	23,000	40,000	40,000
Total	332,402	219,513	185,268	242,488	219,174

**DIVISION OF NEPHROLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ 27,910	\$ -	\$ 140,857	\$ 71,118	\$ 75,847
Clinical Trials	\$ -	\$ 28,247	\$ 41,002	\$ 66,222	\$ 42,908
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 169,037	\$ 10,000	\$ 91,500	\$ 50,000	\$ 52,549
Total	\$ 196,947	\$ 38,247	\$ 273,359	\$ 187,340	\$ 171,304

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	1	0	1	1	1
Clinical Trials	0	6	5	5	4
Contracts	0	0	0	0	0
Grants	4	1	3	1	2
Total	5	7	9	7	7

Division of Neurology

Dr. Mary Connolly, Clinical Associate Professor, Head

Faculty

Bruce Bjornson, BSc, MD, FRCP(C), Clinical Assistant Professor, Director Brain Mapping Program

Mary Connolly, BA, MB, BCh, FRCPC, FRCP(I), FRCP(Edin), Clinical Associate Professor, Division head, Director Epilepsy Surgery Program, Director Pediatric Neurology Residency Training Program

Michelle Demos, MD, FRCP(C), Clinical Assistant Professor, Neurogeneticist

Kevin Farrell, MB, ChB, FRCP(C), FRCP(Edin), Professor, Director Seizure Clinic, Director Ketogenic diet program

Alan Hill, B Sc, MD, PhD, FRCP(C), Professor Emeritus

Juliette Hukin, MB, BS, FRCP(C), FAAP, Clinical Associate Professor, Director Neurooncology Program

Linda Huh, BSc, M.D, Clinical Assistant Professor

James Jan, MD FRCP(C), Professor Emeritus

Steven Miller, MDCM, MAS, FRCP(C), Associate Professor, Clinician Scientist, Director Neurology research Program

Elke Roland, MD, FRCP(C), Associate Professor

Kathryn Selby, BSc, MB, ChB, MRCP(UK), FRCP(C). Clinical Assistant Professor, Director Neuromuscular diseases program

Peter Wong, BEng, MD, FRCP(C), Professor, Director Clinical Neurophysiology Department

Overview

The Division of Pediatric Neurology provides the only tertiary/quaternary care for children with neurological disorders in British Columbia with the exception of Dr. Kati Wambera who was a member of our division until April 2007 and is now in private practice in Victoria. Patients are referred from across the province and also from other provinces in Canada for specialized procedures and second opinions.

The division has a fully accredited training program in pediatric neurology which has recently been approved for the next five years. Our educational responsibilities are broad, with emphasis on training both Canadian and international pediatric neurologists, adult neurology residents, pediatric residents and medical students.

The research program has expanded significantly with the recruitment of our first clinician scientist, Dr. Steven Miller and Dr. Vesna Popovska, research manager. The neonatal research program is of international stature. There is also expansion in epilepsy, functional MRI, neuro-oncology and neuromuscular diseases research. Dr. Miller has

been exceptionally successful in obtaining external peer reviewed grants as outlined in the research section below.

Introduction

Mission/Vision

We are the clinical, academic, provincial/quaternary referral centre of excellence for the comprehensive care of patients with neurological diseases for patients who range from premature infants to young adults. We also are a referral centre for children refractory epilepsy, from other provinces, who are candidates for epilepsy surgery.

Goals

Clinical

To expand our partnership clinics to enhance comprehensive and interdisciplinary care for children with neurological diseases. In collaboration with Child Health BC and our community partners, we will continue to expand partnership clinics and support to our pediatricians. We will also take a more active role in transition to adult services and in diseases such as epilepsy, and we will further collaborate with our adult neurology colleagues.

In collaboration with Dr. Sylvia Stockler and her team, we have developed a Neurometabolic Diseases Clinic where children with neurometabolic disorders can receive comprehensive care. We aspire to develop further subspecialty clinics in collaboration with colleagues in other disciplines such as a Neurogenetics Clinic and Tuberous Sclerosis Clinic.

Education

During the past five years, our pediatric neurology residency training program has expanded and we now have two CaRMS positions each year. The caliber of our residents is very high and recent graduates have entered the Clinical Investigator Program. Our neurology fellowship program will change to concentrate on subspecialty clinical and research training of fully trained neurologists some of whom will become clinician scientists. Several members of the division are involved in international education and this role will continue to expand.

Research

We aspire to expand our research activities by improving infrastructure for support of clinical research and with the recruitment of additional clinician scientists. In collaboration with Dr. Stockler, we are in the process of establishing a network of epileptologists, biochemical disease and genetics specialists both across Canada and

internationally who have an interest in metabolic disorders which may be associated with refractory epilepsy such as Pyridoxine dependent epilepsy or creatine disorders which are treatable.

Major Successes

Successful recruitments

Dr. Steven Miller, Dr. Michelle Demos and Dr. Linda Huh joined our division with a special interest in neonatal neurology, neurogenetics and genetics of epilepsy and epilepsy respectively.

Clinical

Neurology Partnership Clinics

During the past two years, the Division has established a new Neurology Partnership Clinic at Surrey Memorial Hospital. The Neurology Partnership Clinics continue to expand in Kelowna and Prince George.

Practice Guidelines

Dr. Kevin Farrell and Dr. Mary Connolly together with colleagues in Emergency and ICU have developed a guideline on the management of status epilepticus, which will be used throughout the province of British Columbia as well as in partnership with Child Health BC. Dr. Farrell, Dr. Connolly and colleagues are also developing guidelines on the management of epilepsy in children, which is near completion and will be implemented in collaboration with the pediatricians of the province. The objective is to improve and standardize epilepsy management in children.

Collaboration with the BC Epilepsy Society

The epilepsy team at BC Children's Hospital including Dr. Ho and Dr. Akdag from the Psychology Department and Kelly McMillan and Shiela Kent from nursing have been involved in developing educational materials which are used throughout the province and are also available on the BC Epilepsy Society's website. These information sheets are of a very high caliber and have generated very positive feedback from many centers across Canada and internationally. Several members of the division are on the BC Epilepsy Society Professional Advisory Committee and provide guidance to the society. Dr. Linda Huh is now chair of this committee.

Two staff from the BC Epilepsy Society attend the seizure clinics at BC Children's Hospital on a daily basis and are a wonderful resource for the children and families of the province.

Challenges:

The clinical service continues to expand and provision of timely access remains a major problem, which we are trying to address. The closure of a dedicated Neurosciences ward and the amalgamation with various surgical subspecialties has had a negative impact on the ability to retain neurosciences nurses and has placed a great burden on medical staff who cannot rely on experienced nursing care.

Education

Our program continues to be fully accredited by the Royal College of Physicians and Surgeons of Canada. In the past four years, the Pediatric Neurology Residency Training Program at BC Children's Hospital has been approved for two CaRMS positions each year. This past year, Dr. Dewi Schrader and Dr. Salah Almubarak, two of our residents, were successful in the neurology fellowship examination of the Royal College of Physicians and Surgeons of Canada. They are now certified in pediatric neurology. Dr. Schrader is in the Clinical Investigator Program at UBC and will then complete a research fellowship at the Montreal Neurological Institute. Dr. Almubarak has commenced a two-year fellowship in clinical neurophysiology in the EEG Department at BC Children's Hospital.

The Pediatric Neurology Division has a long tradition of training international as well as Canadian residents and fellows. This continues at present and we have fellows in our program from Canada, Saudi Arabia, Israel, Australia and the United Kingdom. Several neurologists who have graduated from our program are now practicing in Argentina, Australia, New Zealand, England and Ireland.

Dr. Alan Hill and Dr. Steven Miller are members of the Royal College of Physicians Examination Committee in Neurology.

Challenges

The lack of consistent funding for clinical fellows is problematic.

Research

Our clinical research activities continue to expand particularly in the area of neonatal neurology. The Division of Pediatric Neurology has a comprehensive Research Program. A Research Manager runs the program, with two research nurses, and four research assistants/study coordinators managing a number of studies. There are 21 ongoing studies taking place in the Division of Pediatric Neurology. All prospective and retrospective studies have been classified into four categories listed in the following table:

Category	Prospective	Retrospective	Total
Epilepsy	8	3	11
Brain Injuries/Inflammation	6	2	8
Developmental Malformations/ Neuromuscular Diseases	0	1	1
Neuro-oncology	0	1	1
Total	14	7	21

The focus of the neonatal neurology research group is to better understand brain development and injury in the newborn. Using advanced magnetic resonance (MR) techniques and bedside brain monitoring, we study how white matter injury and systemic illness affects brain development in critically ill newborns. A better understanding of the factors impacting brain development and injury will allow us to directly improve the neurodevelopmental outcome of high-risk newborns.

