



Nephrology and Hypertension Fellowship Program

Department of Nephrology and Hypertension
Glickman Urological & Kidney Institute



Letter from the Program Director

Thank you for your interest in Cleveland Clinic's Nephrology and Hypertension Fellowship Program. The Department of Nephrology and Hypertension has a rich legacy of excellence in patient care, clinical research and fellow education. We take pride in that legacy and believe that it stems from the high value our department places on providing excellent care for our patients and excellent education for our fellows.

Training our fellows is paramount to the continued growth of our department and to the field of nephrology. It is truly a group effort by our staff, whether they serve as research advisors, lecturers, clinical educators or mentors. We continuously strive to improve the program through fresh ideas and innovative educational experiences. This keeps both our staff and fellows on the cutting edge of nephrology education.

Our program's undeniable strength lies in the clinical excellence our fellows take away from their training. Our intensive care units serve patients with the highest acuity in the nation, and our transplant center is one of the nation's finest. As a nephrology fellow, you will gain expertise in the "bread and butter" of nephrology because we serve a large segment of Northeast Ohio's population. Yet you will also gain unique exposure to many uncommon nephrology conditions that few training programs can offer because we are a worldwide referral center.

Our diverse patient population also provides unparalleled opportunities for clinical research. Our department also leverages Cleveland Clinic's advanced technological capabilities to build large clinical databases for population-based and disease-specific clinical research.

You will be trained by renowned educators in the realm of nephrology as well as an array of younger staff physicians who are carving out their own areas of expertise. As a part of that team, you will enjoy unsurpassed opportunities for clinical education and academic growth.

We invite you to read this brochure and to contact us with any questions you may have. Whether you are interested in developing excellence in clinical medicine or clinical research, this is the program for you — because at Cleveland Clinic you can do both. If you are interested, we encourage you to apply for a position as a nephrology fellow. We are confident that you will not be disappointed in this rich educational and clinical experience.



Sincerely,



James F. Simon, MD

Director, Nephrology and Hypertension Fellowship Program



Program overview

Cleveland Clinic's Nephrology and Hypertension Fellowship Program is a traditional two-year program that combines clinical teaching and academic medicine. The goal of our program is to prepare fellows to be the finest possible nephrologists who can easily enter the practice of their choice, whether academic or purely clinical, after graduation.

The strong experience we offer in clinical nephrology during the fellowship is a hallmark of Cleveland Clinic training and sets us apart from many other academic centers. Cleveland Clinic also strives to be at the forefront of clinical and epidemiological research as well as innovations in medicine, providing ample research opportunities for fellows.

In addition, our fellowship program uses the latest innovations in education and evaluation to assess

fellows' academic and clinical progress, to ensure full competence in nephrology upon graduation. These include milestone-based evaluation systems, simulated procedural training, simulated patient experiences and case-based learning.

Our program recruits four fellows per class and is open to those who have completed a three-year internal medicine residency in an ACGME-accredited program. We also accept trainees on J1 and H1 visas.

In addition, we have one T32 research grant position available each year through a Case Western Reserve University-Cleveland Clinic program. This program provides the opportunity for two years of funded research, following one to two years of clinical training.



1940s

Dr. Irvine Page arrives at Cleveland Clinic and uncovers the link between high blood pressure and heart disease. He isolates the peptide angiotensin as well as serotonin, both key players in hypertension.



1943

Dr. Willem J. Kolff develops the first widely used and practical artificial kidney at Cleveland Clinic.

Clinical experience

Cleveland Clinic provides comprehensive diagnostic and therapeutic services for patients with renal disease and hypertension. Department of Nephrology and Hypertension staff are recognized for their expertise in chronic kidney disease, resistant hypertension, acute kidney injury care, renovascular hypertension, primary aldosteronism, pheochromocytoma and continuous renal replacement therapy.

Our department has established a Renal Stone Clinic in conjunction with Cleveland Clinic's Department of Urology, specializing in metabolic stone disease diagnosis and in kidney stone prevention.

In the Glomerular Disorders Clinic, nephrologists work closely with Cleveland Clinic nephropathologists to identify and treat patients with glomerular diseases, and participate in several clinical trials.

Cleveland Clinic is the highest acuity hospital in the nation for nephrology, and manages a large number of ICU patients. Fellows develop expertise in caring for

patients with acute kidney injury and in the full range of renal replacement therapies.

