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Research Center™

InTouch

WITH RESEARCH
At Children's Memorial Research Center

Into the Future

An interview with Earl Cheng, MD



Earl Cheng, MD

Earl Cheng, MD, is an attending physician in the Division of Pediatric Urology, Children's Memorial Hospital, and Associate Professor of Urology, Northwestern University's Feinberg School of Medicine.

What made you decide to specialize in pediatric urology? I found that I just loved pediatric urologic surgery. I was very interested in fine reconstructive surgery, and I love children. I really feel I have the appropriate temperament that is well suited for this pediatric specialty.

Let's talk about your research. On the surgical side of pediatric urology, we perform a procedure called bladder augmentation, in which a piece of bowel is attached to the top of the bladder. This

allows the bladder to hold more urine, but the reconstructed bladder can't contract, so patients can't void normally—they need to catheterize. When you tell a 10-year-old kid he must catheterize or there will be serious side effects, he won't understand. When he becomes a teenager, he'll think he's infallible and won't catheterize regularly. This can result in overdistention of the reconstructed bladder and eventual perforation, which can be life threatening. Several other problems with this procedure include the development of bladder stones, electrolyte disturbances and an increased risk for cancer in the reconstructed bladder.

Since bladder augmentation with bowel is still the gold standard for this type of problem, and it's far from perfect, I became interested in tissue engineering, which strives

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to build replacement tissue in the laboratory. I went to work with one of the pioneers in the field, Bradley Kropp, MD, a pediatric urologist, at the University of Oklahoma. We worked together for four years, then I returned to Chicago.

I currently work with Sam Stupp, PhD, at Northwestern University's Institute for Bionanotechnology in Medicine (IBNAM). His philosophy is that scientists need to work with other disciplines to achieve a common goal. Our group consists of a material design/nanotechnology expert (Stupp), a molecular and cellular biologist, and an expert in the clinical discipline (Cheng).

I returned to this institution because I saw a commitment to provide the resources and expertise we needed. We're making exciting inroads. Daniel Harrington, PhD, a post-doc from Stupp's lab, will be coming on board with material design expertise, and we recently hired Arun Sharma, PhD, a molecular and cellular biology expert with stem cell interests. It's taken some time for us to get where we are—in order to attract good people, you need to have something to show them. We currently have an NIH R21 award, and have recently submitted two R01s that we have high hopes for.


What are the challenges and opportunities you see in your role as physician-scientist?

It's very rare for a surgeon to excel at both. In surgery, you can't just disappear for two months. If you're a parent, you don't want a surgeon like that operating on your child. So you need to prioritize. My first choice is clinical medicine because that's what really gets me going. But in my situation, because of the construct of our laboratory, I'm able to do both. I spend one day a week on lab-based issues and the rest taking care of patients. I can do this because my PhD partners are there to direct the daily activities in the lab. I have the ideal situation where I can participate intricately in both disciplines.



Earl Cheng, MD

In the lab, it's important to be realistic about what you are trying to achieve. We have to figure out what has the potential to help clinically in the near future. We focus on "translational" research projects, ones that are investigated in the basic research laboratory but that can have immediate clinical application.

What do you see for the future? I believe that the key to the future is in regenerative medicine. This is a new way of thinking about medicine. I'm a realist—this won't happen in the next 10 years, but I hope it does in my lifetime. I think the news right now regarding advancements in this field needs to be evaluated as to hype versus reality. We want to get others excited about what we're doing, and we need to back up that excitement, but it's not always possible with the current technology. These are pressures that keep us motivated and working hard in the lab. I don't want to always be the glass-half-empty guy. I want to be the glass-half-full guy. That's what keeps me excited. 

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