

DEPARTMENT OF MEDICINE • ANNUAL REPORT 2008-2009

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INDIANA UNIVERSITY

DEPARTMENT OF MEDICINE

School of Medicine



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ANNUAL REPORT STAFF

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CORE VALUES

The values of the Department, which are embraced by all of our faculty, are based upon our three missions of teaching, research, and service. These values are grounded in our devotion to lifelong learning and pursuit of knowledge.

TEACHING

We value broad-based training of students, residents, and post-doctoral candidates to fulfill local, state, national, and international needs.

We will train highly skilled, compassionate and altruistic professionals, both generalists and specialists, to be future leaders in medical practice, academia, and industry. All faculty will devote time to teaching both themselves and others, and all teaching, research and clinical venues will be receptive to learners.

We strive to be recognized for the students we train and for the development of innovative methods for teaching and tools for assessing our learners' progress.

RESEARCH

We value cutting-edge research that encompasses the spectrum from bench science to outcomes research.

We value the success and recognition of individuals for their research accomplishments; we equally value nurturing the research careers of junior faculty and trainees and the success and recognition of the entire Departmental research enterprise.

We value an interdisciplinary approach to science. All faculty will be committed to the research mission, even though not all will be active investigators.

Those mainly devoted to our patient care and teaching missions will facilitate their patients' access to clinical trials to further our pursuit of knowledge and to make the most advanced therapies available to them.

CLINICAL SERVICE

We value state-of-the-art, compassionate, patient-focused care that is always directed to the best interest of our patients without regard to race, religion, or ability to pay.

We value preventive as well as interventional care. We value the continued development of cost-effective, consumer-oriented ways to care for patients and their families. We value collegial relationships and interdisciplinary efforts with other faculty, referring physicians, and our patients.

PROFESSIONAL SERVICE

We value service to our community and to our profession. Faculty will be involved in community and charitable organizations to better their communities and to foster personal growth. Faculty will also serve their discipline by seeking roles in professional organizations and peer review groups.



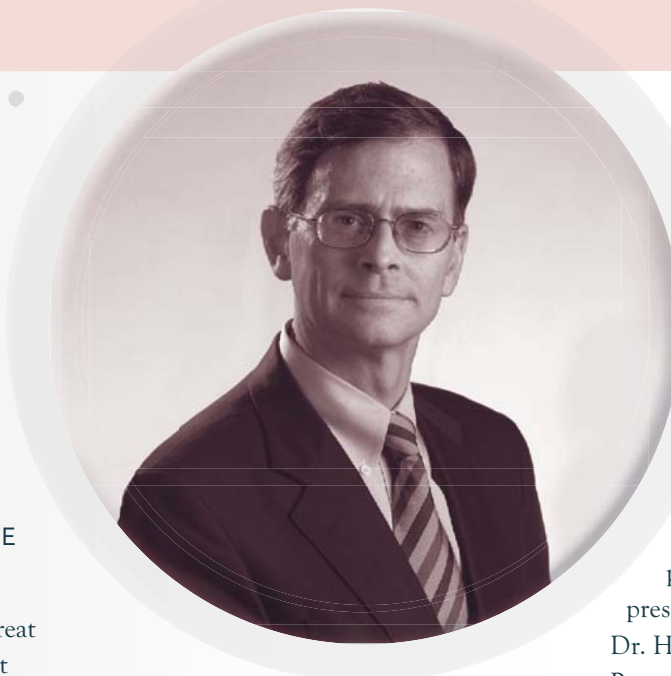
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DAVID W. CRABB, M.D.

Chairman
DEPARTMENT OF MEDICINE



It is a truism that times of great challenges are times of great opportunity. We experienced the loss of two of the giants of the Department of Medicine and Indianapolis this year – Dr. Gus Watanabe and our good friend and Director of the IU Simon Cancer Center, Dr. Stephen Williams. But we also experienced growth, outstanding recruitment of new faculty, and expansion of programs.

EDUCATION

Educational activities were highlighted by outstanding evaluations of the Hematology/Oncology, Endocrinology, and Cardiology sections of the ICM2 course for sophomore medical students - kudos to Drs. Rakesh Mehta, Nasser Hannah, Melissa Cavaghan, Carmella Evans-Molina, and Scott Byers. The medical students rated the quality of their educational experience during the Junior Clerkship in Medicine as the best among the clinical clerkships. We had a great resident recruiting year, with 10 IU students, 14 international students, and 12 students from other U.S. medical schools matching in categorical medicine and 16 in the Med-Peds program. The Medicine-Pediatrics program was accredited for the maximum number of years, and the Director, Dr. Alex Djurichich was named President-Elect of the Medicine-Pediatrics Program Directors Association.

The Educational Innovations Project (EIP) energizes the program and has gained our education leaders a national reputation through presentations at the Association of Program Directors in Medicine (APDIM) meetings and other national venues. There were two notable innovations this year. First was the creation of “Super School,” an academic half day for all the PGY2 and 3 housestaff for team-based learning, free of interruptions. And, second, was the new patient safety elective at the Roudebush Veterans Administration Medical Center (VAMC) which is highly sought by the house staff, and generating publications on quality improvement. The residents perform patient safety consults, investigate the issues that contributed to the situation, and develop and implement improvements to the care processes. This elective was explicitly recognized by the VA central office in recent communications as a model for other VAs.

Dr. Aaron Leary was named the second Richard and Phyllis Dexter Scholar in medical education for his project on teaching screening and brief interventions for alcohol use disorders to the housestaff. The first Dexter Scholar, Dr. Lyle Fettig, presented his work at grand rounds entitled

“Communicating with Seriously Ill Patients and Their Families: Recent Research and New Teaching Curricula.”

The housestaff are very involved in research during their elective months. We recognized the following residents and fellows and their mentors for their outstanding research projects. From the residents’ presentations, first place went to Dr. Hadi Hatoum (Mentor: Dr. Irina Petrache, Pulmonary) and second place to Dr. Vineet Kumar (Mentor: Keith March, Cardiology). In the fellows category, first place was awarded to Dr. Ninotchka Sigua (Mentor: Dr. Irina Petrache) and second place went to Dr. Yaser Homsy (Mentor: Dr. Sherif Farag, Hematology/Oncology). Thanks to all the residents for their interest in experiencing their excitement of discovery and their contributions to improving patient care.

RESEARCH

In the Contracts and Grants section of this annual report, Dr. Sharon Moe has outlined the new grants to established and to more junior faculty. There was an enormous response to the American Recovery and Reinvestment Act (ARRA) grant opportunities in the spring which have amounted to millions of dollars of additional research support for School of Medicine faculty and significant support for the Indiana Clinical and Translational Sciences Institute (CTSI). We are indebted to the tireless work of the Department’s Research Administration office that got all those grants out the door. While the current year’s funding is less than last year’s record high, the level of funding of our programs across the Department remains on an upward trajectory.

COMMENTS FROM THE CHAIRMAN

Highlights of the year in research include:

The recruitment of Drs. Theresa Guise and John Chirgwin, from the University of Virginia to the Division of Endocrinology, brings an infusion of new energy and research questions to one of the best bone research programs in the world, which already spans several Departments and Schools. They were accompanied by a number of their colleagues in their bone research group (Drs. Khalid Mohammad, Min-Qing Zhao, and Pierrick Fournier). Drs. Guise and Chirgwin are outstanding researchers and leading experts in the interactions of metastatic cancer with bone. Their work highlights the dynamic interplay between humoral factors released by the tumor cells and the bone cells, and has opened up new opportunities for treating this unfortunate, and too common, complication of cancer.

The Division of Clinical Pharmacology renewed the Pharmacogenetics Research and Network Knowledge Base grant, led by Dr. David Flockhart. This group is expanding its collaborations across the School with the creation of Obstetrics (PREGMED) and Pediatrics (PEDMED) clinical pharmacology teams. An upshot of the CTSA grant is the creation of a clinical pharmacology modeling training program. We welcome Dr. Robert Bies from the University of Pittsburgh who was selected to lead this unique program. A graduate of the Clinical Pharmacology and Oncology fellowship programs, Dr. Bryan Schneider, published a landmark paper on genetic polymorphisms that determine the responses to VEGF antagonists in breast cancer, immediately becoming one of the most downloaded papers in the Journal of Clinical Oncology. The Division is arguably the leading division of clinical pharmacology in the country.

Health services researchers, Drs. David Haggstrom and Erin Krebs, were both awarded Robert Wood Johnson career development awards for VA investigators (two of the four such grants given nationally), reflecting their superb programs and the environment for the research. This was made possible in part by the ground work laid by Dr. Brad Doebbeling, Director of the HSRD Center of Excellence. Dr. Doebbeling has stepped down as Director to devote more time to his own research. We thank him for the creation of the HSRD Center of Excellence and the recruitment of so many outstanding researchers. A related health services grant, the Translation Research on Chronic Disease Self-Management, led by Dr. Chris Callahan, was competitively refunded.

QUALITY AND SAFETY

Nothing has caught the attention of our faculty and hospital partners as much as the need to track, report, and improve the quality and safety of the care we deliver in and out of the hospital. Dr. Jack Buckley, a graduate of our residency and fellowship programs, as well as a research fellowship in general internal medicine, was recruited from the Henry Ford Hospital system to serve as Vice Chair for Quality and Patient Safety. Emphasizing the essential element of education in the improvement of care, Dr. Buckley is also serving as the Director of the senior subintern clerkship, a required clerkship for all IU School of Medicine students. Dr. Buckley has taken on understanding and consolidating the myriad metrics that are being tracked and instituting specialty and division specific quality conferences. A unique aspect of the quality improvement efforts in the Department is the close linkage between quality and safety programs and involvement of the housestaff through the Education Innovations Project. With the addition of the quality elective

and creation of a quality and safety chief resident, we have harnessed the eyes and brains of our residents for improvement of care in all our clinical venues. The quality activities of the Department and Clarian Health system were highlighted by Methodist Hospital being named the top hospital in terms of patient safety (for the third year in a row), and Indiana University (IU) Hospital the most improved in patient safety in the ranking provided by the University HealthSystem Consortium (UHC).

CLINICAL OPERATIONS

The Department introduced more innovative clinical programs this year. These are detailed in the Clinical Overview section of this report, and include the atrial fibrillation ablation program; advanced heart failure program, with the only ventricular assist device certification in the State; geriatric oncology consultation; daily home dialysis center; a much expanded sleep medicine service and creation of a new sleep fellowship program; and implementation of a new Ryan White Program for care of patients with HIV/AIDS in conjunction with Wishard Health Services and the Marion County Health Department. Our procedural and outpatient visit volumes grew again. The main outpatient clinic at IU Hospital implemented an all electronic medical record systems with no major loss of productivity or down time.

The following programs with large contributions from the Department of Medicine - Digestive Disorders, Kidney Disease, Cancer, Geriatrics, and Respiratory Disorders - were listed in the top 50 by the latest *US News and World Report* rankings. Our partner, Wishard Health Services, received the Distinguished Chair Award from the National Association of Public Hospitals and Health Systems (NAPH) for their Geriatric Resources for Assessment and Care of Elders (GRACE) Program.

Our Indianapolis clinical operations are paralleled by those in the Western Province of Kenya. Our partnership with the Moi Teaching and Referral Hospital is growing to include the provision of primary care, based in the outreach clinics now covering the province. Highly innovative programs to detect patients with undiagnosed tuberculosis ("cough monitors") and to test everyone in the province for HIV infection (to direct prevention efforts) have captured international attention. These activities remain firmly linked to the education of residents and students from IU and Moi and to the expanding research activities, which are described more completely in the listing of grant awards.

FACULTY MILESTONES

This year we celebrated some important transitions and achievement of the faculty.

Dr. James Edmondson concluded a career at IU that spanned from his residency and chief residency to retirement in late 2008. Jim served us in many capacities, including director of the General Clinical Research Center and Director of the Medical Diagnostic Center. He will likely be remembered most by the students and residents as one of our best clinical endocrinologists and a superb teacher. He won several teaching awards over the years and his experience, dry sense of humor, and deep baritone voice will be remembered for a long time.

Dr. Douglas Rex was named Distinguished Professor of Medicine, the highest rank the university confers. Doug was recognized for his lifetime of contributions to effective screening strategies for colon cancer and to improvement to implementing colonoscopic screening for polyps and cancers. It is a little hard to believe that not so long ago there was strenuous debate over which modality of screening

should be used and whether screening improved overall outcomes: Dr. Rex was a major player in that debate.

Dr. Kurt Kroenke was named Chancellor's Professor of Medicine. This recognition is made by the IUPUI Chancellor for senior faculty making major and substantial contributions to all missions of the University. Kurt is one of our most accomplished health services researchers, a superb internist, and has made enormous contributions to the training of clinical investigators through direction of the K30-CITE program which was folded into the CTSA last year.

Dr. David Wilkes was elected into the Association of American Physicians (AAP), an honorary society for senior medical researchers. This is an enormous and well deserved recognition for David's contribution to understanding the immunological basis for lung transplant rejection.

Dr. Richard Dexter was named a Master of the American College of Physicians, a wonderful tribute to his career in endocrinology and medical education.

Not least, Drs. Naga Chalasani (2008) and Keith March (2009) were elected to membership in the American Society for Clinical Investigation (ASCI), the premier honorary society for young medical researchers. Naga directs the Division of Gastroenterology and Hepatology and is an international authority in non-alcoholic fatty liver disease and drug induced liver injury. Keith has been a leader in vascular biology research for over a decade and leads our Indiana Center for Vascular Biology and Medicine.

Congratulations Jim, Doug, Kurt, David, Rick, Naga, and Keith.

One of the great traditions of the annual faculty meeting is recognizing our best faculty. This year we awarded

the Outstanding Young Clinician Award to Dr. Scott Byers. Scott not only provides an exceptional clinical service centered at the Clarian West site, but also just took over the Cardiology Introduction to Medicine section, with spectacular results. The Outstanding Young Investigator Award was presented to Dr. Matt Bair, a health services researcher at the VA Center of Excellence who focuses on pain management. We recognized Drs. Rajesh Gulati and Waqas Ghumann as recipients of the Outstanding Teaching Awards. We introduced a new award this year to recognize the work of our faculty in our quality efforts. The first recipient of the Excellence in Quality and Safety Award was Dr. Devonne Mullis, the head of the quality efforts of the University hospitalist group.

It was a financially challenging year to individuals and institutions alike. Even more than usual, it is essential to recognize the incredibly hard and dedicated work of the professional staff, the research administrators, the staff of University Medical Diagnostic Associates (UMDA), and of our education unit, as well as our many collaborators in our partner hospitals and Eldoret, Kenya for the support they gave to make possible the many successes we celebrate this year.



OFFICE OF THE CHAIRMAN

Chairman

David W. Crabb, M.D.

Medical Education

Vice Chair for Medical Education
Richard B. Kohler, M.D.

*Associate Chair for Postgraduate
Medical Education*
Lia Logio, M.D.

Research Administration

Vice Chair for Research Administration
Sharon M. Moe, M.D.

Research Administrator
Michelle Meeks

Clinical Affairs

Vice Chair for Clinical Affairs
Michael D. Ober, M.D.

*Chief Operating Officer for
Clinical Affairs*
Martin Friedman

*Medical Diagnostic Center
Medical Director*
Michael D. Ober, M.D.

*Vice Chair for Quality and
Patient Safety*
John D. Buckley, M.D.

Finance and Administration

*Vice Chair for Finance and
Administration*
Charles F. Fox

*CFO and Director of
Information Services*
Sharon Charbonneau

*Manager, Human Resources
and Academic Administration*
Doris Sachs

MEDICAL SERVICES

Indiana University Hospital
David W. Crabb, M.D.

Wishard Memorial Hospital
Kirsten Kaisner-Duncan, M.D.

**Richard L. Roudebush Veterans
Affairs Medical Center**
Bradley Allen, M.D.



Chair and Vice Chairs of the Department of Medicine (L to R) John Buckley, David Crabb, Sharon Moe, Michael Ober, Charles Fox, and Richard Kohler

DIVISIONS

Biostatistics

Division Director
Barry P. Katz, Ph.D.

Division Administrator
Shari Stansbery

Cardiology

Division Director
Peng-Sheng Chen, M.D.

Division Administrator
Angela Rinehart

Clinical Pharmacology

Division Director
David A. Flockhart,
M.D., Ph.D.

Division Administrator
Christine McDonald

**Endocrinology/
Metabolism**

Division Director
Michael J. Econs, M.D.

Division Administrator
Carla North

**Gastroenterology/
Hepatology**

Division Director
Naga Chalasani, M.D.

Division Administrator
Brian Kremer

**General Internal
Medicine & Geriatrics**

Division Director
Greg Sachs, M.D.

Division Administrator
Peggy Neill

Hematology/Oncology

Division Director
Patrick Loehrer, M.D.

Division Administrator
Fuad Hammoudeh

Infectious Diseases

Division Director
Stanley M. Spinola, M.D.

Division Administrator
Tom Betley

Nephrology

Division Director
Bruce Molitoris, M.D.

Division Administrator
Michelle Artmeier

**Pulmonary, Allergy,
Critical Care, and
Occupational Medicine**

Division Director
Homer L. Twigg III, M.D.

Division Administrator
Daneal Qualls-Holston

Rheumatology

Division Director
Rafael Grau, M.D.

Division Administrator
Laura West



The following faculty members, who have a primary academic appointment in the Department of Medicine, also serve in various roles in the School of Medicine, Dean's office.

Rafat Abonour, M.D.

- Associate Dean for Clinical Research
- Associate Professor of Medicine and of Pathology and Laboratory Medicine

D. Craig Brater, M.D.

- Vice President, Indiana University
- Dean, Indiana University School of Medicine
- Walter J. Daly Professor of Medicine
- Professor of Pharmacology and Toxicology
- Director, Indiana Statewide Medical Education System

Charles M. Clark Jr., M.D.

- Associate Dean for Continuing Medical Education
- Professor of Medicine and of Pharmacology and Toxicology

Herbert E. Cushing III, M.D.

- Associate Dean for Medical Student Affairs
- Associate Professor of Clinical Medicine

Robert M. Einterz, M.D.

- Associate Dean for International Programs
- Professor of Clinical Medicine

Rose S. Fife, M.D.

- Associate Dean for Research
- Professor of Medicine and of Biochemistry and Molecular Biology
- Barbara F. Kampen Professor of Women's Health

John F. Fitzgerald, M.D.

- Executive Associate Dean for Clinical Affairs
- Associate Dean for Primary Care
- Professor of Medicine
- Professor of the School of Public and Environmental Affairs

Lisa E. Harris, M.D.

- Associate Dean for Wishard Affairs
- Director, Wishard Health Services
- John F. Williams, Jr., M.D. Scholar
- Associate Professor of Medicine

Lia S. Logio, M.D.

- Assistant Dean for Faculty Affairs and Professional Development
- Associate Professor of Clinical Medicine

Thomas S. Inui, M.D.

- Associate Dean for Health Care Research
- Sam Regenstrief Professor of Health Services Research
- Professor of Medicine

Kenneth E. Klotz Jr., M.D.

- Associate Dean for VA Affairs
- Chief of Staff of the Veteran Affairs Medical Center
- Associate Professor of Clinical Medicine

Debra K. Litzelman, M.D.

- Associate Dean for Medical Education & Curricular Affairs
- Richard C. Powell Professor of Medical Education
- Professor of Medicine

Eric M. Meslin, Ph.D.

- Associate Dean for Bioethics
- Director, Indiana University Center for Bioethics
- Professor of Medicine and of Medical and Molecular Genetics
- Professor of Philosophy

David S. Wilkes, M.D.

- Executive Associate Dean for Research Affairs
- August M. Watanabe Professor of Medical Research
- Professor of Medicine

Eric S. Williams, M.D.

- Associate Dean for Clarian Affairs
- Professor of Medicine

Stephen D. Williams, M.D.

- Associate Dean for Cancer Research
- H.H. Gregg Professor of Oncology
- Professor of Medicine

A gentle spirit remembered.

1941-2009

AUGUST "GUS" WATANABE, M.D.

Dr. August "Gus" Watanabe majored in zoology and minored in chemistry at Wheaton College in Illinois, graduating with a B.S. in 1963. He received his M.D. from IU in 1967, graduating as a member of Alpha Omega Alpha, the medical student honorary society, and completed his internship and internal medicine residency at IU. He spent two years at the National Institutes of Mental Health training in clinical pharmacology, served as a chief resident in internal medicine at IU, and then completed a U.S. Public Health Service traineeship in cardiology. He joined the IU faculty in 1972, rising through the ranks to become Chairman of the Department of Medicine in 1983, a position he held until 1990.

Dr. Watanabe left his mark on the Department of Medicine, the School of Medicine, and Indiana University as a result of his organizational skills, persuasiveness as a recruiter, and view to the future. During his tenure as the Department of Medicine Chairman, the faculty grew from 125 to over 200 and the research awards grew from \$8.9M to over \$24M. As Chairman of the Department of Medicine, Dr. Watanabe scouted the country for faculty members. One of them was Dr. D. Craig Brater, who was working at The University of Texas Southwestern Medical School in Dallas in 1986 when Watanabe made his pitch to come to Indianapolis. "He said he was putting the department on a trajectory of growth and wanted my help," Dr. Brater said. Dr. Watanabe told Dr. Brater he wanted to undertake a major expansion of the medical school's research facilities, and he made good on his vision. Dr. Watanabe went to Wishard Memorial Hospital and got access to an entire floor, gutted it, and converted it into labs. Dr. Brater started working in that space, and succeeded Dr. Watanabe as Chairman of the Department of Medicine. Dr. Brater later became the medical school's dean and continued Watanabe's goal of pushing medical research. In early 2009, the medical school opened a 250,000-square-foot research building. "You can trace our expansion today back to Gus," Dr. Brater said.

In 1990, Dr. Watanabe joined Eli Lilly and Company, first serving as Vice President and later as President of Lilly Research Laboratories. He became Executive Vice President of Science and Technology, a position he held until his retirement from Lilly in 2003. During his tenure as its head, the Lilly R&D organization more than doubled in staff as Dr. Watanabe recruited a number of the world's top biomedical



Dr. Watanabe served as Indiana University School of Medicine Chairman of the Department of Medicine from 1983 to 1990.

researchers to the company. Under his guidance, Lilly launched 11 important new pharmaceutical products and, upon his retirement, he left the company well positioned with a rich pipeline of innovative drugs in development.

Following his retirement from Lilly, Dr. Watanabe remained active in the biomedical field, until his death serving as chairman of BioCrossroads, co-founder of Marcadia Biotech, partner in Twilight Venture Partners, and a director of Ambrx, Endocyte, QuatRx, and Kalypsys. He was also a senior advisor to Frazier Healthcare Ventures. He remained active in the community, serving as a director of the Indiana University Foundation, the Regenstrief Foundation, Christel House International, and the Indianapolis Symphony Orchestra.

During his academic and research career, Dr. Watanabe co-authored more than 100 scientific publications and book chapters and served on the editorial boards of scholarly journals and as an officer in several national academic organizations, including the American College of Cardiology and the American Heart Association. He received countless honors and awards throughout his career. He was a Fellow of the American College of Cardiology and the American College of Physicians, and was a member of the American Society for Clinical Investigation and the Association of American Physicians.

In his career as a scientist, Dr. August "Gus" Watanabe led Eli Lilly and Co.'s research laboratories through the most productive period in the company's history, achieved a major upgrade of research facilities at the IU School of Medicine, and persuaded venture capitalists to invest millions in startup life science firms throughout Indiana. But many said his most impressive accomplishment was as a mentor and friend. "This is his greatest legacy," said Dr. Craig Brater, Dean of the IU School of Medicine, "the living, breathing cadres of mentees."



In his fourth year as Chairman, Dr. August Watanabe brought life to the first Department of Medicine Annual Report, reporting on activities from academic year 1986-1987. In his words from that report:

"The Department has continued to grow and excel as is demonstrated in this first of what will become a regular Annual Report. Indeed, the Department has become so large and complex that many of our faculty members are not fully aware of what is occurring in the Department outside of their own circumscribed area of activities. This is the most important reason for this Annual Report: namely, to facilitate communication between the individual faculty members of the Department and between the Department of Medicine and other entities, such as other departments within the School, the hospitals, the Dean's Office and other administrative offices of the University, and other institutions. This report will also provide a mechanism with which to honor our faculty for their many important accomplishments during this past academic year. Finally, this report will document where growth has occurred and perhaps identify areas where more emphasis should be placed in the future."

"Dr. August 'Gus' Watanabe grew up on a chicken farm in the Amish countryside of northeast Indiana and rose to become one of the state's most prominent scientists, throwing himself into everything he did. His medical research and civic leadership made his life extraordinary. He will be remembered for his gentle spirit and selfless compassion."



(left to right) Drs. August Watanabe (Chairman from 1983-1990), Walter Daly (Chairman from 1970-1983), David Crabb (Chairman from 2000-present), and Dean Craig Brater (Chairman from 1990-2000).

*A leader. A friend.
Approachable,
encouraging, and effective.*

1946-2009

STEPHEN D. WILLIAMS, M.D.

Dr. Stephen Williams was a graduate of DePauw University and entered the Indiana University School of Medicine (IUSM) in 1967. He then completed a medical residency and internship at IU (1971-72 and 1975-76) before completing his IU medical oncology fellowship (1976-78). In 1978, Dr. Williams became a faculty member of the IUSM and was the first appointed oncologist at the Richard L. Roudebush Veterans Affairs Medical Center. During his tenure at IUSM, Dr. Williams authored and co-authored 158 scientific, peer-reviewed publications, 95 abstracts, and 42 textbook chapters on the diagnosis and treatment of genitourinary tumors. He served in numerous leadership roles with the American Society of Clinical Oncology and the Gynecologic Oncology Group and on a grant review committee of the National Cancer Institute (NCI).

Dr. Williams became the Indiana University Melvin and Bren Simon Cancer Center's first director in 1992. The remarkable progress made during Dr. Williams' leadership came to light during the IU Simon Cancer Center's 2008 NCI grant renewal process: In 1994, the center's extramural research funding totaled \$16M; today it is over \$75M. The



Dr. Stephen Williams was HH Gregg Professor of Oncology, Associate Dean for Cancer Research, Founding Director, Indiana University Simon Cancer Center, and Professor of Medicine

"Friend, colleague, role model, leader, exemplary father and husband, and all-round good guy are inadequate descriptors of Steve Williams."

– Dean D. Craig Brater

number of scientific members of the cancer center has doubled; more than 220 investigators now focus on the scientific discovery and translation of basic, clinical and population science into new prevention, diagnostic and treatment modalities. In 1994, 2,000 new patients visited the IU Simon Cancer Center; today, more than 3,400 new patients visit the center each year. Moreover, a \$50M naming gift from Melvin and Bren Simon in 2006 signified a "coming of age" for the cancer program that Dr. Williams had been charged with building and directing.

Dr. Williams earned national recognition as a physician researcher for his role in investigating the successful use of chemotherapy in the treatment of ovarian and testicular germ cell tumors. He was consistently ranked nationally among cancer care specialists in America's Top Doctors for Cancer.



"When George Sledge and I joined the faculty in 1983, patients who entered the Medical Oncology Service at IU Hospital would have EWLS on their wristbands along with their names and hospital numbers. It took George the longest time to figure out that the initials stood for Einhorn, Williams, Loehr, and Sledge. Mary Maxwell has called us the Four Horseman, but it is clear that as individuals, we were better physicians, better scientists and better people because of each other. Though Steve was born into this world without siblings, I tell you he left it with at least three brothers."

– Patrick J. Loehr Sr., M.D.

During his tenure, the cancer center was consistently ranked among the top clinical programs in the country in *U.S. News & World Report*. Family, friends, and colleagues joined Dr. Williams on January 12, 2009 to celebrate his Sagamore of the Wabash awarded by Governor Mitch Daniels.

Dr. Williams' commitment to his professional life was exceeded only by his devotion to his family. He took immense pleasure in planning menus and cooking with his wife, Kay, and their children, Thomas and Caroline. He could just as easily be found with Kay at the Zionsville Farmers' Market on a Saturday morning as with Thomas enjoying Carburetion Day at the Indianapolis Motor Speedway or a Sunday Indianapolis Colts game.

Patients and colleagues appreciated Dr. Williams as an approachable, encouraging, and effective leader. His determination to create a world-class cancer research enterprise was bolstered by his sincere commitment to patients. Dr. Williams promoted the center's science-to-solution agenda — commonly referred to as translational research — throughout his tenure. He would shake his head, chuckling and marveling at the intellect of cancer center scientists and the power of their research to cure patients. He was brilliant, but humble, and always optimistic.



ONE NEVER KNOWS HOW YOU WILL AFFECT OTHERS

When I was a third year medical student at Indiana, I was assigned to medical oncology at University Hospital in Indianapolis, against my will. Steve Williams was a fellow, training under a young faculty member only a few years out of his fellowship.

Larry Einhorn and Steve Williams changed my life fundamentally. Their unbelievable success with testicular cancer inspired me to become an oncologist. They were kind enough to permit me to spend 2 more months as a senior with them, during which I rounded with Steve every day. He taught me that cancer is not necessarily a death sentence, and even for those who were dying, you can still provide them care and compassion.

I'll never forget seeing a woman in her 70s with lymphoma who had been told there was nothing to do, and walking out of the room with Steve exuberantly predicting how much we could help her —and we (he) did.

*He was a great doctor, role model, and man.
We will all miss him.*

— Daniel F. Hayes, M.D.

Clinical Director, Breast Oncology Program
Stuart B. Padnos Professor in Breast Cancer
University of Michigan Comprehensive Cancer Center

THERE ARE DREAMS THAT SURPASS ALL DREAMS

I.

Standing on the shore of Lake Michigan—
The sky a seamless sweeping canopy. The lake
A vast shimmering green, blue-green, blue-black.
A distant white sail—I was overwhelmed
By the magnitude of the place we've built.
The waves swell, break and recede.
Stirring and smoothing the sand and stones
Near my feet. And in the cycles
Of sound silence and again sound, voices:
Who will care for me?
We to the best of our ability.
With all our heart and soul.
Regardless?
Without hesitation or end.

II.

There are dreams that surpass all dreams
Intricate dreams that span the corrupt filaments
Between the mutated molecules and cancer.
Dreams of restoration. Simpler dreams of return
To the life that changed so dramatically
Once. And the place to seek the dreams
That surpass all dreams.

III.

My father died of cancer fifteen years ago, my sister
Not quite one. I remember those who carried her
To the kitchen for soup when she first came home
Who carried the bowl to her bed when her pain was too great.
Holding one another as she lay dying. Curious where she was
In her body so ravaged and diminished, I asked. She said,
"There is too much goodness to gather all of it."
She was harvesting. And then, "Whatever happens to me
All this goodness was my hope." She was tying her dreams
Into bundles to leave with us. Our hopes, our dreams
No less elusive, no more certain, no less urgent
May require fourteen years
Multiplied by two, six, or ten. Until then—
This.

IV.

Standing on the shore of Lake Michigan
I imagined the sailor who awoke early
And cast off while I still dreamed.
Closer to the opposite shore than I
But no closer to the horizon, my heart knew
One day he would return triumphant.
Today we dedicate a necessary space
A way station on a journey of dreams.
Today we rededicate ourselves
With the patience of humility
And the humility of grace
To the belief that in caring for one
We make the dreams of all possible.

— Lawrence Cripe, M.D.

