

Kids Connection

a monthly newsletter from MUSC Children's Hospital



October 2006

Letter from the Chair

Dear faculty, Children's Hospital staff and friends,

Over the past 15 years, there has been a marked change in demographics. In 2006, 80 percent of pediatric applicants were women. The American Board of Pediatrics provides the following statistics for the past 15 years:



L. Lyndon Key, MD
Professor and Chairman
Department of Pediatrics

Year:	Male	Female	PL-1
1991	1008 40.4%	1488 59.6%	
1992	1025 39.8%	1552 60.2%	
1993	1103 40.6%	1617 59.4%	
1994	1075 39.2%	1665 60.8%	
1995	977 36.4%	1705 63.6%	
1996	962 36.4%	1686 63.7%	
1997	928 35.6%	1679 64.4%	
1998	936 35.8%	1679 64.2%	
1999	932 34.4%	1777 65.6%	
2000	920 34.5%	1750 65.6%	
2001	926 34.1%	1793 65.9%	
2002	860 31.5%	1869 68.5%	
2003	876 31.6%	1900 68.4%	
2004	899 31.1%	1994 68.9%	
2005	805 27.9%	2078 72.1%	

In many industries and training programs, there has been little consideration of the stresses that women, especially young mothers, must face. This year, we have started a pilot program that will allow male and female residents to purchase childcare while working during early infancy. For women, the plan will provide a maximum of 12 weeks of maternity leave (under existing guidelines, only three months of vacation/leave may be taken by residents unless there is a compelling reason to petition the board of pediatrics). If a resident who is a mother is out of work for the full 12 weeks, then 20 weeks of daycare funding will be paid into a MoneyPlus, tax free savings account for paying for daycare. Since most residents already budget for daycare funding at a commercial daycare facility, this could make

it possible for residents to hire a home daycare worker. If a resident comes back before the end of the 12 weeks (useful to the resident if additional time off will be needed), the department will increase the daycare funding up to six weeks if the resident takes a maternity leave lasting only six weeks. For fathers, the same provisions will be offered, but based upon 6 weeks paternity leave plus 20 weeks of daycare funding. For males, up to 26 weeks could be awarded if no paternity leave is taken (again saving leave time).

Why do we want to do this?

- Pediatricians should structure a program that helps to optimize a stable environment in which to take care of infants. This limits the guilt that can be a part of having to return to work.
- There is no daycare facility on campus. The option to keep a child at home during the first 32 weeks is very appealing and safer than many commercial daycare facilities.
- We all understand that when a peer is out on leave for any reason, call schedules are much more difficult for the remaining residents. This should help to shorten the length of leave overall, but still with the option to take the full amount of leave allowed. This program will reduce absences by working parents when they have a sick child (since commercial daycare does not usually provide "sick care").

The pediatric department leadership feels that we should offer split residency positions, however, this has not been done at MUSC, and will take time to go through the approval process. Ultimately, it is our hope that family-friendly environments will be available for all our employees in the department of pediatrics, and the Children's Hospital.

Sincerely,

L. Lyndon Key, MD
Chair, Department of Pediatrics

DCRI lab wins private funding from Kentucky foundation

The Malia C.O.R.D. Foundation has selected Dr. Bernard Maria's lab in the Darby Children's Research Institute (DCRI) to receive a \$160,000, one-year renewable grant to study spinal cord tumors.

A private foundation based in northern Kentucky, the Malia C.O.R.D. Foundation was established by Dan and Kara Heck to help find a cure for their daughter Malia, who was born with a spinal cord tumor. The foundation also awarded a grant to Dr. George Jallo of Johns Hopkins Hospital in Baltimore, where he is also working to develop a cure for spinal cord tumors.

Malia's C.O.R.D. Foundation represents a whole universe of similar foundations that support research in the DCRI, says executive director Dr. Maria, a pediatric neuro-oncologist.

As the slashed NIH budget continues to make federal grants more difficult to secure than ever, researchers find they must look beyond traditional resources to find funding for their work. Increasingly, they're finding support through private foundations like this one.

"More and more foundations, established primarily by people challenged by a variety of conditions, are supporting research for a particular, specific condition," explains Dr. Maria, who oversees researchers in the developmental neuro-oncology lab where the tumor work is underway. "It makes for a very special relationship."

It's a relationship the Hecks were anxious to foster.

When Malia was diagnosed four years ago with a rare and incurable intramedullary spinal cord glioma, her parents were devastated by the options.

Radiation, typically the prescribed therapy for young patients, is often damaging to still-developing nervous systems. Now six, Malia is in remission, and her parents are "cautiously optimistic," says mom Kara.

"Our only hope is that medical researchers quickly develop a safer and more effective alternative to radiation," she says.

Spinal cord tumors like Malia's are so rare and non-immediate, though—the average life expectancy is seven years after diagnosis—that research is almost non-existent.

