

Kids Connection

a monthly newsletter from MUSC Children's Hospital



March 2007

Letter from the Chair

Dear faculty, Children's Hospital staff and friends,

Our department has made remarkable progress in the last few years with innovation and accomplishment in both research and clinical activities. The Darby Children's Research Institute has just celebrated its second anniversary. This visionary approach to solving the riddles of children's diseases is now showing major gains. We have new programs, new investigators and new successes. Similarly, we have been working in the clinical arenas to improve our performance and recognition. Our clinicians have worked diligently to provide innovative services and to improve patient satisfaction. This is an ongoing process which is succeeding month by month. Our emergency department was recently recognized as one of the Top 10 in the country by Child magazine. Several faculty members are now asking whether the focus on accomplishment in these two important areas may have, in fact, distracted us from our primary mission in recent years.



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

It is time now for us to take this visionary spirit of innovation and dedication to success into the educational arena. We are already recognized by our medical students as providing an outstanding experience in pediatrics. Some have recently described it as "the best core rotation they have had". That is heady praise for us and it reflects not only the organization of the rotation, but also the effort and effectiveness of teaching by our faculty and our house staff. We now wish to improve the residency. (Surviving resident recruiting season makes one look closely at our own program, the subject of such detailed questioning and explanation over the last four months.)

We are seeking renewed commitment by faculty to teaching and by trainees to learning. Each group faces many other responsibilities and time commitments, but teaching and learning is why we are all here. I have dedicated personal attention and significant resources from the office of the chair to make this initiative a success. Mike Southgate has agreed to become the new Vice-Chair for Education. He will join me in chairing a new committee charged with oversight of the entire teaching program. We will create a mission statement for education so that we all agree where we are going. We will identify 5 – 10 similarly-sized pediatric programs around the country to who we feel we should

compare ourselves who currently are viewed as stronger programs. We will be asking several groups, including current residents, recent graduates, and faculty, for their input as to our strengths and weaknesses. Once we have identified key areas which are ripe for improvement, we will establish subcommittees to get the work done effectively.

Once we know the goals we seek to accomplish, we will make changes. Several will occur before July 1, so that they are in place when the new residents are here. Others, including expanded internet education, more aggressive board review, altered conference formats, etc. are likely over the following few months. As residents are now being judged on their competencies in six crucial areas rather than just spending 33 months on clinical services, our individualized advisor – advisee program will be upgraded.

We will seek outside resources, from within and outside the Medical University, to "teach the teachers". Whether this takes the form of a series of workshops or a major retreat is not yet clear. What is clear is that we want accomplishment in teaching to become a major priority for our educator faculty. We have shown in the clinical and research areas that we can move from good to great. Initiative 2007 is the program to make this happen in education.

In short, I am putting the weight of the office of the chair behind this innovative effort. I challenge each faculty member to become even better at their teaching and each trainee to become better at learning (for a lifetime). As we are being pushed by the dean to "hardwire excellence" at MUSC, we will push him for support of our educational mission.

Join us in this ride to the top. It won't be easy but it will be rewarding and extremely important for the future of our department. We'll let you know about our progress as we move along.

Sincerely,

L. Lyndon Key, MD
Chair, Department of Pediatrics

Improved child abuse program serves more kids, trains more medical professionals

With more funds and a beefed-up staff, the Children's Hospital's child abuse and neglect program doubled the number of local children it served over the last year.

The program provided medical services to nearly 1,000 children and adolescents in 2006, twice the number reached in the previous year.

"We anticipate that it will grow another 50 percent, and possibly 100 percent, over the next two years," says Dr. Anne Abel, a forensic pediatrician who became director of the MUSC program a year ago.

The forensic pediatrics team, as the newly formed group is called, has grown from just one half-time pediatrician to now include Dr. Abel, a full-time pediatric nurse practitioner, several part-time nurse practitioners and an administrative assistant. More manpower is on the way: the team is in the process of adding another pediatrician and nurse practitioner.

The team provides medical services at three different locations, including the Dee Norton Lowcountry Children's Center, Dorchester Children's Center, and MUSC Children's Hospital inpatient and outpatient services.

"Through this MUSC program, we were able to provide medical services to double the number of children in the last six months," says Libby Ralston, executive director of the Dee Norton Lowcountry Children's Center. "Dr. Abel's presence and MUSC has made a tremendous difference."

The program provides direct patient care with consultations at all locations, explains Dr. Abel. "We see children and adolescents with suspected physical abuse, suspected medical neglect, Munchausen's syndrome by proxy, and sexual abuse and assault."

