**Division Data Summary**

### Research and Training Details

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Faculty</td>
<td>12</td>
</tr>
<tr>
<td>Number of Research Fellows</td>
<td>6</td>
</tr>
<tr>
<td>Number of Support Personnel</td>
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<tr>
<td>Direct Annual Grant Support</td>
<td>$322,515</td>
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<tr>
<td>Direct Annual Industry Support</td>
<td>$375,141</td>
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<tr>
<td>Peer Reviewed Publications</td>
<td>60</td>
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### Clinical Activities and Training

<table>
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<tr>
<th>Category</th>
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<tr>
<td>Number of Clinical Fellows</td>
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<tr>
<td>Inpatient Encounters</td>
<td>3989</td>
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<tr>
<td>Outpatient Encounters</td>
<td>2869</td>
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### Significant Publications


This is the first study to demonstrate the superior performance of NGAL as a biomarker of acute kidney injury above and beyond current diagnostic parameters.


This manuscript describes the derivation and characterization of a novel conditionally immortalized urothelial cell line, which will serve as an important reagent in the study of cancers of both the native and augmented bladder.


We discovered a biomarker with potential diagnostic and pathophysiological implications for a more advanced subset of pediatric patients with steroid resistant nephrotic syndrome.

This study is the first to show that combined dyslipidemia is very frequent in children with mild to moderate chronic kidney disease.


This is the first study to highlight the high rate of nephrotoxic medication exposure in hospitalized children, and quantify the risk of AKI in children exposed to nephrotoxic medications, which is now being used to design QA projects to decrease unnecessary exposure.

Division Collaboration

Heart Institute; Catherine Krawczeski;
- Co-investigator on studies entitled "Novel biomarkers in cardiac surgery to detect acute kidney injury" and "Ancillary Studies in the natural history of acute kidney injury"

Heart Institute; Heart Institute; Radiology; Radiology » Michael Taylor; Kan Hor; Janaka Wansapura; Diana Lindquist
- Co-investigators on study "Early biomarkers of cardiac dysfunction in pediatric chronic kidney disease: cardiac MRI study"

Rheumatology; Hermine Brunner
- Co-investigator on studies entitled "Forecasters of progression of chronic kidney disease" and "Advanced Proteomics for the early prediction of lupus nephritis"

Rheumatology » Hermine Brunner
- Co-PI on study entitled "Biomarkers to distinguish classes of lupus nephritis" and Research Associate on "Advanced Proteomics for the early prediction of lupus nephritis"

Developmental Biology » Steven Potter
- Co-investigator on studies entitled "Glomerulosclerosis in human FSGS and mouse models"

Developmental Biology » Alex Kuan
- Co-investigator on studies entitled "Implications of JNK pathways in renal ischemia-reperfusion injury"

Critical Care Medicine » Derek Wheeler
- Use of Novel Urine and Blood Biomarkers to Optimize Fluid Dosing in Critically Ill Children with Acute Kidney Injury

James M. Anderson Center for Health Care Excellence » Carole Lannon
- Co-Investigator and Project Lead - "Predicting and Preventing Nephrotoxic Medication-Associated Acute Kidney Injury in Non-Critically Ill Hospitalized Children" for CERT Grant

Neurology » James Collins
- Co-investigator on study entitled "Transcriptomics and Proteomics in Merosin Deficient CMD Patients"

Hematology/Oncology » Sonata Jodele
- Co-Investigator on study entitled "A Prospective Analysis of Clinical and Biochemical Markers for Pediatric Stem Cell Transplant-Associated Thrombotic Microangiopathy"

James M. Anderson Center for Health Systems Excellence » Adam C. Carle
- Co-investigator for studies entitled: "Interaction between Tacrolimus and intravenous nicardipine in the treatment of post-kidney transplant hypertension at pediatric hospitals" and "The Quality of Cardiovascular Disease Care and Formal Transition for Adolescents with Kidney Disease: A Midwest Pediatric Nephrology
Consortium Study