Neurodevelopmental impairments are common in newborns delivered prior to term age, in newborns with heart birth defects, and in those with neonatal encephalopathy. These conditions result in a large burden of long-term disability. White matter injury, abnormal brain development and systemic illness are interrelated abnormalities that commonly follow preterm birth or heart birth defects, with focal non-cystic white matter injury being the characteristic pattern of brain injury. Though focal non-cystic white matter injury is associated with diffuse abnormalities of motor and cognitive function, how this happens is unknown. Systemic illness (e.g. infection) and therapy (e.g. steroids) may also be associated with diffuse abnormalities of motor and cognitive function.

Summary of Research in the Division of Pediatric Neurology

NEONATAL RESEARCH

Advances in magnetic resonance (MR) technology allow for brain development and injury to be studied safely in critically ill newborns. MR imaging (MRI) is a sensitive tool used to measure brain structure and injury. In particular, deformation morphometry, diffusion tensor imaging, and MR spectroscopic imaging, can be used to quantify brain structure, microstructure and metabolism. Using advanced magnetic resonance (MR) techniques, as well as bedside brain monitoring, such as amplitude integrated EEG and near infra-red spectroscopy, we study brain development and injury in vulnerable populations of newborns.

Abnormal brain development and injury in premature newborns -CIHR Operating Grant 2006-2011

In 2003 in British Columbia, more than 5% of all newborns were born prematurely and/or at low birth weight. These children are at very high risk for developmental delays: 5-10% of low birth-weight children exhibit major motor deficits and 25-50% exhibit significant developmental and visual deficits. The most important brain pathology associated with these deficits is injury to the white matter. Our study is characterizing the consequences of abnormal brain development and white matter injury in the premature newborn, including how delayed brain development results in impaired motor and cognitive function. This study builds on our earlier observations that: 1) brain injury in premature newborns is safely detected with MRI before term-equivalent age; 2) focal non-cystic white matter injury is the characteristic pattern of injury in the premature newborn; 3) early brain injury is associated with adverse early neurodevelopmental outcome; and 4) brain injury in the immature brain impairs subsequent brain development.

Brain Injury in Newborns with Congenital Heart Disease -March of Dimes Basil O'Connor Award 2006-2008 -CIHR Operating Grant 2009-2014

Developmental deficits in children with congenital heart disease are a serious problem and may be seen in more than one third of affected newborns. However, the reasons for these developmental deficits remain unknown and may occur prior to, during or following their cardiac surgery. In this study we are investigating the timing and severity of brain injury in newborns with congenital heart disease using advanced MR imaging techniques in utero, shortly before open-heart surgery and again soon after surgery. As newborns with congenital heart disease, like premature newborns, are also specifically vulnerable to white matter injury, studying these two populations allows us to explore shared mechanisms of white matter injury. Knowing the mechanisms and timing of brain injury in newborns with heart disease will be important for the rational design of studies to evaluate emerging strategies to protect the developing brain from injury.

The Progression of Brain Injury in Term Newborns with Encephalopathy -SickKids Foundation New Investigator Grant 2007-2009

Many physicians consider brain injury to be the major remaining challenge in caring for critically ill newborns. In this project we are applying advanced MR brain imaging techniques to detect which newborns with encephalopathy have abnormalities of the brain during the first 36 hours of life following a perinatal hypoxic-ischemic event, and determining how these abnormalities relate to neurodevelopmental outcome. This information will help parents and physicians better care for these critically ill infants by identifying those at highest risk of adverse outcomes.

The longer-term goal of the research program will be to test new strategies to prevent brain injury in the human newborn. The advanced MR techniques we are applying in this research program provide us with powerful surrogate markers of brain injury that will allow us to monitor the effect of novel strategies to protect the brain from injury.

CIHR Funded Studies	
Herqules study	\$6,000
Flunarizine study	\$43,680
PREMIE study	\$714,000
QOL Epilepsy study	\$27,000
Total:	\$790,680

Of the 11 prospective studies, 2 have been sponsored by the pharmaceutical company UCB Pharma.

Industry Funded Studies		
Study name	Sponsor	Budget
Keppra Open-Label study	UCB	\$11,920
ULD Open Label study	UCB	\$17,850
Total		\$29,770

The other Grants are:

Other Grants		
SAM-BFT study	BCCH	\$19,000
CHD study	March of Dimes	\$174,000
NE study	CFRI & Sick Kids Foundation	\$200,000
CIS study	MS Foundation	\$72,350
Ependymoma study	C17 & Brain Tumor Foundation of Canada	\$145,000
Total		\$610,350

EPILEPSY

ULD Open-Label Study – PI: Dr. Kevin Farrell

An open-label, multicenter, follow-up trial to evaluate long-term safety and efficacy of brivaracetam (ucb 34714) used as adjunctive treatment at a flexible dose up to a maximum of 150 mg/day in subjects aged 16 years or older suffering from epilepsy

Funding	Source	Amount	Study Period	Anticipated enrollment	# of subjects enrolled	Approvals	Status	Abstract/Paper/Manuscript
Yes	UBC	\$8,300 start-up funds; \$9,550/subject	Nov. 07- Jan 10	1 at BCCH	500 – 1000 in total @ BCCH	Obtained	Ongoing	N/A

The purpose of this open-label long-term follow-up trial is to provide subjects with epilepsy, who may have benefited from brivaracetam as adjunctive treatment in a previous trial, the opportunity to continue brivaracetam treatment after completion of an initial study, which allowed access to the present trial. The study is progressing well. There is one patient enrolled in the study. The enrolment has been completed at all sites. There is a 2-year subject participation in the study.

HERQULES Study - “Health Related Quality of Life in Children with Epilepsy: The First Two Years after Diagnosis through Parents' Eyes” – PI: Dr. Kevin Farrell

Funding	Source	Amount \$	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/Paper/Manuscript
Yes	CIHR	6,000 for BCCH	Apr 04 Mar 08	517 in total	450 in total 71 @ BCCH	Yes	Ongoing Follow-up	N/A

The objective of this study is to assess the course of health-related quality of life (HRQL) in children with epilepsy over the first two years after diagnosis. A secondary objective is to assess risk and protective factors for HRQL.

This is a prospective cohort study funded by CIHR, in which children (ages 2-12 years) with newly diagnosed epilepsy in Canada diagnosed by a pediatric neurologist are followed for 24 months. There are 49 physician sites. The total number of eligible referrals received to date is 450. Of these, 71 eligible patients were referred from BC Children’s Hospital. The recruitment has ceased, as the study has acquired sufficient patients to perform the statistical analysis. So far, at our site, there are 16 patients who completed all their follow-up surveys up to 24 months. There are 37 subjects still completing their follow-up surveys and 18 subjects who have withdrawn from the study.

Flunarizine Study - “Randomized Double-Blind Study of Add-On Flunarizine to improve the Poor Development Outcome Associated with Infantile Spasms” - PI: Dr. Kevin Farrell

Funding	Source	Amount \$	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/Paper/Manuscript
Yes	CIHR	195,000 total, 3,120 per patient	Apr 03 Dec 06	80	70 total 14 @ BCCH	Yes	Ongoing follow-up	N/A

This research is designed to test the hypothesis that add-on therapy with flunarizine, a L-type calcium channel blocker, improves the long-term developmental outcome of children with infantile spasms. This is a multi-center, double-blind randomized clinical trial using an intent-to-treat analysis. The developmental outcome will be assessed at randomization and after 24 months using the Bayley scale of infant development. The trial is funded by CIHR and there are seven centers participating in the study. The coordination centre is University of Montreal, Sainte-Justine Hospital. There are 14 patients enrolled in the study at our centre. The total number is 70 subjects enrolled in the seven centers in Canada. Ten patients have completed their 2-year follow-up visits, one patient has died, and the other three patients have already been scheduled for their 2-year follow-up visits.

QOL-Epilepsy Study - Outcome Trajectories in Children with Epilepsy: What Factors are Important?– PI: Dr. Mary Connolly

Funding	Source	Amount \$	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/ Paper/ Manuscript
Yes	CIHR	\$9,000/year	Jun 08- May 13	600 total 50 @ BCCH	0	In progress	Not started yet	N/A

The purpose of this study is to quantify the relative contributions of biomedical and psychosocial factors to the physical health, functional status, and quality of life outcomes among children with epilepsy by:

- Using empirically validated measures of health outcome,
- Including factors at both the child and environmental levels that are hypothesized to play a role in the expression of health outcomes (psychosocial adjustment, ‘participation’, and HRQL) and are amenable to change if found to be important, and
- Studying these children and families prospectively and longitudinally over time.

Objective: The primary objective is to quantify the role of specific biomedical and psychosocial child and family variables that we believe underlie health outcomes that relate to the child’s psychosocial adjustment, participation, and health-related quality of life. The study has been funded by CIHR. The ethics submission is in progress.

