Department of Urology

Edward M Schaeffer, MD/PhD
Edmund Andrews Professor of Urology
Chair, Department of Urology
Urologist-in-Chief, NMH
Key Facts about Northwestern Urology

- One of the oldest Urology departments in the country (established 1900)

- Residency program began in 1945
  - 161 alumni

- 41 Faculty
  - 27% women
  - 15% African-American
Department Philosophy

- Residency Program: Train the complete urologist
- Patient-centric, highly agile program
- Clinical questions and clinical need drive our programs and discoveries
  - Apply key basic science discoveries to "real life" problems
  - Improve the understanding of urologic subspecialties and the conditions we treat
- Strong partnerships with patients
  - "Partners in discovery"
Northwestern Urology is a Leader in Clinical Care

• Adult Urology:
  – 11th in *U.S. News and World Report* rankings
  – Highest ranked program in Illinois
  – Market leader in Illinois

• Pediatric Urology:
  – 4th in *U.S. News and World Report* rankings
  – Highest ranked program in Illinois
  – Market leader in Illinois

• Northwestern Memorial Hospital
  – 13th on *U.S. News* Best Hospitals Honor Roll

• 2017 Clinical Performance
  – 4,172 surgical cases
    • 13% increase in surgical volume from 2016
  – 22,176 clinic visits
  – 8,169 new patients

• 2017 resident graduate case log average: 2,357
Unique Features of Northwestern Urology Residency

• Urology training begins in year one
  – 544 cases per PGY1 resident in 2016-17

• Personalized, integrated and flexible curriculum
  – Diverse case mix
  – Balance between inpatient and outpatient care
  – Subspecialty experience with fellowship-trained faculty

• Clinical training combined with laboratory/clinical research
  – Fully-funded research year
  – Dedicated research mentor for each resident
  – Statistical, database construction/maintenance, and editorial support

• 6 months of resident-driven elective rotations
  – ANY specialty
  – National and international away electives

• Personal loupes and operating room lead provided by the department

• American Urological Association and Chicago Urologic Society memberships
  – Expenses paid by department for residents with abstracts accepted to AUA meeting
  – Residents attend CUS monthly meetings Nov-April
Northwestern Urology is a Leader in Research & Discovery

Research Funding and Publications

• **205 publications in 2017 academic year**
  – >1/3 published with trainees – JAMA, JCO, Cancer

• **101 abstracts and presentations at 33 national and international research meetings**

• **$15.7M awarded in research funding**
  – Ranked No. 2 in 2016 NIH funding at $6,137,144
  – SPORE in prostate cancer- $11.3M over 5 years (PI: Catalona)
  – Prostate Cancer Foundation- $1.4M to investigate the molecular biology of lethal prostate cancer (PI: Schaeffer)
  – 2016 V Foundation Translational Research Grant for prostate cancer biomarker validation in African American men (PI: Murphy)
  – International Center of Excellence for UTI research
Leader in Research & Discovery
Clinical Research

• **36 clinical trials and research studies currently recruiting patients**
  
  – Prostate Cancer
    • Reducing the Effects of Active Surveillance Stress, Uncertainty and Rumination through Engagement
    • Differences in Perceptions of Prostate Cancer Between Heterosexual and Gay/Bisexual Men
    • PET/MRI for the Staging of Prostate Cancer
  
  – Bladder Cancer
    • A Randomized Trial to Evaluate the Influence of BCG Strain Differences and T-Cell Priming with Intradermal BCG before Intravesical Therapy for BCG Naïve High-Grade Non-Muscle Invasive Bladder Cancer
    • A Prospective Phase II Trial of Neoadjuvant Systemic Chemotherapy Followed by Extirpative Surgery for Patients with High Grade Upper Tract Urothelial Carcinoma
  
  – Pelvic Pain
    • Microbiomes of Pelvic Pain
    • Chemokine Mechanisms in Chronic Pelvic Pain
    • Mast Cells in Male Pelvic Pain and LUTS