Professionals within our robust renal transplant program perform approximately 150 kidney transplants and 20 pancreas transplants per year. Fellows care for transplant patients as members of a fully integrated, multidisciplinary medical/surgical transplant team. Cleveland Clinic's cardiac, pulmonary, liver, intestine, bone marrow and face transplant programs provide great experience in managing renal complications in those patients. Fellows become comfortable with chronic hemodialysis and peritoneal dialysis through our network of outpatient dialysis units.

Because of the Cleveland Clinic's unique status as a quaternary referral center in an urban environment, fellows will become well-versed in common kidney disorders and will have the unique opportunity to work with world-renowned experts on rare nephrological disorders.



1960s

Dr. Magnus O. Magnusson pioneers kidney preservation research, lengthening the period available for seeking suitable recipients and donors for transplantation.



1963

Dr. Willem Kolff develops the twin coil artificial kidney and is named Head of Cleveland Clinic's Department of Artificial Organs.





Fellow rotations

The fellowship's clinical program is divided into four-week modules and several longitudinal experiences. Much of the clinical work is completed during the first year. The second year is devoted to dedicated research time, specialty electives and longitudinal electives in outpatient dialysis and transplant nephrology.

Continuity clinics

Fellows will participate in weekly continuity clinics throughout the two-year program. Patients are scheduled with the fellow and view the fellow as their nephrologist. This is where many fellows first learn what it means to be a patient's doctor.

Fellows will receive calls, refill requests and lab results and learn to develop plans based upon new findings between visits. A member of the teaching staff is paired with a fellow for six-month intervals, providing guidance and education, and supervising all clinical interactions. Unique evaluation tools, including milestone achievement and a peer-reviewed process improvement program, enhance the fellowship experience.

1963

Cleveland Clinic performs its first cadaveric kidney transplant.

1970

Cleveland Clinic's Board of Governors officially establishes the Department of Hypertension and Nephrology.

1972

Dr. William Braun is appointed Chief of the Renal Transplantation Section at Cleveland Clinic, where the 450th kidney transplant is performed.

1972

The first glomerular filtration rate (GFR) test is performed in Cleveland Clinic's Renal Function Lab, and later becomes the gold standard for measuring renal function.



Rotations

Each year, fellows rotate through 13 modules, four weeks at a time. The fellowship begins with a popular four-week orientation program, followed by rotation through these nephrology services:

- Renal transplant
- Consultative nephrology
- ICU nephrology
- Inpatient dialysis
- Outpatient specialty clinics
- Research

During their second year, fellows cover these services:

- Dialysis catheter placement
- Consultative, ICU or transplant nephrology
- Biopsy, ultrasound rotation
- Outpatient hemodialysis and peritoneal dialysis (longitudinal experience)
- Transplant clinic (longitudinal experience)
- Dialysis team (senior fellow)
- Clinical electives, including the opportunities for training in plasmapheresis, kidney stones, glomerular diseases, transplantation (a more advanced level of training) and the cardiothoracic ICU.

Intensive care nephrology

Cleveland Clinic nephrologists have led the field in developing several key techniques, such as continuous venovenous hemodialysis, for treating acute kidney injury. Direct exposure to intensive care nephrology across nine intensive care units provides fellows with unparalleled experience in acute nephrology. Fellows are exposed to unique, specialized patients in units such as the neurosurgical ICU and congestive heart failure ICU, and to those with more common conditions in the medical, coronary and surgical ICUs.

This purely consultative ICU experience gives fellows exposure to patients with acute kidney injury, volume disturbance, and fluid/electrolyte and acid/base disorders. In addition to working with nephrologists who focus on ICU nephrology, fellows interact with a variety of physicians including surgeons, anesthesiologists and medical intensivists.

1977

Cleveland Clinic is first in the United States to perform continuous dialysis therapy, in parallel with doctors in Germany.

1979

Cleveland Clinic's Nephrology Department, represented by Dr. Marc Pohl, becomes a founding member of the Lupus Nephritis Study Group organized by Dr. Edmund J. Lewis.





Renal transplantation service

Cleveland Clinic's kidney transplant program dates back to January 1963. Since then, more than 3,000 kidney transplants have been performed at Cleveland Clinic. Each year, our surgeons perform approximately 150 kidney transplants. Transplant nephrologists work closely with transplant surgeons in the preoperative, postoperative care and long-term follow-up care of patients, providing better coordinated, more seamless care.

On the inpatient renal transplant rotation, fellows will be a part of a multidisciplinary team that includes nephrologists and transplant surgeons as co-primary attendings, as well as transplant surgical fellows, urology residents, pharmacists and case managers. Fellows will also consult on the ever-growing population of patients with kidney dysfunction in the heart, lung, liver, intestine, bone marrow or other transplant setting.