"Most of the funding goes into brain tumor research, with hopes that the results will cross over," explains Kara. "But the more we learn about spinal cord tumors, the more we realize we can't make that assumption. A tumor functions differently in the brain than it does in the spine."

To speed up the search for a cure, the Hecks created the nonprofit, charitable Malia's C.O.R.D. (Cure for Others through Research and Development) Foundation.

The foundation quickly found a research outlet in Dr. Jallo, assistant professor of Neurosurgery Pediatrics and Oncology at Johns Hopkins, who is currently working to develop a treatment to cure intramedullary spinal cord tumors. Clinical trials are expected to begin later this year.

The Hecks then made it known that the foundation was looking for other research projects to support, and were connected with Dr. Maria through NIH.

"Dr. Maria's research is very specific and a needed avenue," says Kara. "He and his researchers are developing a genetic animal model that more accurately reflects how my daughter and others like her are born with these kinds of tumors, as opposed to being implanted with them."

This should allow the animal model to respond more similarly to a human. "It will give us a better idea of how chemotherapy, radiation and neurosurgical treatment will work, and of the outcome when Dr. Maria goes to clinical trial," says Kara.

She is particularly hopeful about Dr. Maria's work on HA inhibitors and reducing the inflammation (see article below) that surrounds the tumor, and how it causes recurrence.

"This is a key difficulty with spinal cord tumors," says Kara, "since our daughter and so many others have experienced recurrence."

The Hecks are enthusiastic about supporting this research and confident about collaboration between Dr. Maria and Dr. Jallo.

"Hopefully they can join efforts," says Kara. The parents were discouraged to learn, during their search for projects to fund, that researchers across the country were not always aware of similar ongoing work.

"We don't want duplication," says Kara. "When we talk to new researchers, we want them to know what others are doing—so they can come up with a complimentary or different investigation and solution."

It's a point well-heeded, as private foundations step in to fund research projects with one end in mind: "Our goal is that this research will benefit Malia in her lifetime, as well as others who suffer from this illness," states Kara.

Letter from the Medical Director



J. Philip Saul, MD
Medical Director
Director, Pediatric Cardiology

This month, I am pleased to welcome a new physician, David Gregg, MD, and a new type of service to the Children's Hospital and adult hospital. Dr. Gregg and I will co-direct a newly designated unit for adults with congenital heart disease, a joint venture between the Children's Heart Center of South Carolina and the MUSC Heart and Vascular Center. Although it may seem incongruous, progress in surgery for these patients now means that over half of the patients with congenital heart disease in the United States are over the age of 18 years. Many have been "fully" repaired, but many have medical issues

remaining that tend to worsen with age. These patients often have unique problems which require both traditional adult and pediatric services, making their care ideally suited to a combined pediatric/adult program. To that end, after training in adult cardiology, Dr. Gregg did a year of training at the University of California, San Francisco, dedicated specifically to the adult with congenital heart disease. The clinic will reside in the Children's Hospital until joining the adult programs in their move to the new Heart and Vascular Center in 2007. Services will be individualized, depending on the needs of the patients and the expertise of the physicians in the adult and pediatric cardiology programs. This is a program whose time has clearly come and we are delighted to be able to hang up this new shingle.

Update from the Administrator



John Sanders, MHA
Administrator
MUSC Children's Hospital

Surveys, Surveys, Surveys!

September was a very busy month for various surveys at the MUSC Children's Hospital. We began with the unannounced joint commission visit which lasted a full week with five surveyors. These surveys are getting improving greatly as they focus on the care that is provided to the patients. I am very happy to report that the Medical Center and the Children's Hospital fared very well in this extensive survey. One week after having the Joint Commission here, we were surprised with our annual Department of Health and

Environmental Control survey. Once again, our organization did very well. These surveys are always educational and they provide a good look at the great services that are provided in our organization.

Finally, over the last four weeks we have been completing the Child magazine Children's Hospitals survey. This is the only survey that ranks children's hospitals based on programs and outcomes. This year's survey was very comprehensive with a focus on pulmonary care, emergency medicine, neonatal services, hematology/oncology services and pediatric orthopedics. Over the years, the MUSC Children's Hospital has ranked in the top 25. This year will be very competitive as a record number of hospitals have completed their surveys. Results regarding our standing will come later this month. In the meantime, we will continue to focus on providing the best care for our kids.

Whether it is the joint commission, the state or Child magazine, it is always a great opportunity to highlight our care and the amazing staff of the MUSC Children's Hospital.

Children's Research Institute News Brief



Bernard L. Maria, MD, MBA
Executive Director
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Scientific Director
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Lab works to find cure for spinal cord tumors

With new funding secured from the Malia CORD Foundation in July, researchers in Dr. Bernard Maria's DCRI lab are able to continue their research on spinal cord tumors.