BARRY P. KATZ, PH.D.*Director*
BIOSTATISTICS

During the past year, the Division of Biostatistics was enormously productive in submitting grant applications and was successful beyond expectations in attracting excellent students to our new Ph.D. program. However, as the year ended, the announcement by President Michael McRobbie that Indiana University (IU) will develop two schools of public health will certainly bring big changes to the Division of Biostatistics. It is imperative that Biostatistics continue our collaborative mission with the Schools of Medicine, Nursing, and Dentistry while developing a new educational focus consistent with the School of Public Health. The process for the development of the new school has begun and we remain steadfast in our belief that there should be a single biostatistics unit on the Indiana University-Purdue University Indianapolis (IUPUI) campus and that it is possible for us to be a vital part and serve the missions of both the Schools of Medicine and Public Health.

The Ph.D. program in Biostatistics is a joint effort of the faculty in our Division and the faculty statisticians in the Department of Mathematics at IUPUI. The program, which is the only one in the state of Indiana, enrolled its first nine students, seven of whom are part-time, in the fall of 2008. That was well within our expected enrollment. Then this past winter during our first full admission process, we were overwhelmed with 39 applications from across the country and all over the world. The decision process was difficult with so many qualified applicants but the second cohort of 15 students, almost all

full-time, has accepted admission to the program. Our other educational efforts also reach out to a wide

spectrum of trainees ranging from basic scientists to clinical researchers and practitioners. The Division offers a sequence of introductory three-credit courses annually that are regularly attended by clinical fellows and other graduate students in the Schools of Medicine, Dentistry, and Informatics. We also offer an introductory course for graduate dental students pursuing a post-DDS specialty. This past year, Dr. Menggang Yu co-developed a new course for graduate students in the School of Medicine that was jointly taught with faculty members from basic science departments to help the students understand the importance of biostatistics in their own fields. The course was greeted by rave reviews and general acclaim and will serve as a model for future courses in the school's graduate programs.

Our continuing medical education course entitled "Biostatistics for Health Care Providers" was offered twice last year, and each time was filled to capacity by physicians and health researchers from IU and the community. Faculty remained active in the educational process of post-doctoral fellows through training programs in the Regenstrief Institute and Clinical Pharmacology, as well as a number of departments in the School of Medicine. Mentoring of fellows and junior faculty remained a priority, especially in research project design and grant development. Some of these activities were formalized last year under the auspices of the Project Development Teams that are a major component of the Indiana Clinical and Translational Sciences Institute (CTSI). Biostatistics

faculty members serve on each of these teams to provide guidance in study design and analysis.

In addition to the Design and Biostatistics Program in the Indiana CTSI, our faculty directed six cores for National Institutes of Health (NIH)-funded centers. This includes the bioinformatics-related core directed by Dr. Lang Li, an area which we began pursuing only a few years ago. In the past year, our Division participated in the submission of more than 120 applications for funding research studies in a wide range of health-related fields. This reflects an enormous increase of about 50% from the previous year. Those applications in the previous year were funded about 40% of the time, which is well above the NIH national average. Although a good statistics section is probably not the primary reason a proposal is funded, it clearly has an impact on the success rate. Statistics don't lie!

Faculty members were authors on 101 peer reviewed articles that were published in 2008. Our professional staff members were authors on an additional 15 published papers that did not include our Division faculty. We also continue to facilitate the research process locally, with representatives on all of the Institutional Review Boards, and nationally, by serving on a variety of NIH review panels and data safety monitoring boards.

Members of the Biostatistics faculty generated their own research funding at a superb rate last year. Our Division portfolio includes five NIH awards, two supplements to existing awards and nine independent subcontracts from NIH through other universities. These Biostatistics-led research efforts included HIV-related projects in Africa and at centers across the country. The former will lead to a better infrastructure for coordination of the care of HIV patients in East Africa and the latter

is a multi-center effort to examine the effects of HIV on the brain. Other Biostatistics principal investigators are working on cutting edge methodological research that leads to improved extraction of information from data related to hypertension and growth and how an individual's drug metabolism is affected by his/her genetic makeup and by other drugs. In addition, methodological research was carried out as part of our collaborative efforts in order to solve problems related directly to ongoing studies. These led to 19 peer reviewed publications in biostatistics and bioinformatics journals. The faculty was active in the statistical community, delivering several invited talks, and serving in a variety of national and local offices related to the American Statistical Association and the International Biometric Society.

The Division welcomed two new faculty members. Dr. Zhangsheng Yu joined us as an Assistant Professor from a faculty position in the Biostatistics Department at Ohio State University. He obtained his Ph.D. in Biostatistics from the University of Michigan. Since his arrival, he has been working closely with stroke researchers at the Roudebush Veterans Affairs Medical Center (VAMC) and the pediatric pulmonary section. Dr. Xueya Cai joined the Division as an Assistant Professor upon the completion of her Ph.D. in Biostatistics from Buffalo University. Her major area of research is related to health services. She has been working with investigators in the Regenstrief Institute and also in the Institute for Psychiatric Research.

As the academic year drew to a close, it was clear that the Biostatistics faculty and staff had been successful in all of their missions with expansion of collaborative and statistical methodology research, increased publications, and new and expanded educational endeavors. In the coming year, the Division of Biostatistics expects to continue to expand

its research scope. We are looking forward to an increasing role in the education of biostatisticians and public health students. These endeavors will not be without challenges, but they are needed to support and grow life sciences research at Indiana University.



PROFESSOR EMERITA

Naomi Fineberg, Ph.D.

PROFESSOR

Sujuan Gao, Ph.D.

Siu Hui, Ph.D.

Barry Katz, Ph.D.

Constantin Yiannoutsos, Ph.D.

ASSOCIATE PROFESSOR

Lang Li, Ph.D.

Xiaochun Li, Ph.D.

Patrick Monahan, Ph.D.

Susan Perkins, Ph.D.

Chandan Saha, Ph.D.

Wanzhu Tu, Ph.D.

ASSISTANT PROFESSOR

Xueya Cai, M.D., Ph.D.

Jaroslav Harezlak, Ph.D.

Xiaoman (Shawn) Li, Ph.D.

Yunlong Liu, Ph.D.

Changyu Shen, Ph.D.

Menggang Yu, Ph.D.

Zhangsheng Yu, M.D., Ph.D.

PENG-SHENG CHEN, M.D.**Director
CARDIOLOGY**

Dr. Peng-Sheng Chen is a chartered member of the NIH National Heart, Lung and Blood Institute program

project grant parent committee.

The Division of Cardiology contributed significantly to the education of medical students, residents, and fellows in the Department of Medicine. Our nationally recognized fellowship programs in cardiovascular disease, cardiac electrophysiology, interventional cardiology, and heart failure routinely attract candidates of the highest quality. Several cardiology fellows participate in the American Board of Internal Medicine (ABIM) research pathway. Dr. Mitsunori Maruyama was a finalist of Heart Rhythm Society 2009 Young Investigator Award Competition.

Dr. Waqas Ghumman won the Department of Medicine's Distinguished Teaching Award. Dr. Scott Byers won the Department of Medicine's Distinguished Clinician Award. In addition to being an outstanding clinician, Dr. Byers organized a highly ranked Introduction to Medicine course for the medical students at the IU School of Medicine (IUSM). The Charles Fisch, M.D. Teaching Award (selected by the cardiology fellows) was presented to Dr. Anjan Sinha.

At the national level, our faculty members play leadership roles in education for professional societies and the ABIM. Dr. John Miller, the Director of Cardiac Electrophysiology, is the chair of the Clinical Cardiac Electrophysiology Test Committee of the ABIM; Dr. Richard Kovacs, the Director of Clinical Cardiology, is the President-elect for the American College of Cardiology (ACC) Board of Governors; Dr. Eric Williams, Associate Director of Krannert Institute, is Co-chair of the ACC Workforce Taskforce; and

Our clinical activities are robust. We performed over 3,000 diagnostic cardiac catheterizations and approximately 1,300 cardiac interventional procedures, ranging from coronary and peripheral vascular interventions to highly complex valvuloplasties, septal ablations for hypertrophic cardiomyopathy, and catheter-based closures for atrial septal defects. Our clinical electrophysiologists performed more than 1,000 invasive laboratory procedures and device implantations. Areas of growth and innovation within electrophysiology include catheter-based treatment of atrial fibrillation, implantation of biventricular pacemakers for treatment of advanced heart failure, and laser lead extraction to remove implanted pacing devices.

The Krannert Institute is a major echocardiography center, performing nearly 16,000 echocardiographic imaging studies last year. Our echocardiographers continue their leadership in the development and investigation of noninvasive cardiac risk assessment. The outpatient nuclear cardiology laboratory at the Krannert Institute has expanded along with our new cardiac magnetic resonance and computerized tomography imaging program. The Peripheral Vascular Evaluation and Intervention Program continued to expand. Other specialized programs include the Women's Heart Advantage Program and the multidisciplinary Advanced Heart Care Program, which focuses on patients with heart failure and includes our ventricular assist device and cardiac transplantation programs. Our outreach clinical activities

include outpatient and inpatient services as well as cardiovascular testing at the new Clarian Health Partners suburban hospitals. Under the leadership of Krannert Institute physicians, the Clarian Cardiovascular Center was selected by *U.S. News and World Report* (2008) as one of the "Top 50" in the United States.

The Division of Cardiology is active in a broad range of basic and clinical research areas, including collaborative research with several other basic science and clinical departments. The basic science research spanned studies on ion channels and gap junctions to membrane proteins, molecular genetics, angiogenesis and vascular remodeling, and basic cardiac electrophysiology studies. Members of the faculty and fellows are active in the Center for Vascular Biology and Medicine program, which is supported by an NIH training grant awarded to Dr. Keith March. Dr. March's research interests also include the use of adipose-derived stem cells to treat vascular diseases in patients with diabetes. Dr. Shien-Fong Lin is an Established Investigator of the American Heart Association. He is interested in using optical mapping techniques to study cardiac arrhythmia. Dr. Larry Jones is a pioneer in cardiac calcium handling, and is a recipient of the highly prestigious NIH MERIT Award. Dr. Loren Field, who has a joint academic appointment in Pediatrics, activated an NIH Program Project Grant to study the genetics and treatment of heart failure in the young. Basic interactions of the autonomic nervous system in ischemic heart disease and mechanisms of clinical arrhythmias are an important area of focus in electrophysiology at the Krannert Institute. Drs. Douglas Zipes and John Lopshire collaborate in the study of using spinal cord stimulation to treat heart failure. Dr. William Groh published an article in the *New England Journal of Medicine* to describe the heart rhythm disorders in patients with

myotonic dystrophy. Dr. Peng-Sheng Chen is interested in studying the relationship between autonomic nerve activity and the mechanisms of cardiac arrhythmias.

Clinical trials are underway in each of our clinical programs, and Krannert Institute remains a core electrocardiography laboratory for clinical studies. In the area of acute coronary syndromes, our interventional cardiologists conducted trials involving novel anti-thrombotic regimens and drug-eluting stents, as well as vascular protection devices. Krannert Institute cardiologists are major investigators and leaders in trials of revascularization strategies in patients with diabetes.

The 2008-2009 Joan and Douglas Zipes Visiting Krannert Professor was Dr. Fred Morady, McKay Professor of Cardiovascular Disease and Director of Cardiac Electrophysiology at University of Michigan. Dr. Morady is a pioneer of using radiofrequency catheter ablation techniques in the curative treatment of many common heart rhythm disorders.

Members of the Division are contributing authors and/or editors of major textbooks and journals. The Krannert Institute is the editorial home of *HeartRhythm*, published by the Heart Rhythm Society, and the textbook "Cardiac Electrophysiology From Cell to Bedside." Dr. Douglas Zipes serves as the editor for both the journal and the textbook.

In summary, the highlights of last year includes a significant increase of NIH sponsored research programs, the continued expansion of high quality clinical service, and excellence in teaching and publications. The long term goal of the Division of Cardiology is to advance the knowledge and improve the practice of cardiology through excellent clinical service, education, and research.



DISTINGUISHED PROFESSOR EMERITUS

Douglas P. Zipes, M.D.

PROFESSOR EMERITA

Betty C. Corya, M.D.

Suzanne B. Knoebel, M.D.

PROFESSOR EMERITUS

James C. Dillon, M.D.

Lincoln E. Ford, M.D.

Walter E. Judson, M.D.

Paul L. McHenry, M.D.

Borys Surawicz, M.D.

August M. Watanabe, M.D.

John F. Williams Jr., M.D.

PROFESSOR EMERITUS OF CLINICAL MEDICINE

Richard R. Schumacher, M.D.

ASSOCIATE PROFESSOR EMERITUS

Stephen N. Morris, M.D.

Leon Stein, M.D.

DISTINGUISHED PROFESSOR

Harvey Feigenbaum, M.D.

PROFESSOR

Patrick Bourdillon, B.M.B.Ch., Ph.D.

Peng-Sheng Chen, M.D.

Loren J. Field, Ph.D.

Larry R. Jones, M.D., Ph.D.

Shien-Fong Lin, Ph.D.

Keith L. March, M.D., Ph.D.

John M. Miller, M.D.

Jacqueline A. O'Donnell, M.D.

Stephen G. Sawada, M.D.

Eric S. Williams, M.D.

PROFESSOR OF CLINICAL MEDICINE

John C. Bailey, M.D.

Jeffrey A. Breall, M.D., Ph.D.

Chun Hwang, M.D.

Richard J. Kovacs, M.D.

Prakash N. Pande, M.D.

Elisabeth von der Lohe, M.D.

ASSOCIATE PROFESSOR

Irmina Gradus-Pizlo, M.D.

William J. Groh, M.D.

ASSOCIATE PROFESSOR OF CLINICAL MEDICINE

Mithilesh K. Das, M.B.B.S.

Waqas S. Ghumman, M.D.

Masoor Kamalesh, M.B.B.S.

Jothihran Mahenthiran, M.B.B.S.

Saihari Sadanandan, M.B.B.S.

ASSISTANT PROFESSOR

John C. Lopshire, M.D. Ph.D.

ASSISTANT PROFESSOR OF CLINICAL MEDICINE

Deepak Bhakta, M.D.

Islam A. Bolad, M.B.B.S.

Michael S. Byers, M.D.

William J. Gill, M.D.

Anjan K. Sinha, M.B.B.S.

Anil Yadav, M.D.

ASSOCIATE RESEARCH PROFESSOR

Brian Johnstone, Ph.D.

ASSISTANT RESEARCH PROFESSOR

Zhenhui Chen, Ph.D.

ASSISTANT SCIENTIST

Shaoliang Jing, Ph.D.

Mark H. Soonpaa, Ph.D.

DAVID A. FLOCKHART, M.D., PH.D.**Director
CLINICAL PHARMACOLOGY**

The strength of the Division of Clinical Pharmacology nationally has been emphasized through recognition of key new discoveries and by the role the Division plays in teaching our discipline. The discovery that the widely used anti-platelet agent clopidogrel (Plavix™), a pro-drug whose conversion to its active form is blocked by the widely co-prescribed proton pump inhibitor class of drugs such as omeprazole (Prilosec™), has been validated by studies we have done showing that this interaction results in worse cardiovascular outcomes. We also discovered a clinically important interaction between tamoxifen, one of the most widely prescribed cancer drugs, and antidepressants, such as paroxetine (Paxil™) and fluoxetine (Prozac™). We have shown that in patients who were prescribed both drugs, the rate of breast cancer recurrence doubled. These discoveries have been made possible by continued trans-disciplinary collaborations with physicians and investigators across the Indiana University School of Medicine (IUSM).

This year, our Division of Clinical Pharmacology once more was the central organizer of the annual update in Clinical Pharmacology Course at the annual meeting of the American Society of Clinical Pharmacology and Therapeutics meeting in Washington DC. Drs. Callaghan, Renbarger, Flockhart and Skaar all contributed significantly to this large effort.

Our School of Medicine Drug Analytical and Pharmacogenomics cores continue to provide support for many Divisions and Departments. We now

have active collaborations, through the newly funded Indiana Center for Translational Science Institute (CTSI), with a new Computational Modeling core designed to anticipate and predict therapeutic effects of a wide range of drug therapies. The Division has the ability to play a key role in CTSI through its active support of a key part of the translation of new therapies from the laboratory to clinical application: the movement from cellular and animal studies into humans. Many potential drug molecules that are identified in vitro are not able to get into human beings in sufficient quantities or for long enough to be effective; i.e. they do not have appropriate pharmacokinetic properties. The science of clinical pharmacokinetics has been recognized for many years as being critical to effective drug development in the pharmaceutical industry, but it is now becoming equally critical in academic medical centers that are increasingly carrying new diagnostic modalities and therapies much further along the road to the clinic. We are

Studying the genetic basis of patient response to therapeutics allows drug developers to more effectively design therapeutic treatments.

fortunate to have the capability in our Division to measure drug concentrations in humans, to construct careful pharmacokinetic models, and to use the new science of pharmacogenomics to identify genetic variants that influence those pharmacokinetic exposures and ultimately drug response.

Pharmacogenomic science seeks to anticipate and predict drug response, and our Division has led this effort in the areas of breast cancer, the use of protease inhibitors in HIV disease, and the use of the vinca alkaloids for treating leukemias and the lymphomas. COBRA, the NIH Consortium on Breast Cancer Pharmacogenomics, is based in our Division and, through its work in the breast cancer clinics at IUSM, the Dana Farber Cancer Center at Harvard, the University of Michigan, and Johns Hopkins University, this consortium has developed a series of tests for predicting the effects and side effects of the most widely used medicines to treat and prevent breast cancer. These tests combine a detailed understanding of human drug metabolism and pharmacokinetics with appreciation of the mechanisms of drug action. They involve testing for genetic variants in key enzymes of drug metabolism, and then combining these data with tests for inherited mutations in the estrogen receptors. One of these, ER α , is expressed in the breast and in breast cancer cells, while the other, ER β , exists in large amounts in the part of the brain that regulates the control of body temperature: the thermoregulatory zone. While inherited variation in the DNA that codes for ER α might influence the effectiveness of treatment, mutations in the ER β gene seem to influence the major limiting side effect

of all anti-estrogenic treatments – the “hot flashes” that women experience as a result. These ideas also apply to the newer classes of anti-estrogens that now supplement tamoxifen as treatments for early breast cancer: the aromatase inhibitor class of drugs.

In this, as in other areas of medicine, our goal is to use our new findings to identify women who are most likely to respond to anti-estrogen therapy and who are least likely to experience

debilitating side effects. This is the science of personalized therapeutics which has the potential to alter the way in which medical care is delivered: to make it safer, more effective, and more personal. We are applying these same approaches in the areas of leukemia, lymphoma, HIV, acute coronary syndromes, and nephrology with the goal of improving patient care through more “precision prescribing” and personalized medicine.

Consistent with a focus on individualized therapy in women’s health, we were proud to continue to provide support for PREGMED, the Indiana University Center for Therapeutics Research in Maternal and Child Health. This vigorous new IUPUI Center of Excellence has already garnered a national reputation. Together with the Department of Obstetrics and Gynecology, we organized the Second International Conference on Individualized Therapeutics in Pregnancy at the University Place Hotel in March, 2008. This meeting, opened by Dean Craig Brater, gathered experts

from academic centers all over the country to discuss the burgeoning use of biomarkers to predict response to therapy and the great need for improved treatment of conditions such as depression, asthma, and hypertension that occur during pregnancy.

As part of the push for more personalized therapies, we have established, and continue to expand the energy and focus underlying the Personalized Therapeutics Group, a multidisciplinary and inter-institutional group of scientists and clinicians involving IUSM, Purdue, and IU Bloomington faculty. The seminar series in Personalized Therapeutics is now a fixture based in the Division of Clinical Pharmacology. This complements our already extensive, NIH-funded didactic training in Clinical Pharmacology and the training of medical students and residents which continues to be led with style and energy by Dr. Tom Callaghan.



PROFESSOR

D. Craig Brater, M.D.

David A. Flockhart, M.D., Ph.D.

ASSOCIATE PROFESSOR

J. Thomas Callaghan, M.D., Ph.D.

ASSOCIATE RESEARCH PROFESSOR

Zeruesenay Desta, Ph.D.

Todd C. Skaar, Ph.D.

ASSISTANT RESEARCH PROFESSOR

David R. Jones, Ph.D.



Many health problems occur in pregnancy that can significantly impact the health of both women and their unborn children. These conditions require drug therapy, but the pharmacology of most medications used in pregnancy is poorly characterized. This compromises effective and individual treatment.

MICHAEL J. ECONS, M.D.

Director
**ENDOCRINOLOGY AND
 METABOLISM**



The Division of Endocrinology and Metabolism demonstrates excellence in teaching, patient care, and research. Medical school and resident education includes the endocrinology section in the Introduction to Clinical Medicine course for medical students and active endocrine rotations for students and residents. Additionally, residents taking the endocrine elective, as well as the women's health elective, rotate through our many clinics. Our Division has attracted a very high caliber of fellows and our fellows do well in both practice and academic settings after completing their fellowships. The Division has a very active conference schedule with four weekly conferences (research conference, endocrine grand rounds, endocrine case conference, and metabolic bone case conference). Additionally, the Diabetes Center has a research conference for all diabetes investigators on campus. The Division also offers a course in diabetes for practicing physicians as well as a biannual course in diabetes open to all U.S. endocrinology fellows, which is extremely well attended.

We run a robust clinical service, which is focused on excellence in patient care. The faculty sees a wide variety of endocrine disorders and staff endocrine consult services at Wishard Health Services, the Roudebush Veterans Affairs Medical Center (VAMC), and Indiana University (IU) Hospital. Our Division has made major advances to improve inpatient diabetes care at all affiliated hospitals. Drs. Rattan Juneja and Corbin Roudebush were instrumental in the development,

implementation, and on-going refinement of the Clarian Gluco-Stabilizer, a computerized calculator that has transformed inpatient glycemia

management. The GlucoStabilizer promotes a more physiological approach to dosing insulin. It has lead to improved glucose management throughout our hospitals and shorter hospital stays without any increase in hypoglycemia. Recent data from the University HealthSystem Consortium placed IU Hospital as one of the best hospitals in the entire consortium for diabetes care in the ICU.

Our LDL apheresis program, which is one of a small number of such programs in the country and the only program in the state of Indiana, provides state of the art services for patients from Indiana and the surrounding region with otherwise uncontrollable hyperlipidemia.

The research mission in the Division of Endocrinology and Metabolism is large and will be adding a number of new faculty over the next few months. We will soon be joined by Drs. Theresa Guise, John Chirgwin, Khalid Mohammad, Pierrick Fournier, and Min-Qing Zhao, who study the mechanisms by which tumors metastasize to bone. This group is not only the premier group in this area, but provides an important link to the IU Simon Cancer Center.

The Endocrinology faculty continue to make major contributions and their work appears in the top journals. The major research interests of our faculty include alcoholism, hypertension, metabolic bone disease, obesity, lipid disorders, and diabetes (particularly type 2 diabetes). Drs. Tiebing Liang,

Lucinda Carr, Janice Froehlich, and Paula Bice are making major advances in the area of genetics of alcoholism. Dr. Froehlich also works on defective opioid receptors on alcohol consumption. Dr. Howard Pratt works on the genetics of hypertension and the influence of race on patients' susceptibility to hypertension. Drs. Munro Peacock, Shoji Ichikawa, and Michael Econs collaborate on research on the genetic determinants of osteoporosis. Dr. Peacock also works on the nutritional aspects of osteoporosis. Drs. Michael Econs, Erik Imel, and Shoji Ichikawa explore the pathophysiology of disorders of phosphate homeostasis. Dr. Econs also works on the genetic and translational studies of autosomal dominant osteopetrosis. Dr. Robert Considine focuses his research on regulation of a variety of hormonal factors produced by adipose tissue. Dr. Carmella Evans-Molina's research focus is on the beta cell in type 2 diabetes. Dr. Kieren Mather works on endothelial dysfunction in obesity and type 2 diabetes and the effects of insulin on the endothelium. Dr. Amale Lteif's major area of research focus is on glycemic control and complications in type 2 diabetes. Dr. James Walsh's focus is on implementation research in inpatient diabetes care. Dr. Rattan Juneja's research focuses on improving glycemic control in the hospital. Drs. David Marrero and Paris Roach focus their research efforts on improving diabetes care in primary care settings. They are currently studying ways to improve the communication of health information to patients in order to facilitate shared therapeutic decision making between patients and their physicians. In addition, in collaboration with Dr. Ronald Ackermann from the Division of General Internal Medicine and Geriatrics, Dr. Marrero has established an interdisciplinary Diabetes Translational Research Center. The mission of this center is to promote the

prevention and care of diabetes through research on patient and provider education, health services, community participation, and policy. Dr. Mary de Groot will join the Division and the Diabetes Translational Research Center this summer. Dr. de Groot's research focus is depression in patients with diabetes.

In summary, the Division continues to foster excellence in all three missions and there is extensive collaboration between faculty members. These extensive collaborations have created a very rich intellectual environment.



ENDOCRINOLOGY AND METABOLISM

DISTINGUISHED PROFESSOR EMERITUS

C. Conrad Johnston Jr., M.D.

Ting-Kai Li, M.D.

PROFESSOR EMERITUS

Richard N. Dexter, M.D.

James W. Edmondson, M.D.

Edwin Fineberg, M.D.

Myron H. Weinberger, M.D.

ASSOCIATE PROFESSOR EMERITUS

Richard B. Schnute, M.D.

SENIOR RESEARCH PROFESSOR EMERITUS

Lucinda G. Carr, Ph.D.

PROFESSOR

Michael J. Econs, M.D.

Janice C. Froehlich, Ph.D.

David G. Marrero, Ph.D.

Munro Peacock, M.D.

J. Howard Pratt, M.D.

ASSOCIATE PROFESSOR

Robert V. Considine, Ph.D.

Kieren J. Mather, M.D.

James P. Walsh, M.D., Ph.D.

ASSOCIATE PROFESSOR OF CLINICAL MEDICINE

Paris Roach, M.D.

Rattan Juneja, M.B.B.S.

Paul A. Skierczynski, M.D.

ASSISTANT PROFESSOR

Carmella Evans-Molina, M.D.

ASSISTANT PROFESSOR OF CLINICAL MEDICINE

Melissa Cavaghan, M.D.

Erik A. Imel, M.D.

Amale A. Lteif, M.D.

ASSISTANT RESEARCH PROFESSOR

Paula J. Bice, Ph.D.

Shoji Ichikawa, Ph.D.

Tiebing Liang, Ph.D.

NAGA P. CHALASANI, M.D.

Director
GASTROENTEROLOGY/
HEPATOLOGY



The Division of Gastroenterology/Hepatology continues to be recognized for its outstanding national and international reputation in patient care, research, and education. As a testament to this excellence, our program was ranked as the 13th best Digestive Diseases Unit in the United States by *U.S. News & World Report* (2008). This success is due to combined efforts of our faculty, fellows, and support staff. It is also reflective of the superb environment created by the Department and the School of Medicine and our critical partnership with Clarian Health Partners, Wishard Health Services, and Roudebush Veterans Affairs Medical Center (VAMC). We are one of the largest academic units in the country offering excellent patient care, top-tier fellowship training, and a robust research program.

We successfully recruited three new faculty members this year: Drs. Greg Cote, Hwan Yoo, and Sidharth Bhardwaj. After receiving his GI fellowship training at Northwestern University, Dr. Cote completed his advanced endoscopy training at Washington University, St. Louis. He brings a unique health services research focus to our prized pancreato-biliary endoscopy group. His practice will be focused on advanced pancreato-biliary endoscopy at both Indiana University (IU) Hospital and VAMC. Dr. Bhardwaj, following the completion of his training in our fellowship program, was recruited as a clinician-educator at the VAMC. We were fortunate to recruit back Dr. Hwan Yoo who was our faculty member previously but had a short stint in private practice in Kokomo. With his expertise

in transplant Hepatology, Dr. Yoo adds significant depth to our liver transplant group. This year is notable for two faculty

members receiving academic promotion: Dr. Suthat Liangpunsakul to Associate Professor of Clinical Medicine and Dr. Evan Fogel to Professor of Clinical Medicine. Dr. Liangpunsakul has been a faculty member in our Division since his graduation from our fellowship in 2002. Dr. Fogel has been a faculty member in our Division since his graduation from our advanced endoscopy fellowship in 1997 and he is nationally and internationally known for his clinical expertise and research contributions in the area of pancreatic disorders.

Dr. Doug Rex was named as a Distinguished Professor in 2009 by the Indiana University's Board of Trustees—this is the highest honor that Indiana University bestows upon any of its faculty members. Internationally acclaimed for clinical research in colorectal cancer screening, Dr. Rex has made numerous ground-breaking contributions to the School, University, and the State of Indiana. Dr. Stuart Sherman received the ASGE Distinguished Educator Award at the 2009 Digestive Diseases Week meeting for his spectacular teaching contributions to the field of pancreato-biliary advanced endoscopy. We salute both these scholars for their accomplishments.

Our general and advanced endoscopy programs and liver transplant program are among the best in the country in terms of quality, quantity, and national impact. Over the last several years, we have established cutting-edge clinical programs such as double balloon enteroscopy, video capsule endoscopy, endoscopic treatments for precancerous

and early cancers of the gastrointestinal tract, photodynamic therapy for bile duct cancer, spyglass cholangiopancreatography, and extracorporeal shock wave lithotripsy for pancreatic stones. We are the only center in Indiana to provide many of these advanced endoscopic procedures. Our liver transplant program is nationally acclaimed because of the number of transplants performed annually, short waiting times, innovative surgical approaches, and excellent graft and patient survival.

Our research efforts have grown both in the areas of focus and extramural funding. Many faculty members have garnered extramural funding from federal, industry, and societies. Dr. Chalasani succeeded in the competing renewal of his two U01 grants from the NIDDK, Dr. Won Cho received his VA Merit Review grant, Dr. Hala Fatima (ASGE Clinical Research Award), and Dr. Raj Vuppalanchi (Clinical research award from the American College of Gastroenterology). More than one hundred peer-reviewed papers and dozens of text book chapters, reviews, and editorials have been published by our faculty members. They serve on the editorial boards of many top tier medical journals such as *Gastroenterology*, *Hepatology*, and *Gastrointestinal Endoscopy*. Our faculty and fellows made several oral and poster presentations at our annual ACG and DDW meetings. Our faculty and fellows conduct clinical as well as laboratory-based research related to neoplastic and non-neoplastic disorders of solid organs such as liver and pancreas and a variety of luminal gastrointestinal disorders.

We welcome our incoming fellows: Drs. Ann Flynn, University of Colorado; Saurabh Agrawal, Cleveland Clinic Foundation; Priya Maddur, University of Texas at Southwestern; Arslan Kahloon, University of Pittsburgh; and Kartik Jinjuvadia, Wayne State University.

Our fellowship training program remained very competitive and has received applications from more than 350 candidates. We have matched five excellent candidates who will be starting their fellowship in July 2010. Our advanced endoscopy fellowship has continued to attract candidates from all over the world with current ERCP (Endoscopic Retrograde Cholangiopancreatography) and EUS (Endoscopic Ultrasonography) fellows coming from Thailand, Egypt, Pakistan, and Australia. We wish to congratulate Drs. Hala Fatima, Lawrence Lumeng, Michael Chiorean, Charles Kahi, and Suthat Liangpunsakul for receiving accolades and awards for their teaching excellence. We hosted Dr. Scott Friedman, a pre-eminent hepatologist and hepatic stellate cell biologist, as the recipient of Second Annual Lawrence Lumeng Lectureship in Gastroenterology and Hepatology.

Our commitment to provide comprehensive gastroenterology and hepatology coverage at Wishard Health Services and VAMC is unwavering. In the last few years, we have added a number of outstanding faculty members at these two locations, and additional services such as ambulatory pH monitoring (Wishard) and ERCP and EUS (VAMC). Our outreach efforts are expanding and we now have established practices in Carmel, Lebanon, Martinsville, Columbus, Greensburg, and Batesville. In partnership with Clarian Health, we have formed "Clarian/IU Digestive Diseases Center" whose objective is to promote patient care, research, and technology development to treat patients with digestive diseases by integrating GI medicine, oncology, surgery, radiology, and pathology sections.