The team sees the majority of patients at the two outpatient advocacy centers. "The MUSC commitment to this issue and to our program has had positive impact on the services we're able to provide to the children of our community," says Ralston.

"Having consistent quality medical services improves our overall ability to provide comprehensive services to these kids," she continues. Medical services are critical in treating the whole child, and allow the Children's Center to offer a more comprehensive response to the needs of these children.

"We also partner with MUSC's Department of Psychiatry to provide mental health care for our children. We have a strong medical and mental health partnership with MUSC."

MUSC has always provided medical services for abused children, but now there's more people power devoted to it, explains Dr. Abel.

Because child abuse was recently approved as a subspecialty of pediatrics, there's an increased emphasis on the field. "Within the next three years, every pediatric resident will have improved training in recognizing and treating child abuse," notes Dr. Abel.

The team is poised to continue its busy training program. Currently it provides training to MUSC physicians, physician assistants, nurses, social workers and medical and nursing students on how to recognize and report child abuse and neglect.

An upcoming symposium on April 12-13, hosted by the SC Professional Society on Abused Children, is targeted to medical professionals who work with children on issues regarding child abuse and neglect.

Among the team's other responsibilities:

Members serve on a Suspected Child Abuse or Neglect (SCAN) team that meets weekly at MUSC to discuss cases; coordinate info with official investigators (including the department of social services and law enforcement); and allow medical providers and county investigators to communicate face-to-face about immediate concerns.

"These SCAN team meetings are well-attended by other MUSC staff, always by radiology, the attending pediatrician and social workers, and sometimes by neurology, ophthalmology and other professionals depending on the specifics," she explains. "At these meetings, a clearer picture of what's going on emerges."

Dr. Abel stresses that members of the forensic pediatrics team are not investigators. "If there is suspected abuse or neglect, we make sure we understand it and that the report has gone to the proper authority. We provide consultation and medical expertise."

New reporting forms for the Children's Hospital allow the medical provider to phone or fax a report to investigating agency, she says.

Team members also testify in court when subpoenaed.

Pending final approval is a revised child abuse and neglect policy for MUSC. "Some of us served on a task force that worked to revise the old policy, which was 20 years old."

Future goals for the program include a stronger teaching program for residents and other health professionals at MUSC. "We'd like to have a fellowship in child abuse pediatrics here at MUSC," says Dr. Abel.

The physician says she'd also like to raise the program's functioning level to a Center of Excellence, and establish additional, devoted space and increased staff.

"There's a lot we're not seeing yet," says Dr. Abel of potential patients. "We're seeing the tip of the iceberg."

Letter from the Medical Director



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

Last week our medical staff leaders spent the day at the North Charleston Convention Center learning about the role out of a new program called "MUSC Excellence", using a system developed by Quint Studer of the Studer Group. Contrary to what the name first implies, the program is not focused on state-of-the-art medical care, but is directed at systematizing the way physicians interact with patients, staff and each other. Many of the recommendations are common sense – always introduce yourself and your team, give patients and families your card, tell them your role, communicate what they can expect to happen and how long it

will take, and when leaving make sure you have thanked them for using us and dealt with all their concerns. The system focuses on key words at key times and uses the abbreviation AIDET as a tool for patient interactions: Acknowledge, Introduce, Duration, Explanation, Thank you. Although many physicians already do these things, not all do, and those that do are not always complete and consistent.

The system also addresses employee satisfaction by focusing us on how we deal with our staff from the standpoints of communication, respect and feedback. Perhaps the most important aspect of the program is that it uses various patient and employee satisfaction tools as outcome measures to assess the effect of the operationalized behaviors. Our leaders will be evaluated using 360 degree methodologies so that we are aware of how we impact patients, families, employees and upper management. Periodic evaluations will provide an opportunity to measure our improvement.

Introducing MUSC Excellence to our medical staff brings us in line with hospital employees who have already been practicing AIDET and other strategies for the last year. It was incredibly encouraging to see that most of our leaders were excited by the presentations and enthusiastic to bring these techniques back to their faculty for implementation. We hope that everyone will see a difference as we bring our class room efforts into practice over the next few months.

Update from the Administrator



John Sanders, MHA
Administrator
MUSC Children's Hospital

Proof in the Numbers

The Medical Center and the Children's Hospital have been involved in several initiatives in the last year to improve the working atmosphere for our staff and improve the impression of the service that we provide for our patients and their families. As Dr. Saul mentioned, we have spent a lot of time training everyone in the AIDET technique in hopes of helping our staff to improve the communication and trust with our patients.

