

Canada Research Chair in Childhood Arthritis: Dr. Brian Feldman

Were there any educators who played a significant role in your journey to become a rheumatologist?

I was more attracted to the highly cognitive subspecialties — and if one considers a spectrum between the procedural and cognitive specialties, probably at the far end of the cognitive extreme is rheumatology. I am a pediatrician, and when I was training in medical school, the head of pediatrics at the medical school I was at was a fellow named Dr. Jim Boone. He was a pediatrician, but he was doing all the rheumatic care at the Children's Hospital of Western Ontario at the time. He was a fine clinician, and he turned me on to the area. When I was a junior medical student, or maybe a clinical clerk at the time, Dr. Boone gave us a lecture on the limping child, and I got really interested.

At the same time I met a pediatric resident named Ciaran Duffy who was a very good teacher; he was interested in rheumatology and eventually went on to become a pediatric rheumatologist and led the way for me. When I had the opportunity in my fourth year of residency training to do an elective in rheumatology, I met Dr. Ron Laxer, Dr. Abe Shore, and Dr. Earl Silverman and they were such brilliant clinicians and great role models that it became clear to me that that is what I wanted to do — pediatric rheumatology.

These educators have been most influential for my rheumatology training. Dr. Laxer because of his incredibly thoughtful approach, he is very meticulous and thoughtful. Dr. Silverman for his acumen and his great approach, he just knows what is going on. Dr. Shore was not with us for very long, he passed away shortly after I started to train, but he had an interest in hemophilia. He got me involved in that area and I have remained involved in hemophilia in a research capacity ever since.

The thing that I found very cool at the time was that they were the ultimate diagnosticians. For any case in



the hospital, when nobody could figure out what was going on, they would call the rheumatologists. They were the real life version of the team on the television series *House*. That is basically what rheumatology is all about, right? It is deep thinking on really rare and unusual problems, presentations, putting it all together in a systems approach and figuring out what is going on.

What has happened over the years is that we have developed fantastic treatments. In the

olden days, for instance when I was starting, we could not really treat a lot of things but we could be really smart about diagnosing them and figuring out what nobody else could figure out. Nowadays there is a lot of action in our specialty because we can treat a lot of diseases, and a lot of the research that we have done over the years has been to develop new treatments.

What have been the highlights of your academic career?

The major highlight of my career has been the fantastic exposure I have had to trainees and graduate students from all over the world. It has just been such a pleasure working with these fantastic students.

In addition, I have had the opportunity to be one of the founders of something called the Childhood Arthritis and Rheumatology Research Alliance (CARRA). We started to work on this during the nineties and it has really come to fruition over the last decade, as really quite a large and effective network of investigators across North America tackling some big problems in childhood arthritis. What we have done, that I am most proud of, is define treatment protocols for a number of different diseases (the one that I am most interested in is juvenile dermatomyositis), which are being applied in a standardized fashion across North America. The attempt is to do what they did for children's cancer, using a similar approach, to find cures for previously

incurable diseases. What they had done in cancer is take standardized protocols and treat patients with them until they figured out which protocol was better. Then they dropped the worst one, and used the knowledge that they gained to develop new and better protocols — they just kept going until they had cures. That is what we are going to be doing for childhood rheumatic diseases.

What have been the most profound changes you have observed in rheumatology over the course of your career?

When I was starting my rheumatology training in the late eighties, early nineties, many of the kids that I saw in our arthritis clinic had pretty serious deformities. At around that time we started using treatments like methotrexate (MTX) on a more widespread basis, and subsequently, biologic therapies; now you can come to our clinic and you just do not see that anymore, with rare exceptions. So, that is a huge change.

What I have seen happen over the last 20 or 25 years is that there has been an improved cooperation at all levels in the field; that has really raised the bar for new discoveries. Adult rheumatologists are cooperating and working better with pediatric rheumatologists, centres are working better with other centres. This idea of collaboration has really developed and blossomed over that period of time and we are seeing the fruits now.

In Canada, for example, we have now had giant multi-centre studies of childhood arthritis. We had the Research in Arthritis in Canadian Children – Emphasizing Outcomes (REACCH OUT) study looking at the evolution of arthritis in children, the Biologically-Based Outcome Predictors (BBOP) study looking at the determinants and causes of arthritis, and we have had the Teens Taking Charge studies looking at arthritis self-management. These have been relatively huge collaborative studies, and that was not happening 25 years ago. We are just a young specialty, so that is probably why it just took some time to mature.

What advice would you give to rheumatologists who are interested in taking on an educational role or improving their teaching skills?

I am more of a researcher than an educator, but obviously I do a lot of teaching as well, and I would say that there is really no substitute for exposing trainees to lots

and lots of clinical work. For people who want to develop their own teaching skills as educators I think there are fantastic opportunities for formal education in teaching that seem invaluable from what I have seen in my colleagues. As a trainee, I had a lot [of clinical work] but there has been a shift away from seeing patients to getting more kinds of classroom-based teaching. The available evidence would suggest that this is perhaps a backward step.

Is your department working on anything new or exciting that you think your colleagues across the country should know more about?

We have 10 pediatric rheumatologists at SickKids. Almost all of them doing research, so we have made all kinds of new discoveries. We have been developing a new understanding for childhood lupus, such as discovering new ways of measuring neuropsychological deficits in lupus, discovering the determinants of cardiovascular (CV) risk factors in young people with lupus and determinants of renal health in lupus. Regarding the mechanisms of Kawasaki disease, one of our researchers has a very successful mouse model of this disease, from which she is determining the molecular pathways for coronary heart damage in Kawasaki disease. As to the natural history of central nervous system (CNS) vasculitis, one of our researchers is looking at treatments and imaging and defining the spectrum of outcomes of CNS vasculitis. We are also looking at ways of preventing hemophilic arthritis, so for hemophilia we have introduced a special Canadian form of tailored prophylaxis to prevent arthritis or joint damage.

In medical education, we have groups working on new ways to teach the joint examination, such as using simulations. There has been more use of computerized case-based learning for teaching rheumatology, including pediatric rheumatology.

Brian M. Feldman, MD, FRCP(C)

Canada Research Chair in Childhood Arthritis

Professor Pediatrics, Medicine, HPME, DLSPH

University of Toronto (UofT)

Senior Scientist and Head, Division of Rheumatology

The Hospital for Sick Children

Toronto, Ontario