Center for Education and Research in Therapeutics » Shannon Saldana
  Co-investigator for study entitled: "Characteristics of successful recruitment in prospective pediatric pharmacogenetic studies"

Pediatric Pharmacology Research Unit and the Center for Environmental Genetics at UC » Sander Vinks; Tsuyoshi Fukuda
  Collaborating faculty for studies entitled: "Risk of Tacrolimus Toxicity in CYP3A5 Non-Expressors Treated with Intravenous Nicardipine After Kidney Transplantation" and "Genotype as a Predictor of Mycophenolate Mofetil Related Leucopenia in Pediatric Transplant Recipients"

Faculty Members

Prasad Devarajan, MD, Professor
  *Louise M. Williams Endowed Chair*
  *Director, Division of Nephrology & Hypertension*
  **Research Interests** Pathogenesis, biomarkers, and novel therapies of acute kidney injury; Pathogenesis and biomarkers of focal segmental glomerulosclerosis; Pathogenesis and biomarkers of lupus nephritis

Michael Bennett, PhD, Assistant Professor
  *Director, Biomarker Laboratory*
  **Research Interests** Biomarker discovery in acute and chronic kidney disease; focal segmental glomerulosclerosis

John J. Bissler, MD, Professor
  *Director, Nephrology Fellowship Training Program*
  *Associate Program Director for Research and Academic Careers*
  *Clark D. West Chair of Nephrology*
  **Research Interests** Polycystic kidney disease, renal tumors, tuberous sclerosis complex, Renal Cell Biology

Kimberly Czech, MD, PhD, Instructor
  **Research Interests** Focal segmental glomerulosclerosis

Bradley P. Dixon, MD, Assistant Professor
  *Assistant Director, Nephrology Fellowship Training Program*
  **Research Interests** DNA damage and repair, cell biology of the augmented bladder, atypical hemolytic uremic syndrome and thrombotic thrombocytopenic purpura

Jens Goebel, MD, Associate Professor
  *Medical Director of Transplantation*
  *Clinical Director, Nephrology*
  **Research Interests** Advancing basic and translational investigations into immunological aspects especially relevant to the field of transplantation

Stuart Goldstein, MD, Professor
  *Director, Center for Acute Care Nephrology*
  *Medical Director, Pheresis Service*
  **Research Interests** Acute Kidney Injury, End Stage Renal Disease, Multi-Organ Dysfunction Syndrome, Continuous Renal Replacement Therapy, Cardio-Renal Syndrome, Nephrotoxic medication injury

Elizabeth Jackson, MD, Associate Professor
  **Research Interests** Nocturnal enuresis, pelvic pain syndromes, kidney stones

Paul McEnery, MD, Professor Emeritus
Glomerulonephritis; vitamin D resistant rickets; End Stage Renal Disease

Research Interests

Mark Mitsnefes, MD, Associate Professor

Cardiovascular abnormalities and risk factors for increased cardiac morbidity and mortality in children with CKD; evaluation of LVH; cIMT; hypertension

Research Interests

Larry Patterson, MD, Associate Professor

Understanding and control of developmental mechanisms leading to the end of nephron production

Research Interests

C. Frederic Strife, MD, Professor Emeritus

Clinical aspects of glomerulonephritis and dialysis

Research Interests

Rene Vandevoorde, MD, Assistant Professor

Medical Director, Dialysis Unit

Chronic Kidney Disease; Dialysis including Infant Dialysis; Epidemiology of Renal Diseases; Medical Education

Research Interests

David Hooper, MD, Assistant Professor

Reliable and innovative chronic disease management, cardiovascular outcomes following kidney transplantation

Research Interests

Trainees

- Edward Nehus, MD, PL-2
- Rossana Malatesta-Muncher, MD, PL-2
- Ahmad Kaddourah, MD, PL-1
- Donna Claes, MD, PL-1
- Benjamin Laskin, MD, PL-3
- Megan Lo, MD, PL-3

Significant Accomplishments

Center for Acute Care Nephrology

The incidence of acute kidney injury has reached epidemic proportions globally, afflicting one third of critically ill children and often resulting in death or chronic kidney disease. The urgent need to develop optimal care for patients with or at risk for acute kidney injury led us to launch the Center for Acute Care Nephrology (CACN). The collaboration among Nephrology, the Heart Institute and Critical Care had a stellar first year. Our clinical accomplishments include launching the first in-house consultative acute Pheresis Service in February 2011 and implementation of proactive peritoneal dialysis in children at risk for acute kidney injury after cardiac surgery. These initiatives have dramatically improved outcomes for children as they receive state-of-the-art care without complications.