SAM-BFT Study - Cognitive Effects of Anti-Epileptic Drugs (AEDs) in Children with Focal Epilepsy – PI: Dr. Mary Connolly

Funding	Source	Amount \$	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/ Paper/ Manuscript
No	BCCH	19,000	Jan 04 Dec 08	45	8	Yes	ongoing	N/A

The purpose of this pilot study is to examine the neurocognitive effects of antiepileptic drugs (AEDs), specifically carbamazepine (CMZ) and clobazam on sustained attention and working memory in pediatric patients with epilepsy using the Sustained Attention and Memory Brain Function Test (SAM-BFT) with simultaneous EEG monitoring. The hypothesis of this study is that AEDs, carbamazepine and clobazam treatment in childhood epilepsy can lead to adverse effects on cognitive functions of sustained attention and working memory compared to healthy control patients. The use of SAM-BFT may be an effective tool for tracking neurocognitive changes resulting from AED therapy in childhood epilepsy.

Some funding was obtained via BCCH for the SAM-BFT study. There are six case subjects and two control subjects enrolled in the study and the sample size is 45 patients. The study is focusing to one group of cases who are about to start treatment with either Carbamazepine or Clobazam and one group of controls. Additionally, new and improved

software program has been installed on the existing equipment. The software application now includes a multimedia part that makes the testing more interesting for children. The new program has been successfully tested on a volunteer subject.

UCB Pharma – N01148 - A multi-centre, open-label, long-term, follow-up study of the safety and efficacy of levetiracetam in children with partial onset seizures – PI: Dr. Mary Connolly

Funding	Source	Amount \$ (US)	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/Paper/Manuscript
Yes	UCB Pharma	6,680 per patient	May 05 Dec 2008	4-10	1	Yes	completed	N/A

The study N01148 is designed to:

- Allow pediatric patients with partial onset seizures who participated in a previous LEV trial (N01009) the opportunity to receive open-label LEV;
- Continue to study the potential cognitive and behavioural effects of levetiracetam in children;
- Ensure the safety of study participants by providing standardized follow-up.

The purpose is to evaluate the long-term efficacy and safety of levetiracetam (LEV) in pediatric subjects as adjuvant therapy for refractory partial onset seizures. Patients will receive LEV at individualized doses, and if required, their existing antiepileptic drug(s) for 48 weeks (12 months). One subject was enrolled at our site in the study. The patient has completed all study visits, and graduated from the study. The study monitor will officially close the study in May 2008.

BFIS study - Benign Familial Infantile Seizures in First Nation Families of the Northwest Coast of British Columbia – PI: Dr. Michelle Demos/Dr. Arbour, Co-investigator: Dr. Connolly

Funding	Source	Amount \$	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/Paper/Manuscript
Resubmission	Sick Kids Foundation	130,000	Sep 05 Aug 08	50	20 cases 25 controls 45 total	obtained	active	N/A

Three extended First Nations families from the Northwest Coast of B.C. have been identified, in which multiple family members have features consistent with Benign Familial Infantile Seizures (BFIS). This condition is common to these families and likely affects other First Nation families in this region. Etiology is likely secondary to a specific genetic factor, which may represent a founder effect. We propose that the genetic etiology is a result of a mutation in one or more ion channel gene(s). There are 45

subjects enrolled in the study so far, 20 cases and 25 controls. The study was not funded in the last round, but was very highly ranked. Resubmission is planned for April 30, 2008.

Multi-Site Pediatric Network for fMRI Mapping in Childhood Epilepsy - PI: Dr. Bruce Bjornson

Funding	Source	Amount \$	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/Paper/Manuscript
N/A			May 06 Apr 11	220 total @ BCCH	20	obtained	Ongoing	N/A

The purpose of this study is to establish the utility of functional Magnetic Resonance Imaging (fMRI) to identify atypical language in childhood localization related epilepsy, by using a variety of language paradigms that have already been tested in normal children and patients with epilepsy.

To achieve our goals, we will establish an imaging consortium with web based access and central data storage. A multi-centre, cross sectional prospective study will use fMRI to study patients undergoing epilepsy surgery. A web-based system will be established that will allow entry of clinical variables and imaging data. Clinical data will be collected as part of routine evaluation for chronic epilepsy in children considered for epilepsy surgery. The Inclusion Criteria are:

- Patients undergoing comprehensive epilepsy evaluation;
- Children between 3-19 years of age.

There are 20 patients enrolled in the study.

CIS Study - Prospective study of the clinical epidemiology, pathobiology, and neuroimaging features of Canadian children with clinically isolated demyelinating syndromes – PI: Dr. Mary Connolly

Funding	Source	Amount \$	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/Paper/Manuscript
Yes	MS Foundation	3,810 per patient	Nov 04 Dec 09	300 total @ BCCH	21	Obtained	Ongoing	N/A

This is a multicentred project funded by Multiple Sclerosis Scientific Research Foundation, with the coordination centre in Toronto. The overall objective is to study the clinical features, epidemiology and genetic epidemiology, pathobiology, and

neuroimaging features of acquired inflammatory central nervous system demyelination (clinically isolated syndromes, 'CIS') in childhood, and to determine those features predictive of Multiple Sclerosis (MS) risk, thus providing insights into the earliest events in this disease process.

The study is progressing well and 21 patients have been enrolled in the study at our site.

IPSS Study - International Paediatric Stroke Study; PI: Dr. Bruce Bjornson; Co-Investigators: Dr. John Wu, Dr. Ken Poskitt, Ms. Shiela Kent

Funding	Source	Amount \$	Study period	Anticipated enrolment	# of subjects enrolled	Approvals	Status	Abstract/Paper/Manuscript
No	N/A	N/A	July 06 June 08	20	31	Yes	Ongoing	N/A

The purpose of this study is to obtain preliminary data from large multi-center studies assessing sub-types, outcomes and current treatments for newborns and children with stroke. Due to the relative rarity of childhood stroke, sufficient numbers of patients to provide the necessary power can only be achieved with multi-center and multi-national approaches.

This prospective study enrolls newborns and children with ischemic stroke born at or referred to BC Children's Hospital. This study then follows these newborns at 3 and 12 months post stroke. We anticipate enrolling about 20 subjects at BCCH within the three-year study period. The study has been approved by UBC CREB and C&W Review Committee. There are 31 subjects enrolled in the study so far.

Dr Steven Miller has been awarded \$4.9 million from Canada Foundation for Innovation under the New Initiative Fund to build the new Child & Family Research Imaging Facility.

The funding will support a new 3-Tesla MRI scanner and an imaging analysis and neuroinformatics lab with high tech computing and software systems. The new facility will be used to measure brain structure, metabolism and function in healthy and vulnerable infants, children and adolescents. It will help researchers to address three key questions:

- How do brain injuries in early life impact brain development, adaptability and resilience?
- How does the environment experienced by the fetus, infant and child modify brain development, adaptability and resilience?
- How do new therapies and treatment approaches for pediatric brain disorders directly affect brain structure, function and metabolism?

Dr Miller states that the 3T MRI will give us a new window into the brain so we can understand normal development and how children are affected by brain disorders, as well as evaluate new therapies for protecting the brain. This will transform how we do brain research so we can improve the lives of children

Challenges

Significant funding and dedicated space will be critical for recruitment plans and expansion of our research program. The availability of 3T MRI will also be critical to support further research. Appropriate support and supervision of financial aspects requires improvement within the Department of Pediatrics.

Administrative

Current infrastructure is inadequate and retention of secretaries has been problematic. A manager with financial expertise will be necessary to support the division head if the AFP proceeds.

Public relations

Division members are active in community events and have taken part in many educational events for the community such as Epilepsy Education days in collaboration with BC Epilepsy Society, Minimed school and for several years a series of educational events are organized and our members play a key role. Many media interviews have been conducted highlighting the advances in care and epilepsy surgery was highlighted in a series of programs on The Knowledge Network.

Fundraising

The division is very thankful to the efforts of the Children's Hospital Foundation and our patients in raising funds for our program.

Advocacy

Kathryn Sykes and Elvira from BC Epilepsy Society who attend our seizure clinics four days per week and our nursing staff play a major advocacy role. Support groups have been formed through the BC Epilepsy Society.

Strategic Initiatives

Clinical

The development of guidelines for the management of epilepsy and status epilepticus should improve epilepsy management in the province and reduce the number of patients who require referral to BC Children's and enhancement of partnership clinics should permit management of patients closer to home and only patients with very complex epilepsy such as those on the ketogenic diet, with vagus nerve stimulators, on investigational drugs and those requiring evaluation for epilepsy surgery will need to be seen in Vancouver. We have recruited a pediatric neurologist, Dr. Huh to develop a program for EEG monitoring in critically ill patients in the ICU and SCN.

Educational

We would like to further develop our neurology fellowship program and have subspecialty training in neonatal neurology, epilepsy and neuro-oncology. Our role in international education with Guangzhou Children's Hospital will continue for several more years.

Research

We are committed to enhancing the neonatal neurology research and brain mapping programs and an application for a 3T MRI dedicated for pediatric research has been submitted. We wish to become a national center for epilepsy genetics and with the recruitment of Dr. Demos, this is a first step. Recruitment of a clinician scientist in epilepsy is also a priority.