Cleveland Clinic participates in a nationwide organ recovery program. We serve as Northeast Ohio's resource for tissue typing and utilize state-of-the-art technologies. Fellows have the opportunity to spend time in the histocompatibility lab familiarizing themselves with different tissue and antibody typing methods.

Consultative nephrology

The nephrology service's ward consults provide the foundation for general nephrology knowledge. Consults are placed for acute kidney injury, electrolyte and acid-base disorders, for assistance with vasculitis or other autoimmune disorders and for severe hypertension.

Consults pair a fellow with a staff physician to care for patients in need of nephrologic consultation on general wards. Fellows develop teaching and team management skills while working with residents and medical students who also rotate on this service.

Specialty clinics

This outpatient rotation gives the first-year fellow the chance to work with leaders in the fields of kidney stones, hypertension, glomerulonephritis, transplant and chronic kidney disease.

Gifford Fellows

Fellows spend one month rotating through the inpatient primary nephrology service. They will gain experience managing such a service as “junior staff” and will have the opportunity to follow patients to their dialysis-related procedures, such as dialysis catheter placement and dialysis access revisions. Fellows develop teaching skills and gain experience leading a team of residents on rounds.



Career tracks in the second year

Research track

Cleveland Clinic nephrology fellows' academic productivity has been very high. A research track is available for fellows who plan to pursue a career that involves research. This allows second-year fellows to use their roughly eight months of research/elective time to complete one mandatory research project and to work on additional projects to enhance their academic portfolio before graduation.

Fellows will have several large registries at their disposal for research, including acute kidney injury, chronic kidney disease and transplant registries. Fellows are paired with a research mentor early in their fellowship to help develop their projects and see them through to publication. A cadre of nephrology staff meets with fellows on a monthly basis to track their progress in this work and to provide guidance and feedback as needed.

Clinical track

Fellows interested in a primarily clinical practice have the opportunity to gain additional clinic experience during their second year in lieu of extended research time. As these fellows complete their one mandatory research project, they will be placed onto the clinical track. Paired with outpatient nephrologists in clinic on a weekly basis, they will hone their skills in efficiently assessing patient concerns and developing plans of care. (This track will not include additional inpatient service or on-call responsibilities.)



T32 Clinical research fellowship

The Case Western Reserve University-Cleveland Clinic T32 clinical research fellowship grant supports one eligible position per year and offers the opportunity for two additional years of funded research. The ultimate goal of this fellowship is to develop an independent career in academic nephrology.

Electives

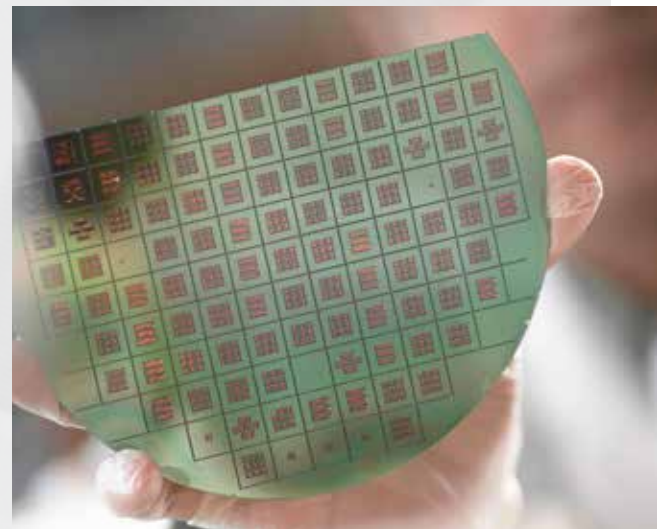
Fellows may take electives during their second year in areas such as transplant infectious disease, kidney stones and advanced renal transplantation. These electives are tailored to the future career interests of the individual fellow.

Teaching conferences

Our department has developed and is constantly refining a rigorous curriculum that provides fellows with the optimal environment to stimulate active, lifelong learning and to foster expertise in nephrology and hypertension. This curriculum offers a blend of classic didactic teaching, multidisciplinary case conferences and case-based learning.

Conferences focus on a two-year repeating core curriculum series, weekly case conferences, a monthly pathology conference, grand rounds, a research conference and a monthly journal club. Additional offerings include healthcare finance, practice management, research methodology, quality improvement and weekly transplant-specific conferences.