During the first quarter of this fiscal year, we were rated at the 42nd percentile by our patient's family's which is certainly not where we wanted to be. During October and November, the staff was trained in AIDET and there have been a lot of activities to encourage the use of the technique. I am pleased to report that in the second quarter we moved to the 77th percentile overall and currently we are ranked at the 84th percentile. This important communication technique helps people feel good about the competence of the care provider and improves the trust by the patient.

Having a child in the hospital is a traumatic event for any parent and we want to do what is necessary to bring the anxiety down during their stay at MUSC. We are confident in the expertise and clinical abilities of our physicians and staff and now we are also focusing on the service that is provided. MUSC Excellence is alive and well in the Children's Hospital.

Children's Research Institute News Brief



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Researchers win sought-after CTSA Awards

Three cross-disciplinary pilot projects involving DCRI investigators have won highly coveted CTSA awards.

The awards are funded by a CTSA internal institution grant, explains Dr. Kathleen Brady, director of the General Clinical Research Center and part of a committee that selected the winning studies.

Of nearly 100 applications, the committee chose to fund nine pilot projects, all of which were translational and collaborative in nature.

That three of the CTSA awardees have come out of the DCRI is pretty amazing, says Dr. Bernie Maria, executive director.

"For an institute that's been operating for just two years, we effectively competed for these awards," he notes. "That really says something about the performance of this institute."

The three winning DCRI projects were:

- 1) the development of a new oral cancer screening method to improve early detection of oral cancer;
- 2) the use of brain positron emission tomography (PET) to predict atypical response to antipsychotic drugs;
- 3) the use of hyaluronic acid oligomers (o-HA) in malignant gliomas to treat human brain tumors.

"We're supposed to be thinking creatively, out-of-the-box about ways that we can transform the system to facilitate research," says Dr. Brady. "To make it as easy as possible, to break down barriers to improve communications between basic and clinical scientists.

"We've awarded pilot project money to research projects that are designed to catalyze new collaborations, which is part of the criteria required to receive CTSA funds," she continues.

The novelty of the oral cancer screening study, spearheaded by the Clemson bioengineering program and principal investigator Dr. Bruce Gao, is its use of a laser to produce a holographic optical configuration, thereby avoiding tissue slice preparation and cell staining.

"Because oral lesions are being seen in younger and younger ages because of chewing tobacco, this research is significant for children's health," says Dr. Maria of the DCRI.

The project aims to translate an optical technique already developed in the team's lab into a practical application for oral cancer detection, explains Dr. Hai Yao of the DCRI Clemson bioengineering program, who is a collaborator on the project.

"The advanced optical technique already exists but the application is unique," says Dr. Yao. The team hopes to ultimately create a hand-held optical-biopsy tool for oral cancer screening.

"Our goal is to develop a novel instrument with clinical applications," he explains. "The project is multi-disciplinary, combining engineering and biomedical research. It involves researchers from the engineering, dental and cell biology departments from both Clemson University and MUSC."

It's a project that could have broad impact. "This technique could be used to detect many other kinds of cancer, too."

Also highly translational and innovative, the PET/antipsychotic drug study uses brain imaging in a new way, says principal investigator Dr. Jun-Sheng Wang.

"Right now, we have no means to study drug concentrations in the human brain," he explains. "The PET technique will show us exactly what happens after patients receive the commonly used antipsychotic drug, risperidone (which was recently approved for use in children). This will help predict clinical response and effective dosages of the drug." The team's long-term goal is preventing drug resistance in patients with schizophrenia.

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“We now have evidence that the drug transporter protein, P-glycoprotein, acts as a gatekeeper, preventing antipsychotic drugs from entering the central nervous system,” says Dr. Wang. “Within a few years, we hope to find a novel therapeutic solution to overcome this P-glycoprotein gate keeping activity.”

“This is fundamental work, tied to the transport of drugs in and out of the brain,” explains Dr. Maria. “Its implications for children center around the placenta, with preventing drugs from crossing the placenta into the fetal brain. It’s pre-birth children’s research.”

The research team includes members from the departments of psychiatry, radiology, the Clemson-MUSC Bioengineering Program, pharmacy and surgery.

The third CTSA pilot project targets brain tumors, which are the leading cause of death from disease in children.

“We are developing a new treatment that antagonizes hyaluronic acid, which cells use to promote malignant properties,” explains Dr. Maria, a pediatric neuro-oncologist and principal investigator of the study. “We are developing new oligomers, never used in humans before, to control the growth of brain and spinal cord tumors. It’s a new biologic therapy that manipulates Mother Nature.”

