

**Division Photo**



*P. Noh, E. Jackson, C. Sheldon, P. Reddy, E. Minevich, S. Alam, W. DeFoor, Jr.*

**Division Data Summary**

**Research and Training Details**

Number of Faculty	6
Number of Joint Appointment Faculty	1
Number of Research Fellows	2
Number of Support Personnel	16
Direct Annual Grant Support	\$209,801
Direct Annual Industry Support	\$63,301
Peer Reviewed Publications	4

**Clinical Activities and Training**

Number of Clinical Staff	17
Number of Clinical Fellows	3
Inpatient Encounters	248
Outpatient Encounters	12,628

**Significant Publications**

**Reddy, PP; Borgstein, N; Nijman, R; Ellsworth, P: Long-Term Efficacy and Safety of Tolterodine in Children with Neurogenic Detrusor Overactivity. J Pediatr Uro. Vol 4, Issue 6, December 08, pp. 428-433.**

Study evaluated the long-term efficacy and safety of tolterodine in 30 children with neurogenic detrusor overactivity. Functional bladder capacity increased by month 12 in the younger age group but not in the oldest subjects. The number of incontinence episodes per 24 h decreased in all subjects, as did the number of catheterizations per 24 h. Mean volume per catheterization increased in all subjects. In Infants and children with neurogenic detrusor overactivity, improvement in bladder function observed after 12 weeks of tolterodine treatment can be maintained with ongoing tolterodine treatment over 12 months without introducing any new adverse events or safety concerns.

**Defoor, WR; Clark, C; Jackson, E; Reddy, P; Minevich, E; Sheldon, CA: Risk Factors for End Stage Renal**

### **Disease in Children with Posterior Urethral Valves. J Urol, Vol 180, Issue 6, June 09, pp. 1705-1708.**

A retrospective cohort study was performed of 142 children presenting with a diagnosis of posterior urethral valves from 1975 to 2005. Patients with posterior urethral valves and severe bladder dysfunction in whom nadir creatinine remains increased are at risk for upper urinary tract deterioration, requiring renal replacement therapy. It is unclear whether high grade vesicoureteral reflux at diagnosis may also be a poor prognostic sign. Urinary tract infections were not associated with end stage renal disease.

### **DeFoor, WR; Heshmat, S; Minevich, E; Reddy, PP; Sheldon, CA; Koyle, M: Long-Term Outcomes of the Neobladder in Pediatric Continent Urinary Reconstruction. J Urol, Vol 181, Issue 6, June 09, pp. 2689-2695.**

A retrospective cohort study was performed of 26 patients with a median age of 8.9 years who underwent creation of a neobladder at two pediatric institutions. A neobladder with a continent cutaneous neourethra is a viable option for management of the most severely debilitated children with no suitable native bladder tissue for urinary reconstruction. The neobladder is successful with regards to urinary continence and preservation of upper urinary tract function. However, serious surgical complications can occur such as reservoir stones, febrile UTI, metabolic acidosis, small bowel obstruction, bladder perforation and pelvic lymphocele. Long-term close postoperative followup is required along with annual surveillance cystoscopy to assess for malignant lesions.

### **Nguyen, HT; Hurwitz, RS; DeFoor, WR; Minevich, E; Novak, SM; Mortensen, JE; Elder, JS: The Antibacterial Activity of Trimethoprim Is Not Increased by the Addition of Sulfamethoxazole: A Prospective Multi-Center In-Vitro Evaluation. J Urol, Vol 181, Issue 4, April 09, pp. 378-379.**

The combination of sulfamethoxazole (SMX) trimethoprim (TMP) is the most common antibiotic used in the treatment of acute simple urinary tract infection in children. In 565 children with UTIs, the in-vitro sensitivity for TMP was comparable to that of TMP/SMX and is significantly higher than that of SMX alone. The addition of SMX appears to be unnecessary and may represent a risk to patients. TMP can be used as an alternative to TMP/SMX without any compromise to antibacterial activity.

