Program Highlights

Pediatric Neurosurgery Program

Inpatient Service
This year saw the addition of a second pediatric neurosurgeon to the service, Dr Susan Durham, with additional expertise and more comprehensive clinical coverage including weekend “back-up” call for children. While the first half of the academic year saw a plateau in surgical cases while Dr Durham was away completing a fellowship in peripheral nerve and the entire hospital saw some drop-off in patient volume, the past few months have again shown steady growth in patient volumes, with June 2005 being our busiest month ever for pediatric neurosurgical cases. Most of the growth has been from Vermont and the Southern region including Nashua. Our programs in Pediatric Epilepsy Surgery, Craniofacial Surgery, and Trauma, and other conditions including hydrocephalus, tethered cords, other congenital anomalies and brain tumors, continue to provide a good case mix with growth in a number of areas.

New Programs
This year we expanded the Selective Dorsal Rhizotomy Program to create an interdisciplinary Spasticity Evaluation Program including Physiatry, Pediatric Orthopedics, and the Pain Service as well as Physical Therapy and Discharge Planning. We have had a number of organizational meetings in order to offer comprehensive screening and treatment options followed by appropriate rehabilitation for children with spasticity. We have performed a number of Baclofen Pump implantations in children, along with Dr Fanciullo’s service, and have developed detailed protocols for these patients.

Peripheral Nerve Surgery Program, headed by Dr Durham, is a multidisciplinary effort with Neurology (Adult and Pediatric) as well as Neuromonitoring. Several cases have already been performed.

Deep Brain Stimulation for movement disorders in children is a new program which has recruited its first surgical patient. This is a multidisciplinary program along with Child Neurology and Adult Neurosurgery.

Inpatient protocols
After extensive effort on the part of Nursing, Neurology, and Pediatric Neurosurgery, we have finally completed the process for institution-wide acceptance of the Standardized Neurologic Evaluation Assessment Form for use throughout the entire Institution, including inpatient units and the Emergency Department. This is a major accomplishment and will allow for improved nursing standards and flexibility, and familiarity with a high standard of neurologic assessment throughout the hospital. An Evaluation Protocol for sedated patients in the Pediatric Intensive Care Unit has been established. The protocol allows for a structured withdrawal of the sedation to allow for pediatric examination off sedatives and has improved the process of clinical care. Dr Rajan Gupta, in Trauma, will be meeting with the CHaD Radiology, Anesthesia, and Surgical Specialties group to review and refine pediatric trauma protocols during the summer months.
Program Growth and Outreach
Pediatric Neurosurgery began an every-other-week Clinic in Manchester, beginning in summer 2005. Both Drs Duhaime and Durham have continued to participate in outreach lectures, offering email assistance for questions from referring pediatricians and general practitioners, and phone question availability to help build referral volumes.

Research
Our $1.2 million dollar direct cost RO1 grant from the National Institutes of Health for study of traumatic brain injury during immaturity is now in its second of five years of funding (20 percent FTE). An RO1 subcontract from the University of Pennsylvania provides additional research funding, and is currently in its fifth year; a competitive renewal was submitted for five additional years of funding this month (5-10 percent FTE). Our SBIR application in concert with collaborators at Dartmouth College and local industry is currently in re-review (5 percent FTE). An RO1 application on traumatic brain injury research by Dr Tom McAllister was submitted in June (requesting 5 percent FTE for Dr Duhaime). An RO1 submitted in November 2004, on comparing MRI to CT in an animal model for trauma screening in children was reviewed in March 2005, and was not funded; this grant will be resubmitted in response to a program announcement for research on emergency services for children in the early fall (requesting 10 percent FTE).

We have successfully recruited and hired our first Post-Doctoral Fellow, Dr Andrew Koob, from Purdue University. He joined our laboratory in September 2005. We have also recruited one of the Neurosurgery residents, Dr Patricia Quebada, to spend her research year in the Head Injury Laboratory. These additional personnel will help increase our productivity in the current academic year.

With respect to clinical studies, we are beginning an assessment of interrater reliability for standardized neurologic assessment tools in the Neonatal Intensive Care Unit, and we are completing a study of the use of “Quick Brain” MRI protocols for evaluation of macrocephaly in children. (Also, Dr Durham will begin her Centers for Evaluative Clinical Sciences studies towards a Master’s Degree.)

Academic Progress
To date, in 2004-2005, productivity has included the following (ACD):
• Four peer-reviewed journal articles published or accepted for publication
• Three book chapters published
• One invited review/editorial published, and two pending
• Three additional abstracts submitted
• Fourteen invited lectures presented during the 2004-2005 academic year at national and international meetings and during visiting professorships

Hospital/Medical School Activities
This year saw the continuation and reorganization of what is now
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designated as the CHaD Radiology, Anesthesia, and Surgical Specialties Group (RASS). This organization combines the efforts and common interests of the procedural specialists at CHaD. Topics addressed and protocols in progress include specialty radiology for children (including sedation requirements), emergency services, and financial issues specific to pediatric care. Dr. Duhaime is currently chairing this group.

Continued work in the context of the CHaD Executive Committee, several search committees, Co-Director of Pediatric Trauma, and Pediatric Neuroscience Seminar Series directorship, has been ongoing.

**National Organization Activities**
The two-year term as Treasurer of the Joint Section for Pediatric Neurosurgery of the American Association of Neurologic Surgeons and the Congress of Neurologic Surgeons was completed, and election to Secretary ensued (a two-year term) for Dr. Duhaime. Dr. Duhaime was selected to serve on the Nominating Committee for the American Society of Pediatric Neurosurgeons. Finally, Dr. Duhaime was elected to Active Membership in the Society of Neurological Surgeons (Senior Society) in June 2005. This organization included program directors, chairmen, and other individuals and focuses on resident education in neurosurgery. Dr. Duhaime continues on the Editorial Board for Pediatric Critical Care, and as an ad-hoc reviewer for a number of other neurosurgery, pediatric, and trauma journals.

**Goals**
For 2005–2006, we hope to accomplish the following:

- Obtain academic K08 funding for Dr. Durham. Her proposal received a favorable score and we are awaiting the reviewers’ comments before resubmitting with optimism.
- Increase grant support for Dr. Duhaime to approach 50 percent.
- Increase caseload to 210 or more surgical cases.
- Work with the Development Office to begin a Pediatric Neurosurgery Research Fund and a fund for an Endowed Chair in Pediatric Neuroscience.
- Begin our International Outreach efforts.
- Begin and expand our Southern Region outreach efforts with the Manchester Clinic.
- Work with the CHaD Radiology, Anesthesia, and Surgical Specialties group—and with the proposed new CHaD Director and other DHMC leaders—to continue to expand the services and standards of CHaD, help with recruitment, support our academic mission, and optimize patient care.