In addition, the CACN spearheaded a collaboration with the James M. Anderson Center for Health Systems Excellence to implement an institution-wide initiative to reduce nephrotoxic medication-associated kidney injury. On the research side, the CACN secured more than $350,000 in extramural funding. One pioneering project involves using the novel biomarker NGAL to direct institution of early treatments in critically ill children.

Kidney Transplant Center
The multidisciplinary Kidney Transplant Center has performed nearly 500 kidney transplants in children since 1965. Our mission is to optimize the quality of life of children suffering from chronic kidney disease by providing the foremost clinical care, education and research pertaining to pediatric kidney transplantation. Recent years have seen many advances, thanks to novel protocols that optimize the care of children with the most complex malformations, antibody-mediated rejection and BK virus nephropathy. Despite the complexity, our kidney transplant program continues to achieve patient and graft survival rates at or above the national benchmarks, while the lengths of stay for the initial transplant surgery are shorter than the national average. These successes have established our program as one of the premier transplant centers in the Midwest, and more than half of our patients come from distant cities and states. During 2011, we performed 21 kidney transplants, which places us within the top five busiest pediatric kidney transplant centers in the country. These achievements are fueled by ongoing funded research aimed at improving these outcomes, with focus areas in immunology, adherence and quality improvement.

Dialysis Unit

The Dialysis Unit is the second largest in the Midwest and among the 10 largest in the country. By far the most challenging and complex dialysis patients are infants. Over the past decade, we cared for only one infant on home dialysis. Over the past 18 months, this demanding population has soared, and we now care for seven infants on home dialysis. Most infants have come from outside the Cincinnati area, many referred via our Fetal Care Program because of lack of complex dialysis expertise at their home institutions. The care of these infants is optimized through a coordination of services orchestrated by the dialysis unit, bringing together their medical, surgical, nutritional, developmental and psychosocial needs. New policies for aggressive feeding, hormonal and dialytic treatments have resulted in improved physical and mental development, and earlier kidney transplantation. Such initiatives have assured optimal care and set best practice care standards for this unique dialysis population.

Division Publications


### Grant and Contract Awards

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<tr>
<th>Research Description</th>
<th>Institute</th>
<th>Grant Number</th>
<th>Project Dates</th>
<th>Direct Funds</th>
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<tr>
<td>Research Training in Pediatric Nephrology</td>
<td>NIH</td>
<td>T32 DK 007695</td>
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<td>Progression of Acute Kidney Injury to Chronic Kidney Disease</td>
<td>NIH(Yale)</td>
<td>U01 DK 082185</td>
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<td>Novel Biomarkers in Cardiac Surgery to Detect Acute Kidn</td>
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<td>09/27/09-09/26/11</td>
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<td>Pediatric Kidney Disease: AKI and Acute Kidney Function</td>
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<td>02/01/11-01/31/12</td>
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<td>Environmental Carcinogenesis and Mutagenesis</td>
<td>University of Cincinnati</td>
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<td>07/01/11-06/30/12</td>
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#### Current Year Direct

| Total Current Year Direct Receipts | $322,515 |

#### Industry Contracts

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<th>Contractor</th>
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<tr>
<td>Abbott Laboratories</td>
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<td>Baxter Healthcare Corp.</td>
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<tr>
<td>Novartis Pharmaceuticals</td>
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#### Current Year Direct Receipts

| Total Current Year Direct Receipts | $375,141 |

#### Service Collaborations

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<td>McGill</td>
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#### Current Year Direct

| Total Current Year Direct | $55,000 |

| Total                   | $752,656 |