Governance

The Division of Pediatric Neurology functions as a specific division within the hospital setting. The Division head is the academic head and Dr. Paul Steinbok is the clinical director of The Neurosciences Program. The division is both BC Children's and the University of BC and all members hold a university appointment. Several division members have consulting appointments at other institutions.

Academic Activities

Neurology	2005	2006	2007	2008	2009
Refereed Publications (Journals)	18	21	20	15	13
Books/Book Chapters		5	7	3	
Invited Presentations	33	25	28	24	10
Conference Proceedings/Published Abstracts	17	20	24	12	2

**DIVISION OF NEUROLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ -	\$ 501	\$ -	\$ -	\$ 4,270
Clinical Trials	\$ 7,770	\$ 28,624	\$ 7,440	\$ 25,196	\$ 70,852
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 122,481	\$ 204,534	\$ 781,231	\$ 515,720	\$ 516,020
Total	\$ 130,251	\$ 233,660	\$ 788,671	\$ 540,916	\$ 591,142

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	0	1	0	0	1
Clinical Trials	1	1	2	3	4
Contracts	0	0	0	0	0
Grants	6	5	14	12	12
Total	7	7	16	15	17

Division of Respiratory Medicine

Dr. David Wensley, Clinical Professor and Head

Faculty

Michael Seear, BSc, MBChB, FRCPC(Peds), Clinical Professor

David Wensley, BSc, MBBS, FRCPC, FRCP(UK) Clinical Professor and Head

Mark Chilvers, MD, MRCP(UK), Clinical Associate Professor

Clinical Fellows

Noreen West July 2002 to June 2003

Mark Chilvers July 2003 to June 2004

Michael Greenfeld July 2004 to September 2006

Amy Hoepker January 2006 to December 2007

Anna Thursby-Pelham July 2007 to June 2008 (part time)

Overview

The mandate of the Division of Respiratory Medicine is to provide leadership and excellence in the discipline of Paediatric Respiratory Medicine for the children of British Columbia. This includes, but is not limited to excellence in patient care, education of health care workers and the public, and research into areas relating to Paediatric Respiratory Medicine.

Respiratory problems account for the largest number of physician and emergency department visits for acute problems in children, the largest number of admissions to pediatric hospitals and a significant proportion of bed days for chronic inpatient care. Strong leadership in this specialty is crucial to provide quality care for the children of British Columbia.

Pediatric Respiratory Care in BC

In the late 1950s and early 1960s, principal Paediatric respiratory activities at Vancouver General Hospital (VGH) involved the development of the Neonatal Intensive Care Unit, patient care on the wards of the Health Centre for Children at VGH, the development of a transport program and the initiation of the second Cystic Fibrosis Clinic in Canada. Dr. Pirie was appointed as Fellow to Dr. Sidney Segal and helped establish the modern Neonatal Intensive Care Unit, a Pulmonary Physiology Laboratory and assisted in the Cystic Fibrosis Clinic. An active research program focused on the respiratory physiology of both the newborn and the older child. In the early 1960s, Dr. Pirie studied extracorporeal membrane oxygenation in an animal model 20 years before it was an acceptable technique in the human subject and lung mechanics were being measured in small children using techniques, which are now being applied clinically in the critical

care setting. In the mid 1970's, Dr. Pirie established the Paediatric Special Care Unit, providing centralized care for ventilated older children in the Health Centre for Children.

Unfortunately, the workload in the Neonatal and Paediatric Critical Care areas increased, causing a decline in the research activities and limiting development of the Respiratory Service. The service activities were poorly funded, resulting in an inability to attract more support. With the move to the new BC's Children's Hospital in 1982, Dr. Pirie was the only active Respirologist, and he was also the Medical Director of the Intensive Care Unit, Medical Director of the newly formed Respiratory Therapy Department, Respirologist to the C.F. Clinic and Medical Director of the Pulmonary Function Laboratory. He also provided inpatient and outpatient Respirology service. Dr. Wensley developed the Flexible Bronchoscopy Service in 1985 and this is still run utilizing facilities and space "borrowed" from the ICU.

In 1988, Dr. Wensley joined the service following certification in Paediatric Respiratory Medicine after a year in Melbourne, Australia and in 1989 Dr. Seear returned from a year's training in Toronto to join the service. Both of these appointments were part time with their main appointments to the Intensive Care Unit. When Dr. Don Hill became Head of Pediatrics, the Division of Respiratory Medicine was recognized by the Hospital through the Medical Advisory Committee in 1989. Dr. Hill's untimely death that year resulted in further development being placed on hold and only the retirement of the principal Respirologist brought back into focus the need for this Service. In June of 1993, a Research Day was held to celebrate Paediatric Respiratory Medicine and Dr. Pirie's retirement, and the Division of Respiratory Medicine was established within the Department of Paediatrics. At this time, a search for a Division Head of Respirology was initiated with a plan to recruit two full-time members by 1995. Unfortunately, delays in implementing these plans due to inadequate funding continued to hamper the development of the Division.

In 2001, the polysomnography service was established, initially as part of a research project, but then to provide a clinical service to children. There are currently four part-time sleep technologists who support the service under the directorship of Dr. Wensley, and over 100 studies are performed each year. Currently this service is fully funded from MSP billing.

In 2007, the Respiratory Clinic and Pulmonary Function Laboratory were provided with much-needed new space with the re-development of Level 1 North. This expansion has allowed the PF laboratory to increase the number and range of testing provided, with methacholine challenge testing and impulse oscillimetry becoming standard techniques.

In July 2008, the Home Ventilation and Chronic Tracheostomy service was taken over by Dr. Seear and Dr. Wensley as part of their ICU workload. As the Division of Respiratory Medicine expands and resources are provided for a separate high dependence inpatient area for these children, this will eventually become part of the Division.

In August 2008, Dr. Mark Chilvers joined the Division as faculty and took over from Dr. George Davidson as Medical Director of the Cystic Fibrosis Program. As resources are provided for the expansion of the Division of Respiratory Medicine, the service will be moved into the Division from Biochemical Diseases. Newborn screening for Cystic Fibrosis will begin in BC this year providing opportunity for improved management of these children with early diagnosis and intervention.

Major Successes and Challenges

Clinical – Successes

The Division is recognized as providing an excellent and timely consultation service to both children admitted to BCCH and referred in from physicians in the community.

The following clinical activities are provided by the Respiratory Division:

1. General Respiratory Outpatient Clinic.
2. Inpatient Consultation Service, including Paediatric and Neonatal Critical Care.
3. Pulmonary Function Laboratory, including exercise testing.
4. Flexible bronchoscopy Service.
5. Sleep Study Service.
6. Home Ventilation and Chronic Tracheostomy Clinic
7. Director of Cystic Fibrosis Service.

The Pulmonary Function Laboratory provides detailed pulmonary function testing for children from six upwards. This includes measurement of lung volumes, forced expiratory flows, diffusion, plethysmography, exercise testing, both as a challenge for exercise induced asthma and for assessment of cardiopulmonary performance, using a metabolic cart, is performed in the Pulmonary Function Laboratory. Flexible bronchoscopies are routinely performed in the Intensive Care Unit, and the Operating Room. A full Polysomnography program is now functioning at BCCH.

Challenges

The division needs to develop a number of special clinics, including but not limited to the evaluation and follow-up of children with bronchopulmonary dysplasia, and children with lung disease secondary to immune deficiencies. Asthma management needs to be coordinated within the Hospital. The cystic fibrosis service offers a modified informal outreach service to both northern and interior of British Columbia. However, to reduce demands of families traveling travelling from outside of Vancouver to the hospital, a formal general respiratory outreach program needs to be developed.

The management of acute and chronic respiratory inpatients poses a particular challenge at BCCH as they consume a significant amount of the resources at the hospital that is currently too small for its mandate. These patient populations would be served with a

specialized ward that could optimize the care of these children and provide relief to other acute care beds within the hospital.

The children who comprise the Home Ventilation and Chronic Tracheostomy Clinic also consume significant resources in the Intensive Care Unit. A recent analysis has demonstrated that these comprise less than 2% of admissions to the ICU, but account for 25% of bed days. The hospital would benefit from a separate 10-bed high dependency unit for this patient population to allow the ICU to manage acute critically ill children following surgery and resulting from illness and injury from all parts of BC.

The newborn screening program for cystic fibrosis will provide an opportunity to optimize early interventions for children with this disease, but will result in an increased workload to deal with the false positives and support the increased number of true cases diagnosed early. A new surge of cases is expected in the upcoming years, as siblings of the newborns screened are diagnosed.

Teaching - Successes

From 1989, Senior Paediatric Residents and Adult Pulmonary Fellows have rotated through the Respiratory Service on an elective basis. This rotation is well received and students find the clinical exposure to be an excellent educational experience. In 2004, a mandatory Junior Pediatric Resident program was developed with Allergy and currently one Resident rotates through the program on a monthly rotation. A number of Clinical Fellows have worked in the division and have provided good reviews of the educational program provided for them. Medical Students attend the clinic weekly during their rotation through Pediatrics.