As we move forward to the next academic year, our Division will remain committed to excel in all three missions (service, teaching, and research) of the School of Medicine.



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Lana M. Bistriz, M.D. (visiting)

Michael V. Chiorean, M.D.

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GREG A. SACHS, M.D.

Director
GENERAL INTERNAL
MEDICINE AND GERIATRICS



The Division of General Internal Medicine and Geriatrics (GIMG) at Indiana University is one of the nation's largest, with vibrant and diverse involvement in all aspects of the clinical, teaching, and research missions of the institution. The Division numbers more than 150 faculty and is divided into eight sections. The sections include the hospitals in which our members practice (Wishard Health Services, Roudebush Veterans Affairs Medical Center, and Indiana University Hospital/Clarian Health Partners), our outpatient practice (IU Medical Group-Primary Care), our academic missions (Education and Research), our specialty practice (Geriatrics), the Kenya Program, and Administration.

RESEARCH

Total annual direct contract & grant funding for the Division was \$28.3M. By Division Section this includes: Global Health Research/IU-Kenya Program 45%; Health Services & Outcomes Research 23%; Informatics 12%; Geriatrics 11%; Education and Bioethics 2%; and Research Infrastructure 7%.

The Division is fortunate to have a successful partnership with the Regenstrief Institute, Inc. (RI) for a significant portion of its research mission. About two-thirds of RI investigators make their academic home in GIMG. RI is an internationally recognized informatics and healthcare research organization dedicated to research and development activities that enhance the quality and cost-effectiveness of health care. Established in Indianapolis by

philanthropist Sam Regenstrief in 1969 on the campus of the Indiana University School of Medicine (IUSM), RI is supported by the Regenstrief

Foundation and closely affiliated with the IUSM, the Health and Hospital Corporation of Marion County, and Clarian Health Partners. Most of the research faculty within GIMG has appointments as investigators in the RI. The Institute increased its operating budget to \$27.5M during academic year 2008-2009, a new high. During the academic year, RI investigators submitted 98 proposals to extramural funding agencies and were awarded new funding of \$12.2M for 23 projects within the academic year, positioning RI favorably at entry to the next year. RI also recruited several new investigators within its three programs. During this last year, RI investigators contributed 157 articles to the peer-reviewed literature, and lay press publications cited RI on 75 occasions (16 local, 11 Star, 4 IBJ, 5 national press, and 54 others).

Medical Informatics (MI) continued to be the backbone of many clinical and research services on campus, in addition to conducting cutting edge informatics research and development. Clinical services supported by MI included Gopher at Wishard (the nation's premier computerized physician order entry program); clinical data repository at Wishard and Clarian hospitals; Indiana Network for Patient Care (INPC), a statewide clinical data system; DOCS4DOCS® - a clinical messaging service serving approximately 10,500 physicians across the state; and Quality Health First™ Program - serving approximately 2 million patients and 1,000 physicians. MI supported investigators in all of the other RI programs,

the Indiana CTSI, and other investigators on campus. Faculty in MI are leaders in the development of OpenMRS, an open source electronic medical record that builds on what was first developed for the IU-Kenya Program and AMPATH and has now been implemented worldwide. MI was designated as the only WHO Collaborating Center for the Design, Application, and Research of Medical Information Systems in 2008-2009. MI also expanded its presence in public health informatics and continued its leadership role in the National Health Information Network.

IU Center for Health Services and Outcomes Research (CHSOR) continued to advance the science of transforming the healthcare system to deliver consistently high quality care. CHSOR's 18 core faculty researchers apply clinical, methodological, and systems expertise to consistently improve healthcare systems. CHSOR, and its VA Center of Excellence, is nationally recognized for its work in implementation, systems redesign, and using health information technology to change practice. Uniquely positioned as an IU campus-wide and RI center, CHSOR is a partnership of IUSM, Indiana University-Purdue University Indianapolis (IUPUI), Roudebush Veterans Affairs Medical Center (VAMC), and academic and community healthcare partners.

CHSOR investigators have influenced local, regional, and national practice and policy in patient safety, quality improvement, antimicrobial resistance, implementation science, organizational change, and system redesign. Center investigators direct several VAMC and IUPUI centers, and initiatives nested within: Indianapolis VA HSR&D Center of Excellence; AHRQ Accelerating Change and Transforming Organizations (ACTION) Collaborative; The Assertive Community Treatment (ACT) Center of Indiana; VA Stroke Quality

Enhancement Initiative; IU Center for the Assessment, Mechanisms, and Management of Pain; Indianapolis MRSA Collaborative; IU/Purdue Cancer Care Engineering Collaborative; and AHRQ Health Associated Infections (HAI) Assessment and Resource Center.

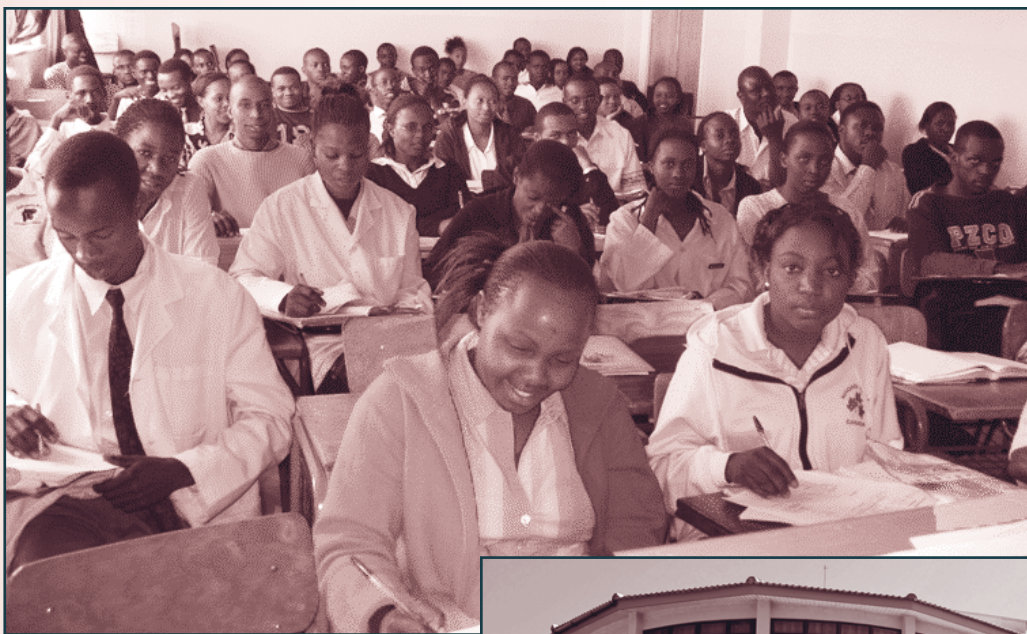
Professional development opportunities included four VA HSR&D postdoctoral fellowships in patient safety, medical informatics, and health services research, and a recently awarded AHRQ post-doctoral fellowship (T32) in Health Services Research with Children's Health Services Research.

The IU Center for Aging Research (IU-CAR) continued robust growth in its portfolio of geriatrics grants and programs. Dr. Chris Callahan received major funding from NIMH to bring

together Wishard Health Services, Midtown Mental Health, and providers and researchers from psychiatry, general medicine, and geriatrics to build an infrastructure for doing research and creating cultural change around the integrated care of patients with depression, cognitive impairment, and cardiovascular disease. Dr. Alexia Torke was awarded a K23 Career Development Award from NIA to pursue her work on surrogate decision making and communication. Dr. Malaz Boustani's work on care of hospitalized patients with cognitive impairment was one of only three presentations chosen for the plenary session at the annual meeting of the American Geriatrics Society (the third year in a row that IU-CAR had a presenter included in this plenary session). The year closed with positive news about important grant

renewals, including Dr. Chris Callahan's K24 Mid-Career mentoring award from NIA and the IU Edward R. Roybal Center for Translational Research on Chronic Disease Self-Management Among Vulnerable Older Adults.

The IU-Kenya Partnership led by Dr. Robert Einterz, Associate Dean for International Programs, has coordinated the relationship between various IU Departments and Schools and the Moi University Faculty of Health Sciences in Eldoret, Kenya, including establishing and running AMPATH (Academic Model for Providing Access to Healthcare), the largest HIV control program in Kenya. More than 100,000 individuals (mostly HIV-positive, 87% adults) have been enrolled in AMPATH and have made more than two million visits to 27 sites in western Kenya, enrolling 2-3,000 new patients per month. AMPATH partnership launched an ambitious door-to-door health risk assessment program, initially piloted in a population of almost 160,000 persons. This program will eventually include all 2 million persons in AMPATH's catchment area and include one of Africa's most ambitious and successful programs to stop the transmission of HIV from mother to child. Construction on the new Mother and Baby Hospital was completed in July of 2008 and a new partnership in reproductive health was established with University of



(Above) Moi University School of Medicine (Eldoret, Kenya) enrolled its first class of students in 1990. Currently, the School admits 60 students per year, selected from the brightest high school graduates.

(Right) Eldoret's new Riley Mother and Baby Hospital was dedicated August 20, 2009. Currently, an average of 50 babies are being cared for in the newborn intensive care unit (NICU) every day.



Toronto. AMPATH is transitioning from an emphasis on HIV to a focus on primary care, including initiatives to control malaria and tuberculosis, assure safe water, diminish maternal and child mortality, and treat intestinal worms. Chronic disease management programs have been initiated in diabetes, oncology, mental health, and cardiopulmonary disease. Of note, AMPATH received a \$2.7M grant to develop a Center of Excellence in Cardiovascular and Pulmonary Diseases, one of 11 funded under NHLBI's Global Health Initiative. To date, the IU-Moi University partnership has received more than \$123M in extramural grants (\$60M currently from PEPFAR), \$33M of which support research projects. The IU-Moi University partnership continues to promote the exchange of medical students, residents, and faculty between the two institutions as a means to foster development and to enhance mutually beneficial medical education and training.

The IU Center for Bioethics (IUCB), directed by Dr. Eric Meslin, has a scope of activity that extends across the university and into the community. This year was an especially productive one reflecting the center's breadth of expertise and impact. IUCB received a three-year renewal grant from the Richard M. Fairbanks Foundation to continue its project examining the ethical, legal, and social implications of predictive health studies from biobanks to pharmacogenomics. IUCB continued to work closely with the Indiana State Department of Health on the ethical and policy issues in pandemic influenza planning. IUCB launched its "Bioethics and Subject Advocacy Program" in the newly established Indiana Clinical and Translational Science Institute. Finally, IUCB received funding from NIH (the Fogarty International Center) for the IU-Moi University Academic Research



Approximately 2,000 infants will be admitted to Eldoret's Mother and Baby Hospital NICU every year, and up to 10,000 babies per year will be delivered.

Ethics Partnership, a training program on research ethics that will build on and enhance the growing research efforts in the IU-Kenya Partnership.

EDUCATION

The Division's Education Section had yet another banner year. Division faculty members generated more than 40% of all teaching RVUs in the Department of Medicine and held many leadership positions in education efforts at the medical student, resident, fellowship, and faculty development levels. Many of the GIMG faculty are noted for their excellence and innovation in teaching. Leadership roles and the GIMG faculty holding them include:

- Drs. Meg Gaffney and Klaus Hilgarth – Directors for the *Introduction to Clinical Medicine* course which is required of all first and second year students;
- Dr. Robert Vu – Director of the required clerkship and subinternship for third and fourth year students;
- Dr. Lia Logio – Medicine Residency Director and Assistant Dean of Faculty Affairs and Professional Development;

- Dr. Deb Litzelman – Assistant Dean of Medical Education and Curricular Affairs; and
- Three of the nine IUSM Competency Directors: Drs. Rich Frankel (Professionalism and Role Recognition), Meg Gaffney (Moral Reasoning and Ethical Judgment), and Glenda Westmoreland (Effective Communication).

It has been a particularly exciting year for the residency program. Under the direction of Dr. Lia Logio, the program completed its second year within the national Educational Innovations Project accreditation model of the ACGME and RRC-IM. Drs. Noelle Sinex and Mary Ciccarelli continued their successful Immersion Week experiences for all interns to understand the system of care in their outpatient continuity clinics and added a PGY-2 immersion experience in chronic disease management. The curriculum on patient safety was boosted by a new elective at the VAMC and through a pilot program called Safety Stories where residents submitted narratives on any care that did not go as intended. Early experience from this was presented at the fall 2008 APDIM meeting. Dr. Alex Djuricich, Director of the Medicine/Pediatrics combined program, has provided leadership on the program's efforts in improving handoffs and has received national acclaim for his innovative curriculum in quality improvement. In addition to these efforts, residents are now being taught leadership skills and provided an opportunity to serve on program level and campus level committees to directly influence change and improvement within our systems. Dr. Aaron Leary was recruited as a new faculty member to support EIP safety and quality improvement efforts. Dr. Julie Vannerson was appointed by the CME office to develop performance improvement CME and to help with the Resident as Mentor initiative.

The combined medicine/pediatrics residency continued to be a highly competitive program and was involved in the innovative curricula in both medicine and pediatrics. GIMG serves as the home of a wide variety of pre- and post-doctoral fellowships including geriatrics, medical informatics, general internal medicine, palliative care, gero-informatics, health services research, and newly funded positions in patient safety. Dr. Lia Logio continued directing the very popular yearlong faculty orientation program, Leadership in Academic Medicine Program (LAMP).

CLINICAL

To support high quality teaching and research programs, GIMG leads with high quality clinical care programs. IU Medical Group-Primary Care (IUMG-PC) is a collaboration between the primary care specialties (general internal medicine, general pediatrics, family medicine, and Ob-Gyn) and the melding of Wishard Health Services with our multi-specialty commercial primary care practice. IUMG-PC includes more than 135,000 patients who made almost 400,000 primary care visits to 27 outpatient sites – it is the largest primary care organization in Indiana. IUMG-PC is an institutional leader in areas such as quality improvement, disease management programs, and electronic records. IUMG-PC also hosts research for investigators in many divisions, departments, and schools through its practice-based research network, ResNet. Studies performed at IUMG-PC sites have resulted in more than 300 publications in peer-reviewed journals. The VAMC General Medicine Clinics care for an additional 20,000 patients in more than 60,000 visits per year and are a primary research site for the VA's HSR&D Center of Excellence. Busy inpatient services exist at Wishard Health Services, VAMC, and IU Hospital. Division member and Regenstrief Institute scientist, Dr. Lisa

Harris, is CEO and Medical Director of Wishard Health Services which has been recognized for its excellence by the National Association of Public Hospitals and Health Systems. Robust quality improvement programs exist in the Division's clinical practices, many achieving excellent results even within resource poor environments. For example, many quality indicators in the IUMG-PC practices are being met at the 90th percentile nationally. Plans were launched for the clinics to eventually meet National Committee for Quality Assurance (NCQA) designation for the Patient Centered Medical Home.

The IU Hospitalist Program, led by Dr. Kirsten Kaisner-Duncan (also Chief of Medicine at Wishard Health Services), continues to grow in leaps and bounds. During the year, the group remained a true force in clinical service delivery and medical education. Eighteen hospitalist faculty attend on the medicine services at Wishard Health Services, covering busy non-teaching and teaching services. Innovations to maximize continuity of care, improve patient safety, improve patient/housestaff/faculty satisfaction, and assist with more efficient throughput have allowed continuation of a two-week inpatient staffing model. July 2007 saw the establishment of a 24/7 hospitalist service at Clarian/IU Hospital. The almost instant popularity of the program required the addition of a second team by February 2008, with a third team planned for July 2009. IU hospitalists also play an important role in quality efforts in their setting, too.

Palliative Care, always a strong program at Wishard Health Services, continued to grow. At the close of the academic year, we learned that the Wishard Palliative Care Program had been awarded the prestigious and very competitive Circle of Life Award from the American Hospital Association. The palliative care fellowship program became one of the first programs in the

nation to achieve certification under the new American Board of Medical Specialties designation. New palliative care consultation services were launched at the VAMC and Methodist Hospital, with plans underway to launch a service at IU Hospital in 2009-2010.

IU Geriatrics had its designation renewed as a John A. Hartford Foundation Center of Excellence (CoE) in Geriatric Medicine (one of 27 nationally). The main focus of the IU Hartford CoE is the identification, training, and support of the next generation of clinical geriatricians and aging researchers. IU Geriatrics is acclaimed nationally and internationally for developing, implementing, and rigorously investigating models of geriatric care that translate evidence-based best practices into generalist physicians daily work flow and improved systems of care in an efficient, time-sensitive manner. In 2008, IU Geriatrics initiated the IU Healthy Aging Brain Center (HABC). HABC was designed to lead to improvements in systems of clinical care, advances in educational programs, and high-quality research for seniors with cognitive impairment and dementing illnesses. The program was so successful that Wishard Health Services agreed to expand the clinic from 3 to 5 half-day sessions, allowing two additional faculty to join the practice, including a neurologist. Dr. Steven Counsell, Director of IU Geriatrics, continued with successes in obtaining funding to pursue dissemination of the acclaimed GRACE program and to explore ways of engaging in public policy efforts that would facilitate uptake elsewhere of the innovative programs of IU Geriatrics.

GIMG is large, diverse, and active in the Department of Medicine's clinical, teaching, and research missions.

Its members are active in national organizations (for example, three former presidents of the Society of General Internal Medicine, three Board and Committee members of the American Geriatrics Society, and two current members of the Institute of Medicine), and have key leadership roles in the Indiana University School of Medicine and the University at large.



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LECTURER

Daphne Kyomuhendo (Muzooro), M.B.Ch.B.

PATRICK J. LOEHRER SR., M.D.

Director
HEMATOLOGY/ONCOLOGY



(28 medical/
surgery unit,
18-bed ICU
unit; shell
space for
additional
28-bed
inpatient unit
and six ICU
beds) and a 60 patient

capacity for infusion. Our patients, who have come from all 92 Indiana counties and all 50 states since the center's establishment in 1992, now find their cancer care together in one location ranked by *U.S. News & World Report* as among the best in the country.

Five doctors from our Division were among those named as "America's Top Doctors" by Castle Connely. The cancer program was also designated by Blue Cross & Blue Shield as a Distinction Center for Rare and Complex Cancers, and by United Healthcare as a Center of Excellence. The Stem Cell Transplant Program, lead by Dr. Sherif Farag and his colleagues received Foundation for the Accreditation of Cellular Therapy (FACT) accreditation recognizing it as one of the top programs in the United States.

Most of the center's basic scientists moved into the new Joseph E. Walther Hall in April 2009. The 254,000-square-foot building is the largest of the new research facilities at IU with 125 new research labs, 73 of which are occupied by the IU Simon Cancer Center. Walther Hall completes the transformation of the north side of Walnut Street on the IU School of Medicine (IUSM) campus into a three-building, 500,000-square-foot interconnected research complex where scientists can interact to share their work and vision.

Dr. Larry Cripe, Associate Director of Clinical Affairs, has worked closely with IU and Clarian staff to impact

quality and mortality index for the inpatient service. In the past two years, the mortality index has decreased from 0.84 to 0.53. He brought into the clinics quality measures such as the American Society of Clinical Oncology (ASCO) Quality Oncology Practice Initiative (QOPI®) program and the Centers for Medicare and Medicaid Services (CMS) Physician Quality Reporting Initiative (PQRI). Coordination with the Departments of Surgery and Radiation Oncology has also established benchmarks which will be used across the Clarian system.

Our research mission has been exemplary with an increase of annual research funding from \$9M to \$24M over the past 5 years. Our number of grant and contract awards have similarly increased dramatically from 67 to 149 (122% increase) in the same time period. Our therapeutic and investigator-initiated accrual to clinical trials has increased by 25% with 674 patients entered this past year.

Our Division provides leadership to national organizations and the cancer center. Dr. George Sledge, one of "America's Top Doctors," has been elected to become president of the ASCO, the world's largest organization of cancer physicians, beginning next year. Dr. Linda Malkas serves on the NCI's Subcommittee A for the Cancer Centers. Dr. Lawrence Einhorn serves on the ASCO Cancer Foundation Board of Directors, and Dr. Loehrer was recently appointed to the Oncology Drug Advisory Committee for the Food and Drug Administration. We have a number of faculty who serve on study sections and review panels. Dr. Nasser Hanna is Chair of the Hoosier Oncology Group and Dr. Paul Helft is Director of the Fairbanks Center for Medical Ethics. For the IU Simon Cancer Center, Dr. Sherif Farag is the Associate Director of Clinical Research, Drs. George Sledge and Linda Malkas

The Division of Hematology/Oncology is built on a foundation of dedicated faculty and staff who are committed to excellence in patient care, education, and translational research. Our clinical and research efforts have had a worldwide impact in the care of patients with various malignancies. Notable examples include standards of care set for common tumors, such as breast and lung cancers, and less common malignancies, such as testicular cancer and thymoma. At the core of our faculty's mission is to not only have an impact on every patient seen at the Indiana University Melvin and Bren Simon Cancer Center (IUCC), but also to make a difference in patient care globally. Indeed, about 60% of the cancer referrals to the IU Simon Cancer Center come from outside the nine counties surrounding Indianapolis with many international patients travelling here for care.

The National Cancer Institute (NCI) awarded the IU Simon Cancer Center a five-year, \$6.5M support grant following a multi-step competitive process. The NCI designation places the IU Simon Cancer Center in an elite group of 64 research centers across the country that focus on the rapid translation of research discoveries to directly benefit people with cancer. It is the only NCI-designated cancer center in Indiana that provides patient care and performs basic research.

The IU Simon Cancer Center began a new chapter in September 2008 when the new 405,000-square-foot, \$150M clinical building opened. The building boasts an 80 bed capacity

continue as Breast Program Directors, and Dr. Daniela Matei remains Co-Director of the Experimental and Developmental Therapeutics Program.

Dr. Bryan Schneider published a landmark paper which identified single nucleotide polymorphisms that appears to predict toxicity and survival in patients treated with bevacizumab for advanced breast cancer. This work earned him a \$5.8M Promise Grant from Susan G. Komen for the Cure to further his research. With the Promise Grant, Dr. Schneider and colleagues will try to establish biomarkers that physicians can use to better predict which breast cancer patients will benefit from bevacizumab and which cancer patients will suffer significant side effects. This story follows a long history of drugs which have been approved or had expanded indications by the FDA based upon trials conducted at IU or led by IU investigators. This includes cisplatin, etoposide, ifosfamide (all testicular cancer), pemetrexed, and gemcitabine (for lung cancer).

Thanks to a \$1M research grant from Susan G. Komen for the Cure, the Susan G. Komen for the Cure Tissue Bank at the IU Simon Cancer Center, co-led by Dr. Anna Maria Storniolo and Dr. Sue Clare, from the Department of Surgery, will continue its unique mission to collect and share healthy breast tissue specimens with researchers worldwide to help understand how breast cells turn cancerous.

Dr. Noah Hahn continued his work of building a tissue bank that will contain a higher representation of African Americans than most others. Thus far, nearly 400 men and women from minority populations have donated a blood sample to Dr. Hahn's ongoing studies, which will help identify genetic and environmental risk factors that lead to the development of cancer.

Dr. Daniela Matei has done some very important translational research in

ovarian cancer including identifying new molecular targets such as PDGF and initiating trials looking at novel agents such as imatinib and demethylating agents. She has been awarded an R21 grant entitled "A Low-Dose Decitabine Strategy for Restoring Ovarian Cancer Sensitivity" to explore this. Other major research highlights include Drs. Linda Malkas and Robert Hickey who have conducted biomarker discovery research that has resulted in a potentially valuable reagent for the detection of breast cancer. Dr. John Turchi is studying the basic mechanisms of resistance to cisplatin and DNA repair as well as developing novel methods to detect repair activity and to sensitize cisplatin resistance. Dr. Attaya Suvannasanka has received awards from the VA and the Myeloma Foundation for her work with novel targets in multiple myeloma. Dr. Mircea Ivan, a recent addition to our faculty, has been working with MicroRNA regulation of DNA repair gene expression in hypoxic stress which has broad implications in tumor biology and therapeutic target discovery.

Our Division takes great pride in its educational mission. For the third year in a row, the Hematology/Oncology section, led by Drs. Nasser Hanna and Rakesh Mehta for the Introduction to Clinical Medicine, was ranked first among all sections. Dr. Naveen Manchanda received the Lawrence H. Einhorn Distinguished Teaching Award by our fellows. Dr. Larry Cripe was one of the key organizers of an international multi-day symposia entitled Cancer Stories, which bridged scientists and clinicians with writers and poets. Our annual ASCO review, coordinated by Dr. Larry Einhorn, remains the highest rated CME course put on by IUSM.

The number of internal medicine residents pursuing fellowships in hematology/oncology has been steadily rising over the past several years, which has resulted in an increase in the quantity and quality of fellows matriculating to the IU Simon Cancer Center and elsewhere.

Led by Dr. Michael Robertson, our fellowship program has done extraordinarily well. Several of our fellows have received fellowship grants from Amgen and Walther and travel awards to ASCO this year. Four of our senior fellows are pursuing an academic career, Drs. Matthew Strother, Jose Azar, and Shadia Jalal (all IUMC) while Dr. Bisi Ademuyiwa will be joining the faculty at Roswell Park Institute. Dr. Strother was the recipient of the prestigious ASCO Young Investigator Award in which he will be looking at drug-drug interactions in a special population in Eldoret, Kenya. He will be spending his first academic year also building what we expect to be one of the most successful cancer programs in sub-Saharan Africa. Dr. Vivian Cook will be returning to practice with several of our former fellows in Evansville, Indiana.

Cancer deeply touches each of us, even those involved in the day to day clinical research of the disease. This was especially true when we lost Dr. Stephen Williams, the founding director of IU Simon Cancer Center, during the past academic year. Dr. Williams died of cancer (melanoma), the very disease to which he dedicated his career. He was our leader, mentor, friend, and so much more. Although he is gone physically, he is with us in spirit and his principles and leadership guide us as we continue our work in the Division and the cancer center. Dr. Williams received several awards this year including the Indiana University President's Medal, the Sagamore of the Wabash, and the Indianapolis Business Journal's Health Care Heroes Award. Jerry Throgmartin, the former president of H.H. Gregg and a cancer survivor spoke at Dr. Williams' memorial service saying, "I look at the qualities that I remember with Steve: easy-going, unpretentious, smart and selfless. From the corporate world I'm always impressed by people who dedicate their life to service, dedicate their life to

making it better for somebody else.” Several years ago, based on his respect for Steve, his company endowed a chair for the Cancer Center Director, which Steve held till his passing in February. For those of us, who were privileged to have worked and played alongside Steve, his physical presence will be sorely missed, but his fingerprints and his spirit are imbedded in the IU Simon Cancer Center and provide us with a palpable reminder of why we are here.



Remembering Steve Williams, M.D.

"A decade ago, Steve embarked on a mission that would change the course of this medical school and the university for the foreseeable future. He orchestrated the creation of the Indiana University Melvin and Bren Simon Cancer Center. He saw the opening of the 150 million dollar cancer hospital and will just miss the opening of the Cancer Research facility. It was no small task to bring together the best and the brightest of Indiana University, reach out to Purdue and Notre Dame, define programs, focus research efforts and seek philanthropy. He did it, he did it well."

— Patrick J. Loehrer Sr., M.D.

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DISTINGUISHED PROFESSOR

Lawrence H. Einhorn, M.D.

PROFESSOR

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Kenneth G. Cornetta, M.D.

Patrick J. Loehrer Sr., M.D.

Linda H. Malkas, M.D.

Robert P. Nelson Jr., M.D.

Michael J. Robertson, M.D.

George W. Sledge Jr., M.D.

Edward F. Srouf, Ph.D.

John J. Turchi, Ph.D.

Stephen D. Williams, M.D.

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Larry D. Cripe, M.D.

Sherif S. Farag, M.D., Ph.D.

Nasser H. Hanna, M.D.

Paul R. Helft, M.D.

Robert J. Hickey, Ph.D.

Daniela E. Matei, M.D.

Kathy D. Miller, M.D.

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Anne Greist, M.D.

Theodore F. Logan, M.D.

Naveen Manchanda, M.B.B.S.

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E. Gabriela Chiorean, M.D.

Noah M. Hahn, M.D.

Mircea Ivan, M.D., Ph.D.

Bryan Schneider, M.D.

Shivani Srivastava, M.D.

Attaya Suvnnasankha, M.D.

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Erin V. Newton, M.D.

Seyed Hamid Sayar, M.D.

Jennifer Schwartz, M.D.

SENIOR RESEARCH PROFESSOR

Christie M. Orschell, Ph.D.

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Derek J. Hoelz, Ph.D.

ASSISTANT SCIENTIST

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PROFESSOR OF CLINICAL MEDICINE

Daniel A. Rushing, M.D.

Anna-Maria Storniolo, M.D.

ANDREW LOBASHEVSKY, M.D., PH.D.

Director
HLA LABORATORY AND
CLARIAN TRANSPLANT
IMMUNOLOGY LABATORY



(MVT)
recipients
to evaluate
the risk
of GVHD
before
patients
develop clinical
symptoms. This

might allow earlier treatment and should lead to improved patient outcome.

The Clarian Transplant Immunology Laboratory, located at Methodist Hospital, provides support for the solid organ transplant programs at Methodist, IU, and Riley Hospitals.

The immunologic monitoring of highly sensitized organ transplant recipients who have high levels of HLA antibodies is a significant, ongoing part of the laboratory testing repertoire. A high antibody level puts this group at a disadvantage when searching for compatible donor organs. Desensitization protocols were introduced in transplant centers to try to increase the probability of successful renal graft survival in this group of patients.

In early 2005, the transplant program at IU initiated the use of desensitization protocols which include the use of intravenous immunoglobulin, both with and without plasmapheresis. Desensitization is widely used to decrease percent of reactive antibodies in solid organs transplant candidates. Various numbers of cycles of desensitization are required to decrease the level of donor specific antibodies. We hypothesized that there was a correlation between polymorphism of some cytokine genes and intensity of desensitization required to make the recipient/donor cross match compatible. The results of the study showed that analysis polymorphism of genes encoding IL-4R, IFN γ , and IL-12 enables us to define the desensitization strategy in transplant candidates more accurately regarding the number of plasmapheresis cycles and dose of intravenous immunoglobulin (A. Lobashevsky et al.,

Transplant Immunology, 2009. In press). The strategy and methods for monitoring these patients pre- and post-transplant was developed and has been an integral part of the lab's effort. This strategy has almost doubled the number of tests performed in the laboratory and the number of sensitized patients receiving transplants. Graft survival is comparable to the unsensitized patients. Desensitization methods are also used for treatment of rejection in solid organ (kidney, heart, and pancreas) transplant patients. The Clarian Transplant Immunology Laboratory tests post-transplant patients to predict and monitor organ rejection. Implementation of high definition solid phase LUMINEX platform-based methodology offered the most sensitive and specific technology for anti-HLA antibody detection. Since August 2008 the strategy for virtual cross matching analysis was developed in the Histocompatibility laboratory for lung and heart transplant recipients. The LUMINEX technology enables us to predict the results of final cross match test, shortening cold ischemia time which is critical for out-of-state donors. Since the time the virtual cross match program was developed, five recipients successfully received hearts.



**HLA LABORATORY AND
CLARIAN TRANSPLANT
IMMUNOLOGY LABATORY**

PROFESSOR EMERITUS

Zacharie Brahmi, M.D.

ASSOCIATE PROFESSOR

Andrew Lobashevsky, M.D., Ph.D.