Day of Week	Time	Rounds/Lecture
Monday	Noon – 1 p.m.	Nephrology grand rounds
Tuesday	Noon – 1 p.m.	Core curriculum lecture series
Wednesday	Noon – 1 p.m.	Case management conference Monthly pathology conference
Thursday	Noon – 1 p.m.	Case-based teaching Glomerulonephritis board
Friday	7:30 - 8:30 a.m.	Monthly journal club, research conference, practice management, research methodology



1993

The Collaborative Study Group, formerly the Lupus Nephritis Study Group, investigates use of the ACE inhibitor captopril to treat type I diabetic neuropathy. Cleveland Clinic participates in this landmark trial, which revolutionizes the treatment of kidney disease.

2000

Dr. Charuhas Thakar and Dr. Emil Paganini develop the risk assessment score used to predict renal failure in the ICU at Cleveland Clinic.

2004

Cleveland Clinic's initial results using a bioartificial kidney with a renal tubule assist device (RAD) to treat acute renal failure patients in the ICU are published in *Kidney International*.

2006

Dr. William Fissell is awarded a \$3.2 million grant to develop the bioartificial kidney at Cleveland Clinic.

On-call schedule

Fellows are on call from home; there is no in-hospital call. Call is split between ICU and ward services, with two fellows on call each weekend and one fellow on call at night. Weekend calls are split evenly among all fellows and average one weekend per month. Weeknight calls are split as follows: first-years average three nights on call per month and second-years average two nights per month. Weekend rounds are attended and supervised by a member of the teaching staff.

Benefits

Salary is commensurate with PGY-4/5 training. All fellows receive three weeks of vacation per year. Allowances are available for travel privileges and other educational activities. For details on other benefits, including healthcare and insurance, visit clevelandclinic.org/GME or contact Cleveland Clinic's Graduate Medical Education office at 216.444.5690 or 800.323.9259.

Meeting attendance

Fellows typically attend the National Kidney Foundation's annual meeting during their first year and the American Society of Nephrology's annual meeting during their second year. It is expected that fellows will submit an abstract to present at each of these meetings.

Transplant fellowship

Cleveland Clinic offers an AST-accredited fellowship in transplant nephrology. This one-year fellowship is available after completion of a two-year nephrology fellowship. It is open to graduates from any ACGME-accredited nephrology fellowship.



For more information

Cleveland Clinic's nephrology fellowship participates in the National Resident Matching Program (NRMP). Applications are accepted only through the Electronic Residency Application Service (ERAS).

For additional information about graduate medical education, please visit clevelandclinic.org/GME.

For additional information about our Nephrology and Hypertension Fellowship Program, please contact:

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About Cleveland

The same vitality that charges Cleveland Clinic extends to life outside work. University Circle, home of Cleveland Clinic's main campus, is Cleveland's cultural center. It boasts one of the country's greatest concentrations of museums and cultural activities, including the Cleveland Museum of Art, Cleveland Orchestra, Museum of Contemporary Art and Cleveland Museum of Natural History.

Vibrant city life

Downtown Cleveland is within walking distance of these lively venues:

- Playhouse Square and The Cleveland Play House for theater and Broadway shows — the largest U.S. performing arts center outside of New York
- The Rock and Roll Hall of Fame and Museum
- The Great Lakes Science Center and Cleveland Clinic OMNI MAX Theater
- Quicken Loans Arena, home of the Cleveland Cavaliers
- First Energy Stadium, home of the Cleveland Browns
- Progressive Field, home of the Cleveland Indians
- Horseshoe Casino
- The Warehouse District, Gateway District/East Fourth Street and the Flats East Bank — live music, comedy clubs, restaurants and more
- The West Side Market — dozens of food vendors in a beautiful historic building

Other local attractions

The unique Little Italy, Ohio City Tremont, Gordon Square, Uptown and Waterloo neighborhoods, a few miles from Cleveland Clinic, offer a variety of restaurants, shops, galleries, craft breweries and more.

Blossom Music Center is the summer home of The Cleveland Orchestra and a popular outdoor concert venue.

The Cleveland Metroparks Zoo and Cedar Point Amusement Park offer family fun.

Outdoor pursuits

Lake Erie is a mecca for boaters, sailors and anglers.

The Cleveland Metroparks (16 nature preserves and lakefront beaches encircling the city) has running, hiking and biking trails, excellent for cross-country skiing, tobogganing and snowmobiling in winter.

Cuyahoga Valley National Park, a 33,000-acre preserve straddling the Cuyahoga River, is one of the most-visited U.S. national parks.

The Towpath Trail is an 85-mile biking and hiking route stretching from Cleveland down to central Ohio.