Dr. Seear, Dr. Wensley and now Dr. Chilvers are in high demand at CME programs for Pediatricians and General Practitioners around the province. They are also involved in education of other Health Care Professionals and the general public in a variety of venues.

Challenges

The Junior Resident program shared with Allergy provides only a superficial exposure to the specialty. Feedback received from residents who have rotated through has found that this could be significantly enhanced by having a dedicated Respiratory rotation. There have been frequent applications for a Subspecialty Resident Program in Paediatric Respiriology, but this is impractical until there are adequate numbers of faculty in the Division. However, all the components required for a sub-specialty program are in place, once faculty has been recruited.

Research - Successes

Dr. Seear's and Dr. Wensley's research activities include work on chronic bronchitis in children, pulmonary function testing in infants and young children, oxygen delivery and consumption in exercise and disease, drug therapy in the Emergency Room management of asthma, and the development of guidelines for inpatient and emergency management of children with asthma. Dr. Seear supervised the development of a rat model of chronic lung disease to investigate the effects of steroids in cystic fibrosis. Dr Wensley has worked on the use of Nitric Oxide as a bronchodilator.

Recent work includes diagnostic testing for asthma, management of acute respiratory disorders in critically ill children, development of models for congenital cystic lung disease and review of pleural effusion treatment in children.

Dr. Chilvers brings expertise in Cystic Fibrosis and Ciliary Dyskinesia and he will be working with Dr. George Davidson to continue research work in the CF population.

Challenges

Opportunities for basic and clinical research and collaboration with others on site interested in research into lung diseases, Respiratory researchers in adult lung diseases in Vancouver and Paediatric Respiratory researchers in other parts of Canada and internationally are being missed.

A major challenge for the Department of Paediatrics has been its inability to train junior staff for an academic career. All recent (<15years) academic members of the Department have been recruited from the outside, while local trainees move into clinical careers. A program to train MDs for an academic career could be developed through a coordinated approach by the senior University planners on this site, with funding for this program from local agencies to support this approach.

Administrative Responsibilities

Dr. Wensley has been Medical Director of the Pulmonary Function Laboratory since 1992 and Polysomnography Laboratory since 2001. Dr. Wensley sat on the Diagnostic Accreditation Program, a BC College and Ministry of Health Committee that accredits Pulmonary Function and Polysomnoagraphy Laboratories in the Province from 1997 to 2007. Dr. Wensley sits on the Board of the Vancouver Lung Health Initiative as the Pediatric representative. This is a UBC Division of Respiratory Medicine initiative to develop a centre of excellence for Lung Health.

Other Service

Since 2006 Dr. Wensley has been the lead clinician on the implementation of the Clinical Information System for Children's and Women's Health Centre. Dr. Seear developed a web based 300 level course in International Health in 2001 and he still gives this course

annually. Dr. Wensley developed a program to support Ugandan Pediatric Residents perform research. Dr. Seear and Dr. Wensley visited Makerere Hospital and gave a workshop on research methods. Through the Centre for International Health, funding has been provided to assist with the research projects carried out by these residents. Dr. Wensley continues to run the ped-lung list serve, which has been recognized by the American Thoracic Society as providing a forum for health care workers worldwide to discuss issues relating to lung diseases in children. Dr. Wensley continues to sit on the Board of the Respiratory Section of the Canadian Pediatric Society.

Challenges

The division continues to struggle with lack of faculty. Work force studies indicate that British Columbia has the lowest number of Paediatric Respiriologists in Canada for its population, and, ten full-time Paediatric Respiriologists are needed to achieve the ratio of Paediatric Respiriologists to population of other provinces in Canada (Cockcroft DW, Wensley D. Respiriology manpower in Canada--A report for the Canadian Thoracic Society Education Committee. *Can Respir J.* 2000 Nov-Dec;7(6):451-5. Attempts at recruitment have been delayed and have resulted in challenges in all the following areas.

Currently there is little administrative support (<1 FTE clerical staff) for the division. This significantly hampers the effectiveness and productivity of the division.

Strategic Initiatives

- a) Recruitment of two new full-time Division members by the end of 2010.
- b) Recognition of the importance of the Division to Health Care for children of BC with appropriate support at a clinical and academic level to attract adequate faculty in the short term to achieve equivalence with the rest of Canada.
- c) Development of a formal coordinated Provincial outreach program for children with lung diseases in the province.
- d) Expansion of the diagnostic and therapeutic services of the Pulmonary Function Laboratory, Respiratory Clinic, bronchoscopy and sleep evaluation areas, including a dedicated sleep laboratory.
- e) Recognition of the impact of respiratory diseases as a clinical problem for the inpatient areas of BCCH with the development of a specialized ward to manage the acute admissions, particularly during the winter months, and the chronic patients who require frequent short and long term admissions.
- f) Recognition of the impact of Newborn screening for Cystic Fibrosis to provide for a better quality of life for these children as a result of early diagnosis, provided the resources are provided to support this increased workload.

- g) Enhancement of the clinical research and development of a basic research program.
- h) Development of a Sub-specialty Residency Program in Paediatric Respiratory Medicine.
- i) Allocation of funding, space and administrative support to achieve the above goals.
- j) Assist the Department of Paediatrics and UBC to develop an academic career program for junior members and trainees of the Department.

Division of Rheumatology

Dr. David Cabral, Clinical Associate Professor and Head

Faculty

David Cabral, MBBS, FRCPC, Clinical Associate Professor and Head
Lori Tucker, BA, MD, Clinical Associate Professor (Part-time)
Kristin Houghton, MD, FRCPC, Clinical Assistant Professor (Part-time)
Peter Malleson, MBBS, FRCPC, Professor (Part-time)
Jaime Guzman, BSc, MSc (Clin Epi), FRCPC Clinical Assistant Professor (Part-time)
Ross Petty, MD, DABP, PhD, FRCPC Emeritus Professor (Part-time)
Stuart Turvey, MBBS, DPhil, FRCPC (Part-time affiliation)

Total of 4.3 full time equivalent physicians.

Overview

Rheumatic diseases collectively occur in about one in 350 children and youth, and the large majority of children affected by these diseases (specifically including juvenile idiopathic arthritis, systemic lupus erythematosus, vasculitis, and dermatomyositis), if untreated, have significant ongoing disease activity or damage that persists into adulthood. Optimal team care of such children is known to reduce the disease burden not only to the child and their family, but also to the health care system. The Division of Rheumatology through its 30-year history has an established an international reputation in the areas of clinical care, research, and education and this is attested to by the awards received by the rheumatology team and individuals in recent years.

In 2006, The Arthritis Society of BC recognized the paediatric rheumatology team in awarding the “Mary Pack Prize in recognition of inter-professional teamwork leading to improved client care”; Gay Kuchta our team occupational therapist received a Master Clinician Award from the Association of Health Professionals of the American College of Rheumatology (ACR) in 2006. The award is for a practising clinician chosen by their peers for their outstanding clinical knowledge, skills, professional competence and expertise in managing persons with rheumatic disease. In 2005 and 2006 the ACR consecutively bestowed on Dr Ross Petty the Distinguished Rheumatologist Award (for outstanding contribution to clinical medicine, clinical scholarship, or education) and the "Masters award", the highest honour from the American College of Rheumatology. In the 2009, New Year's Honours list, Dr Petty was named a member of the Order of Canada by the Governor General for outstanding achievement, dedication to the community, and service to the nation, having enriched the lives of others and made a significant contribution to the country.

In recognition of the contributions of the Division of Rheumatology, UBC and the Department of Paediatrics spearheaded by The Arthritis Society have collaborated in establishing two new positions within the Division. The first will be a newly endowed chair for a paediatric rheumatology clinician scientist, and the second will redefine Dr

Ross Petty's retirement vacancy position at UBC as a Professorship in Paediatric Rheumatology Education. Both positions will be named after Dr Ross Petty and we are poised to fill both of these within the next year.

Introduction

The provincial mission of the Division of Rheumatology has been to maintain an excellent diagnostic service, providing timely access for children and youth with potential life threatening or disabling rheumatic disease, and to provide them with the best possible ongoing inter-professional team care. To maintain quality and improve our level of patient care and patient outcomes it essential that the following goals are integrated with clinical care

- Education of current and future health care providers
- Basic research to seek causes and cures
- Clinical research that embraces multi-centre networks to effectively study these very rare diseases.
- Knowledge translation that embraces the patients and their families as well as the clinical and scientific community
- Advocacy

Major successes

Over the past five years, patient visits to our clinics continued to grow due to population growth, the increasing complexity of individual patient care. We are also seeing “new” diseases: patients with newly defined auto-inflammatory diseases; and patients with ophthalmological and orthopaedic conditions, for example, are being referred to us for chronic inpatient and outpatient medical management because of our expertise to assist and oversee the use of new “biologic” agents , other chemotherapy, and physical / occupational therapy.

