

Editorial

# Pediatric Urology: Past, Present and Future

## *Urología pediátrica: pasado, presente, futuro*

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At Johns Hopkins, around the turn of the 20<sup>th</sup> century, Halsted revolutionized the training of future surgeons by having them serving as apprentices, learning mainly by spending long, celibate hours in the hospital *observing* surgery with the mantra of “*See one, do one, teach one.*” Urology was an infant specialty at that time, growing under Halsted’s pupil, Hugh Hampton Young. Young himself pioneered operations for exstrophy that have withstood the test of time. It was only because of the invention of the cystoscope that Urology separated from its parent, General Surgery, clearly an early example of disruptive innovation. Although described separately at that time, Pediatric Urology was not practiced as a distinct full-time entity until the century was nearly complete. Pediatric surgeons cared for the bulk of pediatric urological disorders. Hypospadias and many penile disorders fell under the auspices of plastic surgeons. During the 1950s, the Section of Pediatric Urology became the first surgical section of the American Academy of Pediatrics. The Society of Pediatric Urology (SPU) was soon born. It was roughly two decades later the Canadian Bob Jeffs sought specialty training from D.I. Williams at the Great Ormand Street in London. He later returned to Toronto as the first North American full-time committed pediatric urologist. Other Americans soon followed, and by 1980 the establishment of Pediatric Urology programs in North American children’s centers became the norm, with trainees going abroad for fellowship training in London or at Alder Hey in Liverpool.

When I completed Urology training in 1984, I chose Pediatric Urology, then a maximally invasive hands-on specialty. It was an exciting time. Hendren had pioneered undiversion and complex bladder reconstruction. Ureteral re-implantation was a bread and butter operation. Additionally, Horton, Devine, and Duckett promoted novel one-stage hypospadias repair techniques. Almost all patients were cared for as inpatients; they were hospitalized even after hernia repairs or orchidopexies. In fact, hypospadias and re-implant patients stayed in hospital for over a week and were confined to bedrest! Antenatal ultrasounds revealing fetal anomalies were only just starting to

become commonplace. The natural history of most conditions we treated were uncharted, so that we likely over-operated, figuring that if the anatomy looked funny, then physiologically it must also work funny! In fact, one of my mentors used to say, “If you are going to do an unnecessary operation, make sure you do it well!” Along with the VCUG (voiding cystourethrogram), the IVP (intravenous urogram) was still our go-to imaging test, although ultrasound and CT were becoming more familiar, with MRI soon to come. Within 5 years of my graduation from a general urology residency, virtually 100% of nephrolithiasis interventions had shifted from open cases to either ESWL or endoscopic treatments. BPH was evolving into a predominantly medically treated problem. With the advent of PSA (prostate specific antigen) replacing acid phosphatase as a marker for prostate cancer, and Walsh’s popularization of the nerve-sparing radical prostatectomy, that operation became the gold standard for current practitioners and future trainees. As laparoscopy and robotics replaced open surgery, by virtue of further disruptive innovation, a 1984 general urology trainee like me became obsolete.

With persistence by young pediatric urologists, the American Board of Urology (ABU) recognized Pediatric Urology as a subspecialty entity by offering a Certificate of Added Qualification (CAQ). Limited 10-year certificates in Pediatric Urology have been issued for the first time in 2008. There are now 28 formal 2-year fellowships in North America governed by a central matching process coordinated through the American Urological Association (AUA). This process has become the cornerstone for other urological subspecialties that wish to receive ABU/CAQ’s.

In the three and a half decades that I have practiced Pediatric Urology, the practice itself has changed exponentially. Whereas entities like enuresis and bowel and bladder dysfunction were rarely seen in clinic when I started my career, they now comprise 40% of all new patients. In the past, as many as 80% of patients seen in a clinic would ultimately be guided into the operating room, whereas today we see more and more non-surgical patients, with < 20% receiving surgery. We have

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learned about the natural history of many urologic diseases. Nowadays, the majority of patients with vesicoureteral reflux do not require surgery. Antenatal hydronephrosis is most commonly just a “funny-looking” or transient variant, rather than a physiologically abnormal entity requiring intervention. Hypospadias and inguinal-scrotal surgeries have replaced reflux surgery as our bread and butter operations. The majority of our patients are healthy with elective issues that can be dealt with on an outpatient basis requiring no hospitalization. Even most pyeloplasties and re-implants are admitted for less than 24 hours.

In North America today, Urology trainees have very little general surgical, *open hands-on* experience, compared to my training days before entering Urology. Even with the increasing popularity of laparo-robotic care in adult urology, *open hands-on* care remains the norm for the majority of pediatric urology patients. I fear that with the lack of *open hands-on* training in adult urology based programs, the reduced work-

loads due to restricted hours, the expectations of the Millennial generation, and the evolution from large, complex cases to “twig and berry” surgery, urology residents will be dissuaded from pursuing Pediatric Urology as a career. Remuneration and quality of life will also weigh importantly into such career decisions.

I am certainly from a different generation than today's trainees, but as an educator, I recognize the one constant is change. That is, change in the trainees and their needs and goals, change in technology, change in our understanding of disease, and change in the demands of our stakeholders; the patients and those that pay us. These are fundamental entities to which we must be diligent if we are to continue to advance the fields of Urology and Pediatric Urology. How has this evolution been marked in your own country, where so many other parameters impact the choice of career, let alone the care of your patients? I welcome the opportunity to learn about this from you.