The departments of cell biology and anatomy, pharmacology and pharmaceutical sciences are working together on the project. “It’s a multi-departmental and intercollegiate project between the Colleges of Medicine and Pharmacy,” notes Dr. Maria.

The team expects to take the study to clinical trials within the next year or two. “It could be effective against a variety of cancers particularly since preliminary studies show that the oligomers potentiate the effects of radiotherapy and chemotherapy,” says Dr. Maria.

All nine winning pilot projects reflect a direction and attitude crucial for transition to a CTSA.

“The CTSA planning grant we received from the NIH provides funding for us to plan the submission of a very large infrastructure grant designed to provide much broader support for clinical and translational research at MUSC than we have previously had,” explains Dr. Brady. “These nine pilot projects are part of that transformation in our approach to research.”

DCRI celebrates two years



Photos from the DCRI two year celebration. Top photo, from left: Dr. Pai, Dr. Maria, Dr. Johnston (Johns Hopkins University), and Dr. Singh. Bottom left photo: welcome table. Top right: party-goers read posters. Bottom right: Anniversary cake depicts DCRI building.

Evidence-Based Tip

The Likelihood Ratio: What are the odds that my patient has the disease I am testing for?



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

Comparative studies of diagnostic tests tell us how well a particular test does, compared to the truth as best we know it, usually as determined by a “gold standard” test. The results are reported as sensitivity (percentage of patients with the disease who correctly tested positive) and specificity (percentage of patients without the disease who correctly tested negative). These are helpful numbers, but we would like to know more. We need the likelihood ratio.

The likelihood ratio is a relative measure, combining both sensitivity and specificity. A positive likelihood ratio (+LR or LRpos) gives the odds that a test result would occur in our patient with the condition we are testing for, as opposed to a patient without the condition we are testing for.

$$+LR = \text{sensitivity} / (1 - \text{specificity})$$

positive tests with the disease / positive tests with no disease

A negative likelihood ratio (-LR or LRneg) can also be calculated.

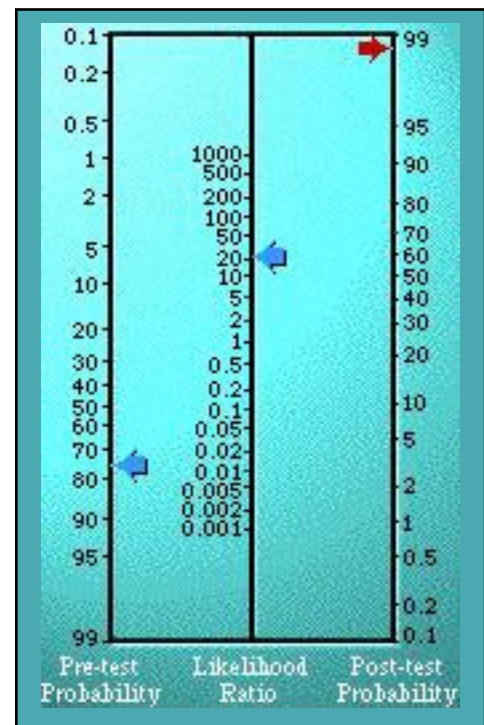
$$-LR = (1 - \text{sensitivity}) / \text{specificity}$$

negative tests with the disease / negative tests with no disease

The likelihood ratio is important, because it is independent of the prevalence of the disease. But its value comes when it is used in conjunction with a clinician’s pre-test probability for the disease. Using a nomogram, the pre-test probability is charted against the likelihood ratio to obtain a post-test probability.

Especially in a test for influenza, knowing the prevalence of the disease at that time in the community will be very important for interpreting the results of the

test, and will impact a clinician’s pretest probability. To illustrate, assume that we are seeing a patient during a mild influenza outbreak. We feel after our clinical exam that our patient has a 75 chance of having the disease. The Vanderbilt University Medical Center article reported a sensitivity of 63% and a specificity of 97% for the rapid flu test, which we calculate to get a +LR of 21. Charting this on the nomogram will give us a post-test probability close to 99 percent. This is made easy by online versions of the nomogram, such as the one on the left from Oxford’s Centre for Evidence-Based Medicine: www.cebm.net/nomogram.asp



Using the positive likelihood ratio, in conjunction with our pretest probability, we are now much more confident that our patient does indeed have influenza after testing positive for the rapid flu test.

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