The Immunology-Histocompatibility (HLA) Laboratory at Indiana University (IU) is focused on providing service for the Division of Hematology/Oncology. HLA performs molecular (DNA) high resolution tissue typing of bone marrow/stem cell transplant recipients and related and unrelated donors including donors and recipients from many international transplant programs. Compatibility of donor and recipient tissues' antigens coded by the major histocompatibility complex (MHC) is crucial for successful transplantation and control of graft rejection and Graft Versus Host Disease (GVHD).

Besides histocompatibility testing for hematology/oncology patients, the laboratory also provides service for patients with a diversity of immunodeficiencies. The range of tests for immunodeficient patients includes cellular assays such as mitogen stimulation and chromium release assays for Natural Killer Cell evaluations. A collaborative study between the IU Hematology/Oncology Bone Marrow/Stem Cell Transplant group and Cylex has been established through this laboratory. The goal of this project is to determine if there is a correlation between the CD4+ T helper activation ImmuKnow test results and the risk of GVHD in hematologic malignancy patients subjected to a myeloablative pre-transplant regimen.

The HLA Laboratory provides real time polymerase chain reaction (RT-PCR) technology to the liver and intestine transplant program. This technology is used in multi-visceral transplant

STANLEY M. SPINOLA, M.D.*Director*
INFECTIOUS DISEASES

Research in the Division of Infectious Diseases focused on HIV, sexually transmitted infections (STI), and vaccines. There has been much interest in the treatment of STI as a strategy to prevent the transmission of HIV. Dr. Kenneth Fife was a co-investigator on an international multi-center clinical trial that examined whether acyclovir, a drug widely used to safely and effectively suppress herpes simplex virus-2 (HSV-2), the most common cause of genital herpes, would reduce the risk of HIV transmission when taken by people affected by both HSV-2 and HIV. Acyclovir-suppressive treatment reduced the frequency of genital ulcers by 73% and the average amount of HIV in the blood by 40%. Although the use of acyclovir slowed progression of HIV by 17%, an effect that was statistically significant, it did not reduce the risk of HIV transmission. "This study was the first clinical trial to test whether suppressing HSV-2 infection could reduce rates of HIV transmission and HIV disease progression. Because HSV-2 appears to be a major factor in fueling the HIV epidemic, we must better understand this relationship in countries where HIV infection is rampant," said Dr. Fife. This study was the first large controlled clinical trial to be conducted through the IU-Kenya Partnership and laid the foundation for future trials to examine whether more potent regimens may suppress HIV transmission.

Dr. Darron Brown received a new R01 on "Acquisition and Clearance of Genital Tract Human Papillomavirus Infection in Adolescent Women." He was the recipient of the 2009 Pharmaceutical

Researchers and Manufacturers of America Clinical Trial Exceptional Service Award for development of the quadrivalent HPV type 6/11/16/18

vaccine. "What's extraordinary about this year's award winner is, for the first time ever, we have a vaccine that can actually prevent a certain type of cancer—as opposed to just treating it," said PhRMA Senior Vice President Ken Johnson. "It signals a new era in medicine and begs the question, 'If we can do it for cervical cancer, why can't we do it for other types of cancer?'" Dr. Brown credited his colleagues at Indiana University (IU) and elsewhere with the development of the vaccine. "In my view, probably the most important contributions I made were during those early years, before we really believed we could actually start a vaccine trial with the HPV vaccine," said Brown. "Some of us had more faith than others that it could work. I think it was a lot of perseverance, stubbornness, and passion on the part of people in my group at IU, at Merck, and other institutions that really kept pushing until we got something that looked like it would work." Dr. Brown was the lead author on a study that showed that the vaccine also conferred cross-protection against persistent infection and cervical intraepithelial neoplasia caused by oncogenic HPV types in addition to 16/18 (*J. Infectious Diseases*, 2009, 199:926-935).

Dr. Samir Gupta, an expert on HIV and renal disease, was awarded a new R01 on "HIV, Inflammation and Endothelial Dysfunction." His recent published work showed that both HIV and non-HIV related factors were associated with abnormal levels of proteinuria and identified persons at a greater risk of worse clinical outcomes (*Antiv. Ther.*

2009;14:543-549). Drs. Gupta and Kara Wools-Kaloustian are working jointly to establish whether proteinuria and other simple clinical markers are associated with HIV disease progression in resource-limited areas in studies conducted through the IU-Kenya Partnership. Their goal is to identify patients who might benefit from earlier treatment with antivirals.

Dr. Barbara Van Der Pol was appointed as an adjunct faculty for the Center for Sexual Health Promotion on the IU Bloomington campus and for the Epidemiology Doctoral Program within the Department of Public Health on this campus. She received funding for a developmental project entitled "A Qualitative, Longitudinal Study of Post-diagnosis HSV-2 Reactions." Drs. Van Der Pol, Diane Janowicz, and Wei Li gave major talks on their research at the 18th International Society for Sexually Transmitted Diseases Research Meeting in London in 2009.

In education, Dr. Mitch Goldman initiated "Super School." This initiative for internal medicine resident education utilized interactive real-time learning processes and replaced the lecture format as the major component of the resident curriculum. His team provided education concerning general medicine, subspecialty medicine, patient safety, and professionalism within the Department of Medicine's Education Innovation Project-Residency Education Advancing and Changing Healthcare (EIP-REACH) Program.

The Division provided consult services at the Roudebush Veterans Affairs Medical Center (VAMC), Wishard Health Services, and two services at Indiana University (IU) Hospital, one of which focused on transplant recipients. We provided outpatient care at all the hospitals and a travel medicine clinic at IU Hospital. Drs. Amy Kressel and Steven Wilson supplied hospital epidemiology services for these three

institutions. Dr. Byron Batteiger administered the Antimicrobial Prescribing Improvement Program at IU Hospital. Drs. Janet Arno, Kenneth Fife, and Barbara Van Der Pol supervised a comprehensive program at the Bell Flower Clinic for treatment, prevention, and research in STI. Dr. Rich Kohler provided consultation for the state Tuberculosis Control Program. Dr. Goldman supervised the Ryan White Title III Program that serves HIV infected persons in Marion and the surrounding counties. Drs. Wilson, Kressel, Fife, Arno, and Virginia Caine led efforts by the School of Medicine and the Marion County Health Department to respond to the H1N1 influenza outbreak in Indianapolis.

In December, Dr. Amy Kressel was appointed as the Clarian Clinical Subdivision Chief. Under her leadership, the Infection Control Department of IU Hospital was successful in decreasing hospital-acquired infections. Hand hygiene rates approached 90%. There was a reduction in catheter-associated bloodstream infections (CA-BSI), as defined by the Centers for Disease Control and Prevention, in both the critical care units and medical wards. This was the result of collaboration between Infection Control, Critical Care, Nursing, and the Central Line team.

Dr. Virginia Caine received an Honorary Doctorate of Human Letters Degree from Martin University and the “Excellence in Health Care Award” from the American Public Health Association. She also served as a member of the Robert Wood Johnson Foundation Medicaid Leadership Institute, National Advisory Committee. Dr. Stanley Spinola was elected to Fellowship in the American Academy of Microbiology, an honorary society within the American Society for Microbiology.

After completing a medicine/pediatrics residency and an adult infectious diseases

fellowship at IU, Dr. Danielle Osterholzer joined the faculty as Assistant Professor of Clinical Medicine and Clinical Pediatrics. Dr. Osterholzer assisted Dr. Mitch Goldman, in administering the Ryan White Program at the Wishard Infectious Diseases Clinic and provided Quality Management for the Ryan White program for the Marion County Health Department, in accordance with the grant secured by Dr. Virginia Caine from the Department of Health and Human Services. Additionally, Dr. Osterholzer provided clinical services for the Department of Pediatrics.

Dr. Steven Wilson was promoted to Associate Professor of Clinical Medicine and Dr. Raymond Johnson was promoted to Associate Professor of Medicine. Dr. Diane Janowicz completed the first two years of a K08 award and joined the tenure track as an Assistant Professor of Medicine in 2009. We will welcome Dr. Bree Weaver to the faculty as a Lecturer in Clinical Medicine in 2009. Dr. Weaver is completing a third year of research supported by the STI/HIV training grant and will focus on epidemiology of STI.

Our graduating fellows were Drs. Monica Sharma and Christina Genske. They will enter private practice in Chicago and Indianapolis, respectively. We welcome Drs. Aaron Ermel (IU) and Suzanne Goodrich (Ohio State University) to our fellowship program in 2009. They both have interest in STI and HIV research.



PROFESSOR EMERITUS

Robert B. Jones, M.D., Ph.D.

PROFESSOR

Byron E. Batteiger, M.D.

Darron R. Brown, M.D.

Kenneth H. Fife, M.D., Ph.D.

Richard Kohler, M.D.

Stanley M. Spinola, M.D.

ASSOCIATE PROFESSOR

Bradley L. Allen, M.D., Ph.D.

Virginia A. Caine, M.D.

Mitchell Goldman, M.D.

Raymond Johnson, M.D., Ph.D.

ASSOCIATE PROFESSOR OF CLINICAL MEDICINE

Janet N. Arno, M.D.

Herbert E. Cushing, M.D.

Amy Beth Kressel, M.D.

Stephen Wilson, M.D.

ASSISTANT PROFESSOR

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Kara Wools-Kaloustian, M.D.

ASSISTANT PROFESSOR OF CLINICAL MEDICINE

Danielle A. Osterholzer, M.D.

ASSISTANT RESEARCH PROFESSOR

Diane Janowicz, M.D.

Wei Li, Ph.D.

Barbara Van Der Pol, Ph.D.

BRUCE A. MOLITORIS, M.D.*Director*
NEPHROLOGY

The Division of Nephrology at Indiana University (IU) continues to faithfully carry out its education, clinical, and research missions through the efforts of an excellent integrated faculty and fellowship program.

Education of medical students, residents, nephrology fellows, and community physicians remains a primary commitment of the Division. Each year, five nephrology fellows graduate from our program to become board certified nephrologists. While we have an emphasis on training academic nephrologists, many go into private practice and the majority remain in Indiana. Over the past five years 8 out of 26 graduates entered academics and 14 out of 26 remained in Indiana. The Division also provides educational opportunities for continuing medical education for nephrologists and general internists from across the state in an attempt to continually increase their knowledge and help provide for the best possible care of our patients. The fellowship program is headed up by Dr. Pierre Dagher and an outstanding fellowship committee. Dr. Dagher received the IU Trustees teaching award and Dr. Asif Sharfuddin was selected to receive the Nephrology Fellowship Teaching Award by the fellows.

This year I want to emphasize leadership as the Division is now nationally recognized for providing local, national, and international leaders within nephrology. Most notably, Dr. Sharon Moe was elected to the American Society of Nephrology (ASN) Council. This is the governing board of the ASN, the largest organization of nephrologists in

the world. It is recognized as the premier educational provider. The ASN sponsors an annual meeting, local weekend meetings, and numerous educational opportunities on its very progressive website. There is a seven year progression from being elected to the ASN Council to becoming President of the American Society of Nephrology, one of the premier responsibilities within nephrology. Dr. Bruce Molitoris was elected to this same ASN Council in the previous year and, therefore, IU Division of Nephrology is the only division in the country to have two ASN Council members at the same time. Dr. Sharon Moe also chaired the International Kidney Disease Improving Global Outcomes (KDIGO) guidelines on mineral metabolism and bone disease. These guidelines have just recently been released and will serve as the most up-to-date source for practicing physicians in this clinical area. Dr. Rajiv Agarwal became a permanent member of the VA Merit Review research study section and was also selected to the National Institute of Health (NIH) External Advisory Committee. Dr. Richard Hellman was elected to the Medical Review Board for Renal Network 9 and 10 and Dr. Dennis Mishler maintained his position as Chairman of the Medical Advisory Committee of the National Kidney Foundation of Indiana. Dr. Robert Bacallao became a permanent member of the NIH RCDB NIDDK study section. Finally, Dr. Simon Atkinson was IUPUI faculty President. Many of our faculty serve as associate editors for many journals.

Our clinical mission continues to expand with growth in total RVU's, collections, and faculty members. Led by Dr. Tim Taber, our renal transplantation program

has opened and expanded its outreach clinics in Fort Wayne, South Bend, Merrillville, Evansville, and Clarian North. Partly to credit is the program's innovative plan to utilize telemedicine technology allowing a greater patient population to be served. We also joined the Alliance for Paired Donation, an organization that connects a pair (donor and recipient) that are incompatible with another pair in the same situation providing a positive match for transplant. With 175 kidney transplants we are part of the fourth largest abdominal transplant program in the country. In addition, 65 kidney-pancreas transplants make us the largest kidney-pancreas transplant program in the country for the second year in a row. The Division of Nephrology recently was ranked 38th in the *U.S. News and World Reports* (2009) of the top 50 kidney disorders programs in the country.

Research remains a focus for a number of faculty in the Division. New awards included an NIH R01 to Dr. Pierre Dagher; an NIH STTR Phase II grant awarded to Dr. Bruce Molitoris for FAST Diagnostics, LLC; and numerous industry grants to Drs. Robert Bacallao, Pierre Dagher, Michael Kraus, Sharon Moe, and Bruce Molitoris. Dr. Brian Decker also received the Indiana CTSI Young Investigator award in translational research.

To spotlight one young rising faculty star, Dr. Allon Friedman, who is supported in part by an NIH K08 award, gave a number of presentations at the 2008 ASN. To name a few: "Kidney Filtration Measurements in Obese Individuals with Normal Kidney Function," "Malnutrition, Inflammation or Wasting Disease: Which One is the Real Problem in CKD?" and "Inflammation or Protein-Energy Wasting: Which One if the Real Problem in CKD?" "Long Chain Omega-3 Fatty Acids as Therapy for Sudden Cardiac Death in Dialysis Patients" was presented at UCLA

Harbor Medical Center and Vanderbilt University School of Medicine Renal Grand Rounds, and “Obesity in CKD: Good or Bad?” presented at the National Kidney Foundation annual conference.

The Indiana Center for Biological Microscopy (ICBM), a CTSI core facility, remains the central hub around which a large part of the research program is built. Two IU start-up companies, INphoton, LLC, and FAST Diagnostics, continue to prosper. FAST Diagnostics received an NIH Phase II STTR and INphoton is expanding its service line into the liver, bone, and solid tumors. Many faculty outside of Nephrology benefit from these two IU start-up companies. Continued growth of these two companies, and ICBM will continue to enhance the research environment for IU basic science investigators and companies around the state.



PROFESSOR EMERITUS

Richard J. Hamburger, M.D.
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Edwin J. Smith, M.D.

PROFESSOR

Rajiv Agarwal, M.D.
Jesus H. Dominguez, M.D.
Sharon M. Moe, M.D.
Bruce A. Molitoris, M.D.

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Pierre C. Dagher, M.D.
Kenneth W. Dunn, Ph.D.
Timothy Sutton, M.D., Ph.D.

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Matthew D. Dollins, M.D.
Robert Z. Fialkow, M.D.
Richard N. Hellman, M.D.
Majd I. Jaradat, M.D.
Sharon L. Karp, M.D.
Tim E. Taber, M.D.
M. Sohail Yaqub, M.D.

ASSISTANT PROFESSOR

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Katherine J. Kelly, M.D.

ASSISTANT PROFESSOR OF CLINICAL MEDICINE

Anton A. Cabellon, D.O.
Martin Andersen, D.O.
Brian Decker, M.D., Pharm.D.
Dennis P. Mishler, M.D.
Anupama Mohanram, M.D.
Kathleen A. Prag, M.D.
Asif Sharfuddin, M.D.

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Deepak Nihalani, Ph.D.
Exing Wang, Ph.D.

ASSISTANT SCIENTIST

Silvia B. Campos, Ph.D.

HOMER L. TWIGG III, M.D.

Director
PULMONARY, ALLERGY,
CRITICAL CARE, AND
OCCUPATIONAL MEDICINE



The Division of Pulmonary, Allergy, Critical Care, and Occupational Medicine supports all adult hospitals on the Indiana University Medical Center campus. In addition to providing general pulmonary and critical care services, specific programs exist for sleep medicine, lung cancer, cystic fibrosis, interstitial lung disease, pulmonary hypertension, asthma, allergy, and occupational medicine. The Division's administrative offices are located at the Roudebush Veterans Affairs Medical Center (VAMC), with additional offices at Indiana University (IU) Hospital. The Division has two research cores, one at the VAMC and a one in the new Walther Hall research building, where the Center for Immunobiology is housed.

The past year was characterized by significant growth in our Division. We welcomed six new faculty members, both basic scientists and clinicians, which allowed us to focus on building specific programs. Two new programs in particular stand out. First is the Sleep Medicine Program, supported by three full time sleep physicians, headed by Dr. Shalini Manchanda, and joined by Drs. Mark Perlow and Brian Foresman. And second is the Pulmonary Hypertension program being developed by Dr. Tim Lahm. Dr. Lahm joined our Division as a basic scientist in pulmonary hypertension and is working with Dr. Karen Wolf in centralizing care for pulmonary hypertension patients on campus, including the establishment of a new dedicated clinic at the VAMC. Other clinical areas recognizing growth

in the past year were the Adult Cystic Fibrosis program headed by Dr. Aruna Sannuti; the Clinical

Bronchoalveolar lavage

lab, under the direction of Dr. Chadi Hage; and our intensive care services at all hospitals on campus, including participation in the electronic ICU. Thus, our Division remains positioned to realize continued clinical growth in coming years.

Our Division has a strong basic science background in transplant immunology, pulmonary fibrosis, emphysema, pulmonary responses to infections such as histoplasmosis and tuberculosis, HIV infection, and sarcoidosis. We received over \$2M in direct research support in the past year. Two new investigators expanded our areas of interest to pulmonary hypertension (Dr. Tim Lahm) and pulmonary pharmacogenomics (Dr. Perry Nystrom). Both were successful in obtaining funding in their first year on faculty. A newly funded R01 grant from the NIH was obtained by Dr. Irina Petrache for work on the role of pro-apoptotic cytokines in emphysema in collaboration with Dr. Matthias Clauss from the Division of Cellular Physiology. Dr. Michael Busk heads the National American Lung Association Asthma Clinical Research Center. His center was the second largest recruiting site for a clinical study on the effect of treating esophageal reflux on asthma management, which appeared in the *New England Journal of Medicine*. Dr. Karen Wolf led several ICU studies, some under the auspices of the Midwest Critical Care Consortium, a group of academic centers in the Midwest committed to performing multi-center studies in the ICU setting. Dr. Aruna Sannuti successfully acquired multiple

awards to support clinical research in her Cystic Fibrosis program. The Interventional Pulmonology section (Drs. Praveen Mathur and Frank Sheski) also successfully received support to study new bronchoscopic tools.

The Center for Immunobiology (CIMB), under the direction of Dr. David Wilkes, continued to flourish and promote interdepartmental and interdisciplinary collaborations among basic, clinical, and translational research scientists with expertise in organ transplant immunology, autoimmunity, innate immunity, and tumor immunology. Studies conducted within the CIMB range from molecular biology to clinical trials. Focus areas and examples of the interdepartmental approach housed within the CIMB include studies on:

- T and NK cell immunology in hematopoietic stem cell transplant patients (Dr. Sherif Farag, Hematology/ Oncology);
- investigations of the role of ceramide in the pathogenesis of chronic obstructive lung disease and translational studies of the lung protective mechanisms of alpha-1-antitrypsin (Dr. Irina Petrache);
- novel animal models to examine the role of chronic inflammation and immune activation in tumorigenesis as well as cell approaches for therapeutic gene delivery into the lung (Dr. Cong Yan, Pathology);
- intravital microscopy that is able to track individual cells within thoracic organs (Dr. Robert Presson, Anesthesiology, and Dr. Irina Petrache); and
- alloimmune induced autoimmunity in the pathogenesis of lung transplant rejection in patients and rodent models of orthotopic lung transplantation (Dr. David Wilkes).

Shared core equipment is also essential for the CIMB as it encourages collaboration, quality assurance, and efficiencies. Dr. Richard Sidner (Surgery) heads the Flow Cytometry Core located in the CIMB. The move of the CIMB to the new Walther Hall research building will further enhance the growth of this successful interdisciplinary program.

Our Pulmonary and Critical Care Fellowship Program had another successful year, graduating five pulmonary and critical care physicians. Last year we received more than 200 applications for the five available positions open in 2010. Our fellows were well represented in the Department of Medicine research competition, and Dr. Ninotchka Sigua, working in Dr. Irina Petrache's lab, took home first place. Dr. Petrache also sponsored the winning Medicine Resident abstract, demonstrating her skill in training basic scientists. Other major highlights in the past year included successfully obtaining a T32 grant (housed in the CIMB under the direction of Drs. Wilkes and Petrache) and the creation of an American Board of Internal Medicine-certified Sleep Fellowship program (Dr. Shalini Manchanda, Director). We will welcome our first true sleep fellow in the 2009-2010 academic year. Thus, we continue to succeed in training future academic pulmonary and critical care physicians, and can now add sleep medicine to that mix.

Dr. Michael Ober became the Vice Chair for Clinical Affairs and continued to serve as Director of the Medical Diagnostic Center. Dr. John Buckley was recruited to become the Vice Chair for Quality and Patient Safety. In addition to serving as the Pulmonary and Critical Care Section Chief at the VAMC, Dr. David Miller took on the position of Associate Housestaff Program Director. Dr. Steve Wintermeyer directed the large Student and Employee Health Center on campus. Finally, Dr. David Wilkes was appointed as the Executive Associate

Dean for Research Affairs in the School of Medicine.

Despite the significant growth in the past year, the Division continues to look to expand its faculty base, primarily in the research arena, with a mid-level faculty member. The Division has significant research space and start-up funds to support incoming faculty. Our Division remains committed to providing the highest quality care to our patients, and strives to be a leader in research and education. We look forward to expanding our clinical and research initiatives to include patients with end-stage obstructive and restrictive lung disease, which will require and foster collaborations with other departments on campus.



PROFESSOR EMERITUS

Thomas C. Lloyd Jr., M.D.

PROFESSOR

Mark O. Farber, M.D.

David S. Wilkes, M.D.

PROFESSOR OF CLINICAL MEDICINE

Praveen N. Mathur, M.B.B.S.

Mark J. Perlow, M.D.

ASSOCIATE PROFESSOR

Ian R. Dowdeswell, M.B.B.S.

Irina Petrache, M.D.

Homer L. Twigg III, M.D.

ASSOCIATE PROFESSOR OF CLINICAL MEDICINE

William H. Baker, M.D.

John D. Buckley, M.D.

Michael F. Busk, M.D.

Michael G. Lykens, M.D.

Shalini Manchanda, M.B.B.S.

Michael D. Ober, M.D.

Francis D. Sheski, M.D.

Stephen F. Wintermeyer, M.D.

Karen M. Wolf, M.D.

ASSISTANT PROFESSOR

Chadi A. Hage, M.D.

Tim Lahm, M.D.

ASSISTANT PROFESSOR OF CLINICAL MEDICINE

David E. Miller, M.D.

Aliya Noor, M.B.B.S.

Aruna Sannuti, M.D.

ASSISTANT RESEARCH PROFESSOR

Perry Nystrom, M.D.

Ragini Vittal, Ph.D.

RAFAEL GRAU, M.D.*Director*
RHEUMATOLOGY

The Rheumatology Division of the Indiana University Department of Medicine continues to improve our primary missions of patient care, consultative support, and training of the next generation of physicians in the area of rheumatic diseases. Our clinical service provides the foundation for outpatient clinical education and clinical research. Osteoarthritis, the most common form of arthritis, and pain management in the rheumatic diseases continue to be areas of research interest for our faculty. We have been joined by Drs. Renee Moenning and Naresh Chauhan in this past year who will add further depth to our academic missions.

Under the direction of Dr. Steve Mazzuca, work continues into the usefulness of biological markers in the progression of osteoarthritis. With the support of an NIH-sponsored grant, he continues to pursue this research. Dr. Dennis Ang was awarded a four-year NIH grant to study the role of exercise in improving the pain of fibromyalgia. He also obtained a second two-year NIH-sponsored grant to pursue other treatment modalities of pain in fibromyalgia. From the clinical standpoint, the Division has continued to attract industry-based clinical studies in innovative therapies for diverse rheumatologic diseases.

We have completed a substantial reorganization of our clinical practice. We have a dedicated work area and staff committed exclusively to the care of patients with rheumatic diseases. We have incorporated electronic medical record capabilities in our clinical practice

with substantial impact on care. Ongoing training is being provided to our staff that is improving efficiency, patient/physician

communication, implementation of quality measures, and patient education. Disease-specific clinics have continued to be our focus and our clinic for systemic sclerosis is well established. The disease-specific clinics have allowed our Division to quickly incorporate the latest advances in patient care, and provide a platform for advanced levels of postgraduate education, and participation in multidisciplinary collaborative studies at a local and national level.

Our Division plays an important role in medical education at the undergraduate and graduate levels. We participate in the "Introduction to Clinical Medicine" for second year medical students. Annually, approximately ten medical students select rheumatology as an elective course during their undergraduate years. All residents of the internal medicine and combined medicine/pediatrics program spend a month in rheumatology as part of their outpatient experience. An extensive teaching program accompanies this rotation. Our fellows are provided many learning opportunities including rheumatology grand rounds, rheumatology reviews, radiology conference, difficult case discussion, and an introduction to clinical statistics and study design. We have added a review of molecular immunology to their curriculum in collaboration with our



colleagues from Pediatric Rheumatology. In addition, fellows are introduced to scholarly activities such as medical writing and clinical research. We are encouraged by the continuing improvement of the quality and number of candidates for our training program. The clinical faculty receives positive reviews for their teaching skills and dedication to education, yet there is ongoing reassessment and improvement of our educational efforts. Training of rheumatologists impacts our community and state greatly, as many will provide the next generation of specialized care in our region. Commitment to education remains our highest priority.

Our Division delivers high quality care through its clinics and consultative services at Indiana University Hospital, Spring Mill Clinic, Wishard Health Services, and the Roudebush Veterans Administration Medical Center. Over 7,000 clinic encounters a year at our outpatient facilities and hospitals are provided. With the arrival of new faculty members, the volume is expected to increase. Finally, as a tertiary referral center, we provide highly specialized care for complex autoimmune diseases for the entire state of Indiana.

Our goal is to continue the expansion of the Division by developing new areas of expertise, and integrating research into the reorganized clinical service. We will continue to provide education of the rheumatic diseases to all levels of trainees and pursue our commitment to the health of our community both locally and statewide. Advances in our understanding of disease mechanisms and new treatment modalities provide us with an exciting and bright future.



PROFESSOR EMERITUS

Kenneth D. Brandt, M.D.

SENIOR RESEARCH PROFESSOR EMERITUS

Gerald N. Smith Jr., Ph.D.

PROFESSOR

Rose S. Fife, M.D.

ASSOCIATE PROFESSOR OF CLINICAL MEDICINE

Rafael Grau, M.D.

Steven T. Hugenberg, M.D.

Ernesto N. Levy, M.D.

ASSISTANT PROFESSOR

Dennis C. Ang, M.D.

ASSISTANT PROFESSOR OF CLINICAL MEDICINE

Naresh Chauhan, M.B.B.S.

Mary R. Jacobs, M.D.

Renee C. Moenning, M.D.

SENIOR RESEARCH PROFESSOR

Steven A. Mazzuca, Ph.D.



(L to R) Drs. Naveen Manchanda, Shalini Manchanda, Ragini Vittal, John Lopshire, and Jack Buckley

New Faculty Appointed in 2008-2009 (Name, Faculty Rank, Former Position)

BIOSTATISTICS

Xueya Cai, M.D., Ph.D.
Assistant Professor of Medicine
Ph.D. Candidate
University at Buffalo SUNY

Zhangsheng Yu, M.D., Ph.D.
Assistant Professor of Medicine
Assistant Professor
Ohio State University College
of Public Health

CARDIOLOGY

John C. Lopshire, M.D., Ph.D.
Assistant Professor of Medicine
Fellow
Indiana University School of Medicine

Chun Hwang, M.D.
Clinical Professor of Medicine (visiting)
Staff Cardiologist
Utah Valley Regional Medical Center

GASTROENTEROLOGY/HEPATOLOGY

Ma'n A. Abdullah, M.D.
Assistant Professor of Clinical
Medicine (visiting)
Fellow
Indiana University School of Medicine

Abdullah Al-Rashdan, M.B.B.S.
Assistant Professor of Clinical Medicine
(visiting)
Assistant Professor of Medicine
Jordan University of Science and Technology

Lana M. Bistriz, M.D.
Assistant Professor of Clinical
Medicine (visiting)
Examiner
University of Alberta

Marwan S. Ghabril, M.B.B.Ch.
Assistant Professor of Clinical Medicine
Associate Consultant
Mayo Clinic

Cynthia L. Harris, M.D.
Assistant Professor of Clinical Medicine
Private Practice
Center for Digestive Diseases

Anne Mary Montero, Ph.D.
Assistant Professor of Medicine
Medical Psychologist
Union Hospital

GENERAL INTERNAL MEDICINE & GERIATRICS

Aaron P. Kalinowski, M.D.
Assistant Professor of Clinical Medicine
Resident
St. Vincent Hospital

Elizabeth A. Kuonen, M.D.
Assistant Professor of Clinical Medicine
Resident
Indiana University School of Medicine

Aaron M. Leary, M.D.
Assistant Professor of Clinical Medicine
Resident
Indiana University School of Medicine

Ira K. Means, M.D.
Assistant Professor of Clinical Medicine
Physician
Pediatric and Internal Medicine Center

Michelle D. Miller, M.D.
Assistant Professor of Clinical Medicine
Resident
Indiana University School of Medicine

Daphne K. Muzoora, M.B.Ch.B.
Lecturer
Affiliate Faculty
Indiana University Center for Bioethics

Nimesh Patel, D.O.
Assistant Professor of Clinical Medicine
Resident
Indiana University School of Medicine

Meghana Raghavendra, M.D.
Assistant Professor of Clinical Medicine
Resident Physician
Gundersen Lutheran Medical Center

Hugo A. Rios Meza, M.D.
Assistant Professor of Clinical Medicine
Resident
Indiana University School of Medicine

Abbie M. Tolliver, M.D.
Assistant Professor of Clinical Medicine
Resident
Indiana University School of Medicine

Martin C. Were, M.D.
Assistant Professor of Medicine
Fellow
Indiana University School of Medicine

Angel A. Wilson, M.D.
Assistant Professor of Clinical Medicine
Resident
Indiana University School of Medicine

HEMATOLOGY / ONCOLOGY

Mircea Ivan, M.D., Ph.D.
Assistant Professor of Medicine
Assistant Professor of Medicine
Tufts University School of Medicine

Naveen Manchanda, M.B.B.S.
Associate Professor of Clinical Medicine
Assistant Professor of Medicine and
Hematology
University of Illinois at Urbana-Champaign

Erin V. Newton, M.D.
Assistant Professor of Clinical Medicine
Staff Physician
Cleveland Clinic Health System

INFECTIOUS DISEASE

Danielle A. Osterholzer, M.D.
Assistant Professor of Clinical Medicine
Fellow
Indiana University School of Medicine

NEPHROLOGY

Robert Z. Fialkow, M.D.
Associate Professor of Clinical Medicine
Director of Nephrology
Lake Regional Medical Management

PULMONARY

John D. Buckley, M.D.
Associate Professor of Clinical Medicine
Senior Staff Physician
Henry Ford Hospital

Tim E. Lahm, M.D.
Assistant Professor of Medicine
Fellow
Indiana University School of Medicine

Shalini Manchanda, M.B.B.S.
Associate Professor of Clinical Medicine
Associate Professor of Internal Clinical
Medicine
University of Illinois College of Medicine
at Urbana-Champaign

Perry G. Nystrom, M.D.
Assistant Research Professor in Medicine
Fellow
Indiana University School of Medicine

Mark J. Perlow, M.D.
Professor of Clinical Medicine
Staff Neurologist
Baton Rouge General Hospital

Ragini Vittal, Ph.D.
Assistant Research Professor of Medicine
Senior Research Fellow
University of Michigan

RHEUMATOLOGY

Naresh (Rosie) Chauhan, M.B.B.S.
Assistant Professor of Clinical Medicine
Consultant
Pharmacovigilance at ManPower

Renee C. Moenning, M.D.
Assistant Professor of Clinical Medicine
Fellow
Indiana University School of Medicine

Recruited Faculty to be Appointed in 2009-2010 (Name, Faculty Rank, Former Position)

CARDIOLOGY

Helen Hong, M.D.
Visiting Assistant Professor of Clinical Medicine
Cardiologist
 Cardiology Consultants

CLINICAL PHARMACOLOGY

Robert Bies, Ph.D., Pharm.D.
Associate Professor of Medicine
Associate Professor
 University of Pittsburgh
 Beth Pflug, M.D.
Assistant Research Professor
Assistant Professor
 University of Pittsburgh

ENDOCRINOLOGY & METABOLISM

John Chirgwin, Ph.D.
Professor of Medicine
Professor of Medicine
 University of Virginia
 Mary de Groot, Ph.D.
Associate Professor of Medicine
Associate Professor
 Ohio University
 Pierrick Fournier, Ph.D.
Assistant Research Professor
Instructor of Research
 University of Virginia
 Teresa Guise, M.D., Ph.D.
Professor of Medicine
Professor of Medicine
 University of Virginia
 Khalid Mohammad, M.D., Ph.D.
Associate Research Professor
Assistant Professor of Research
 University of Virginia
 Min-Qing Zhao, M.D., Ph.D.
Assistant Research Professor
Assistant Professor of Research
 University of Virginia

GASTROENTEROLOGY/HEPATOLOGY

Haritha Avula, M.D.
Visiting Assistant Professor of Clinical Medicine
Fellow
 University of Michigan Medical Center
 Sidharth Bhardwaj, M.D.
Visiting Assistant Professor of Clinical Medicine
Fellow
 Indiana University School of Medicine
 Gregory Coté, M.D.
Assistant Professor of Clinical Medicine
Instructor
 Washington University in St. Louis

GENERAL INTERNAL MEDICINE & GERIATRICS

Sukhdeep Athwal, D.O.
Assistant Professor of Clinical Medicine
Resident
 Indiana University School of Medicine
 Kevin Clary, M.D.
Assistant Professor of Clinical Medicine
Resident
 Indiana University School of Medicine
 Katherine Drabiak-Syed, J.D.
Visiting Assistant Research Professor
Contract Attorney
 MAI Legal Services
 Brita Feliciano, M.D.
Assistant Professor of Clinical Medicine
Physician
 Virginia Mason Medical Center
 Dustin French, Ph.D.
Assistant Professor of Medicine
Health Economist & Outcomes Researcher
 Veterans Integrated Service Network
 Roland Gamache, Ph.D.
Assistant Research Professor
Director of State Health Data Center
 Indiana State Department of Health
 Syed Hashmi, M.B.B.S.
Assistant Professor of Clinical Medicine
Hospitalist
 Missouri Delta Medical Center
 Karla Marquez Salazar, M.D.
Assistant Professor of Clinical Medicine
Resident
 Indiana University School of Medicine
 Meredith McCormick, M.D.
Assistant Professor of Clinical Medicine
Resident
 Indiana University School of Medicine
 Marian McNamara, M.D.
Associate Professor of Clinical Medicine
Physician
 St. Vincent Hospital
 Felipe Perez, M.D.
Associate Professor of Clinical Medicine
Assistant Professor of Medicine
 University of Illinois at Chicago
 Bhupesh Pokhrel, M.D.
Assistant Professor of Clinical Medicine
Cardiology Resident
 St. Francis Hospital, Illinois
 Carl Sather, M.D.
Assistant Professor of Clinical Medicine
Resident
 Indiana University School of Medicine

GENERAL INTERNAL MEDICINE & GERIATRICS (cont.)