• **More than 9,000 patients currently enrolled**
Northwestern Medicine

• 155 diagnostic and ambulatory sites, including 7 hospitals across 8 counties

• 30,000 physicians, nurses and staff
  • 3,700 aligned physicians
  • 1,500 residents and fellows

• 85,000 inpatient admissions and 2.2 million outpatient encounters in 2016

• Primary clinical affiliate of Northwestern University Feinberg School of Medicine
  • 4,000 faculty
  • 3,266 students, residents and fellows
  • $443.1 million in research funding
What Candidates Look for in a Urology Residency Program

Top Factors for Ranking Residency Programs According to US Seniors

• Overall goodness of fit
  – Geographic location
• Program reputation
• Quality of faculty
• Quality of residents in program
  – Career paths of recent program graduates
• Quality of educational curriculum and training
  – Preparation for fellowship training
  – Academic medical center
  – Program’s flexibility to pursue electives and interests
  – Diversity of patient problems
  – Size of patient caseload
• Opportunity to conduct research
• Work/life balance
  – Housestaff morale

2017 NRMP Survey Results
Our Clinical Team

Northwestern Memorial
(16 clinical URO faculty)

Lurie Children’s
(8 clinical URO faculty)

Stroger
(5 clinical URO faculty)

VA
(3 clinical URO faculty)

Northwestern Urology Residency Program
Our Clinical Faculty
Urologic Oncology

William Catalona, MD
Som Kundu, MD
Josh Meeks, MD, PhD
Robert Nadler, MD
Kent Perry, MD
Ted Schaeffer, MD, PhD

Courtney Hollowell, MD
Sarah Psutka, MD
Patricia Vidal, MD
Roohollah Sharifi, MD
Daniel Dalton, MD
Our Clinical Faculty

Male Fertility and Sexual Dysfunction

Nelson Bennett, MD  Robert Brannigan, MD  William Lin, MD

Stone Disease

Robert Nadler, MD  Kent Perry, MD  Kelly Maxwell, MD  Mark Willie, MD
Our Clinical Faculty

Reconstructive Urology

Matthias Hofer, MD, PhD
Stephanie Kielb, MD
Courtney Hollowell, MD

Bladder Health

Sarah Flury, MD
Traci Beck, MD
Our Clinical Faculty

Pediatric Urology

Earl Cheng, MD
David Chu, MD
Edward Gong, MD
Emilie Johnson, MD, MPH
Bruce Lindgren, MD
Dennis Liu, MD
Max Maizels, MD
Elizabeth Yerkes, MD
Our Physician Scientists and Research Team

**Physician Scientists**

- Prostate Cancer
  - Edward Schaeffer, MD, PhD
  - William Catalona, MD
  - Shilajit Kundu, MD
  - Adam Murphy, MD
- Bladder Cancer
  - Joshua Meeks, MD, PhD
  - Sarah Psutka, MD
- Infection/Inflammation/Pelvic Pain
  - Sarah Flury, MD
  - Anthony Schaeffer, MD

**Scientists**

- Cancer
  - Sarki Abdulkadir, MD, PhD
  - Jennifer Wu, PhD
- Infection/Inflammation/Pelvic Pain
  - David Klumpp, PhD
  - Praveen Thumbikat, PhD
- Nanotechnology/Regenerative Medicine
  - Arun Sharma, PhD
  - C. Shad Thaxton, MD, PhD
Unique Programs within Northwestern Urology

• Comprehensive Cancer Prevention, Treatment and Recovery
  – Surgical and Oncologic Care
    • Prostate
    • Bladder
    • Kidney
    • Testicular
  – Sexuality and Cancer Treatment
    • Fertility preservation
    • Sexuality preservation

• Integrated, Multidisciplinary Approach to Vitality Preservation
  – Preservation and restoration of sexual vitality
  – Bladder health optimization
  – Genitourinary reconstruction

• Congenital and urologic disorders in adulthood
Our Residents and Alumni
Current Residents: PGY1 and PGY2