Low patient numbers in each of the individual rheumatic diseases necessitates that effective research into pathophysiology, factors influencing outcome or impact of new therapies is through collaborative networks. In turn, such network involvement requires us to utilize clinical information and engage the participation of patients and families in research as an expected "adjunct" to the clinical care. Over the past five years, division members have led the establishment of national and international networks/patient-registries for rare rheumatic disease research, and in one instance involving more than 50 sites. Concurrently the culture of our clinic has changed such that the number of chronic patients involved in network disease registry studies has increased from 5% to over 50%. The success of this endeavour has required the involvement of patients and the entire multidisciplinary team to embrace this clinical-care/research paradigm in spite of the additional workload that it involves.

In addition, during the last two years, in partnership with basic science investigators (Drs Turvey, Tan, Dutz, and van den Elzen locally) with whom we have established new

collaborations, we have been successful in two CIHR grants and an NIH-basic science focused grant utilizing our well-characterized clinical cohorts of patients with JIA and SLE.

In spite of patient numbers increasing by 40% over the last five years, with minimal increase in physicians and no increases in allied health staff, we have created efficiencies to integrate clinical care and research such that both clinical care and academic output has been sustained. Part of these efficiencies that we have been through recruitment of an IT savvy systems manager, Mr. Victor Espinosa, who has assisted in establishing and regularly upgrading an integrated clinical and research data capture, with the ultimate goal of establishing a computer generated health record. This successful model has been embraced by other hospital divisions and has lead in part to our leadership roles in national and international patient registry research networks.

Over the last five years, Dr Cabral and successively Dr Tucker have held positions as board members of The Arthritis Society. In that role, they have successfully lobbied the Arthritis Society to provide initial financial support for the endowed chair and to provide annual financial support to employ a full time research co-coordinator to work in our clinical research.

We also made a provisional commitment to enhance our provincial outreach program. The number of outreach clinic days in Terrace and Prince George has doubled in the last five years, twice as many patients are being seen, medical students have been accommodated in the Prince George clinic and we have provided continuing medical educations sessions for the local health care providers.

Major Challenges

The broad challenge is to maintain and improve clinical care in all of its aspects including outreach, and to sustain our clinical training program and academic successes in the face of increasing teaching and administrative commitments asked of everyone.

Over the past ten years, the number of physicians, nurses, therapists and clerical staff has been almost static, while patient numbers have almost doubled; patient complexity has also increased, as has the workload associated with integrated clinical-care/research. In spite of this unremitting excessive work load, team morale is generally high but recurrently are significantly challenged when there are additional demands because individual team members have been absent because of critical illness, disability, secondment outside of rheumatology, et cetera. It would be desirable for the Children's Hospital to undertake the responsibility of providing an appropriate level of support for sufficient nurses, therapists and social workers to care for children with rheumatic diseases in the province. This support is currently underwritten by the Mary Pack Arthritis program of the Vancouver Hospital.

Standards of care are being compromised. Outpatient numbers have increased by approximately 40% over the last five years. The 4% annual increase in patient numbers last year was limited by our capacity to see them. We have been unable to reduce the waiting time to see non-urgent new patients from six months back to six weeks as it was approximately five years ago. Additionally to accommodate patient numbers we have had to modify our standard of care such that chronic patients, who five years ago were seen every two to three months, are now being seen every three to four months.

The physician alternate payment program did not support our Clinical outreach program. It is being precariously maintained because some of our part-time physicians have been given additional salary support through the Mary Pack Arthritis Program of Vancouver hospital. We have established a successful team approach to providing outreach care, which we would like to expand this program, however in the absence of additional support for our nurses, and therapists, the existing program may need to be abandoned.

The division is increasingly asked to provide expertise and ongoing physical rehabilitative care for children with various nonrheumatic musculoskeletal problems including metabolic bone diseases, nonsurgical orthopaedic conditions, nonsurgical sports injuries, and pain syndromes. Children with these problems are not accommodated within the Sunnyhill's or Child Development Centre's (CDC's) paradigm of rehabilitation for primarily neurodevelopmental problems. We have the expertise for leading these services by way of very experienced rheumatic disease therapists, and special physician expertise in kinesiology, exercise physiology, sports medicine and physiatry; unfortunately, our resources are currently not even sufficient for patients with rheumatic diseases, and there are no such facilities within this institution for chronic ambulatory rehabilitative care.

Strategic initiatives including recruitment

We hope to consolidate our national and international leadership in research associated with networks and registries of patients with arthritis, lupus and vasculitis. We envisage an increasingly close relationship with basic scientists for collaborative research; a dedicated paediatric rheumatology research scientist who we hope to recruit to the Ross Petty chair within the next year will consolidate this relationship.

We plan to expand our interest in exercise physiology, lead by Dr. Kristin Houghton, in exploring the role of fitness, and exercise prescription as determinants of outcome to children with rheumatic disease.

We are expanding our interests in knowledge translation, knowledge translation research and knowledge transfer through newsletters and novel information technologies.

We will continue to advocate to the PHSA and Hospital strategic planning committee about the need of children with all types of chronic disease to have access to a broad-based Rehabilitative program that embraces "musculoskeletal" disorders in addition to

existing ‘neurodevelopmental’ problems, and that this facility should be an integral component of the new BCCH campus.

A new physician recruit, Dr Helen Foster who will join us later this year will be leading the way in research on access to care for children with rheumatic diseases and the interrelation of this with education of health professionals.

Finally, we hope to continue to advocate for ongoing financial support of the research program in paediatric rheumatology, including completion of the endowment for the Ross Petty Research Chair in paediatric rheumatology, and ongoing stable salary support for our research manager and coordinator.

Subspecialty resources and planning

The outcomes of Children with rheumatic diseases are improved in a multidisciplinary team setting. The non-medical members of our team comprise 1.2 nurses, one occupational therapist, one physiotherapist, 0.4 social workers and one clinic clerk. These resources are inadequate for patient numbers. We additionally have extremely limited access to clinical psychologists within the hospital system and no access to any dieticians. There is no facility within the hospital for any chronic ambulatory (or inpatient) rehabilitative care of our patients. The new alternate funding plan is slowly addressing the physician shortfall. Additional resources for allied health professionals and facilities are being sought within the Hospital’s current evolving strategic plan and through Child Health BC.

Subspecialty training in Paediatric rheumatology is a two-year fellowship programme of the Royal College of Physicians and Surgeons of Canada. As paediatric rheumatology practice in Canada is conducted predominantly out of large academic institutions, the credentials for recruitment have necessitated a minimum of three years training. We struggle to find funding for our third-year Canadian trainees and aim to have a three-year programme be recognized as the requirement both at a local and national (RCPSC) level, so that fellowship funding will no longer be lagging.

Clinical care commitment including quality improvement structure and achievements

The clinical program is established at British Columbia’s Children’s Hospital except for outpatient rehabilitative physical and occupational therapy, and the Young Adult rheumatic disease Clinic (YARD) which are conducted at the Mary Pack Arthritis Center.

We regularly hold the following six clinics:

- Bi-monthly half-day ambulatory clinics for Young Adults with Rheumatic Diseases (YARD clinic) held at the Mary Pack Arthritis Center (Drs Cabral and Tucker, and Dr Angela How (adult rheumatology).
- Two half day weekly Chronic Arthritis ambulatory Clinics

- Two half-day weekly Connective tissue disease ambulatory clinics
- One half-day weekly Procedures clinic (Medical day Unit) (Joint injections, IV medications).

Ambulatory care and medical day unit patient numbers

	2004	2005	2006	2007	2008
Number of New out patients seen	264	298	340	340	398
Number of follow-up patients seen	456	485	535	520	528
Total number of patient visits	1766	1899	2402	2337	2424
Medical day unit admissions	225	290	305	320	N/A*

* not available

Five years ago, two physicians attended at each of the five ambulatory clinics, however, in order to accommodate increasing patient load, there are now three physicians attending four of these clinics on a regular basis.

Efficiencies in a throughput of patients in our clinics have been enabled by creative rostering of physicians to clinic, such that all clinics are held every week except for closure days and public holidays. Creative IT systems have streamlined patient data acquisition for clinical care and research.

Quality of care of patients is reviewed at the local level with twice-weekly patient care conferences where physicians and allied health care team members collaborate and find consensus on difficult problems. Once monthly team conferences address systemic problems of the clinic process, and address guidelines for consistent clinical treatment practices. Overall quality improvement and improved patient care is being embodied by our involvement in national and international networks for the study of outcome and predictors of outcome for patients with the most common diagnoses juvenile idiopathic arthritis, systemic lupus erythematosus and vasculitis.

Teaching Involvement

a) Royal College of Physicians and Surgeons Program in Pediatric Rheumatology.

The Royal College of Physicians and Surgeons training program in Pediatric Rheumatology is one of three accredited programs in Canada. In addition to Canadian trainees the program has a long history of training International fellows with a view to improving access to expert care for children with rheumatic disease throughout the world.