Monica Tegeler, M.D.
Assistant Professor of Clinical Medicine
Staff Physician
 Bristol Motor Speedway Fan Care Centers
 Raquel Villavicencio, M.D.
Assistant Professor of Clinical Medicine
Resident
 Virginia Commonwealth University
 Joshua Whitham, M.D.
Assistant Professor of Clinical Medicine
Resident
 Indiana University School of Medicine

HEMATOLOGY / ONCOLOGY

Jose Azar, M.D.
Assistant Professor of Clinical Medicine
Fellow
 Indiana University School of Medicine
 Shadia Jalal, M.D.
Assistant Research Professor in Medicine
Fellow
 Indiana University School of Medicine

NEPHROLOGY

Anton A. Cabellon, D.O.
Assistant Professor of Clinical Medicine
Fellow
 Washington University, St. Louis
 School of Medicine
 Michele Cabellon, M.D.
Assistant Professor of Clinical Medicine
Assistant Professor
 Washington University, St. Louis
 School of Medicine

LILLY

Professor Emeritus

Richard W. Dyke, M.D.
Robert H. Furman, M.D.
John A. Galloway, M.D.
Anthony S. Ridolfo, M.D., Ph.D.

Adjunct Professor

David P. Henry, M.D.
Joseph A. Jakubowski, Ph.D.
Sotirios K. Karathanasis, Ph.D.
Mark S. Marshall, Ph.D.
Eric H. Westin, M.D.

Professor

Jose F. Caro, M.D.
William W. Chin, M.D.
Louis Lemberger, M.D., Ph.D.
Philip R. Reid, M.D.
J. Anthony Ware, M.D.

Clinical Professor

Gordon B. Cutler Jr., M.D.
Stephen L. Myers, M.D.
Melvin J. Prince, M.D.
Meng Hee Tan, M.D.
William J. Wishner, M.D.

Adjunct Associate Professor

James M. McGill, M.D.

Clinical Associate Professor

James H. Anderson Jr., M.D.
Edward J. Bastyr, M.D.
Peter R. Bieck, M.D., Ph.D.
Jeffrey A. Jackson, M.D.
James G. Kotsanos, M.D.
William L. Macias, M.D., Ph.D.
Debasish F. Roychowdhury, M.B.B.S.
Christopher A. Slapak, M.D.

Adjunct Assistant Professor

Edward Chan, M.D.
Akanksha Gupta, Ph.D.
Robert L. Ilaria Jr., M.D.
Yan Jin, M.D.
Pandurang M. Kulkarni, Ph.D.
Catherine A. Melfi, Ph.D.
Julia Hurt Satterwhite, Ph.D.

Assistant Professor

Michael W. Draper, M.D., Ph.D.
Timothy R. Franson, M.D.
Mark J. Goldberg, M.D.
Daniel C. Howey, M.D.
Bruce H. Mitlak, M.D.

Clinical Assistant Professor

David J. DeBrot, M.D.
James L. Gahimer, M.D.
John R. Hayes, M.D.
Kraig S. Kinchen, M.D.
Kimberly Lamberson, M.D.
Arie Regev, M.D.
Scott B. Saxman, M.D.
D. Fritz Tai, M.D.

Lecturer

Gregory D. Sides, M.D.

INDIANAPOLIS

Professor Emeritus

William F. Bosron, Ph.D.
Tjien O. Oei, M.D.
Charles E. Test, M.D.
Vernon A. Vix, M.D.

Adjunct Professor Emeritus

Chiu S. Hui, Ph.D.

Volunteer Clinical Professor Emeritus

Richard W. Campbell, M.D.
Ramon S. Dunkin, M.D.
R. Joe Noble, M.D.
Francis W. Price, M.D.
Robert D. Robinson Jr., M.D.
Edward F. Steinmetz, M.D.

Volunteer Clinical Associate Professor Emerita

Carolyn A. Cunningham, M.D.

Volunteer Clinical Associate Professor Emeritus

John A. Cavins, M.D.
Rashid A. Khairi, M.B.B.S.
Paul E. Schmidt, M.D.
William R. Storer, M.D.

Volunteer Clinical Assistant Professor Emerita

Kathleen B. Speicher, M.D.

Volunteer Clinical Assistant Professor Emeritus

Cloyd L. Dye, M.D.
Robert J. Healey, M.D.
James A. Scheidler, M.D.

Adjunct Professor

Steven R. Abel, Pharm.D.
Alain D. Baron, M.D.
Teresita M. Bellido, Ph.D.
Richard F. Bergstrom, Ph.D.
Terrence F. Blaschke, M.D.
John J. Bright, Ph.D.
Frances A. Brahmi
Bruce C. Carlstedt, Ph.D.
Thomas W. Emmett, M.D.
Raymond E. Galinsky, Pharm.D.
Stephen D. Hall, Ph.D.
Hunter Heath III, M.D.
Stephen J. Jay, M.D.
Scott A. Jones, B.S.
Friedrich C. Luft, M.D.
David Orentlicher, M.D., J.D.

Sandra G. Petronio, Ph.D.
Mark E. Sale, M.D.
James E. Tisdale, Pharm.D.

Volunteer Professor

Howard J. Edenberg, Ph.D.

Adjunct Clinical Professor

J. Eugene Lammers, M.D.

Volunteer Clinical Professor

Marlene A. Aldo-Benson, M.D.
Glenn J. Bingle, M.D., Ph.D.
John R. Black, M.D.
Richard E. Brashear, M.D.
Edward R. Gabovitch, M.D.
James R. Gavin III, M.D., Ph.D.
John A. Griep, M.D., J.D.
Robert M. Lubitz, M.D.
Jean P. Molleston, M.D.
Thomas G. Slama, M.D.
Morton E. Tavel, M.D.
Bruce F. Waller, M.D.
Carol A. Westbrook, M.D., Ph.D.

Adjunct Associate Professor

Sunil Badve, M.D.
Ellen M. Einterz, M.D.
Sharon M. Erdman, Pharm.D.
Christopher A. Fausel, Pharm.D.
Kenneth S. Knox, M.D.
Sean J. O'Connor, M.D.
Amy H. Sheehan, Pharm.D.
Rafat A. Siddiqui, Ph.D.
Daniel Sliva, Ph.D.
Suellyn J. Sorenson, Pharm.D.
Linda I. Van Scoder, Ed.D.

Volunteer Clinical Associate Professor

Shahid Athar, M.B.B.S.
Laurence H. Bates, M.D.
Michael J. Buran, M.D.
William A. Byron Jr., M.D.
Lannie J. Cation, M.D.
Michael P. Dubé, M.D.
Clifford C. Hallam, M.D.
Robert C. McDonald, M.D.
David C. Pound, M.D.
Eric N. Prystowsky, M.D.
George E. Revtyak, M.D.
Janet S. Rippy, M.D.
Donald A. Rothbaum, M.D.
Corbin P. Roudebush, M.D.

INDIANAPOLIS (cont.)

Douglas S. Segar, M.D.
Michael T. Stack, M.D., Ph.D.
Robert A. Strawbridge, M.D.
Thomas Y. Sullivan, M.D.
Mary N. Walsh, M.D.
Marc D. Wooten, M.D.

Adjunct Assistant Professor

Kwadwo Amankwa, Pharm.D.
Sanjeev K. Bhanot, Pharm.D.
Silvana Borges, M.D.
Kalpana S. Brahnavar, Pharm.D.
Jean E. Cunningham, Pharm.D.
David R. Foster, Pharm.D.
Samiran Ghosh, Ph.D.
Jasmine D. Gonzalvo, Pharm.D.
David M. Haas, M.D.
Karen S. Hudmon, Dr.P.H.
Janice C. Johnson, M.S.
Kellie L. Jones, Pharm.D.
Lisa M. Kamendulils, Ph.D.
Deanna Kania, Pharm.D.
Monica L. Miller, Pharm.D.
Jennifer L. Morris, Pharm.D.
Carol A. Ott, Pharm.D.
Brian R. Overholser, Pharm.D.
Sonak D. Pastakia, Pharm.D.
James M. Rae, Ph.D.
Jalees Rehman, M.D.
Maria T. Rizzo, M.D.
Ellen M. Schellhase, Pharm.D.
Christopher M. Scott, Pharm.D.
Laura M. Smith, Pharm.D.
Craig D. Williams, Pharm.D.
Michael A.J. Zieger, Ph.D.
Allan J. Zillich, Pharm.D.

Volunteer Clinical Assistant Professor

Shamoon Ahmed, M.B.B.S.
Ahmed F. Al-Jebawi, M.B.B.S.
Rupen P. Amin, M.D.
Joseph R. Arulandu, M.D.
Ernest O. Asamoah, M.B.Ch.B.
John R. Bates, M.D.
David S. Batt, M.D.
Kenneth W. Beckley, M.D.
Dean E. Beckman, M.D.
Pablo M. Bedano, M.D.
Michael E. Berend, M.D.
Sumeet Bhatia, M.B.B.S.

Suzanne K. Bielski, M.D.
Gregory P. Blitz, M.D.
John A. Botkin, M.D.
Daniel G. Bruetman, M.D.
Jennifer J. Bucki, M.D.
Ronald P. Burwinkel, M.D.
Tae Kae Chong, M.D.
William R. Clark, M.D.
Kathleen A. Cohenour, M.D.
G. Mitch Cornett, M.D.
Jeffrey J. Couture, M.D.
Robert S. Daly, M.D.
Dennis K. Dickos, M.D.
Dawn E. Drotar, M.D.
Elizabeth M. Dufort, M.D.
William M. Dugan Jr., M.D.
Gary R. Fisch, M.D.
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Joseph Fraiz, M.D.
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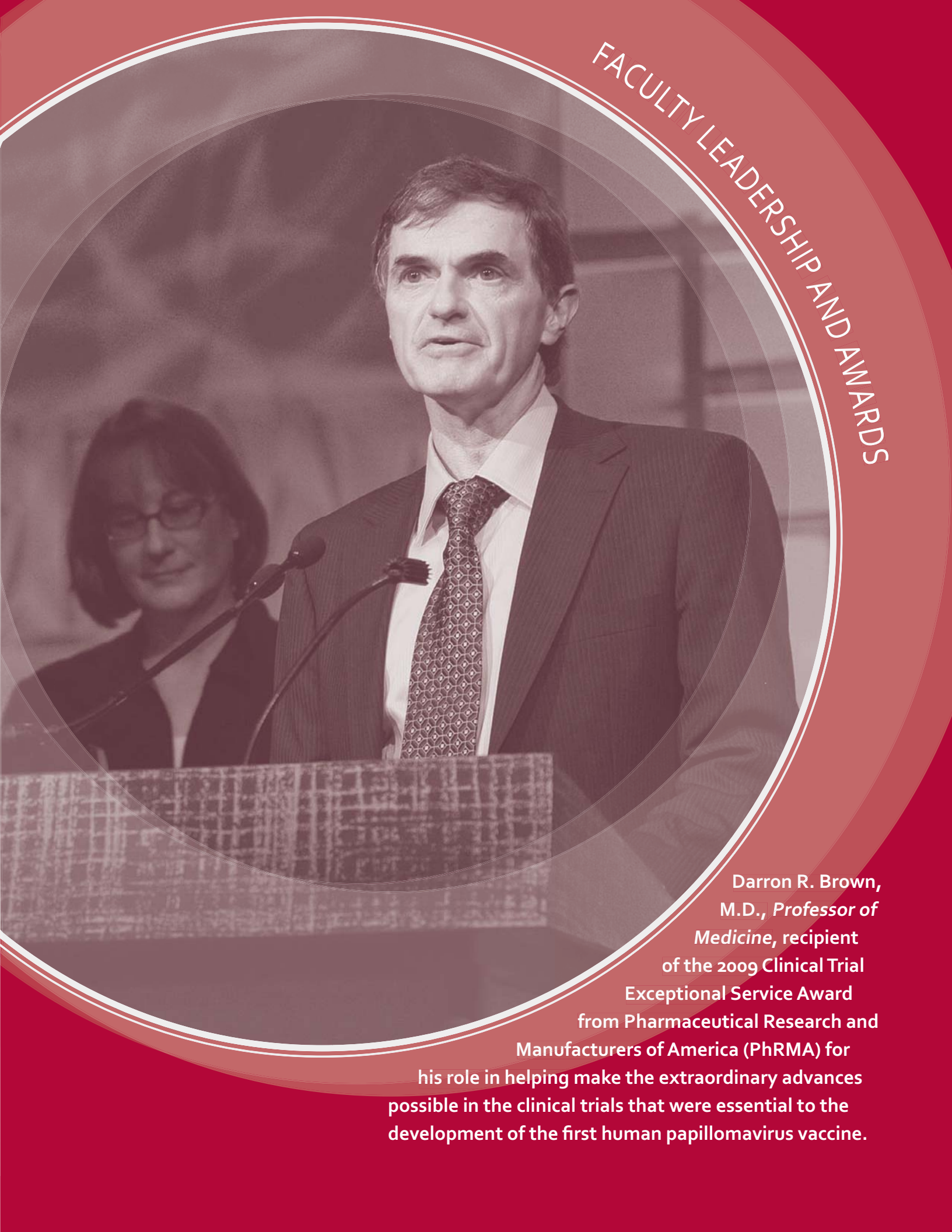
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PHILANTHROPY

The dreams of many were realized on August 21, 2008, when the

Indiana University Melvin and Bren Simon

Cancer Center patient care building was formally dedicated. The \$150M center combines the latest in cancer therapies in one location and provides resources designed

to make cancer care less stressful for the patient and their loved ones. The IU Simon Cancer Center facility was made possible through the generosity of many, including Indianapolis philanthropists Melvin and Bren Simon, who donated \$25M to the building project and \$25M to the research efforts at the center in memory of their son, Joshua Max Simon.

ONCE A HOOSIER, ALWAYS A HOOSIER

One family's commitment to medical education and training lives on through endowed funds.

John E. Meihaus, M.D., was a true Hoosier. Born and raised in Indianapolis, he attended school in his home state, earning his undergraduate degree from Indiana University in 1942 and his medical degree from the Indiana School of Medicine in 1945. It was at home in Indiana that he found the love of his life, Kathryn Bernatz, also an Indianapolis native. The couple married the same year he graduated from medical school.

Dr. Meihaus was enrolled in the Navy's V-12 college training program. Following a Naval internship in 1946, he was sent to the Pacific where he served as doctor aboard an amphibious cargo ship. He was honorably discharged in 1948. However, Dr. and Mrs. Meihaus did not return to Indiana following his naval service. Instead, they began a new life on the West Coast in Los Angeles, California.

As Kay has stated, "It was hard to leave Indiana, particularly Indianapolis, where our roots began and where we had spent 25 happy and memorable years. It also meant leaving family and friends who were dear to us. However, Jack's shipboard service in the Pacific area provided us the opportunity to become acquainted with the West Coast."

Dr. Meihaus obtained a residency in Internal Medicine in Los Angeles, and he began a private practice in 1952. In time, this led to a specialization in nephrology and a dedication to helping those in acute and chronic renal failure. Realizing the need for improved methods of dialysis, he, in collaboration with Dr. Belding Scribner of the University of Washington Medical School, developed the modified Kiil artificial kidney. He then established



the first chronic hemodialysis facility at a private California hospital, St. Vincent Medical Center in Los Angeles.

Dr. Meihaus founded the kidney transplantation program at St. Vincent Medical Center in 1970. He also taught for many years as Emeritus Clinical Professor of Medicine at the University of Southern California Medical School, all while being a loving husband and father of eight children. During those busy years, the family was rarely able to travel back to Indiana, but they always remained loyal Hoosiers at heart.

Dr. Meihaus, an exceptional physician, teacher, husband, and father passed away in 2000. His wife, Kay, chose to honor him and further the mission of the Indiana University School of Medicine through the establishment of the John E. Meihaus and Kathryn B. Meihaus Scholarship and the John E. Meihaus and Kathryn B. Meihaus Fellowships in Nephrology.

As stated by Mrs. Meihaus, "Jack was dedicated to improving the lives of those with renal disease. As a result of this commitment, I was moved to designate these funds to further education, research and training in this field."

Although their life journey took Dr. and Mrs. Meihaus to another part of the country, their love for Indiana will live in perpetuity through this endowment.

Once a Hoosier, always a Hoosier.



MILES FOR MYELOMA

Miles for Myeloma began in 2005 when a group of Dr. Rafat Abonour's patients came together to organize a run/walk event to raise funds for multiple myeloma research at Indiana University. Rather than have his patients plan a standard participatory event, Dr. Abonour offered to cover the miles – and the state of Indiana – himself. He reasoned that since his patients travel from all parts of Indiana to visit him for appointments, he should make an effort to go to them, too.

The 2008 Miles for Myeloma began its midnight kickoff with more than 100 luminary bags, each bearing the name of an individual lost to multiple myeloma, lighting the path of the runners as they departed the IU Simon Cancer Center. Nearly 500 supporters gathered in Bloomington to welcome the runners to the football field and

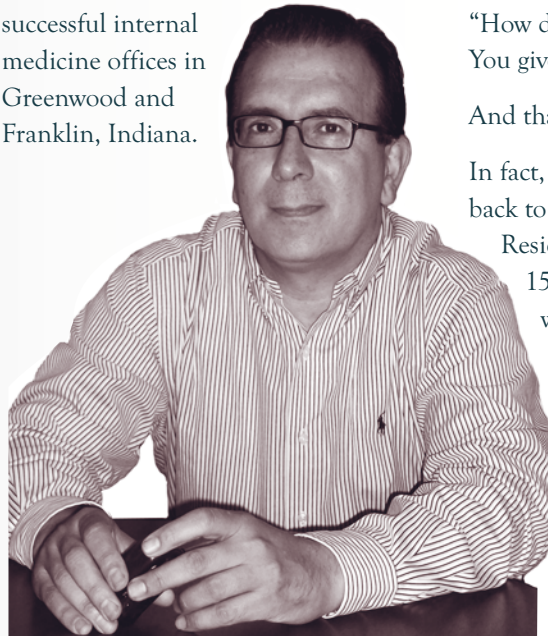


enjoy a tailgate party during an IU football game. The next day, about 50 cyclists trekked through the hills back to Indianapolis to finish at the IU Simon Cancer Center and celebrate a successful year of raising more than \$330,000. In just four years, this grass-roots event has raised more than \$1 million for myeloma research at IU!



ONE ALUMNUS MAKES A DIFFERENCE BY GIVING BACK

Ali M. Dohan, M.D. runs two successful internal medicine offices in Greenwood and Franklin, Indiana.



Hard work and dedication certainly helped get him where he is today. But Dr. Dohan credits another influence.

"There is no bigger contributor to my success than my alma mater," he proudly states about the Indiana University School of Medicine.

A native of Iraq who earned his undergraduate degree at Indiana State University, Dr. Dohan entered the IU School of Medicine in 1985. He was awarded his medical degree in 1989 and completed his residency in internal medicine here in 1993.

During his residency, in particular, Dr. Dohan met faculty members and mentors who guided and shaped him. One especially stood out: Richard Kohler, M.D., who is now the Vice Chair for Education in the Department of Medicine and who ran the Internal Medicine Residency Program for many years.

"I found heroes there, and everybody needs heroes," Dr. Dohan says. "How do you honor your teachers? You give back."

And that's exactly what he's doing.

In fact, Dr. Dohan has been giving back to the Internal Medicine

Residency Program for more than 15 years. With support from his wife, Zaza, he has contributed nearly \$40,000.

His gifts are vitally important to the residency program. Some of the money he donated has been used to purchase a high-tech audio system that is instrumental in training residents.

"Dr. Dohan has been exceptionally generous to the residency program," says Lia Logio, M.D., the program director for the Internal Medicine Residency Program. "We are indebted to him for his support of our efforts and for allowing us to be innovative in our approach to train internal medicine specialists in this new era of healthcare. He encourages us in our efforts to think big about best educational practices for internists in the 21st century and has provided resources to enrich our teaching environment and learning methods."

Dr. Dohan is also encouraging others to do the same. For example, he spoke at this year's Internal Medicine Residency Program graduation about the importance of giving back. He also hosts residents in his practice, where they are exposed to scenarios and experiences that are only available in a private office practice.

"Ali's commitment to the quality of our residency program has been a great blessing," Dr. Kohler says. "Not only has he been personally generous, but he has helped plant seeds for future support from our recent graduates."



Honor Roll of Donors

We gratefully acknowledge the generosity of those who help us realize our mission. Listed here are the names of those individuals, corporations, and philanthropic foundations that have made gifts of \$10,000 or more to the Department of Medicine between July 1, 2008 and June 30, 2009.

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students' introduction to the patient-physician relationship and uses small group teaching as its pedagogic

At the establishment of the Indiana University School of Medicine (IUSM), education was the primary mission. With its sister missions of patient care and research, great education remains at the core of our work. The Department of Medicine (DOM) continued, in 2008-2009, to strive for excellence in education.

The Department continued to serve as home to the Introduction to Clinical Medicine 1 (ICM 1) course for freshmen students, the Introduction to Clinical Medicine 2 (ICM 2) course for sophomores, the medicine clerkship for juniors, and a required subinternship and many electives for seniors. The Department trained medical postgraduates for primary and subspecialty patient care and research careers in its medicine and medicine/pediatrics residency programs and subspecialty fellowships. Department faculty played key roles in the creation of a partnership with Moi University School of Medicine in Eldoret, Kenya. The ongoing IU-Kenya partnership continues to provide great rewards to both institutions educationally as well as in better health for the citizens of Eldoret and its environs. The Department's faculty, as individuals, offered many topics for continuing medical education use to Indiana caregiver groups and sponsored well-attended continuing medical education programs.

The ICM 1 course, co-directed by Dr. Meg Gaffney (DOM), welcomed Maria Poor from the Department of Psychiatry as new co-director. Maria took over from Nancy Butler. The course serves as the

mainstay. For the first time in January 2009, all ICM 1 students participated in an Objective Structured Teaching Examination at the Clinical Skills Center, during which they interviewed standardized patients and focused especially on the Review of Systems part of the medical history. Faculty preceptors observed each encounter and provided immediate feedback. This educational experience was organized primarily by Dr. Glenda Westmoreland (DOM), who directs the Effective Communications competency for the School, and her competency team, which also provided training in effective feedback to participating faculty before the sessions. Most students and faculty participants rated this activity as highly successful. It will remain a part of the course. The on-line differential diagnosis problem solving sessions continue to be rated highly and will be required again this year, thus contributing to the Lifelong Learning and Problem Solving competency curricula.

Students in the ICM 2 course scored very well on a final examination prepared by the National Board of Medical Examiners (NBME). Statewide scores were well above the national mean, ranging from the 81st to the 97th percentile among our centers, with those of Indianapolis students at the 91st percentile, when compared to all test takers nationally. Since becoming director of the course, Dr. Klaus Hilgarth has used student feedback to focus efforts to strengthen course sections with lower ratings. With enthusiastic cooperation from the Department division directors, the Cardiology section, under the direction

of Dr. Scott Byers, and Endocrinology, under the co-direction of Drs. Melissa Cavaghan and Carmella Evans-Molina, have seen their unit ratings skyrocket. Drs. Nasser Hanna and Rakesh Mehta, co-directors of the course's highly rated Hematology-Oncology unit, added a well-received presentation that involved a lecture on smoking cessation and an essay activity based on an interview with a cancer patient. Dr. Hilgarth introduced a session at the students' request to introduce the students to the concept of the "focused" history and physical, such as they encounter in the nationally required Step 2 Clinical Skills Evaluation. It engaged students in role playing under the guidance of faculty facilitators. He also introduced peer evaluation of the course's physical examination instructors. These involved direct observation by experts in education – Drs. Julie Vannerson (DOM) and Carolyn Hayes (Office of Medical Education and Curricular Affairs). The observations were followed by provision of the preceptors with verbal and written feedback.

The junior clerkship remains highly valued by our students. Class of 2009 students rated the quality of their educational experience during the Junior Clerkship in Medicine as the best among the clinical clerkships, with 59.3% rating it as "excellent" based on the 2009 AAMC Graduate Questionnaire data – an 11% increase from last year. The student feedback shows that they appreciated the level of autonomy they received during their medicine clerkship and subinternship experiences. In the clerkship, they felt that autonomy gave a strong message that their input and contributions are highly valued. Subinternship students reported that the designed level of autonomy likely prepared them well for internship. More than 90% of students agreed or strongly agreed with a survey item that states "I feel more prepared for internship

after taking this course.” Students’ performance on the standardized NBME subject examination in medicine, taken at the clerkship’s end, and on the USMLE Step 2 CK exam, consistently remains 1 to 2 points above the national average. Student feedback about the restructured ECG sessions in the course, now given by our chief residents, remains overwhelmingly positive.

In order to accommodate the expanding IUSM class size, our regional educational centers are offering, or will offer, clinical clerkship rotations for students. During 2008-2009 two students at the South Bend regional center completed Medicine clerkships there, and their feedback about their educational experience was very positive. Clerkship Director, Dr. Bob Vu, conducted site visits to three other centers (Ft. Wayne, Terre Haute, and Gary/NW) to help set up Medicine clerkship rotations locally to begin during the 2009-2010 academic year.

Dr. Vu helped pilot a new computer-based standardized NBME examination for Medicine subinternships. Dr. Vu helped develop this examination as a member of the NBME’s Hospital Subinternship Exam Task Force. He continues to serve on the Subinternship Task Force for the national Clerkship Directors in Internal Medicine organization, which developed and released the “Primer to the Internal Medicine Subinternship” – an online guide containing useful tips for 4th-year medical students on their Medicine subinternship rotation. These practical tips focus on “orphan” but important topics that are commonly encountered during internship but are not typically covered in standard textbooks or lectures. Examples include topics such as how to call a consult, how to give sign-out, principles of cross-coverage, and how to field a call from nursing staff. With Dr. Tom Inui as senior author, Dr. Vu co-authored a manuscript entitled

“Medical Students’ Professionalism Narratives: A Window on the Informal and Hidden Curriculum” that will be published in *Academic Medicine*.

At the start of the 2008-2009 academic year, Dr. Hilgarth and Dr. Vu offered a “re-entry” course for M.D./Ph.D. students about to resume their medical education in the clinical realm after a hiatus that focused on research. This optional course, conceived of by Dr. Hilgarth to re-orient the students to clinical medicine, was over-whelmingly well-received. It was thus reoffered for the 2009-2010 academic year and will become a required part of the M.D./Ph.D. curriculum.

The internal medicine residency program is entering its third year of the ACGME RRC-IM sponsored Educational Innovations Project (EIP). The IU project, entitled Residency Education Advancing and Changing Healthcare (REACH), provides an opportunity to redesign residency training for internists with a renewed focus on patient centered care, safe patient care, and leading change for healthcare improvement. The program has received national attention as one of only 21 programs nationwide accredited through this new model. Dr. Lia Logio, the program director, was invited to speak in front of the Institute of Medicine last October on the innovations and currently chairs the Executive Committee for the EIP Collaboration Consortium of all 21 programs.

We continue to be proud of our exceptional graduates who are securing highly competitive positions in both fellowship training and in job placement. Additionally, we continue to succeed at matching the best and brightest of medical students to enter the program every academic year.

Super School is one of our highlights for the 2008-2009 academic year. Under the

direction of Dr. Mitch Goldman, this academic half day requires the residents to meet for two hours every Wednesday morning for team-based learning, free of interruptions. The sessions include board-type questions and ask the residents to commit their answers using an audience response system for improved learning and self-assessment. Each workshop is designed to promote teamwork, teach evidence based practice, and deliver core internal medicine content.