### **Minevich E: Genitourinary emergencies in children. Minerva Pediatrica, Vol 61, Issue 1, 2009, pp. 53-65.**

The paper provides the PCP with a review of genitourinary conditions in children requiring emergent urological referral, e.g. acute scrotum/testicular torsion, scrotal masses, penile abnormalities, urinary retention, bladder outlet obstruction, abdominal masses, acute urinary stones, urinary trauma, genital abnormalities, complex anomalies and acute abdomen in patients with previous continent reconstruction. Signs and symptoms are discussed along with proper initial diagnostic workup and therapeutic management.

## **Division Highlights**

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### **Pramod P. Reddy, MD**

Dr. Reddy is the PI on a clinical trial study entitled "A 14-day, open-label, multicenter, dose escalating, sequential cohort study to evaluate pharmacodynamics (urodynamics) and pharmacokinetics, clinical efficacy, tolerability and safety, following multiple doses of a darifenacin liquid oral suspension given b.i.d. in children, ages 6-15 years, with neurogenic detrusor overactivity.

### **W. Robert DeFoor, MD, MPH**

Dr. DeFoor is the PI as a subcontract on Randomized Intervention for Children with VesicoUreteral Reflux (RIVUR) Protocol funded by National Institute of Diabetes and Digestive and Kidney Diseases

## **Division Collaboration**

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**Collaboration with Colorectal Center for Children; Gynecology; Nephrology; Endocrinology; Human Genetics; Psychology; Social Service; Fetal Care Center**

**Collaborating Faculty: Mark Levitt MD and Alberto Pena MD; Leslie Breech MD; Jens Goebel MD; Meilan Rutter MD; Howard Saal MD & Rob Hopkin MD ; Peggy Crawford PhD ; Myra Overton MSW; Timothy Crombleholme MD & Foong-Yen Lim MD**

The Urogenital Center partners with the Colorectal Center for Children and Gynecology to jointly manage patients with urogenital and anorectal malformations. All three divisions manage the care of patients locally, nationally and internationally. Pediatric Urology works closely with Nephrology on patient with endstate renal disease related to dysfunction of the urinary system. Dr. Sheldon performs renal transplantation in children who have undergone bladder augmentation and the creation of a neobladder. Dr. Sheldon and Dr. Goebel have visited Akron Children's Hospital in the Spring of 2009 and have agreed to be a referral site for patients requiring kidney transplant. Pediatric Urology is involved in a multidisciplinary center entitled the Center for Disorders of Sexual Development. The

collaborating services include Pediatric Urology, Gynecology, Endocrinology, Human Genetics, Psychology, Social Services and Nursing to manage the total care needs of patients with such diagnoses as intersex or ambiguous genitalia. Dr. Reddy along with the Pediatric Urology faculty evaluate prenatally urology condition in the fetus noted on sonogram and participate in care conferences as well as surgical cases.

## Faculty Members

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**Curtis A. Sheldon, MD**, Professor ; *Division Director*

**Research Interests:** Complex genitourinary conditions

**William Robert DeFoor, Jr, MD**, Assistant Professor ; *Director of Clinical Research*

**Research Interests:** Clinical trials. bladder detrusor activity, kidney stones

**Eugene A. Minevich, MD**, Associate Professor

**Research Interests:** Urolithiasis

**Pramod P. Reddy, MD**, Associate Professor ; *Director of the Pediatric Urology Fellowship Program*

**Research Interests:** Bladder organogenesis; Clinical trials and bladder detrusor activity

**Shumyle Alam, MD**, Assistant Professor

**Research Interests:** Complex genitourinary conditions; spina bifida

**Paul H. Noh, MD**, Assistant Professor ; *Director of Robotic Surgery;*

**Research Interests:** Minimally invasive laparoscopic and robotic surgery; UTIs

## Joint Appointment Faculty Members

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**Elizabeth Jackson, MD**, Associate Professor