Lauren Cooley
VA Commonwealth

Matthew Hudnall
UCSF

Jeremy Lai
Northwestern

Minh Pham
Univ. of N. Carolina

Anuj Desai
Temple University

Oliver Ko
Case Western

Amanda Vo
Northwestern

Adam Weiner
Univ. of Chicago
Current Residents: PGY3 and PGY4

Jason Cohen
Johns Hopkins

Adarsh Manjunath
Northwestern

Mehul Patel
Univ. of Virginia

Emily Yura
Rush University

Channa Amarasekera
Harvard

Rotimi Nettey
Yale

Ashima Singal
Northwestern
Current Residents: PGY5 and PGY6

J.O. DeLancey
Univ. of Michigan

Brian Jordan
Univ. of Washington

Chris Morrison
UCLA

Alex Glaser
Northwestern

Nabeel Hamouei
Duke

Rich Matulewicz
Tufts

Kalen Rimar
Northwestern
Current Resident Demographics

**Race/Ethnicity**
- African American: 41%
- Caucasian: 45%
- Asian: 9%
- Hispanic: 5%

**Gender**
- Male: 77%
- Female: 23%

n=22
Medical Schools

- 25 medical schools represented over the past 10 years
  - Midwest: 53%
  - South: 14%
  - Northeast: 14%
  - West: 16%
  - Outside US: 2%

n=49 residents
Career Paths Following Graduation

33 Graduates (past 10 years)

- **Private Practice**: 9 (24%)
  - Academic Medical Center: 1 (11%)
  - Traditional Private Practice: 8 (89%)
- **Research**: 1 (3%)
- **Fellowship**: 23 (70%)
  - Academic Practice: 13 (56%)
  - Private Practice: 5 (22%)
  - Currently in Fellowship: 5 (22%)
Alumni Fellowship Training

Alumni Fellowship Training Past 10 Years

- Andrology: 29%
- Urologic Oncology: 14%
- Pediatric Urology: 10%
- Female pelvic medicine & reconstructive surgery: 10%
- Endourology/robotic surgery: 14%
- Male reconstruction: 33%

Fellowship Programs

- Baylor (Andrology)
- Children’s Hospital of Philadelphia (Peds)
- Cleveland Clinic (Reconstruction)
- MD Anderson (Oncology)
- Memorial Sloan-Kettering (Oncology)
- Michigan (Oncology)
- Northwestern (Endourology)
- UCSF (Reconstruction)
- USC (Oncology)
- UT Southwestern (Reconstruction)
- Vanderbilt (Endourology)

n=23 residents
Curriculum and Training Sites
Rotations

1. Northwestern Memorial Hospital
   - General Surgery (PGY1-PGY2)
     • Surgical apprenticeship
     • Night float
     • Surgical intensive care
     • Transplant surgery
   - Urology (PGY1-PGY6)
     • Oncology
     • Reconstruction
     • Andrology/Endourology
     • Alumni Group

2. Lurie Children’s Hospital
   • PGY1, PGY3

3. Jesse Brown VA Medical Center
   • PGY1, PGY2, PGY3, PGY6

4. Stroger Hospital of Cook County
   • PGY5
# Sample 6 Year Rotation Schedule

<table>
<thead>
<tr>
<th>PGY1</th>
<th>Pediatric Urology</th>
<th>Urology Consults</th>
<th>VA Urology</th>
<th>General Surgery SICU, Gen Surg, Vascular</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGY2</td>
<td><strong>Electives:</strong> Plastics, Path/Rad, Gen Surg</td>
<td>Outpatient Urology</td>
<td>NMH Urology</td>
<td>Urology Consults</td>
</tr>
<tr>
<td>PGY3</td>
<td>VA Urology</td>
<td>NMH Urology</td>
<td>Pediatric Urology</td>
<td></td>
</tr>
<tr>
<td>PGY4</td>
<td></td>
<td></td>
<td></td>
<td>Research Year</td>
</tr>
<tr>
<td>PGY5</td>
<td><strong>Electives:</strong> International (Austria), Rad/Med Onc, Urogynecology</td>
<td>Outpatient Urology</td>
<td>Stroger Urology</td>
<td>NMH Urology</td>
</tr>
<tr>
<td>PGY6</td>
<td></td>
<td>NMH Urology</td>
<td>VA Urology</td>
<td></td>
</tr>
</tbody>
</table>
Residency Mentors