Our patient safety elective at the Roudebush Veterans Affairs Medical Center (VAMC) is another major addition to the residency program. Residents are assigned to perform patient safety consults on situations where patient care has not gone as it was intended. Residents investigate the issues that contributed to the situation and are enlisted as change agents to develop and even implement system-wide strategies to improve the care processes. Each resident presents a single consult at the VA Morbidity and Mortality conference to disseminate the lessons learned to their colleagues and to the entire hospital system. The conferences are well attended by staff from many hospital departments: administrators, pharmacists, nurses, even technology personnel. It has been highly educational for the residents assigned to the rotation and has transformed the interaction between the program and the hospital administration. The VA central office in Washington, DC, continues to recognize these efforts.

Finally, our efforts to bring the chronic care model to the residency program have included week long experiences in the continuity clinic sites where residents can focus on teaching self-management to patients and work to understand the whole system of care for patients.

The residency program continues to advance graduate medical education with its innovations and ideas. It has

been well represented at the national level with presentations, workshops, and posters at both the Association of Program Directors of Internal Medicine meetings as well as the regional Society of General Internal Medicine. The vision moving forward includes residents mentoring faculty in performance improvement activities and bringing process improvement methods like LEAN (Toyota model) to residents in training. We are eager to see our residents and our graduates become skilled change agents for healthcare reform.

During 2008-2009 the medicine/pediatrics training program underwent its first site visit as part of new requirements by the Accreditation Council for Graduate Medical Education. The program earned a 5-year accreditation, the longest that can be achieved. In response to the decreased national demand by medical school graduates for training in medicine/pediatrics (and despite brisk demand for trainees by hospitals and caregiver groups), the program decreased the number of positions offered from 14 to 12. The program filled completely in the 2009 match. Attendance by residents at the program's Wednesday conferences was the highest in program history. To improve communications within the program, the residency now hosts a Facebook page, and our residents regularly communicate with each other and recent graduates via this method. Program Director, Dr. Alex Djuricich, was named President-Elect of the Medicine/Pediatrics Program Directors' Association (MPPDA). Dr. Mary Ciccarelli, now Associate Chair for Education and Associate Program Director, continues her involvement in MPPDA activities, serving as chair of its Transitions Committee. She has also recruited two medicine/pediatrics practitioners into the Center for Youth and Adults with Conditions of Childhood (CYACC) program. The medicine/pediatrics training program at IU

continues to thrive and play important roles in both of its parent departments.

During the past year, the DOM trained 105 subspecialty fellows. The disciplines included cardiology, invasive cardiology, cardiac electrophysiology, heart failure, clinical pharmacology, endocrinology and metabolism, gastroenterology and hepatology, ERCP, geriatrics, health sciences research, hematology and oncology, bone marrow/stem cell transplantation, infectious diseases, medical informatics, nephrology, transplant nephrology, palliative care, pulmonary and critical care medicine, and rheumatology.

The IU-Kenya partnership continues to be a flagship program for both the DOM and IUSM and has been nominated for the second time for a Nobel Peace prize. The highly successful development of a robust clinical delivery system for HIV positive patients in sub-Saharan Africa (AMPATH) has made it possible for the program leaders to broaden their clinical care focus to primary care and prevention. Since 1990, the DOM has offered a two-month long global health experience for medicine and medicine/pediatrics residents allowing 12 residents to elect to take this rotation in Kenya. This rotation has consistently been rated as one of the most life-changing rotations, powerfully engaging residents in meeting ACGME competencies through an immersion experience in a resource-poor environment. An IUSM Interdepartmental Residency Global Health Track has taken shape and will be advertised to residency candidates in Medicine, Medicine/Pediatrics, Pediatrics, Surgery, Family Medicine, and Obstetrics/Gynecology during the upcoming recruitment season. Interested residents will formally apply to the global health track during their internship year for a 2011-2012 start date. A formal curriculum is being

developed with the option for receipt of a certificate of global health upon completion of program requirements and for continued training within an IUSM Fellowship Global Health track similarly being developed through the Medical Informatics and Health Services Research training programs.

Departmental faculty offered their services as providers of continuing medical education on the IUSM CME web site. Eighty-one of them listed 270 topics on the IUSM Continuing Medical Education web page (<http://cme.medicine.iu.edu/iucme/vppList.asp>) for which they are prepared to offer presentations.

Dean Craig Brater challenged IUSM faculty to look to the future by restructuring the curriculum. He asked that the changes be fundamental rather than tweaking or nibbling around the edges. The Liaison Committee on Medical Education (LCME), following the lead of numerous task forces and education groups, is encouraging all medical schools to align their curricular structures to the educational outcomes goals. Many schools have overhauled their curricula. The LCME specifically asked our School to better integrate the curriculum. Through various committees, with strong guidance from the Office of Medical Education and Curricular Affairs, proposals for curricular redesign have been put forward. Courses such as ICM 1 and ICM 2 could disappear, with the emergence of a new organizational structure for the curriculum. Changes may be made as well in the structure of clerkships and in the fourth year curriculum. Discussions begun during the academic year show that many are happy with the status quo and would prefer no substantive changes. The next few academic years should be interesting educationally.



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School of Medicine

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An Dang Do

Penn State Milton S.
Hershey Medical Center

Tyler Davis

Tufts University
School of Medicine

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Blake Erdel

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School of Medicine

Jeffrey Farmer

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School of Medicine

Elizabeth Gates

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Kristen Gilbert

Indiana University
School of Medicine

David Hedrick

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School of Medicine

Mary Huntington

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Daniel Ice

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Carolyn Jepkorir

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Kruti Joshi

Grant Medical College
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Sharma Post-Grad Institute
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Rohtak, India

Devon Kendrick

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Samuel Kimani

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College of Medicine

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Sameh Sayfo

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Mary Shearer

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Joseph Smith

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School of Medicine

Joshua Smith

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School of Medicine

David Sutter

Wayne State University
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Kairav Vakil

Dr. D.Y. Patil
Medical College
Mumbai, India

Keriann Van Nostrand

West Virginia University
School of Medicine

Madhu Yarlagadda

Rosalind Franklin
University of Medicine
and Science



OUTSTANDING MEDICINE RESIDENT AWARD

John S. Gardner

OUTSTANDING MEDICINE/ PEDIATRICS RESIDENT AWARD

Jodi L. Skiles

CHARLES F. KENNER OUTSTANDING FELLOW AWARD

Andrew W. Crane

OUTSTANDING EDUCATOR SELECTED BY SENIOR HOUSE STAFF

Robert Einterz



Chief Residents (left to right): Drs. Jordan Schmitt (VAMC), Kevin Tolliver (Ambulatory), Darryl Morin (Methodist), Melissa Anderson (University Hospital), and Tara Myers (Wishard)

Name/Future Plans (Locations given outside Indianapolis)

CHIEF RESIDENTS

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Nephrology Fellow
IU School of Medicine

Tara Myers
Respiratory Critical Care
Hospitalist
Methodist Hospital

Darryl Morin
Cardiology Fellow
Penn State University

Jordan Schmitt
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Kevin Tolliver
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MEDICINE

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Chief Resident of Quality
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PRELIMINARY

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Stephen Birrer
Anesthesiology

David Chang
Radiation/Oncology

Marc Cohen
Neurology

Jaision Grimes
Neurology

John Gripe
Anesthesiology

Andrew Koerber
Radiology

Katherine Lee
Dermatology

Anubhav Mathur
Dermatology

Andreea Mistric
Anesthesiology

Amanda Norris
Anesthesiology



CARDIOLOGY

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- M** University of Kansas School of Medicine
- R** IU School of Medicine

Joseph Hodgkiss

- M** Indiana University School of Medicine

Ziad Jaradat

- M** Jordan University of Science & Technology
- R** IU School of Medicine

Bilal Khan

- M** University of Karachi Pakistan
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Rolf Kreutz

- M** University of Zurich Switzerland
- R** Johns Hopkins University

Ronald Mastouri

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- R** University of California San Diego

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Anas Safadi

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Laura Schmidt

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- R** IU School of Medicine

Inder Singh

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- R** Cleveland Clinic Florida

Hillel Steiner

- M** Hebrew University of Jerusalem
- R** Shaare Zedek Medical Center, Jerusalem

Roopa Subbarao

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CLINICAL PHARMACOLOGY

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- R** IU School of Medicine

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- M** Indiana University School of Medicine

Pooja Singal

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Michael Waddel

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- R** St. Vincent Hospital

GASTROENTEROLOGY & HEPATOLOGY

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- R** University of Colorado School of Medicine

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Pradermchai Kongkam

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- R** University of Alabama School of Medicine

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- R** University of Louisville School of Medicine

Sweta Tandra

- M** Mahadrapu University India
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Spencer Wilson

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ICONS

M – Medical School

R – Residency

M
R BOTH Medical School and Residency

HEMATOLOGY/ONCOLOGY

Foluso Ademuyiwa

- M** University Ibadan College of Medicine, Nigeria
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- R** IU School of Medicine

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- R** University of Nebraska College of Medicine

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Nagesh Jayaram

- M** St. George University Granada West Indies
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- R** New York Medical College

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Rashmi Ramasubbaiah

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- R** University of Illinois College of Medicine at Peoria

Robert Strother

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- R** Henry Ford Hospital

Matthew Osborn

- M** University of Arkansas for Medical Sciences

Henry Selke

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- R** IU School of Medicine

Monica Sharma

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- R** Lutheran General Hospital

Bree Weaver

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Arjun Sinha

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Miriam Zidehsarai

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Khalil Diab

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Maya Hosein

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Christopher Huffer

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Babar Khan

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- R** IU School of Medicine

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Ranjeet Singh

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Kristin Strawhun

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- R** School of Medicine

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Nighat Tahir

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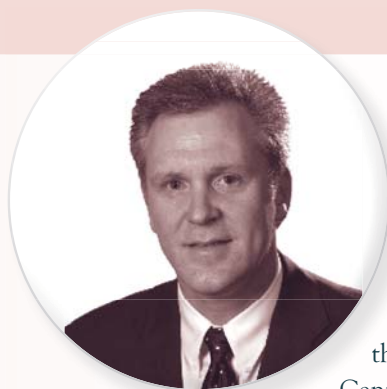
CLINICAL



Noah M.Hahn, M.D., and
E. Gabriela Chiorean, M.D.
*Assistant Professors
of Medicine*

MICHAEL D. OBER, M.D.

Vice Chairman
CLINICAL AFFAIRS



The Indiana University Department of Medicine faculty have made the clinical mission a success, while significantly contributing to the education and research missions. The Divisions have explored opportunities for growth in the clinical mission during the tough economic times. University Medical Diagnostic Associates (UMDA), the Department's practice plan, has done a terrific job of maintaining the financial success of our clinical operations in the past year.

NEW PROGRAMS

The past year was highlighted by the opening of the Indiana University Simon Cancer Center. The commitment of Drs. Stephen Williams, Patrick Loehrer, and Larry Cripe, was greatly appreciated and contributed to the successful transitioning of the care of our cancer patients into the new facility. A new outpatient infusion area and clinic area were opened in the fall of 2008 as part of this project, and a program in geriatric oncology is now well-established.

The Division of Nephrology, under the guidance of Dr. Michael Kraus and partnership with Clarian Health, opened a new home dialysis center on the north side of Indianapolis. In addition to the home dialysis center, a Nephrology outpatient center was developed to coordinate the care of patients with end-stage renal disease, affording them the opportunity to benefit from the new technologies of daily home dialysis.

The Krannert Institute of Cardiology was a front runner in providing care

for congestive heart failure and atrial fibrillation patients. Krannert was certified in the past year as a Center to use Left

Ventricular Assist Devices,

which complements their transplant and heart failure programs. Drs. John Miller and Chun Hwang have created an atrial fibrillation ablation program that has doubled the numbers of patients treated for this increasingly common problem.

INPATIENT SERVICES

Inpatient admissions increased by 8% during the past academic year. There was growth at the IU and Methodist Hospitals as well as the Roudebush Veterans Affairs Medical Center (VAMC), resulting in this increase. The Krannert Institute of Cardiology showed commitment and success in enhancing cardiology inpatient and outpatient services at Clarian West. IU Hospital was running at near full capacity over the past year. Wishard inpatient services were very active with 7,593 admissions.

OUTPATIENT SERVICES

Substantial growth occurred in outpatient services in the Department of Medicine. There were 322,600 patient-provider encounters during the past academic year, a 10% increase from the prior year. Growth was seen mainly at the VAMC and Wishard. Specialty care at IU and Methodist Hospitals experienced a 2% decline compared to the prior year with 64,442 encounters. Specialty care patient encounters increased by 7% at Wishard with a total of 16,595 visits. Wishard Outreach and Indiana University Medical Group-Primary Care (IUMG-PC) accounted for the majority of growth in outpatient care within the Wishard Health Services system. IUMG-PC also

saw significant growth in Anderson and Mooresville, Indiana.

The Department of Medicine provided a significant amount of care to our veterans in Central Indiana. There was a substantial increase in outpatient encounters over the past year, with 40,516 encounters occurring at the VAMC. This was a 20% increase compared to last years' activity.

Transplant outpatient services were offered to our patients in several cities across the state. Transplant Nephrology began providing patient care in Merrillville, Mishawaka, and Fort Wayne. Bone marrow transplant continued to operate a clinic in South Bend. Providing transplant care at these sites has made it more convenient for our patients to have the opportunity for transplant, and to receive convenient care closer to their homes.

IUMG-PC opened an outpatient primary care office at IU Hospital in the fall of 2008. The new office is located in the Ambulatory Outpatient Center at IU Hospital. IUMG-PC has been instrumental in advancing the Cerner Outpatient Electronic Medical Record. Further advancement and use of the Electronic Medical Record was undertaken in our subspecialty clinics as well. The Medical Diagnostic Center (MDC) was the third clinic in the Department to implement computerized provider order entry (CPOE). This has enhanced communication and coordination of care between subspecialist and primary care physicians, in addition to improved patient safety.

Outpatient clinical activities at the Spring Mill Medical Center were a focus of our growth opportunities under the direction of Dr. Lee McHenry. There were 10,958 patient-provider encounters in the last year, representing an 11% growth from the prior year. Gastroenterology was a major contributor to this growth through their outpatient clinical services

and coordination of procedural services (colonoscopy and endoscopy) at the Beltway Surgery Center in association with the Spring Mill Medical Center.

In the past year, outpatient services focused on enhancing patient-centered care through improving access and patient satisfaction. Rheumatology successfully transitioned their entire practice into the MDC. This transition included the implementation of an electronic medical record, electronic script writing, and CPOE. Their efforts in making these practice changes have been greatly appreciated and has improved job satisfaction of the rheumatology clinic staff. Hematology/Oncology, Infectious Disease, and Pulmonary services reached the 90th percentile, or better, for the question 'Would you recommend (this physician?)' on the hospital's Picker patient satisfaction survey. Several other divisions were nearing the 90th percentile goal. Our providers also enhanced access by minimizing the cancelation of clinics and maximizing productivity in the clinics. Targets were established for each Division. These benchmarks included number of expected clinics for the year and seven patients per session to be seen. Forty-seven providers across our various outpatient sites reached the goal of seven patients per session. This was a 42% increase compared to the prior year.

PROCEDURES

The procedural activities in the Department of Medicine grew in several Divisions. Despite downward trends in cardiology procedures across the nation, the Krannert Institute of Cardiology has seen a 5% increase in cardiac catheterization procedures and a 31% increase in angioplasty procedures. The Krannert Institute of Cardiology provided a large number of electrophysiology procedures on a consistent basis

to the VAMC, Wishard Health Services, and Clarian Health Partners.

Gastroenterology extended outreach services that have contributed to the success in growing procedural volume. They opened a new site in Martinsville and began discussions with the hospital in Greenfield to further develop their outreach programs. There were 8,638 endoscopies; 10,573 colonoscopies; and 2,838 ERCP procedures completed last year. This represents a 10%, 2%, and 8% growth, respectively, in the last year. The IU Endoscopic Ultrasound program showed an increase in volume. There were 2,418 procedures performed representing a 15% growth rate in comparison to the last year.

The Pulmonary Division showed growth in bronchoscopy and sleep studies. They performed 1,170 bronchoscopies last year, in comparison to 1,022 in the prior year. There was substantial growth in sleep medicine with the hiring of Drs. Shalini Manchanda and Mark Perlow. The IU Sleep Laboratory performed 1,738 studies last year. This was a 28% increase in comparison to the prior year.

Many Divisions provided enhanced subspecialty care not always available in other health care systems. Endocrinology has promoted the LDL Apheresis program at the Spring Mill Medical Center. This is the only LDL Apheresis program in the state, treating patients with severe hyperlipidemia not responsive to other therapies. Rheumatology and Endocrinology furthered the development of ultrasound-guided procedures in their outpatient specialty clinics. The Infectious Disease Division has partnered with the Ryan White Program in providing HIV care to patients at Wishard Health Services.

In summary, the Department of Medicine has provided excellent clinical services through the dedication of the Department's providers. Despite

a world with financial difficulties, the Department's practice plan's revenue cycle has been successful, and growth opportunities have been pursued. The clinical mission has continued to complement the education and research missions. Our success has been dependent on the services and commitment of our support staff in our offices and clinics. Our partnership with Clarian Health Partners, VAMC, and Wishard Health Services has been instrumental in the success of our clinical mission.



An aerial photograph of the Roudebush VA Medical Center and surrounding hospitals in Indianapolis. The image is framed within a large, semi-transparent red circle. The Roudebush VA Medical Center is the central focus, featuring a large, modern building with a prominent arched glass facade. Below it, several other hospital buildings are visible, including Wishard Memorial Hospital. The surrounding area includes parking lots, roads, and some greenery. The word "QUALITY" is written in a large, white, serif font, curving along the top right edge of the red circle.

QUALITY

Department of
Medicine's four teaching
hospitals – Indiana
University (IU) Hospital,
Richard L. Roudebush Veterans
Affairs Medical Center (VAMC) , Methodist
Hospital, and Wishard Health Services.

JOHN D. BUCKLEY, M.D.

Vice Chairman
QUALITY AND PATIENT
SAFETY



As part of a continuing national movement to improve the quality of medical care and ensuring patient safety, the Department of Medicine collaborated with our hospitals and clinics to increase monitoring of our patients' outcomes and implement steps to improve the quality of care we deliver. While we engaged in specific initiatives tailored to the needs of the individual hospitals and clinics, we also enhanced integration of quality improvement processes across the department with our residency program's Education Innovations Project (EIP) and creation of a new Vice Chair for Quality Improvement and Patient Safety (QI&PS).

INPATIENT QUALITY IMPROVEMENT

Three of our four teaching hospitals – Wishard Health Services, Indiana University (IU) Hospital, and Methodist Hospital are member-owners of the University HealthSystem Consortium (UHC) Quality and Safety program. In 2008-2009, UHC membership grew to 103 health systems representing 219 affiliated hospitals. UHC now represents nearly 90% of all US non-profit academic medical centers.

By the broadest indicator, the UHC ranked Methodist Hospital first in the nation in overall quality and safety for 2008-2009. This followed last year's ranking of 3rd, and regains the top ranking held in 2006-2007. IU Hospital moved from 61st to 42nd. This dramatic improvement puts IU Hospital in the top half of all UHC members, at a time when the bar has never been higher.

For the CMS Core Measures, the aggregate Clarian-IU-Methodist ranking was seventh out of 90 participating

academic medical centers in CMS's 26-metric Appropriate Care Measures. More narrow composite rankings for acute myocardial infarction (58th), pneumonia (13th), and heart failure

(10th) demonstrated improvement from previous years. Publicly accessible data, available from CMS' hospitalcompare.gov provides detailed information in several hospital core measures. In general, both Wishard Health Services and IU Hospital-Methodist Hospital perform very well compared to state and national averages (see Table 1 below).

In the first quarter 2009, the product line mortality rates for cardiology and bone marrow transplant at IU Hospital were outstanding, ranking in UHC's top 5% of reporting hospitals. Nearly all of our other service lines also had mortality rates

better than expected. Ongoing quality initiatives in percutaneous coronary intervention (PCI), door-to-balloon time, lengths of stay, mortality, early deaths, ICU utilization, hospital-acquired decubitus ulcers, and hospital acquired venous thromboembolism resulted in improvements in nearly all areas. During the academic year, the Department helped established clinical quality committees at IU Hospital in several service lines and has instituted a multi-disciplinary team to review all deaths.

At Wishard Health Services, the final quarter of 2008 saw improvements in several composite measures, with performance in UHC's top half for both CMS' composite measures and those for the Hospital Quality Alliance. Other publicly reported data on risk-adjusted mortality demonstrates no significant difference between Wishard Health Services, Clarian Health, and national averages for acute myocardial mortality for heart failure. However, Clarian Health

TABLE 1: CORE MEASURES: OCTOBER 2007-SEPTEMBER 2008

CMS Core Measures	Wishard	Clarian: IU-Methodist	Indiana Average	US Average
HEART ATTACK PATIENTS GIVEN:				
Aspirin upon Arrival	97%	99%	94%	94%
Aspirin at Discharge	99%	99%	92%	92%
ACE-I or ARB	93%	90%	90%	90%
Smoking Cessation Advice	100%	100%	95%	94%
β-blocker at Discharge	98%	99%	96%	93%
PCI within 90 minutes for STEMI	NA	79%	75%	75%
PNEUMONIA PATIENTS RECEIVING:				
Oxygen Assessment	99%	100%	99%	99%
Pneumococcal Vaccination	90%	81%	86%	83%
Blood Culture Prior to Antibiotics	76%	83%	90%	91%
Smoking Cessation Advice	99%	100%	91%	88%
Initial Antibiotics within 6 Hours of Arrival	86%	96%	95%	93%
Most Appropriate Initial Antibiotics	79%	81%	85%	87%
Assessment and Given Influenza Vaccination	84%	68%	83%	79%
HEART FAILURE PATIENTS GIVEN:				
Instructions at Discharge	90%	93%	77%	74%
Evaluation of Left Ventricular Systolic Function	96%	100%	93%	89%
ACE-I or ARB	95%	95%	88%	88%
Smoking Cessation Advice	98%	100%	95%	91%

had significantly better risk-adjusted mortality for heart failure.

The Veterans Affairs Medical Center (VAMC) participated in quality improvement initiatives under the direction of the central offices in Washington, D.C., with metrics selected to meet the needs of this unique patient population. Inpatient metrics related to our departmental activities were met in 16 of 23 categories, including all hypertension and heart failure indicators. Most of the missed targets were by less than five percentage points. Overall quality within the entire VAMC improved, based largely on heavy information technology investment and reliance on a fully integrated electronic medical record (EMR), complete with clinical decision support features.

AMBULATORY QUALITY IMPROVEMENT

Our VAMC met quality targets in 23 of 29 ambulatory internal medicine-related metrics, performing favorably within the upper Midwest Veterans Integrated Service Network (VISN). Highlights of these successes included excellence in the Healthcare Effectiveness Data and Information Set (HEDIS) for diabetes, cardiology, smoking cessation, and immunizations. We also achieved success at meeting all targets for screening for alcohol misuse, post-traumatic stress disorder, and depression.

In our Wishard Health Services and Clarian Health ambulatory clinics, pay-for-performance (P4P) initiatives grew rapidly, and IUMG-PC expected to earn all of Medicaid's supplemental Upper Payment Limit (UPL) based on achieving clinical quality goals. Our clinics developed a registry of nearly 8,000 patients and exceeded NCQA-Diabetes Physician Recognition Program standards in all thirteen areas. In 2008, the country's two largest electronic prescription networks Surescripts® and RxHub® merged. The new organization, maintaining the Surescripts® name,

recognized Wishard's GOPHER system as fully compliant with CMS's standards for qualifying e-prescription systems. Successful reporting of e-prescription use on claims filing could result in an incentive payment from Medicare. Clarian Health's Cerner® system did not yet have this feature, but planned implementation of a system based on registry submission rather than individual claims filing. The 2009 American Recovery and Reinvestment Act suggested additional incentives would be available in the future along with plans to phase out incentives and place penalties on current initiatives if not implemented by 2012. We anticipate more combinations of incentives and penalties related to implementation of proven technologies and clinical practices, as society continues to expect clear and transparent reporting of clinical performance.

In the first half of 2009, the ambulatory clinics at IU Hospital began transition to a fully electronic medical record, complete with electronic prescriptions. While not yet meeting all requirements for a CMS qualifying e-prescription system, these prescriptions have eliminated legibility errors of hand-written prescriptions and offer customized templates for frequently prescribed medications.

Individual physician reports became available through several new programs. For our housestaff, the EIP began monitoring the performance of individual residents in achieving targets for six evidence-based, ambulatory quality indicators. The monitoring and report cards provided residents with specific feedback on their performance compared to their team's performance and pre-established benchmarks. Using the Clarian Health Physician Activity Reports, faculty members were provided access to their own performance on inpatient metrics, including mortality rates, length-of-stay, and average cost of care. As refinement of the system's physician attribution process and details of the indicators become more

granular, individual physicians can use this data to guide performance improvement steps.

COLLABORATIVE EFFORTS AND THE EDUCATIONAL INNOVATIONS PROJECT

In the second quarter of 2009, Clarian Quality Partners began a major Clinical Integration program, where clinicians at Clarian Health facilities all over the state coordinate efforts aimed at monitoring and improving clinical quality. Identifying quality indicators for every specialty began based on national quality indicators such as HEDIS, CMS's Core Measures, and the Physicians Quality Reporting Initiative (PQRI). When fully implemented, each physician or team of physicians will receive status reports on their performance and collaborate with Clarian Health to achieve a shared goal of preeminent medical care.

Our residency program's EIP refined curricula for the Immersion Week for PGY 1's and 2's, and began planning for an Immersion Week for PGY 3's focused on developing and implementing quality improvement initiatives. Results from the June 2009 resident survey revealed improvements in comfort of communicating with patients so they understand (87% in 2008 to 100% in 2009) and with their abilities to motivate and engage patients in self-management (63% in 2008 to 90% in 2009).

With support from the VAMC, Dr. LeeAnne Cox was selected to be the first Chief Medical Resident for Quality Improvement. In her role starting in July 2009, she will lead and coordinate many quality improvement activities for the residency program. Another success was the creation of a Patient Safety Rotation at the VAMC. Hugely popular with the residents, this rotation engaged senior residents in performing safety "consultations," participating in root cause analyses, and leading QI&PS

conferences. Based on the success of this rotation, planning began to export components of this rotation to IU Hospital.

In December 2008, Dr. John (Jack) Buckley, assumed a new position as Vice Chair for Quality Improvement and Patient Safety. In this role, he began coordination of quality improvement activities across the campus and clinical service lines and served as a liaison to Wishard Health Services, Clarian Health, and VAMC administrators. In addition to facilitating integration of the residency's EIP with clinical operations, he has tracked national trends and compared the Department's performance to national benchmarks of academic health centers. Dr. Buckley drafted plans for clinical quality conferences, which will serve as modern morbidity and mortality (M&M) conferences for each clinical service. Due to begin in the fall of 2009, these conferences will establish a comprehensive mechanism of assessing all clinical activities and continuously develop and implement collaborative initiatives to improve the quality and safety of patient care.

Integration of the residency's program with other campus initiatives was highlighted through early work by the EIP's Transitions Working Group. Targeting care of patients with congestive heart failure, the residency program began planning and coordination of care with VAMC and WMH leadership, Regenstrief researchers, departmental Vice Chairs, and the American College of Cardiology's Hospital2Home campaign. These collaborative efforts among the key stakeholders will have the best chance of long term success.



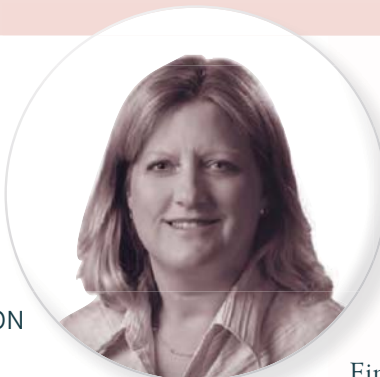
RESEARCH



Shoji Ichikawa, Ph.D.
Assistant Research Professor of Medicine

SHARON M. MOE, M.D.

Vice Chair
RESEARCH ADMINISTRATION



Research continues to thrive in the Department of Medicine, with the majority of our federal funding focused in cancer, vascular biology, bone disease, renal cell biology, sexually transmitted diseases, pharmacogenomics, liver disease, aging, diabetes, informatics, HSRD, and immunobiology. We are excited about our expanded bone disease program with the recruitment of Drs. Teresa Guise and John Chirgwin and their team of experts on the pathogenesis of cancer-related bone diseases. At the same time we are saddened by the loss of our IU Simon Cancer Center Director, Dr. Stephen Williams, early in the year. Thanks to Dr. Pat Loehrer for stepping in as Interim Director.

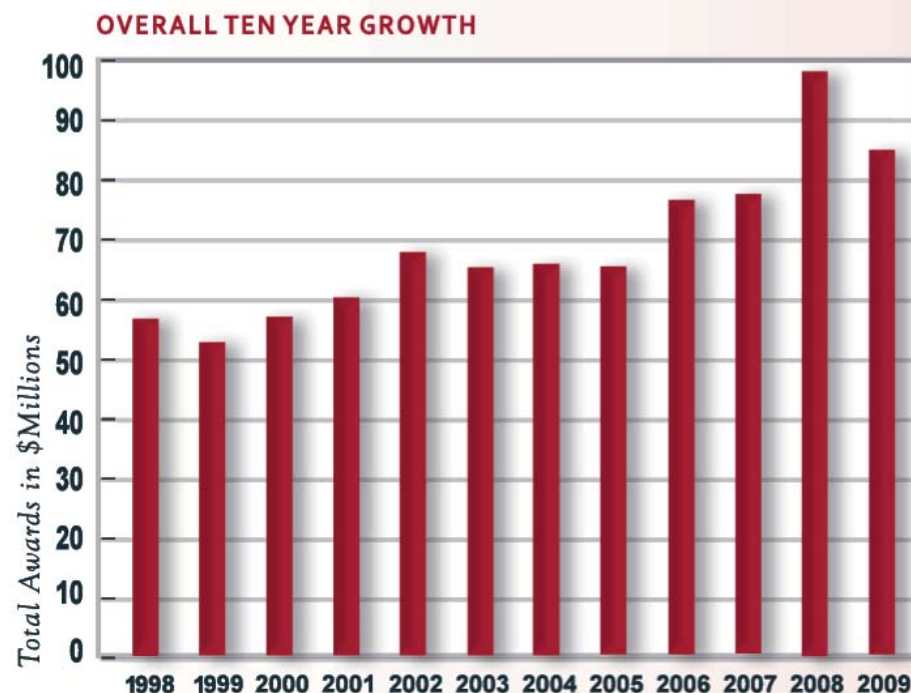
This year we had several important new grants awarded: Drs. Dan Clark, Darron Brown, Samir Gupta, John Turchi, Keith March, Pierre Dagher, and Wanzhu Tu have new or competitively renewed NIH R series grants; Dr. Erik Imel received a NIH K23; in addition, Drs. Brad Doebbeling (AHRQ), Erin Krebs (DOD), Eric Meslin (NIH Fogarty), Marc Overhage (AHRQ and CDC), and Greg Sachs (AHRQ) have new federal grants from the noted agencies. Congratulations to our faculty who have received new VA awards. New Merit or HSRD awards were made to Drs. Won Cho, Matt Bair, Brad Doebbeling, and Rich Frankel. New or competitively renewed Career Development Awards were made to Drs. Matt Bair, Dave Haggstrom, Erin Krebs, and Attaya Suvannasankha. Drs. Daniel Matei, Noah Hahn, and Amale Lteif are new site PIs for multi-center VA cooperative grants. The Kenya program

continues to expand with new large grants from the CDC (Dr. Bill Tierney), the NIH (Dr. Constantine Yiannoutsos), and USAID (Dr. Bob Einterz), and we are gaining additional partners with the University of Toronto and Duke. We will be expanding research in Kenya to pharmacogenomics studies of cancer therapy with the recruitment of Dr. Matt Strother, who is spending his first year on faculty on the ground in Kenya. Special congratulations and thanks to Drs. Irina Petrache and Dave Wilkes for obtaining an NIH training grant for immunobiology. Congratulations to all of our large center grants/collaborative programs funded through the NIH that have recently been awarded or competitively renewed: the Pharmacogenetics Research and Network Knowledge Base (Dr. David Flockhart), the Translation Research on Chronic Disease Self-Management (Dr. Chris Callahan), and the Genesis

and Treatment of Heart Failure in the Young (Dr. Loren Field/Wells Center). Finally, congratulations to our Department of Medicine Young Investigator winner for 2009, Dr. Matt Bair, for his outstanding research in the field of pain management.