Division of Nephrology

Clinical Trials and bladder detrusor activity; kidney stones

## Trainees

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- **Erica Traxel, MD**, PL-7, Washington University School of Medicine
- **Vesna Ivancic, MD**, PL-6, UCLA, Los Angeles, California

## Significant Accomplishments

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### Dr. Curtis Sheldon and the Urogenital Center

Dr. Curtis Sheldon, a nationally recognized authority in complex genitourinary reconstructive surgery and kidney transplantation, oversees the division's Urogenital Center. The Center focuses on the comprehensive medical, nursing and surgical care of patients with complex genitourinary conditions and patients requiring renal transplantation after bladder reconstruction. Dr. Sheldon partners with the faculty, especially Dr. Shumyle Alam, on reconstructive surgeries and the Center is a major teaching resource for the education of physicians, nurses, and patients/families. Patients are referred locally, nationally and internationally. The Center's case manager and nurses work closely with CCHMC Global Health Center, the Colorectal Center and Gynecology to develop a multidisciplinary plan of care for our complex patients. Furthermore, the division is collaborating with Endocrinology, Human Genetics, Gynecology, Psychology and Social Services on a new initiative entitled the Center for Disorders of Sexual Development. This team of experts is managing the complex and total care needs of patients/families facing a diagnosis of ambiguous genitalia or intersex issues. Dr. Sheldon's notoriety has resulted in numerous invited lectureships: was a visiting professor at the fourth National Urology Resident Preceptorship in Adult & Pediatric Reconstructive & Prosthetic Urologic Surgery held at the Cleveland Clinic in October 2008; was an invited guest speaker at Brazilian Congress on Surgery and Pediatric Urology hosted in Salvador-Bahia, Brazil in November 2008; presented at the "2009 Pediatric Urology Visiting Professor Series" at Columbia University Medical Center, NY in March 2009; was an invited speaker at the National Kidney Foundation Urology Lectureship in St. Louis, MO in April 2009; and the designated "Arnold H. Colodny Visiting Professor Lecture" at the Harvard Medical School Department of Surgery/Children's Hospital Boston Department of Urology in June 2009.

### Pediatric Urology Research & the Fellowship Program

Dr. Pramod Reddy, PI for the division's NIH funded basic science research investigating the molecular basis of organogenesis of the urinary bladder using the *Xenopus* model, collaborates closely with the Division of Developmental Biology. Additionally, Dr. Reddy is funded by the American Urological Association Foundation/NCI/NIDDK Surgeon-Scientist award. As Director of Urology Clinical Research, Dr. W. Robert DeFoor was an invited speaker at the 2009

annual meeting for the Society for Fetal Urology in Chicago, provided plenary presentation on clinical research, and is the PI for various divisional clinical trials. Dr. DeFoor and Dr. Elizabeth Jackson are co-PIs on the Alfachin Sanofi-Aventis clinical trial addressing the treatment of detrusor overactivity associated with a neurological condition in the pediatric patient. Dr. DeFoor is conducting his self-initiated research trial entitled, "Efficacy of Gentamicin Bladder Irrigations in Complex Urologic patients" funded by the division. Dr. DeFoor is the PI on the subcontract for the NIH clinical trial entitled "Randomized Intervention for Children with Vesico Ureteral Reflux." Dr. Reddy and Dr. DeFoor have a signed contract from Astra-Tech in collaboration with OT/PT to begin investigator-initiated studies comparing low-friction hydrophilic catheters versus standard urethral catheter in children with neuropathic bladder on clean intermittent catheterization. Dr. Reddy is the PI for a clinical trial agreement with Novartis Pharmaceuticals for the efficacy and treatment of neurogenic detrusor overactivity. The Pediatric Urology research programs are essential for the training of our fellows. Our ACGME accredited fellowship program, under the leadership of Dr. Reddy, is highly recognized nationally and internationally. Erica Traxel MD is from Washington University School of Medicine, St. Louis and graduated in June 2009. Vesna Ivancic MD attended UCLA in California and began her fellowship training as of July of 2008.