Currently our Canadian trainees are Dr Natalie Schiff in her 3rd year and in a Masters program in epidemiology and Dr Kim Morishita in her 2nd year. Our two first year

fellows are Dr Sirirat Charuvaniy from Thailand and Dr Jubran AlQanatish from Saudi Arabia.

Subspecialty trainees in adult rheumatology spend a 2-month rotation in pediatric rheumatology. Each year we accommodate two to four adult rheumatology fellows.

b) Pediatric Residents: Paediatric rheumatology is currently an elective rotation for local paediatric residents. Currently 7-10 residents choose to do rotations in paediatric rheumatology compared to 3-6 in the previous five years. Each year we additionally accommodate one to two national or international paediatric residents, and last year we had a resident from Alberta and another from Hong Kong. We conduct three annual pediatric residents' academic half day sessions.

c) Medical Students: Three years ago, we stopped accommodating the weekly half-day assignment of a medical student to the Chronic Arthritis clinic. As a priority, we felt that half a day of exposure to paediatric rheumatology was of limited value to the student in the context of the large work burden it imposed upon the clinic. We do accommodate local or national medical students who wish to come for an elective for two weeks or more.

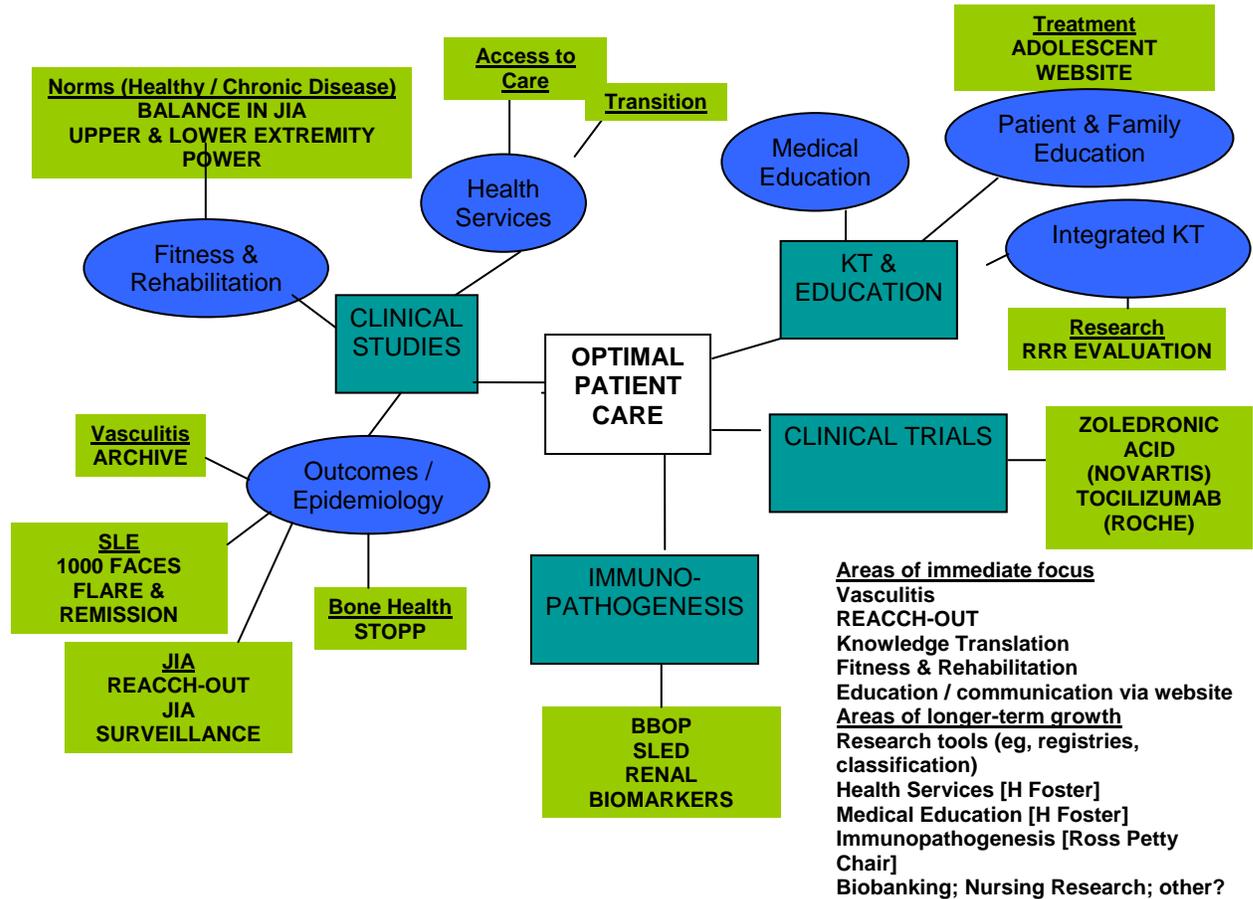
Drs Malleson and Cabral no longer participate in the Problem-based learning program for First year medical students because of patient care priorities.

d) Visiting Professors: on a routine, we welcome visitors, physicians, therapists and nurse specialists from other institutions for periods of 1 week to 3 months. Most such individuals are practicing pediatric rheumatology in their own institutions and seek further experience in training as a mini-sabbatical, and in turn we benefit from their perspectives.

Research including major interactions and collaborations.

Our current research and pathways for research are mapped in the figure below with optimal patient care being the central focus. Following this figure is a summary in table form of biannual productivity by way of publications and active grants

Pediatric Rheumatology Program: current research



Summary of Academic Activities	2003-2004	2005-2006	2007-2008
Publications			
Peer reviewed papers	22	14	16
Abstracts	10	11	18
Book chapters	4	23	13
Books	1	2	2
Grants			
national/international non-industry grants	5	9	6
local grants	3	5	5
International pharmaceutical trials	3	2	2
Non-sponsored research (fellows) projects	6	3	4

Collaborations and Interactions

The Division is part of two major organizations for the promotion of investigator driven multicentre research: CAPRI (Canadian Alliance of Paediatric Rheumatology Investigators) involving 12 major academic centres across Canada and CARRA (Childhood Arthritis and Rheumatology Research Alliance) involving over 75 centres in the US and Canada. We are also members of Pediatric Rheumatology Collaborative Study Group, a US/Canadian collaboration to facilitate participation in industry funded network clinical trials. Both Drs **Cabral and Tucker** have key roles on executive and/or steering committees for CAPRI and CARRA and have established Vancouver as a core centre for several studies on SLE and vasculitis with funding through NIH, CIHR and the Vasculitis Foundation. Additionally **Dr Cabral** is part of the Pediatric rheumatology European Society (PReS) expert working group of the study of vasculitis; he is also on the executive committee of the STOPP consortium of Canadian academic centres to study steroid-induced osteoporosis in the paediatric population (STOPP). **Dr Houghton** is a member of CARRA, CAPRI, Pediatric Exercise Science Working Group [physician representative], BC Pediatric Society [Smart Soccer Committee, in conjunction with the Canadian Soccer Association; Pediatric Healthy Living and Sports Medicine Committee], Canadian Academy of Sports Medicine [Pediatric Sports Medicine and Exercise Science Committee]. **Dr Houghton** is also the volunteer physician for the Under 20 and Senior Canadian Women's National Soccer Team. **Dr Jaime Guzman** is a member of CAPRI, and the following organizations: the American Academy of Physical Medicine and Rehabilitation; the Canadian Association of Physical medicine and Rehabilitation; the Physiatric Association of Spine, Sports and Occupational Rehabilitation; Scientific Secretariat, Decade of the Bone and Joint Task Force on Neck Pain and Its Associated Disorders.

Administrative responsibilities of division members

During the last five years, there has been a shift in roles and/or recruitment of personnel. Dr Cabral took over as division head from Dr Petty in July 2005; in addition to being on hospital and departmental committees that come with the position, he is also a member of the Departmental Appointment, Reappointment, Promotion and Tenure Committee (DARPT) and Co-organizer for "Advances in Pediatrics" weekly case series. Dr Houghton was recruited to offset Dr Petty's and Dr Malleson's shift to a part-time positions and has also taken over the role of Fellowship training director; she has additional special expertise in kinesiology, exercise physiology and sports medicine. Dr Lori Tucker has become the physician research co-coordinator. Dr Jaime Guzman was recruited for his expertise in psychiatry and clinical epidemiology, and to oversee the "epidemiological" conduct of all of our research as part of the Center for Applied Health Research and Evaluation (CAHRE); this part-time position became available because of Dr Malleson's shift to a split role between our division and the Dean of Medical Education's office. Dr Malleson served as chair of the Medical Staff Association until 18 months ago. Dr Petty continues to work part-time, administers the rheumatologist alternate payment plan work-hours documentation, and together with Drs Houghton, Cabral and Tucker is a member of the rheumatology Fellowship training committee. Dr

Turvey as a scientist in the division of infectious diseases is fulfilling part of his clinical commitment with our division and is serving as a partner in and conduit to, basic science research. Drs Cabral and Tucker have considerable administrative responsibilities linked to their leadership roles in the various research networks described elsewhere.