Despite these research successes, our overall funding decreased this year, in part due to our particularly noteworthy year in 2007-2008. The funding for the K-30 and GCRC have also been transferred to the Dean's office under the CTSI. Despite this decrease, the overall 10 year growth remains positive.

One of my favorite all time athletes, Michael Jordan, once said, "If you're trying to achieve, there will be roadblocks. I've had them; everybody has had them. But obstacles don't have to stop you. If you run into a wall, don't turn around and give up. Figure out how to climb it, go through it, or work around it." That statement may be true for professional basketball, but it holds true for research as well. Over the last decade the NIH budget, when adjusted for inflation, has decreased,



which has stressed our investigators, challenged the training of new investigators, and hampered our success in obtaining funding. But as is true with most things, there is a cyclic nature to research funding and we are finally back on the incline. This past year was a turning point for research funding, with over \$100 billion in science and technology spending under the American Recovery Reinvestment Act (ARRA) stimulus funding. As President Obama said, this funding “represents the single largest boost to biomedical research in history....it’s about creating jobs that will make a lasting difference for our future.” Let’s face it, that’s why we do research- to make a difference in our future and the future of our children. The good news is that the sentiment on Capitol Hill is to continue strong support of research.

Our faculty rose to this ARRA challenge with enthusiasm and tenacity, submitting 83 proposals requesting over \$22M in direct dollars. Thanks to our research administration office (Heidi Bredemeyer, Les Magnes, and Michelle Meeks) for also rising to the challenge of processing all of these proposals! Many of the supplements have been successful and we anxiously await decisions on other grants. This enormous effort shows that our faculty have great ideas and are capable of prolific writing. But we shouldn’t stop there and write only when specifically challenged. Whether our ideas are funded or not, we need to persevere and continue to write with determination- as Michael said- figure out how to climb it, go through it, or work around it. I once spoke with a Nobel laureate about how he maintains such a strong research group year after year. We see the success of these individuals but what we don’t see are the failures. He told me he had written 10 grants the previous year and three were funded. That’s a pretty good batting average, but to get three grants with that average he had to go the plate and swing. I challenge our faculty to continue

to function in the ARRA ‘challenge mode’ and increase our proposals. With increased proposals always comes increased funding; you can’t have one without the other. That is the key to our future success.



CONTRACTS AND GRANTS

PRINCIPAL
INVESTIGATOR TITLE

ANNUAL
DIRECT COST ANNUAL
INDIRECT COST

Grants and Contracts Held by Department of Medicine Faculty - as of June 30, 2009.

BIOSTATISTICS

PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES

GAO, S.	Role of SWL in Renal Injury and Stone Comminution–Biostatistics Core B [NIH]	\$ 30,298	\$ 15,452
HUI, S.	Genetic Determinants of Bone Fragility-Biostatistics Core A [NIH-NIAAA] (see Endocrinology-M. Econs)	–	–
	Genetics of Menopause – A Pilot Study [NIH-NIA]	–	–
KATZ, B.	Midwest Sexually Transmitted Diseases Cooperative Research Center [NIH-NIAID] (see Infectious Diseases-S. Spinola)	–	–
	Validation of New Diagnostic Technologies for Dental Caries [University of Iowa / NIH]	53,339	27,203
	Medical Countermeasures Against Radiological Threats: Product Development Support Services [NIH] (see Hematology/Oncology-C. Orschell)	–	–
LI, L.	Bayesian Tools for PBPK Models in Drug Interaction [NIH-NIGMS]	170,673	87,897
	Interrogating Epigenetic Changes in Cancer Genomes [Ohio State University / NIH]	85,092	43,822
	Pharmacogenetics Research Network and Knowledge Base-Biostatistics Core B [NIH-NIGMS] (see Clinical Pharmacology-D. Flockhart)	–	–
LIU, Y.	Genomic Analysis of RNA Binding Protein Target Specificity [University of California, Santa Cruz / NIH]	40,729	21,994
PERKINS, S.	Cancer Center Support Grant-Biostatistics Core [NIH-NCI]	83,163	42,413
SHEN, C.	Mass Informatics for Two Dimensional Gas Chromatography Time-of-Flight Mass Spectrometry Based Metabolomics [Showalter Trust]	48,341	26,104
TU, W.	Effect of Somatic Growth and Sodium Retention on Blood Pressure [NIH]	250,000	135,000
YIANNOUTSOS, C.	Proton MRS Studies of Cerebral Injury in HIV Infections [Tufts University / NIH]	107,868	55,552
	A Computer Simulation of The Sub-Saharan HIV Pandemic That Can Estimate Benefit of Alcohol Interventions [Yale University / NIH]	50,169	25,838
	East Africa IEDEA Regional Consortium [NIH-NIAID]	1,403,615	238,526
	Neuropathobiology of Primary HIV-1 Infection [University of California, San Francisco / NIH]	28,632	15,461
	National NeuroAIDS Tissue Consortium Statistics and Data Coordinating Center [NIH]	616,380	92,193
	NIMH Bioinformatics Project [The EMMES Corporation / NIH]	89,022	45,846

VETERANS AFFAIRS

HUI, S.	Stroke Quality Enhancement Research Initiative Program [U.S. Dept. of Veterans Affairs]	21,241	–
YU, Z.	Implementing Evidence in the Detection and Treatment of Post-Stroke Depression [U.S. Dept. of Veterans Affairs]	46,394	–
	Stroke Quality Enhancement Research Initiative Program [U.S. Dept. of Veterans Affairs]	43,966	–
	Adapting Tools to Implement Stroke Risk Management to Veterans [U.S. Dept. of Veterans Affairs]	26,212	–

SOCIETIES, FOUNDATIONS, AND OTHER

HUI, S.	Biostatistics Section [Regenstrief Institute]	39,525	–
SHEN, C.	A Unified Statistical Framework for High-throughput Label-free Protein Quantification Using Mass Spectrometry [Showalter Trust]	49,973	9,995
TU, W.	Biostatistics Section [Regenstrief Institute]	20,600	–
	Murray-UNC Chapel Hill Biostatistical Support [University of North Carolina at Chapel Hill]	21,691	11,713

DIVISION SUMMARY: BIOSTATISTICS

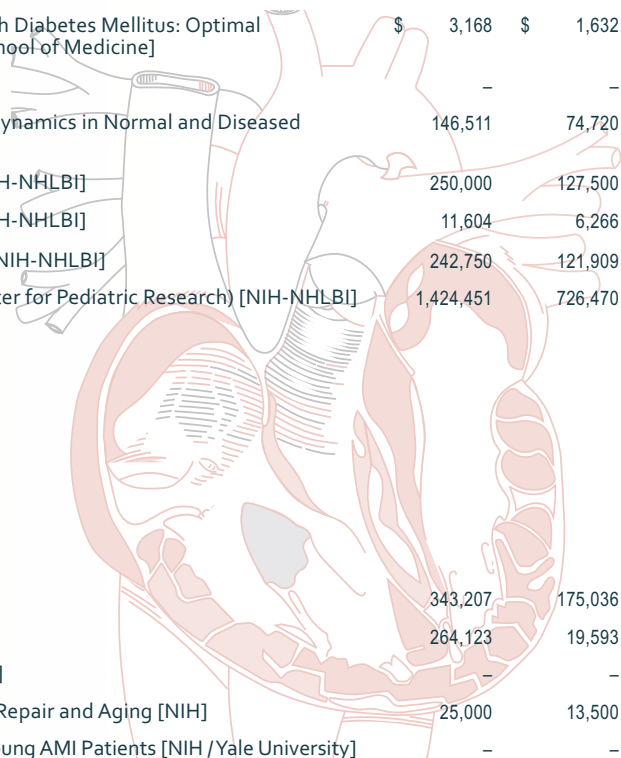
	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL	\$ 3,057,321	\$ 873,301
	VETERANS AFFAIRS TOTAL	137,813	–
	SOCIETIES, FOUNDATIONS, AND OTHER TOTAL	131,789	21,708
	INDUSTRY TOTAL	–	–
TOTAL		\$ 3,326,923	\$ 895,009

PRINCIPAL
INVESTIGATOR TITLE

ANNUAL
DIRECT COST ANNUAL
INDIRECT COST

CARDIOLOGY

PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES



BREALL, J.	Freedom Trial: Future Revascularization Evaluation Patients with Diabetes Mellitus: Optimal Management of Multi-vessel Disease [NIH-NHLBI / Mt. Sinai School of Medicine]	\$ 3,168	\$ 1,632
CHEN, P.	Fibrillation and Defibrillation [NIH]	-	-
	Cardiac Fibrillation: Mechanisms and Therapy Project 3: Wave Dynamics in Normal and Diseased Rabbit Hearts [NIH / UCLA]	146,511	74,720
	Autonomic Nerve Activity and Paroxysmal Atrial Fibrillation [NIH-NHLBI]	250,000	127,500
	Autonomic Nerve Activity and Paroxysmal Atrial Fibrillation [NIH-NHLBI]	11,604	6,266
FIELD, L.	Genetic Enhancement of Cardiac Repair with Adult Stem Cells [NIH-NHLBI]	242,750	121,909
	Genesis and Treatment of Heart Failure in the Young (Wells Center for Pediatric Research) [NIH-NHLBI]	1,424,451	726,470
	ANTHONY FIRULLI (Pediatrics)	\$ 224,024	
	LEI WEI (Pediatrics)	229,813	
	LOREN FIELD (Pediatrics)	236,326	
	LOREN FIELD	54,000	
	WEINIAN SHOU (Pediatrics)	224,024	
	SIMON CONWAY (Pediatrics)	232,239	
	MARK PAYNE (Pediatrics)	224,024	
JONES, L.	Structure/Function of Phospholamban in the Heart [NIH]	343,207	175,036
MARCH, K.	Training in Vascular Biology & Medicine [NIH-NHLBI]	264,123	19,593
	Adipose Stromal Cells in Vascular Repair in Hematopoiesis [NIH]	-	-
	Interactions Between Different Stem/Progenitor Cells in Tissue Repair and Aging [NIH]	25,000	13,500
VON DER LOHE, E.	VIRGO - Variation in Recovery: Role of Gender on Outcomes of Young AMI Patients [NIH / Yale University]	-	-

VETERANS AFFAIRS

BOLAD, I.	Coronary Artery Revascularization in Diabetics VA CARDS [VA]	42,346	-
KAMALESH, M.	Coronary Artery Revascularization in Diabetics VA CARDS [VA]	26,075	-
MARCH, K.	Adipose Derived Pluripotent Cell Differentiation and Vascular Modulation [VA]	150,000	-

SOCIETIES, FOUNDATIONS, AND OTHER

BREALL, J.	Abbott Fund Interventional Fellowship [Abbott Fund]	41,000	-
	SCAI Interventional Fellowship [SCAI]	60,000	-
CHEN, P.	The Indiana Genomics Initiative (Cardiac Research) [Lilly Endowment]	-	-
	Obesity and Atrial Fibrillation [Mayo Clinic]	12,500	-
CHEN, Z.	How a Point Mutation of Phospholamban, Arg9Cys-Cys, Causes Heart Failure in Humans [Methodist Research Institute]	25,000	-
GROH, W.	Home Automatic External Defibrillator Trial [Seattle Institute of Cardiac Research]	-	-
LIN, S.	Electromechanical Coupling in Heart Failure and Cardiac Resynchronization Therapy [AHA]	90,909	9,091
MARCH, K.	Adipose-derived Cell Sub-populations and Angiogenesis: Defining Distinctive Cell Fates and Functions [AHA Midwest]	49,428	-
	Adipose Derived Stromal Cells as Carriers of Therapeutic Genes to Ischemic Tissues [CRDF]	1,249	-
O'DONNELL, J.	Collection and Storage of Human Biological Materials and Linked Phenotypic Information for Research Purposes [Fairbanks Institute]	4,821	723
RUBART-VON DER LOHE, M.	Probing Functional Integration of Embryonic Stem Cell-derived Cardiomyocytes Post Intracardiac Transplantation [AHA Midwest]	-	-

INDUSTRY

BHAKTA, D.	CONNECT STUDY Clinical Evaluation of Remote Notification to Reduce Time to Clinical Decision [Medtronic]	11,600	2,900
BOLAD, I.	Timing of Intervention in Patients with Acute Coronary Syndromes [Hamilton Health Services]	8,000	-
BREALL, J.	A Multicenter, Randomized, Double-blind Placebo-controlled Study to Evaluate the Efficacy and Safety of Ad5FGF-4 in Patients with Stable Angina [Cardium]	-	-
	CYPHER™ Sirolimus-eluting Coronary Stent Post Market Surveillance e-Cypher Stent Registry [Cordis]	-	-

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Cardiology - Industry (cont.)</i>			
BREALL, J.	The Assessment of the Medtronic AVE Interceptor Saphenous Vein Graft Filter System [Medtronic]	\$ -	\$ -
	Perseus: A Prospective Evaluation in Randomized Trial of the Safety and Efficacy of the Use of the Taxus Element Paclitaxel-eluting Coronary Stent System for the Treatment of De Novo Coronary Artery Lesions [Boston Scientific]	26,064	6,516
	Xience V Everolimus Eluting Coronary Stent System USA Post Approval Study [Abbott Vascular]	15,740	3,935
	PLATINUM: A Prospective, Randomized, Multicenter Trial to Assess an Everolimu-eluting Coronary Stent System (PROMUS Element) for the Treatment of Up to Two De Novo Coronary Artery Lesions [Boston Scientific]	-	-
	Clinical Evaluation of Coronary DSA Software [Siemens Medical Systems]	-	-
DAS, M.	Creating an Animal Model for Paroxysmal Atrial Fibrillation to Study the Pathophysiology of Atrial Fibrillation [St. Jude Medical]	-	-
	Detection of T-wave Alternans Using a Device in Patients with Cardiac Events [Medtronic]	6,960	1,740
	Optimization of Resynchronization Therapy in Heart Failure by Exercise Hemodynamics and Echocardiography [Guidant]	-	-
	Genetic Arrhythmia Markers for Early Detection [Medtronic]	18,434	4,609
GRADUS-PIZLO, I.	A Double-blind, Randomized, Placebo-controlled, Multicenter Study to Assess the Efficacy and Safety of Darbepoetin Alfa Treatment on Mortality and Morbidity in Heart Failure Subjects with Symptomatic Left Ventricular Systolic Dysfunction [Amgen]	4,896	1,224
LOPSHIRE, J.	Optimization of Spinal Cord Stimulation for Improving Heart Failure in a Canine Heart Failure Model Animal Study [Medtronic]	54,377	17,401
MAHENTHIRAN, J.	IMPROVE-IT: A Multicenter, Double-blind, Randomized Study to Establish the Clinical Benefit and Safety of Vytorin vs. Simvastatin Monotherapy in High Risk Subjects Presenting with Coronary Syndrome [Schering-Plough]	3,280	820
	CLEVER: A Randomized, Double-blind, Multicentered Study Comparing the Effects of Carvedilol Modified Release Formulation (COREGMR) and Atenolol in Combination with and Compared to an Angiotensin Converting Enzyme Inhibitor [GlaxoSmithKline]	-	-
	A Comparison of Prasugrel and Clopidogrel in Acute Coronary Syndrome Subjects with Unstable Angina/Non-ST-Elevation Myocardial Infarction Who are Medically Managed & The TRILOGY ACS Study [Lilly]	4,000	1,000
MARCH, K.	Stem Cell Mediated Angiogenesis Trial [Biomet]	112,502	28,126
	A Pilot Radiation Study [Biomet]	-	-
	Continuing Research on ASC: Focus on Obesity and Biomarkers to Cell Populations in Adipose Tissue of Various Sites [Lilly]	56,180	18,820
	Evaluation of Efficacy of CBAT Cell Transplantation in a Mouse Model of Peripheral Limb Ischemia [Ethicon/Center for Biomaterials & Advanced Technologies]	87,591	28,029
	Pilot Study Using Isolex-based Antibody Selection to Purify ASC's [Baxter Healthcare]	187,266	62,734
	Safety and Efficacy of Treating Acute Myocardial Infarction with Adipose-derived Cells [BioHeart]	-	-
	PEMF-BMMNC Therapy to Improve Perfusion to Ischemic Tissues [Biomet]	-	-
	Angiogenesis Research [Lilly]	-	-
MILLER, J.	Pivotal Clinical Study of the Cardiofocus Endoscopic Ablation System for the Treatment of Symptomatic Atrial Fibrillation [CardioFocus]	-	-
	Tailored Treatment of Permanent Atrial Fibrillation [Ablation Frontiers]	12,439	3,110
	Clinical Evaluation of Therapy Cool Path Duo Cardiac Ablation System for the Treatment of Ischemic Ventricular Tachycardia Feasibility Study [St. Jude Medical]	-	-
	Medtronic EP Fellowship o8/og [Medtronic]	40,000	-
	Biosense Webster EP Fellowship o8/og [Biosense Webster]	50,000	-
SADANANDAN, S.	A Prospective, Multicenter, Randomized, Controlled Trial to Evaluate the Safety and Efficacy of the STARFlex Septal Closure System vs. Best Medical Therapy in Patients with a Stroke and/or Transient Ischemic Attack Due to Presumed Paradoxical Embolism Through a Patent Foramen Ovale [NMT Medical]	2,080	520
	"Sapphire" Stenting and Angioplasty with Protection in Patients at High Risk for Endarterectomy [Cordis]	5,520	1,380
	Randomized, Multinational, Double-blind Study, Comparing a High Loading Dose Regimen of Clopidoprel vs. Standard Dose in Patients with Unstable Angina or Non-ST Segment Elevation Myocardial Infarction Managed with an Early Invasive Strategy [ICON Clinical Research]	2,960	740

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Cardiology - Industry (cont.)</i>			
SADANANDAN, S.	Protect II: A Prospective, Multicenter, Randomized, Controlled Trial of the IMPELLA RECOVER LP 2.5 System vs. Intra Aortic Balloon Pump in Patients Undergoing Non emergent High Risk PCI [ABIOMED]	\$ 8,235	\$ 2,059
	The Active (Use of the Assurant Cobalt Iliac Stent System in the Treatment of Iliac Vessel Disease) Study [Medtronic]	-	-
YADAV, A.	Rhythm ID Going Head-to-head Trial [Guidant]	2,760	690
DIVISION SUMMARY: CARDIOLOGY			
PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL		\$ 2,710,814	\$ 1,266,626
VETERANS AFFAIRS TOTAL		218,421	-
SOCIETIES, FOUNDATIONS, AND OTHER TOTAL		284,907	9,814
INDUSTRY TOTAL		720,884	186,353
TOTAL		\$ 3,935,026	\$ 1,462,793

CLINICAL PHARMACOLOGY**PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES**

DESTA, Z.	CYP2B6 Genetic Variations and Drug Interactions [NIH-NIGMS]	\$ 189,000	\$ 89,764
	Prediction of Drug-Drug Interactions [NIH-NIGMS]	-	-
FLOCKHART, D.	Indiana University Clinical Pharmacology Training Grant [NIH]	165,313	12,686
	Pharmacogenetics Research Network and Knowledge Base [NIH]	1,699,300	454,138
	Tamoxifen Biotransformation Pathway Pharmacogenomics [NIH / Mayo]	37,375	19,248
	Mechanisms of Variability in Breast Cancer Therapies: Role of microRNAs in Hepatic Drug Metabolism [DOD]	89,199	6,882
	Clinical Relevance of Cytochrome P450 Pharmacogenetics [NIH]	136,996	8,906
	Pharmacogenetics of Hormonal Therapy for Breast Cancer [NIH]	69,759	35,577
SKAAR, T.	A Population-based Pharmacogenomic Study of Tamoxifen and Aromatase Inhibitors in Women with Breast Cancer [NIH-NCI]	16,246	8,773

SOCIETIES, FOUNDATIONS, AND OTHER

SKAAR, T.	Targeting Indoleamine 2,3-Dioxygenase to Block Breast Cancer Metastasis [Komen Foundation]		
DESTA, Z.	Is R -(+) -Pantoprazole -13[C] a Better Substrate than (+/-) -Pantoprazole-13[C] to evaluate CYP2C19 Enzyme Activity? [Cambridge Isotope Laboratories]	-	-
FLOCKHART, D.	A Multicenter, Randomized, Clinical Trial Correlating the Effects of 24 Months of Exemestane or Letrozole on Surrogate Markers of Response with Aromatase Polymorphism [Novartis]	71,210	23,737
	A Multicenter, Randomized, Clinical Trial Correlating the Effects of 24 Months of Exemestane or Letrozole on Surrogate Markers of Response With Aromatase Polymorphism [Pfizer]	215,361	71,787
HALL, S.	Leverage of VitaCyte's Purified Tissue [VitaCyte]	4,636	-

DIVISION SUMMARY: CLINICAL PHARMACOLOGY

PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL		\$ 2,403,188	\$ 635,974
VETERANS AFFAIRS TOTAL		-	-
SOCIETIES, FOUNDATIONS, AND OTHER TOTAL		-	-
INDUSTRY TOTAL		291,207	95,524
TOTAL		\$ 2,694,395	\$ 731,498

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
ENDOCRINOLOGY AND METABOLISM			
PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES			
BICE, P.	Identification of Genes for Alcohol Preference in Non-Inbred Rats and Mice [NIH-NIAAA]	\$ 218,475	\$ 111,422
ECONS, M.	Genetic Determinants of Bone Fragility [NIH]	1,209,919	598,338
	ECONS (Endocrinology)	\$ 308,255	
	FOROUD (Medical and Molecular Genetics)	209,650	
	HUI (Biostatistics)	179,915	
	PEACOCK (Endocrinology)	309,828	
	TURNER (Engineering and Technology)	202,271	
	Creation of ADoz Mouse [NIH]	—	—
	Clinical and Genetic Analysis of ADHR [NIH-NIAMS]	—	—
LIANG, T.	Gene Identification for an Alcohol Preference QTL in Rat [NIH-NIAAA]	213,341	107,737
MARRERO, D.	Translating Research into Action for Diabetes [CDC]	221,786	95,694
	Post DPP Follow-up Study [NIH]	296,000	159,840
MOLINA, C.	Transcriptional Regulation of the Insulin Gene in Health and Disease [NIH-NIDDK]	184,078	14,332
VETERANS AFFAIRS			
LTEIF, A.	465-FS The Veterans Administration Diabetes Trial Follow Up Study [VA]	31,122	—
PRATT, J. H.	Interdependency of Na ⁺ Reabsorptive Sites in Hypertension [VA]	148,400	—
WALSH, J.	Regulation of Vascular Diacylglycerol Kinase [VA]	104,700	—
	Optimizing Glycemic Control of Hospitalized Stroke Patients [VA]	65,842	—
SOCIETIES, FOUNDATIONS, AND OTHER			
CONSIDINE, R.	Pre-ingestive Influences on Solid and Fluid Food Intake in Lean and Obese Adults [Purdue]	55,060	29,732
MATHER, K.	Dual Actions of Insulin in the Regulation of Endothelin Activity in Vivo in Humans [ADA]	150,000	22,500
	Targeting Inflammation in Type 2 Diabetes: Clinical Trial Using Salsalate (TINSAL) [Joslin Diabetes Center]	64,492	16,768
	Sandra Daugherty Award [Daugherty Foundation]	31,450	—
PEACOCK, M.	Botanical Center for Age-related Diseases [Purdue University]	17,497	9,448
	Influence of Dairy on Bone Mass Accrual, Bone Size and Fat and Lean Body Mass in Early Pubertal Girls: A Metabolic Study and a Randomized Controlled Trial [Purdue University]	—	—
	Vitamin D in Older Subjects [Creighton University]	179,344	96,846
ROACH, P.	Communicating Cardiovascular and Stroke Risk to Diabetes Patients and Their Physicians to Improve Treatment and Outcomes [AHA]	139,499	10,501
	Communicating Health Information to Hispanic Patients with Type 2 Diabetes using Computer Technology [Robert Wood Johnson Foundation]	229,317	27,518
INDUSTRY			
ECONS, M.	The Effect of Teriparatide Compared with Risedronate on Back Pain in Postmenopausal Women with Osteoporotic Vertebral Fractures [Lilly]	10,689	904
IMEL, E.	Forteo Observational Study [Lilly]	703	—
JOHNSTON, C.	A Phase III, Randomized, Placebo-controlled Clinical Trial to Assess the Safety and Efficacy of Odanacatib (MK-o822) to Reduce the Risk of Fracture in Osteoporotic Postmenopausal Women Treated With Vitamin D and Calcium [Merck]	23,469	15,959
	Phase IIa Randomized, Double-blind, Placebo-controlled Study to Evaluate the Effects of Odanacatib (MK-o822) on Bone Mineral Density and Overall Safety in the Treatment of Osteoporosis in Postmenopausal Women Previously Treated with Alendronate [Merck]	9,336	731
	A 3-year, Multicenter, Double-blind, Randomized, Placebo-controlled Extension to CZOL446H2301E1 to Evaluate the Efficacy and Long-term Safety of 6 and 9 years Zoledronic Acid Treatment of Postmenopausal Women with Osteoporosis [Novartis]	4,000	—
	A 3-year, Double-blind Extension to CZOL446H2301 to Evaluate the Long-term Safety and Efficacy of Zoledronic Acid in the Treatment of Osteoporosis in Postmenopausal Women Taking Calcium and Vitamin D [Novartis]	13,927	4,829

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Endocrinology and Metabolism - Industry (cont.)</i>			
JUNEJA, R.	Clinical Retrospective TGC Patient Profile Study [Luminous Medical]	\$ 19,844	\$ 1,118
	Improving Hospital-wide Blood Glucose Control within Indiana University and Methodist Hospitals: A Retrospective Study of Diabetes Care and Outcomes after Treatment under the SUGAR Program [Sanofi]	100,218	19,053
	A Pivotal, Long-term, Open-label, Parallel Study of the Efficacy and Safety of Human Insulin Inhalation Powder in Patients with Type 1 Diabetes Mellitus [Lilly]	21,580	2,413
	Indiana University and Clarian Health Partners Systematic Utilization of Glucose Assessment and Response (SUGAR) Program for Improvement in Inpatient Management of Elevated Blood Sugars From the ICU to the Wards [Epsilon Group]	65,492	10,876
MATHER, K.	Liraglutide Effect and Action in Diabetes (LEAD 3): Effect on Glycemic Control of Liraglutide vs. Glimepiride in Type 2 Diabetes [Novo Nordisk]	44,601	5,965
	A Double-blind, Placebo-controlled, Randomized, Parallel, Clinical Trial to Study the Effect of Losartan Potassium on Endothelial Dysfunction and Insulin Resistance in Obese Patients with Impaired Fasting Glucose [Merck]	121,461	13,439
	Treat-to-Target Comparison of Two Basal Insulin Analogs (Insulin Lispro Protamine Suspension and Insulin Detemir) in Basal Therapy for Patients with Type 2 Diabetes Mellitus [Lilly]	6,444	1,623
	A Pilot Study of the Efficacy and Safety of BMX-512148 on Glycemic Control in Participants with Type 2 Diabetes Treated Aggressively but not Controlled on Combination Antihyperglycemic Therapy with Metformin and/or Thiazolidinedione [Bristol-Myers Squibb]	2,862	1,222
PEACOCK, M.	A Multicenter, Randomized, Open-label Study to Assess the Immunogenicity and Safety of Denosumab in Pre-filled Syringe Compared to Vial in Subjects with Low Bone Mineral Density [Amgen]	–	–
	An Open-label, Single-arm Extension Study to Evaluate the Long-term Safety of Denosumab Administration in Postmenopausal Women with Low Bone Mineral Density [Amgen]	20,823	2,200
	A Randomized, Double-blind Study to Evaluate Denosumab in the Prevention of Postmenopausal Osteoporosis (DEFEND Trial) [Amgen]	22,549	6,379
	A Phase II, Double-blind, Randomized, Placebo-controlled, Daily-dose, Proof of Concept Study of a Vitamin D Compound (DP001 Soft Gel Capsules) in Postmenopausal Women with Osteopenia [Deltanoid]	26,243	10,118
	A Randomized Study to Evaluate Safety and Efficacy of Transitioning Therapy from Alendronate to Denosumab (AMG162) in Postmenopausal Women with Low Bone Mineral Density [Amgen]	–	–
	A One-year, Parallel, Placebo-controlled, Double-blind, Randomized Study to Assess the Effect of Monthly 150 mg Oral Ibandronate Dosing vs. Placebo on Bone Quality and Strength at the Proximal Femur in Women With Osteoporosis [GlaxoSmithKline]	–	–
	A Phase I, Double-blind, Randomized, Placebo-controlled, Single-dose, Dose-escalation Study of KRN23 in X-linked Hypophosphatemia Patients [Kirin]	62,815	8,434
	A Randomized, Double-blind Study to Compare the Efficacy of Treatment with Denosumab vs. Alendronate Sodium in Postmenopausal Women with Low Bone Mineral Density [Amgen]	–	–
DIVISION SUMMARY: ENDOCRINOLOGY AND METABOLISM			
	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL	\$ 2,343,599	\$ 1,087,363
	VETERANS AFFAIRS TOTAL	350,064	–
	SOCIETIES, FOUNDATIONS, AND OTHER TOTAL	866,659	213,313
	INDUSTRY TOTAL	577,056	105,263
TOTAL		\$ 4,137,378	\$ 1,405,939