The study is evaluating the efficacy of hyaluronan acid (HA) oligomers in spinal cord gliomas. Researchers hope the inhibitors will target the molecules that interfere with invasiveness, drug resistance, and resistance to chemotherapy.

"What we have is a novel approach in that the molecule that we're targeting—the HA inhibitor—has many downstream effects," says Jennie Gilg, a PhD who manages the lab. "It affects many targets in the cell."

Dr. Maria began related research in 1996, and implemented a spinal cord model last year in the DCRI lab. Preliminary data shows the therapy is working well in animal models.

"But whether or not that translates into human therapy, we don't yet know," explains Gilg. "Some things are lost in that transition, but hopefully this will work."

One of the reasons the lab was chosen for the CORD Foundation grant, says Gilg, is the unique collaboration between Dr. Maria, a practicing physician, and Dr. Bryan Toole, a basic scientist.

"It's sort of unusual for them to be working so closely together," she notes. "It makes a really strong team, one that can get treatment to the patient as soon as possible, and I think the Malia CORD Foundation found this very attractive. Private foundations are interested on clinical results."

Dr. Maria and the lab are working closely with other investigators, too, including several focusing on cell isolation and new peptides in the Department of Cell Biology, pharmacology in the College of Pharmacy, and drug resistance in the Departments of Neurosciences and Psychiatry in neighboring DCRI labs. The open lab format in the DCRI and Dr. Maria's propensity to collaborate are key, says Gilg.

Tumors like the one Malia has—central nervous system tumors found in the brain and spinal cord—are the leading cause of death from illness in children. That's because they're very difficult to safely resect with surgery, and large doses of radiotherapy or chemotherapy can damage the spinal cord.

"You can't totally remove these kinds of tumors with surgery, because there's no clear line of demarcation between the tumor and healthy tissue," explains Gilg. The tumor tissue infiltrates into the normal tissue, so surgeons are at risk of cutting away healthy tissue and possibly paralyzing patients. Radiation is usually the preferred method of treatment.

"It's a very critical, sensitive area to treat in children, because nervous systems are still developing," notes Gilg.

That it's non-toxic makes the HA therapy she and her fellow researchers are studying an even more promising option.

"Hopefully the HA inhibitor treatment will help confine the tumor, but our goal is to get rid of it altogether," she explains.

The CORD Foundation is a huge boost of support and inspiration for these investigators. "It's given us the chance to continue with these studies and initiate new studies that are more focused on the spinal cord," notes Gilg.

Evidence-Based Tip



Laura Cousineau, MLS
MUSC Library
Dept. of Pediatrics
EBM Faculty

Critical Appraisal

Last month we learned how to search for the evidence using PubMed. This month we will focus on evaluating the evidence. Although a randomized controlled trial is the one of the best forms of evidence available, it must be a well-designed study, free from bias, in order to justify its recommendations for patient care. We want to consider if the results of the study are valid, using the set of questions listed below.

Were the patients randomized?

How were the groups receiving the treatment intervention and the treatment comparison formed? Patient or physician preference must

not determine the arm of the trial to which the patient is assigned. Although not foolproof, randomization helps assure that the groups are as similar as possible for factors such as severity of the disease, age, race, gender, and any other factor that might affect the results.

Was randomization concealed?

The person who is making the decision to accept a patient to a study should not be able to influence the assignment of the patient to a particular treatment arm. Ideally, once the patient is accepted, the patient is assigned via remote randomization.

Were patients analyzed in the groups to which they were randomized?

Patient outcomes must be analyzed based on the treatment they were assigned, rather than the treatment actually received.

For example, in the general population, compliance with drug regimens can be a problem. It would exaggerate the benefit of a drug if the patients who did not take the treatment as prescribed were not counted.

Were patients in the treatment and control groups similar with respect to known prognostic factors?

The smaller the sample size, the more difficult is it to create truly randomized groups. This is a particular danger in pediatrics, where total enrollment is usually low. Investigators should check to be sure that the treatment intervention and comparison arms have equal distribution of factors known to be beneficial or harmful.

Were patients, clinicians, and outcome assessors aware of the group allocation?

To protect against placebo effect in patients, and to prevent caregivers from consciously or unconsciously treating or interacting with patients differently, these groups must be blinded to group allocation. Blinding is also crucial for anyone collecting data, measuring outcomes, or analyzing data.

Was follow-up complete?

Ideally, every person in the study would be followed for the length of time selected for the study. However, some patients' results might not be known at the end of the study (loss to follow-up). Too many people lost will jeopardize the validity of the trial results.

There are statistical measures that can help evaluate the study as well. The final step in the patient-centered, evidence-based approach is to ensure the results of the data can be applied to our patient.

A special thanks to the following individuals for their efforts in putting together Kids Connection each month.

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