Clinical and Research Mentors

Stephanie Kielb

Ted Schaeffer

Josh Meeks

Shad Thaxton
PGY 1 Training Opportunities

• American College of Surgeons Fundamentals of Surgery Online Curriculum

• Northwestern Center for Advanced Surgical Education Simulation Training
  – PGY1 Surgical Skills Lab in addition to General Surgery Boot Camp
  – Robotic Skills Course
  – 6 weeks of skills lab trainings held annually
  – 24 hour access to NCASE training lab
  – Laparoscopic trainer, TURP trainer, Mimic robotic trainer
  – Robotic trainers at VA and Lurie
PGY 4: The Research Year

• Full year of protected research time
• Work with Northwestern faculty member of your choice based on your research interests
  – Past projects
    • Next-generation tumor genotyping of urothelial carcinoma as a predictor for disease recurrence
    • Identification of novel biomarkers for the diagnosis and management of prostate cancer
    • Improving outcomes of urethroplasty using synthetic grafts and stem cells
    • Fellowship in the Surgical Outcomes and Quality Improvement Center
• Limited clinical responsibilities
  – 4 weeks of night float (20 calls) during lab year
• Lab residents receive normal resident stipend and $5,000 allocated for research-related supplies

2017-18 Lab Residents

Channa Amarasekera  
Mentor: Shilajit Kundu

Brian Jordan  
Mentor: Joshua Meeks

Rotimi Nettey  
Mentor: Adam Murphy

Ashima Singal  
Mentor: Edward Schaeffer
Electives

- Resident-driven electives in any specialty
  - PGY2 and PGY5 (3 months each)
  - National and international options in PGY5

- Past NMH Electives
  - Medical Oncology
  - Urogynecology
  - Radiology
  - Plastic Surgery
  - Transplant Surgery
  - Reproductive Endocrinology
  - Colorectal Surgery

- Past Away Electives (PGY5)
  - Children’s Hospital of Philadelphia-Pediatric Urology
  - Cincinnati Children’s Hospital- Pediatric and Adolescent Gynecology
  - Vienna General Hospital- Andlinger Residency Exchange Fellowship
  - Kibagabaga Hospital- Fistula Program, Kigali, Rwanda
  - Military Hospital of Ghana- International Volunteers in Urology Fellowship
International Electives
Ongoing Training Opportunities

- **Didactics and Conferences**
  - Resident Teaching Conference
    - Topic-based lectures
    - Board review
    - AUA Clinical Practice Guidelines
  - Urology Grand Rounds
    - Presented by Northwestern Urology faculty
    - Journal club
    - Resident case presentations
    - Guest speakers
  - Multidisciplinary Genitourinary Oncology Conference
    - Medical Oncology
    - Radiation Oncology
    - Hematology Oncology
    - Radiology
    - Pathology
  - Morbidity and Mortality Conference
  - Pre-operative Conference
Health and Safety
Resident Wellness: An Institutional Priority

- Residency training is fundamentally stressful
- Rate of depression among residents is 22% to 35%
- Physicians in practice have a substantially elevated risk of suicide compared to the general population

Northwestern is committed to ensuring that residents remain physically and mentally healthy

- Institutional goal to create a supportive culture to improve resident wellness and to proactively address mental health issues faced by residents
  - Increase awareness of depression risk during training
  - Destigmatizing depression through education
  - Resident Wellness Inventory and Wellness Toolbox containing self-appraisal tools
  - Wellness liaison provides confidential mental health evaluation and treatment to residents
Resident Wellness: An Institutional Priority
Housestaff Wellness Program Liaison: Ashley Bassett

- Available to housestaff through a direct line 24/7
- Resource for wellness or mental health concerns
- Maintains trainee confidentiality
  - Nothing communicated with the program, faculty, or institution
Diversity and Inclusion

- Goal: Create a medical campus environment of belonging and inclusion for all regardless of race, ethnicity, gender, sexual orientation, socio-economic status, marital status, language, education, age, physical abilities, religious and political beliefs