### Robotic Surgery, Arkansas Children's Hospital Initiative and Other Accomplishments

The division has had significant accomplishments in FY 2009. First, under the leadership of Dr. Sheldon, the division purchased and gifted to CCHMC the daVinci@S™ Surgical System with High Definition Vision and instruments at a cost of \$1.75 million. Under Dr. Paul Noh's direction, a robotic surgical team has been trained in the perioperative management of robotic surgical cases. In FY 2009, eighteen minimally invasive pediatric urology robotic cases have been completed successfully at CCHMC with reported results of decrease in pain, blood loss and length of stay. The surgical robotic procedures performed by pediatric urology include pyeloplasty, nephroureterectomy, ureteral implant, and nephrectomy and Dr. Noh will be training our other pediatric urology faculty in the use of the surgical robot. Second, CCHMC has signed an affiliation agreement between the Division of Pediatric Urology and Arkansas Children's Hospital. As a part of the agreement, Dr. Sheldon, Dr. Reddy and Dr. Minevich have traveled on a monthly basis to Arkansas Children's Hospital in Little Rock to perform complex genitourinary procedures and/or to perform more routine pediatric urology procedures on children with spina bifida. Dr. Reddy has trained the surgical and nursing staff at Arkansas Children's to manage the pre and post-op care of each patient and Dr. Reddy collaborates with the Arkansas Children's surgeons on post-op management of each surgical case. Third, Dr. Minevich is the President elect and Dr. Reddy is the Secretary-Treasurer elect for the American Association of Pediatric Urologists, a national non-profit organization promoting pediatric urology practice in the US. Finally, Dr. Jackson works with the four certified nurse practitioners to manage voiding dysfunction patients in our Health Bladder Clinics and provides care to spina bifida patients with neurogenic bladder issues in the Myelomenigocele Clinic of the Division of Developmental and Behavior Pediatrics.

### Division Publications

1. Minevich E. [Genitourinary emergencies in children](#). *Minerva Pediatr.* 2009; 61: 53-65.
2. DeFoor WR, Heshmat S, Minevich E, Reddy P, Koyle M, Sheldon C. [Long-term outcomes of the neobladder in pediatric continent urinary reconstruction](#). *J Urol.* 2009; 181: 2689-93; discussion 2693-4.
3. Reddy PP, Borgstein NG, Nijman RJ, Ellsworth PI. [Long-term efficacy and safety of tolterodine in children with neurogenic detrusor overactivity](#). *J Pediatr Urol.* 2008; 4: 428-33.
4. DeFoor W, Clark C, Jackson E, Reddy P, Minevich E, Sheldon C. [Risk factors for end stage renal disease in children with posterior urethral valves](#). *J Urol.* 2008; 180: 1705-8; discussion 1708.

### Grants, Contracts, and Industry Agreements

#### Grant and Contract Awards

#### Annual Direct / Project Period Direct

##### DEFOOR, W

##### Randomized Intervention for Children with Vesicoureteral Reflux

National Institutes of Health (University of Buffalo)

U01 DK 074063

06/01/08 - 05/31/10

\$54,051 / \$108,102

##### REDDY, P

##### Molecular Basis of Bladder Organogenesis

National Institutes of Health

K08 DK 069608

02/01/05 - 01/31/10

\$115,750 / \$578,750

##### Molecular Basis of Bladder Organogenesis

American Urological Association Foundation

03/01/07 - 02/28/10

\$40,000 / \$84,000

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	<b>Current Year Direct</b>	<b>\$209,801</b>
<b>Industry Contracts</b>		
<b>DeFoor</b>		
Sanofi Sythelabo		\$ 63,301
	<b>Current Year Direct Receipts</b>	<b>\$63,301</b>
	<b>Total</b>	<b>\$273,102</b>

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