Contributions by division members to knowledge translation

Development of a website for parents of children and youth followed in the Pediatric Rheumatology Clinics. The website being developed by the pediatric rheumatology nurses, with medical advice from one of the staff (Dr. Tucker) aims to:

- provide a communication and an on-line community for parents of our patients.
- provide medical information about diseases, treatments, and other general information (how to cope with chronic disease, financial issues, planning for transition to adult health care, school and sports, etc) specific for pediatric rheumatic diseases. Links to other reliable information sources will be provided.
- provide bidirectional communication between the team and parents about events, research projects and other news.
- website will host a parent on-line support forum.

Rheumatology Research Report: This 4-monthly report written by the research coordinator in collaboration with Dr Cabral is for parents of children and youth seen in pediatric rheumatology clinics provides specific information about the current and new research projects in the clinics, research results, and general information for families about the conduct of research.

Currently the Division is performing a study evaluating the effectiveness of the Rheumatology Research Report to influence family's participation in research.

“Teens Taking Charge”: An on-line self-management program for teens with juvenile idiopathic arthritis.

Dr Tucker is co-investigator and collaborator with researchers from the Hospital for Sick Children in Toronto to develop and test a novel on-line self-management program for teenagers with JIA. The web-based program offers modules which provide information about arthritis and treatments, as well as a variety of other issues such as coping with stress, pain management, healthy lifestyle choices, and transition. The program is currently being pilot tested (Vancouver is one of the pilot sites), and funding sought for a larger RCT.

Family Day (June 2008): Pediatric rheumatology staff (Houghton, J Green, L Adler) participated in a day for families co-organized with Cassie and Friends, a parent fundraising committee of the Arthritis Society of BC and Yukon. The day featured an informal talk by Dr. Houghton, a question-answer period; children's play activities, followed by a picnic. The second annual Family Day is planned for June 2009.

Research website: Dr. Tucker, as the Chair of the KT Committee of the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI) is developing the CAPRI

website, which will be hosted at BCCH. This website will act as the primary mechanism for communication of the current research of the CAPRI group to study participants (families and patients), funding agencies, patient support organizations such as The Arthritis Society, The Lupus Society, etc, and government agencies. The site is planned to be on-line April 2009.

Liaison with CAPA (Canadian Arthritis Patient Alliance) JIA sub-committee. Dr Tucker is the pediatric rheumatology liaison for the Pediatric Section of the Canadian Rheumatology Association to the CAPA JIA sub-committee. This Canada-wide group of people with arthritis seeks to advance advocacy for people with arthritis, and to provide continuing education to people with arthritis to improve their quality of life. Current activities planned by the CAPA JIA committee are to advocate for improved access to new medications for children with JIA across Canada.

Canadian Rheumatology Association Journal Editorial Board: Dr. Tucker is on the CRA Journal Editorial Board, providing an opportunity to represent the pediatric rheumatology community at the CRA Journal, and to promote the inclusion of articles that address issues of importance to pediatric rheumatology.

The Loop: The Loop is a patient newsletter, written by Jenny Tekano, for youth with SLE and other rare rheumatic diseases (dermatomyositis, vasculitis, scleroderma). The newsletter is published 3 times per year, and includes articles providing information to the youth as well as letters or short stories written by patients themselves.

**DIVISION OF RHEUMATOLOGY
SCHEDULE OF RESEARCH
OPERATING REVENUES**

Years Ended 31 March	2004	2005	2006	2007	2008
	Awards	Awards	Awards	Awards	Awards
Agreements	\$ 7,765	\$ 4,774	\$ -	\$ -	\$ -
Clinical Trials	\$ -	\$ 119	\$ 114	\$ 7,247	\$ 59,520
Contracts	\$ -	\$ -	\$ -	\$ -	\$ -
Grants	\$ 38,613	\$ 473,252	\$ 226,694	\$ 100,498	\$ 71,063
Total	\$ 46,378	\$ 478,144	\$ 226,808	\$ 107,745	\$ 130,584

Years Ended 31 March	2004	2005	2006	2007	2008
	Count	Count	Count	Count	Count
Agreements	1	1	0	0	0
Clinical Trials	0	1	1	2	5
Contracts	0	0	0	0	0
Grants	4	9	11	7	7
Total	5	11	12	9	12

FINANCE AND BUDGETS

***UBC DEPARTMENT OF PEDIATRICS
STATEMENT OF REVENUES & EXPENDITURES***

UBC DEPARTMENT OF PEDIATRICS					
STATEMENT OF REVENUE & EXPENDITURES					
FISCAL YEAR	2004/05	2005/06	2006/07	2007/08	2008/2009
	\$	\$	\$	\$	
BF	7,826,428.00	6,437,509.00	8,264,939.00	9,280,537.00	10,771,690.00
REVENUE	21,404,049.00	24,500,780.00	25,211,016.00	26,144,007.00	26,283,361.00
TOTAL REVENUE	29,230,477.00	30,938,289.00	33,475,955.00	35,424,544.00	37,055,051.00
Cost of Sales	860.00	-	-	375.00	101.00
Faculty Salaries	5,838,838.00	7,231,605.00	6,872,433.00	7,327,509.00	6,597,706.00
Sessional Salaries	4,902,762.00	3,277,288.00	4,275,630.00	3,914,576.00	3,473,449.00
Other Instructional & Research	394,460.00	211,727.00	446,822.00	570,931.00	640,905.00
Student Salaries	-	-	-	-	-
Staff Salaries	5,208,067.00	5,681,945.00	6,017,726.00	6,876,016.00	8,831,753.00
Benefits	2,024,554.00	1,830,202.00	2,191,508.00	2,258,472.00	2,426,868.00
Travel	351,790.00	470,816.00	492,771.00	567,251.00	508,437.00
Library Acquisitions	421.00	52.00	-	-180,161.00	62.00
Operational Supplies & Expense	1,664,013.00	1,789,738.00	1,493,271.00	1,866,939.00	2,439,515.00
Grants to Other Agencies	396,042.00	- 5,120.00	69,848.00	139,954.00	760,643.00
Professional Fees	816,186.00	1,262,114.00	1,616,316.00	914,453.00	853,269.00
Internally contracted services	380.00	-	5,518.00	-	-
Scholarships, Fellowships & Bursaries	9,000.00	19,750.00	-	-	82.00
Debt Servicing	-	-	110.00	47.00	40.00

Cont'd

UBC DEPARTMENT OF PEDIATRICS					
STATEMENT OF REVENUE & EXPENDITURES					
FISCAL YEAR	2004/05	2005/06	2006/07	2007/08	2008/2009
Capital Expenditures	1,146,190.00	802,116.00	705,296.00	388,018.00	193,248.00
Transfer out to Other Funds	30,000.00	90,000.00	-	-	-
TOTAL EXPENSES	22,792,968.00	22,673,350.00	24,195,418.00	24,652,854.00	26,735,289.00
NET OPERATING SURPLUS					
Surplus (+) Deficit (-)	6,437,509.00	8,264,939.00	9,280,537.00	10,771,690.00	10,319,762.00

***PHSA DEPARTMENT OF PEDIATRICS
STATEMENT OF REVENUES & EXPENSES***

PHSA DEPARTMENT OF PEDIATRICS					
STATEMENT OF REVENUES AND EXPENDITURES					
FIVE-YEAR PERIOD					
FISCAL YEAR	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
REVENUES					
Ministry of Health Funding	17,642,778	21,120,544	20,954,504	22,315,293	32,167,710
Recovered External	92,266	1,455,925	1,455,925	2,064,426	1,286,546
Recovered Expenses Internal	389,136	1,907,654	4,559,524	4,910,220	5,254,297
Grants	1,750,000	194,843	194,843	0	0
Grants Foundation	0	0	0	0	511,316
Other Funds	194,545	428,752	428,752	743,551	167,056
Other Revenue	0	0	0	0	0
Total Revenues	20,068,725	25,107,718	27,593,548	30,033,490	39,386,925
EXPENSES					
Salary MED	18,160,601	22,173,296	24,869,948	27,193,123	36,588,270
Salary MOS	1,206,529	2,064,517	2,099,085	2,207,861	2,182,735
Salary UPP	23,108	0	0	0	0
Inter PHSA Recovery Labour		(35,000)	(167,595)	(177,595)	(199,496)
Supplies	50,147	30,556	40,556	36,801	35,795
Sundry	448,375	696,469	645,673	649,479	656,800
Equipment Expense	15,102	13,017	13,017	20,368	19,368
Depreciation Major Equipment	75,821	75,821	3,822	0	0
Referred Out Service	88,742	88,742	88,742	102,953	102,953
Building Grounds	300	300	300	500	500
Total Expenses	20,068,725	25,107,718	27,593,548	30,033,490	39,386,925
Net Operating Surplus (Deficit)	0	0	0	0	0
N.B Information above excludes Endowment Revenues & Expenses					



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