- Feinberg School of Medicine Initiatives
  - Goal: Raise awareness, expand engagement and promote discovery
    - Underrepresented Residents and Fellows Forum
    - Diversity and Inclusion Council
    - Feinberg OutList and AllyList
    - Women’s Health Research Forum
    - Community partnerships

- Department of Urology Initiatives
  - LGBT Safe Space Training
  - Health education, screening and outreach to at-risk communities and underserved populations
Resident Research

• Clinical/Translational Research Enterprise
  – Offer new knowledge and solutions in the clinical setting
  – Integral throughout residency
  – Goal: Identify research mentor, author 1 review paper or chapter AND 4 original manuscripts by the end of residency
  – Northwestern University Clinical and Translational Sciences Institute (NUCATS)
    • EDW: Comprehensive, and integrated repository of all clinical and research data
      • Data from >50 different source systems- medical records, billing, financial, and human resources data
      • Pilot funding for trainees

• Departmental Resources
  – Individualized mentoring
  – Partnership with Biostatistical Collaboration Center for one-on-one assistance with data analysis, results interpretation and manuscript preparation
  – Database development/maintenance
  – Editorial and IRB support
  – Research coordinator for prospective studies
Resident Publications

• 2016 graduates published an average of 18 manuscripts during residency

• Resident abstracts showcased at national and international meetings
  – World Congress of Endourology
  – GU ASCO
  – World Congress on Spina Bifida Research and Care
  – Society for Women in Urology

• Department funds travel and meeting expenses for all residents with accepted abstracts to AUA
  – 19 abstracts by 14 residents in 2017
Future Direction and Growth
Recent Programmatic Expansion

• Resident Compliment Increase
  – 3 → 4 residents per class (2014)

• Programmatic Growth
  – Reconstruction- Matthias Hofer, MD, PhD
    • Urethral and lower pelvic reconstruction
  – Male Fertility/Andrology- Nelson Bennett, MD
    • Sexual dysfunction and erectile dysfunction
  – Oncology- Maha Hussain, MD
    • Hematology/prostate and bladder cancer
  – Oncology- Alicia Morgans, MD
    • Hematology/prostate cancer
  – Oncology- Jennifer Wu, PhD
    • Basic science, prostate cancer development and progression
  – Oncology and Health Services - Greg Auffenberg, MD
    • Clinician-educator starting August 2018

• Physical Expansion
  – 65% increase in clinical space utilization in 2016
Departmental Vision for Growth and Discovery
Integrative Urologic Oncology Center

- Multi-specialty
  - Urology
  - Medical Oncology
  - Radiation Oncology
  - Radiology
  - Pathology

- Multi-modality
  - Molecular Imaging
  - Molecular diagnostics and prognostics
  - Integrated therapeutics

GRID
Genomic Resource Information Database
1.4 million data points on a cancer
What? Where? Why?

TREAT Cancer Better

Understand Cancer Better
See Cancer Better
Departmental Vision for Growth and Discovery
Program for the Reduction in Cancer Disparities Among African Americans

African American men are 1.6 times as likely to develop prostate cancer and 2.3 times as likely to die from prostate cancer as Caucasian men

Social drivers of poor outcomes
- CRUNCH Cancer RedUction Network of Chicago
  - Led by Dr. Adam Murphy
  - Cancer disparity collaborative including 4 hospitals, urologists, physician-scientists, community health workers and epidemiologists
  - Clinical and social trial network

Molecular drivers of poor outcomes
- AA tumors are biologically different
  - Research focused on identifying biomarkers specific to AA that predict the development of aggressive disease
Departmental Vision for Growth and Discovery
Program for Surgical Innovation and Quality in Urology

• Surgical Quality Improvement Measures
  – Deliver the right care at the right time
  – Improvements in surgical quality and patient safety
  – Enhancing delivery of clinical and surgical care
  – Reductions in unnecessary procedures

• Collaboration with Karl Bilimoria and the Northwestern Surgical Outcomes and Quality Improvement Center