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
GASTROENTEROLOGY/HEPATOLOGY			
PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES			
CHALASANI, N.	Collaborative Clinical Research on Hepatotoxicity [NIH-NIDDK]	\$ 168,236	\$ 86,280
	Patient-oriented Research of Liver Disease [NIH-NIDDK]	129,025	7,362
	Collaborative Clinical Research on Non-alcoholic Steatohepatitis [NIH-NIDDK]	422,526	189,743
	Non-alcoholic Steatohepatitis and Cytochrome P450 Enzymes [NIH-NIDDK]	167,049	77,105
CRABB, D.	Center on Genetic Determinants of Alcohol Ingestion [NIH-NIAAA]	1,074,506	547,998
	Effects of Ethanol on AMP Kinase Signaling [NIH-NIAAA]	213,341	103,254
	The Role of IL-6 in the Pathogenesis of Alcoholic Steatosis [NIH-NIAAA]	55,778	–
	Center on Genetic Determinants of Alcohol Ingestion (Supplement) [NIH-NIAAA]	91,444	49,374
FOGEL, E.	Evaluating Predictor Intervention in Sphincter of Oddi Dysfunction [NIH / Medical University of South Carolina]	84,127	13,664
HELPER, D.	A Phase III, Multicenter, Placebo-controlled, Randomized, Double-blind Study to Evaluate the Safety and Efficacy of Prochymal Intravenous Infusion for the Re-induction of Remission [NIH / Duke University]	22,787	2,963
	A Phase III, Multicenter, Placebo-controlled, Randomized, Double-blind Retreatment Study to Evaluate the Safety and Efficacy of Prochymal Intravenous Infusion for the Re-induction of Remission [NIH / Duke University]	17,542	1,227
IMPERIALE, T.	Quantifying Risk to Target Screening Colonoscopy [NIH-NCI]	405,802	75,107
	Using Risk to Tailor Management of Digestive Diseases [NIH-NIDDK]	117,091	5,067
LIANGPUNSAKUL, S.	Effect of Ethanol on Kupffer Cell/Hepatocyte Interactions and Lipid Metabolism [NIH-NIAAA]	122,703	6,835
LUMENG, L.	Rodents with Genetic Differences in Alcohol Preference [NIH-NIAAA]	263,931	133,331
	Studies to Validate the Multivariate Concentric Field Test (Supplement to AA015512) [NIH-NIAAA]	74,699	23,019
REX, D.	Novel Biophotonic Methodology for Colon Cancer Screening [NIH / Northwestern University]	27,748	14,151
	Improving Colonoscopy Quality Through Automated Monitoring [NIH / Mayo Clinic]	33,556	17,114
SHERMAN, S.	North American Pancreatitis Study 2 - Continuation [NIH / University of Pittsburgh]	10,600	5,459
SOCIETIES, FOUNDATIONS, AND OTHER			
CHALASANI, N.	Effect of Midodrine Administration on the Response to Furosemide in Patients with Cirrhotic Ascites [ACG]	–	–
KAHI, C.	Chromocolonoscopy for the Detection of Flat Adenomas in Routine Colorectal Cancer Screening [ACG]	–	–
	Prevention of Colorectal Cancer in Elders: A Case-Control Study [AGA]	35,000	–
LIANGPUNSAKUL, S.	Protein Biomarkers in Hepatocellular Carcinoma [Clarian Health Partners]	–	–
	Early Career Development Award [Central Society for Clinical Research]	10,000	–
AL-HADDAD, M.	Comparison of Intra-operative Complication, Postoperative Pain and Surgical Stress Following Open, Laparoscopic, and NOTES Ovariectomy [ASGE]	–	–
	Intraductal Papillary Mucinous Neoplasms and the Role of new Diagnostic Techniques: An Updated Management Proposal [ASGE]	75,000	–
VUPPALANCHI, R.	Drug Metabolism and Response in Bariatric Surgery Recipients [Clarian Health Partners]	–	–
INDUSTRY			
CHALASANI, N.	The Early use of Sanvar with Endoscopy Treatment for the Control of Acute Variceal Bleeding due to Portal Hypertension [Debiovision]	26,500	6,625
	A Double-blind, Randomized, Placebo-controlled, Parallel Group Study of Rimonabant 20 mg Daily for the Treatment of Non-Diabetic Patients with Non-Alcoholic Steatohepatitis [Sanofi-Aventis]	11,840	2,960
	A Phase II, Randomized, Double-blind, Parallel-group, Placebo-controlled Study to Investigate the Safety, Tolerability, Pharmacokinetics and Activity of GS-9450 in Adults with Non-Alcoholic Steatohepatitis [Gilead Sciences]	7,727	1,932
	The Early Use of Sanvar with Endoscopy Treatment for the Control of Acute Variceal Bleeding due to Portal Hypertension (Supplement) [Debiovision]	26,500	6,625
CHIOREAN, M.	A Phase IV, Multicenter, Open-label Study to Assess Clinical Recurrence Related to Compliance with Treatment with MMX Mesalamine 2.4g/day Given Once Daily for the Maintenance of Quiescent Ulcerative Colitis [Shire]	–	–

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Gastroenterology/Hepatology- Industry (cont.)</i>			
CHIOREAN, M.	A Multicenter, Investigator-blinded, Randomized, 12-month, Parallel-group, Non-inferiority Study to Compare the Efficacy of 1.6 to 2.4g Asacol Therapy QD Versus Divided Dose (BID) in the Maintenance of Remission of Ulcerative Colitis [United BioSource]	\$ 12,720	\$ 3,180
	Spirus National Discovery SB Study [Spirus]	21,349	5,338
	A Randomized, Double-blind, Placebo-controlled, Parallel Group, Multicenter Study to Investigate the Safety and Efficacy of CP-690,550 in Subjects with Moderate to Severe Crohn's Disease [Icon Clinical Research]	4,750	1,188
	A Phase IIb, Randomized, Double-blind, Placebo-controlled Study for the Treatment of Active Celiac Disease with AT-1001 [Alba Therapeutics]	7,205	1,801
	A Randomized, Double-blind, Placebo-controlled, Parallel Group, Multicenter Study to Investigate the Safety and Efficacy of CP-690,550 in Subjects with Moderate to Severe Crohn's Disease (Supplement) [Icon Clinical Research]	4,750	1,188
DEWITT, J.	A Randomized Phase II/III Study of TNF-erade Biologic With 5-FU and Radiation Therapy For First-line Treatment of Unresectable Locally Advanced Pancreatic Cancer [GenVec]	–	–
	A Randomized Study of the Efficacy and Safety of OncoGel Treatment as an Adjunctive Therapy to Systemic Chemotherapy and Concurrent External Beam Radiation Prior to Surgery in Subjects with Localized or Loco-regional Esophageal Cancer [Protherics]	14,035	3,509
HELPER, D.	A Phase IIIb Multicenter, Open-label Induction and Double-blind Comparison of Two Maintenance Schedules Evaluating Clinical Benefit and Tolerability of Certolizumab Pegol, a Pegylated Fab Fragment of Humanized Antibody to Tumor Necrosis Factor [Kendle International]	–	–
	A Multicenter, Randomized, Double-blind, Placebo-controlled Study of the Human Anti-TNF Monoclonal Antibody Adalimumab for the Induction and Maintenance of Clinical Remission in Subjects with Moderately to Severely Active Ulcerative Colitis [Abbott Labs]	–	–
	Open-label, Long-term, Clinical Trial Evaluating Efficacy and Safety of Chronic Therapy with Certolizumab Pegol, A Pegylated Fab Fragment of Humanized Antibody to Tumor Necrosis Factor Alpha in Patient Suffering from Crohn's Disease [Kendle International]	1,692	423
	A Phase II / III, Randomized, Double-blind, Placebo-controlled, Multicenter Study of Visilizumab in Subjects with Intravenous Steroid Refractory Ulcerative Colitis [Protein Design Labs]	–	–
	A 5-Year Registry Study of Humira (Adalimumab) in Subjects with Moderately to Severely Active Crohn's Disease [Abbott Labs]	2,000	500
	A Multicenter, Open-label Study of Human Anti-TNF Monoclonal Antibody Adalimumab to Evaluate the Long-term Safety and Tolerability of Repeated Administration of Adalimumab in Subjects With Crohn's Disease [Abbott]	520	130
KESSLER, W.	A Prospective Efficacy Evaluation of the Third Eye Retroscope Auxiliary Imaging System [Aventis]	9,530	2,382
Kwo, P.	Long-term Follow-up Protocol to Assess Subjects After Completing the 24 Weeks of Follow-up in a SPRI Clinical Trial for the Treatment of Chronic Hepatitis C [Schering-Plough]	7,222	1,805
	Efficacy and Safety of Daily Infergen/Ribavirin in Patients with Chronic Hepatitis C Virus Genotype 1 Infection Who Were Partial Responders after Peginterferon Alfa/Ribavirin Therapy [Valeant]	–	–
	A Phase 1 Study to Assess the Safety and Pharmacokinetics of Telaprevir (VX-950) in Subjects with Moderate and Severe Degrees of Hepatic Impairment [Vertex]	2,725	681
	Comparison of Weight-based Doses of Taribavirin Combined With Peginterferon Alfa-2b versus Ribavirin Combined with Peginterferon Alfa-2b in Therapy-naive Patients with Chronic Hepatitis C Virus Genotype 1 Infection [Valeant]	–	–
	Assessment of Biomarkers in Liver Injury [Celgene]	37,458	9,364
	A Phase Ib Randomized, Placebo-controlled Clinical Trial to Study the Safety and Efficacy of MK-7009 in Hepatitis C Infected Patients [Merck]	6,724	1,681
	PEG-Intron Maintenance Therapy vs. an Untreated Control Group for Prevention of Progression of Fibrosis in Adult Subjects with CHC with Hepatic Fibrosis (METAVIR F2 or F3) who Failed Therapy with PEG-Intron Plus Rebetol [Schering-Plough]	–	–
	PEG-Intron as Maintenance Therapy vs. an Untreated Control Group in Adult Subjects with Compensated Cirrhosis (METAVIR F4), Secondary to Chronic Hepatitis C, who Have Failed to Respond to Therapy with any Alpha Interferon Plus Ribavirin [Schering-Plough]	9,388	2,347
	Pegylated Interferon Alfa-2b and Ribavirin after Orthotopic Liver Transplantation: Efficacy and Safety in Hepatitis C Recurrence Therapy [Integrated Therapeutics]	–	–
	Comparison of PEG-Intron 1.5 mcg/kg/wk Plus Rebetol vs. PEG-Intron 1 mcg/kg/wk Plus Rebetol vs. Pegasys 180 mcg/wk Plus Copegus in Previously Untreated Adult Subjects With Chronic Hepatitis C Infected With Genotype 1 [Schering-Plough]	–	–
	A Randomized, Placebo-controlled, Multicenter Study to Assess the Efficacy and Safety of Eltrombopag in Thrombocytopenic Subjects with Hepatitis C Virus Infection who are Otherwise Eligible to Initiate Antiviral Therapy [GlaxoSmithKline]	40,121	10,031

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Gastroenterology/Hepatology- Industry (cont.)</i>			
Kwo, P	A Phase III Study of 2 Dose Regimens of Telaprevir in Combination with Peginterferon Alfa-2a (Pegasys) and Ribavirin (Copegus) in Treatment-naïve Subjects with Genotype 1 Chronic Hepatitis C [Vertex]	\$ 64,043	\$ 16,011
	A Phase III, Randomized, Multicenter, Open-label Study to Evaluate the Efficacy, Safety, and Tolerability of Albumin Interferon Alfa-2b (alb-IFN) in Combination with Ribavirin Compared with Peginterferon Alfa-2a (PEGASYS or PEG-IFN2a) [Duke-Human Genome Sciences]	6,885	1,721
	A Randomized, Phase IIb Clinical Trial to Evaluate the Safety and Antiviral Activity of NM283 and the Combination of Pegylated Interferon plus NM 283 in Patients with Chronic Hepatitis C Who Have Previously Failed to Respond to Standard Therapy [Quintiles]	—	—
	A Double-blind, Randomized, Placebo-controlled, Multicenter, Phase II Parallel Dose-ranging Study to Assess the Antifibrotic Activity of G1262570 in Chronic Hepatitis C Subjects with Hepatic Fibrosis [GlaxoSmithKline]	16,196	4,049
	A Phase II Study of Telaprevir (VX-950) in Combination with Peginterferon Alfa-2a (Pegasys) and Ribavirin (Copegus) in Subjects with Genotype 1 Hepatitis C Who Have Not Achieved Sustained Viral Response with a Prior Course of Interferon-Based Therapy [Vertex]	7,590	1,898
	A Phase II Study of VX-950 in Combination with Peginterferon Alfa-2a (Pegasys) With or Without Ribavirin (Copegus) in Subjects with Hepatitis C [Duke Clinical Research Institute]	—	—
	A Rollover Protocol of Telaprevir (VX-950) in Combination with Peginterferon Alfa-2a (Pegasys) and Ribavirin (Copegus) in Subjects Enrolled in the Control Group (Group A) of Study VX06-950-106 Who do not Achieve or Maintain an Undetectable HCV RNA [Vertex]	—	—
	A Safety and Efficacy Study of SCH 503034 in Previously Untreated Subjects with Chronic Hepatitis C Infected with Genotype 1 [Schering-Plough]	19,943	1,986
	Long-term Follow-up Protocol to Assess Subjects in a Phase II or III Clinical Trial in which SCH 503034 was Administered for the Treatment of Chronic Hepatitis C [Schering-Plough]	7,222	1,805
	TPL104054, a Randomized, Double-blind, Placebo-controlled, Multicenter Study to Evaluate the Safety and Efficacy of Eltrombopag to Reduce the Need for Platelet Transfusion in Thrombocytopenic Subjects with Chronic Liver Disease Undergoing Elective Invasive Procedures [GlaxoSmithKline]	19,281	4,820
	A Phase III Randomized, Double-blind, Placebo-controlled Study of Sorafenib as Adjuvant Treatment or Hepatocellular Carcinoma after Surgical Resection or Local Ablation (STORM) [Covance]	5,600	1,400
	A Randomized Study of Stopping Treatment at 24 Weeks or Continuing Treatment to 48 Weeks in Treatment-naïve Subjects with Genotype 1 Chronic Hepatitis C who Achieve an Extended Rapid Viral Response while Receiving Telaprevir, Peginterferon [Vertex]	19,374	4,844
	A Phase III Safety and Efficacy Study of Boceprevir in Subjects with Chronic Hepatitis C Genotype 1 Who Failed Prior Treatment with Peginterferon/Ribavirin [Schering-Plough]	76,968	19,242
	A Phase III, Safety and Efficacy Study of Boceprevir in Previously Untreated Subjects with Chronic Hepatitis C Genotype 1 [Schering-Plough]	21,683	5,421
	A Randomized, Double-blind, Placebo-controlled, Phase III Trial of 2 Regimens of Telaprevir (With and Without Delayed Start) Combined with Pegylated Interferon Alfa-2a (Pegasys) and Ribavirin (Copegus) in Subjects with Chronic Genotype 1 Hepatitis C [Tibotec]	4,889	1,222
	A Study of SCH 900518 in Previously Untreated Subjects with Genotype 1 Chronic Hepatitis C [Schering-Plough]	8,000	2,000
	A Blinded, Randomized, Placebo-controlled Study to Evaluate the Safety, Tolerability, Pharmacokinetics, and Antiviral Activity of Multiple Doses of ABT-333 Alone and in Combination with Pegylated Interferon and Riboviring in Subjects with Genotype 1 Chronic Hepatitis C Virus Infection [Abbott]	2,800	700
	P05685-14, A Phase III Safety and Efficacy Study of Boceprevir in Combination with Peginterferon Alfa-2a and Ribavirin in Subjects with Chronic Hepatitis C Genotype 1 who Failed Prior Treatment With Peginterferon/Ribavirin [Schering-Plough]	31,788	7,947
	A Follow-up Study to Assess the Evolution and Persistence of Resistance to ABT-333 after Discontinuation of ABT-333 Therapy in HCV Genotype-1 Infected Subjects who Participated in Phase I, II, or III ABT-333 Clinical Studies [Abbott]	800	200
LEHMAN, G.	A Study to Investigate the Effect of Two Doses of CREON on Maldigestion in Patients with Exocrine Pancreatic Insufficiency Due to Chronic Pancreatitis [Quintiles]	27,404	6,851
	An Open-label Clinical Study Evaluating the Long Term Safety of ALTU-135 in the Treatment of Patients with Exocrine Pancreatic Insufficiency due to Chronic Pancreatitis of Pancreatectomy [Altus]	13,478	3,370
	Medigus SRS Device for Endoscopic FundOplication Study [Medigus]	190,341	47,585
	A Study to Investigate the Effect of Two Doses of CREON on Maldigestion in Patients with Exocrine Pancreatic Insufficiency Due to Chronic Pancreatitis (Supplement) [Quintiles]	27,404	6,851
LIANGPUNSAKUL, S.	Randomized, Multicenter, Double-blinded, Phase IV Study Evaluating the Efficacy (as Measured by Sustained Virological Response) and Safety of 360 ¼µg Induction Dosing of Pegasys in Combination with Higher Copegus Doses in Treatment-naïve Patients [Hoffmann-La Roche]	1,768	442

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Gastroenterology/Hepatology- Industry (cont.)</i>			
LIANGPUNSAKUL, S.	A Prospective, Randomized, Multicenter, Open-label, Comparative Safety and Efficacy Study of Prophylactically Administered Pegylated Interferon Alfa-2a (PegasysR) Plus Ribavirin vs. No Prophylaxis Following Liver Transplantation [Roche]	\$ -	\$ -
McHENRY, L.	A Retrospective Clinical Evaluation of the Removability of the GORE VIABIL Endoprosthesis from Malignant Pancreato-biliary Strictures [WL GORE Associates]	-	-
REX, D.	Evaluation of the PillCam Colon Capsule Endoscopy in the Visualization of the Colon [Given Imaging]	1,600	400
	A Safety and Efficacy Evaluation of BLI850 vs. MoviPrep as Bowel Cleansing Preparations in Adult Subjects [Braintree Labs]	11,344	2,836
	Evaluation of the PillCam Colon Capsule Endoscopy Preparation and Procedure [Given Imaging]	1,600	400
	A Safety and Efficacy Evaluation of BLI800 Oral Sulfate Solution vs. Osmoprep as Split-dose Bowel Cleansing Preparations in Adult Subjects [Braintree Labs]	1,600	400
SHEN, H.	Randomized, Observational Study of Entecavir to Assess Long-term Outcomes Associated with Nucleoside/Nucleotide Monotherapy for Patients with Chronic HBV Infection: The REALM Study [Bristol-Myers Squibb]	3,153	788
	A Phase IIIb Randomized, Double-blind, Double-dummy Study Evaluating the Antiviral Efficacy, Safety, and Tolerability of Tenofovir Disoproxil Fumarate (DF) Monotherapy vs. Emtricitabine Plus Tenofovir DF Fixed-dose Combination Therapy in Subjects with Chronic Hepatitis B who are Resistant to Lamivudine [Gilead Sciences]	2,400	600
SHERMAN, S.	A Phase III Study to Demonstrate the Efficacy and Safety of RG1068 - Enhanced Magnetic Resonance Cholangiopancreatography in the Evaluation of Subjects with a History of Acute or Acute Recurrent Pancreatitis [Repligen]	109,440	27,360
	A Clinical Registry to Assess Performance and Clinical Utility of the Spyglass Direct Visualization System [Boston Scientific]	4,800	1,200
VINAYEK, R.	Multicenter, Randomized, Open-label, Controlled Study of the Effect of Treatment with Once Weekly Pegasys Plus Daily Copegus With or Without Concomitant Pioglitazone (Actos) on Early Viral Kinetics in Treatment-naïve Patients with Chronic Hepatitis C [Roche Laboratories]	2,826	707
VUPPALANCHI, R.	A Double-blind, Randomized, Placebo-controlled, Parallel Group Study of Rimonabant 20 mg Daily for the Treatment of Type 2 Diabetic Patients with Non-Alcoholic Steatohepatitis [Sanofi-Aventis]	5,200	1,300

DIVISION SUMMARY: GASTROENTEROLOGY/HEPATOLOGY

PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL	\$ 3,502,491	\$1,359,053
VETERANS AFFAIRS TOTAL	-	-
SOCIETIES, FOUNDATIONS, AND OTHER TOTAL	120,000	-
INDUSTRY TOTAL	972,176	240,046
TOTAL	\$ 4,594,667	\$1,599,099

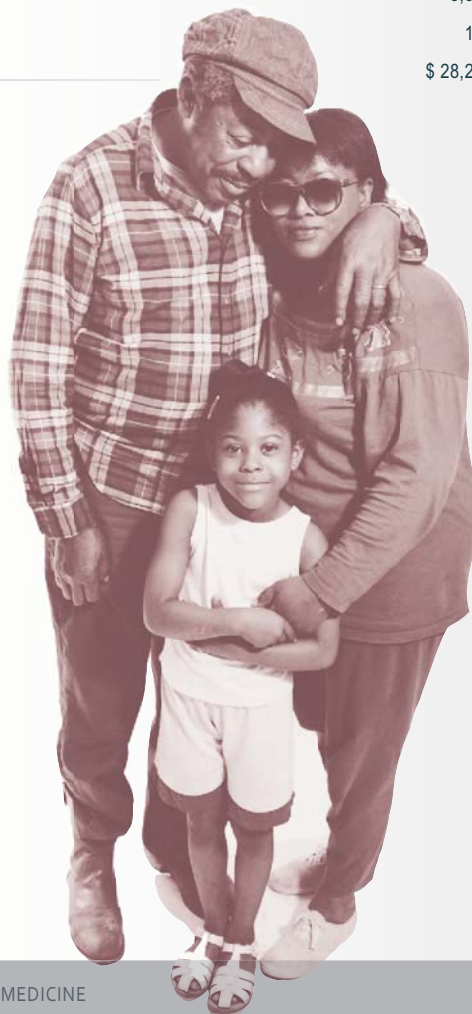
CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
GENERAL INTERNAL MEDICINE AND GERIATRICS			
PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES			
ACKERMANN, R.	Translating the Diabetes Prevention Program into the Community: The YMCA Model [NIH-NIDDK]	\$ –	\$ –
	Feasibility of a Partnered Approach to Prevent Diabetes [NIH-NIDDK]	–	–
	Indiana Clinical and Translational Science Institute - Community Health [NIH-NCRR]	578,450	
	Primary Care Community Partnerships to Prevent Diabetes [NIH-NIDDK]	440,062	133,888
BOUSTANI, M.	Enhancing Care for Hospitalized Older Adults with Cognitive Impairment [NIH-NIA]	182,015	6,513
	Alzheimer Screening in Primary Care: PRISM-PC Study [NIH-NIA]	245,044	35,596
BOWMAN, E.	Creation of a Hospital-to-Home Clinical and Teaching Model [HRSA-GACA]	65,628	–
BRAITSTEIN, P.	The Role of Traditional Medicine in the Management of HIV and AIDS in Western Kenya [Moi University/NIH]	4,807	385
CALLAHAN, C.	Patient-oriented Research To Improve Geriatric Care [NIH]	117,720	7,060
	Translational Research On Chronic Disease Self-Management [NIH-NIA]	186,690	84,729
	Indianapolis Interventions and Practice Research Infrastructure Program [NIH-NIMH]	534,837	99,127
CLARK, D.	Self-management Barriers & Resources Among Vulnerable Elders [NIH-NIA]	–	–
	Improving the Reach of a CBPR Developed Obesity Program Among Disadvantaged Women [NIH-NIDDK]	259,041	112,221
DOEBBELING, B.	Healthcare Associated Infection Initiative Assessment Program [AHRQ]	167,858	32,142
	Testing Spread and Implementation of Novel MRSA-reducing Practices [AHRQ]	523,011	76,989
	Cancer Care Engineering Project 2: System Redesign [Purdue University]	85,661	–
	Implementing and Improving the Integration of Decision Support into Outpatient Clinical Workflow [AHRQ]	173,882	23,430
EINTERZ, R.	AMPATH, Controlling and Preventing HIV/AIDS in Western Kenya [USAID]	11,646,364	367,060
KREBS, E.	PTSD and Pain Comorbidity in Veterans [DOD]	148,998	49,961
KROENKE, K.	Telecare Management of Pain and Depression in Cancer [NIH-NCI]	402,846	68,859
	Knee Arthroplasty Cognitive Behavioral Intervention: The (KABIC) Trial [Virginia Commonwealth U/NIH-NIAAMS]	13,500	7,290
	Indiana Clinical and Translational Science Institute- Research, Education, Training & Career [NIH-NCRR]	1,133,453	–
	Stepped Care for Depression and Musculoskeletal Pain & Supplement [NIH-NIMH]	–	–
MESLIN, E.	Indiana University-Moi University Academic Research Ethics Partnership [NIH-FIC]	222,320	12,680
MILLER, D.	Environmental and Policy Changes to Support Physical Activity: Translation of Evidence-based Approaches within African American Communities [St. Louis University/NIH]	39,741	20,268
	Physical Frailty in Urban African Americans [NIH-NIA]	567,605	39,766
OVERHAGE, J. M.	Value of Health Information Exchange in Ambulatory Care [AHRQ]	–	–
	An Evolving Statewide Indiana Information Infrastructure [AHRQ]	606,786	143,214
	Indiana Clinical and Translational Science Institute- Biomedical Informatics [NIH-NCRR]	462,257	–
	I3: The Indiana IAIMS Initiative [NIH-NLM]	–	–
	National Health Information Network Trial Implementation [DHHS]	747,285	164,424
	Accelerating Public Health Situational Awareness Through Health Information Exchanges [CDC]	–	–
SACHS, G.	Optimal Prevention & Treatment In Medically Complex Alzheimer Patients [AHRQ]	86,781	46,862
SCHUBERT, C.	Implementation of Comprehensive Geriatric Assessments In Older Adults with Cancer [HRSA- GACA]	69,436	–
SIDLE, J.	Alcohol & HIV in Kenya: Feasibility of a Peer-led Alcohol Behavior Intervention [Yale University / NIH-NIAAA]	91,415	3,107
SIMONAITIS, L.	Improving Quality Through Health IT: Testing the Feasibility and Assessing the Impact of Using Existing Health IT Infrastructure for Better Care Delivery [AHRQ]	146,912	53,087
TIERNEY, W.	Electronic Medical Records to Improve Patient Care & Public Health in Rural Kenya [CDC]	356,844	92,669
VREEMAN, D.	Creating an Indiana-Ohio Center for Traumatic Amputation Rehabilitation Research [Ohio State University / DOD]	121,272	62,455
WERE, M.	Post Doc Fellowship Award from CTSI [NIH-NCRR]	77,173	–

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>General Internal Medicine and Geriatrics - Public Health Service and Other Federal Agencies (cont.)</i>			
WEINER, M.	Evaluating Community-based Long-term Care for Medicaid Dementia Patients [Purdue University]	\$ 10,909	\$ 1,091
	Recommendations of Inpatient Geriatrics Consultations [NIH-NIA]	–	–
VETERANS AFFAIRS			
BAIR, M.	Care Management for the Effective Use of Opioids [VA Career Development Award]	200,517	–
	Outcomes and Correlates of Suicidal Ideation in OEF/OIF Veterans [VA]	54,800	–
	Evaluation of Stepped Care for Chronic Pain in Iraq/Afghanistan Veterans [VA]	251,541	–
BRAVATA, D.	Diagnosis and Treatment of Sleep Apnea in Cerebrovascular Disease [VA]	89,159	–
DAMUSH, T.	Stop Tobacco-Attributable Risk after Stroke [VA]	73,272	–
	Adapting Tools to Implement Stroke Risk Management to Veterans [VA]	132,706	–
DOEBBELING, B.	Center of Excellence on Implementing Evidence Based Practice [VA]	910,000	–
	VHA Postdoctoral Fellowship Program in Medical Informatics [VA]	42,000	–
	Associated Health Postdoctoral Fellowship in Health Services Research and Development [VA]	42,000	–
	Consortium for Healthcare Informatics Research [VA]	88,950	–
FRANKEL, R.	Improving Self Management Through Facilitated Patient-Physician Communication [VA]	50,175	–
HAGGSTROM, D.	Developing Validated Algorithms to Identify CRC in VA Databases [VA]	20,500	–
	Colorectal Cancer Survivor Surveillance Care and Personal Health Records [VA]	167,700	–
KREBS, E.	Women Veterans Cohort Study Phase 2 [VA]	80,500	–
	Improving the Quality and Safety of Opioid Prescribing in Primary Care [VA Career Development Award]	89,197	–
SOCIETIES, FOUNDATIONS, AND OTHER			
ACKERMANN, R.	Health Care Community Partnerships to Prevent Diabetes [RWJ]	100,000	–
ARLING, G.	Developing Comprehensive Dementia-specific Nursing Home Quality Indicators [Alzheimer Association]	90,826	9,083
	Minnesota DHS Nursing Home Project [University of Minnesota / MDHS]	39,790	20,490
CALLAHAN, C.	Center for Aging Research Support [Regenstrief Institute]	156,000	–
CLARK, D.	Fairbanks Program for Health Promotion [Fairbanks Foundation through Wishard Foundation]	55,000	–
COUNSELL, S.	Indiana University JAHF Center of Excellence in Geriatric Medicine [Hartford Foundation]	90,681	9,319
DOEBBELING, B.	Health Services Research Support [Regenstrief Institute]	96,000	–
EINTERZ, R.	The Indiana University-Moi University MTCT Plus Program [Columbia University / Johnson Foundation]	47,509	1,524
	Home-Based Counseling, Testing and Referral in Western Kenya [Abbott Foundation]	–	–
	Planning Grant to SEEP Network [Moi University]	3,079	246
	AMPATH 2009 [Abbott Foundation]	500,000	–
	Indiana-Kenya Partners Program [Health Foundation of Indianapolis]	23,511	–
FRANKEL, R.	The IC ₄ Research Program - Integrative Medicine, Communication, Compassion, and Chronic Care Research - IU School of Medicine Component [IU]	74,687	5,975
	Investigation to Determine the Extent of Integration of Clarian's Formal Values with the Lived Values as Perceived by Employees [Regenstrief Institute/Clarian Health]	12,028	3,903
HAGGSTROM, D.	Disparities in Access to Colorectal Cancer Follow-up Surveillance Care and Personal Health Records [Lance Armstrong Foundation]	112,250	11,225
KROENKE, K.	Research Support [Regenstrief Institute]	20,000	–
KROENKE, K. & BAIR, M.	IUPUI Signature Center for Assessment, Mechanisms and Management of Pain [IU]	100,000	–
INUI, T.	Medicaid Leadership Institute [Center for Health Care Strategies]	8,911	1,069
	Positive Choices [Indiana Comprehensive Health Institute]	46,500	23,715
	Research Support [Regenstrief Institute]	1,991,252	–
LOGIO, L.	Patient Safety in Resident Training [Clarian Health Partners]	–	–
MESLIN, E.	Bioethics Program in Ethical, Legal and Social Issues in Predictive Health Research [Fairbanks Foundation]	250,000	–
	Translating Ethics Advice into Practice: Public and Professional Outreach About Pandemic Flu Planning in Indiana [ISDH]	–	–

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>General Internal Medicine and Geriatrics- Societies, Foundations, and Other (cont.)</i>			
OVERHAGE, J.M.	Informatics Support [Regenstrief Institute]	\$ 585,000	\$ –
	INGEN II [Lilly Foundation]	500,000	–
	Medical Informatics Award [Regenstrief Foundation]	–	–
RYAN, M.	Peer Assessment of Clinical Training [Clarian Health Partners]	39,979	–
SACHS, G.	AD and Access to Palliative Care [Alzheimer Association]	89,021	8,902
	Indiana Palliative Excellence in Alzheimer Care Efforts [National Palliative Care Research Center]	70,000	7,000
SIDLE, J.	AMPATH Evaluation Program [PVF Foundation]	–	–
TIERNEY, W.	A Planning Grant to Develop the Global Biomedical and Health Informatics Fellowship Program Summary [American Medical Informatics Association]	22,321	2,679
	Regenstrief Institute Data Analysis Center [Regenstrief Foundation]	–	–
TORKE, A.	A Prospective, Observational Study of Surrogate Decision Making for Hospitalized Older Adults [AGS Foundation]	100,000	–
VREEMAN, D.	Creation, Maintenance and Distribution of Logical Observations Identifiers and Names and Codes [Regenstrief Institute]	95,162	51,388
WEINER, M.	Evaluating Community-based Long-term Care for Medicaid Dementia Patients [Purdue University]	10,909	1,091
INDUSTRY			
ACKERMANN, R.	Network Enhancement With Systems to help Providers get Involved in Novel Research [Westat]	67,871	32,128
TIERNEY, W. & WERE, M.	Impact of Using Nurses Instead of Clinicians to Care for Stable HIV-infected Patients [Tibotec]	84,615	9,402
DIVISION SUMMARY: GENERAL INTERNAL MEDICINE AND GERIATRICS			
	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL	\$ 20,516,603	\$ 1,744,873
	VETERANS AFFAIRS TOTAL	2,293,017	–
	SOCIETIES, FOUNDATIONS, AND OTHER TOTAL	5,330,416	157,609
	INDUSTRY TOTAL	152,486	41,530
TOTAL		\$ 28,292,522	\$ 1,944,012



PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
HEMATOLOGY/ONCOLOGY			
PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES			
ANTONY, A.	Nutritional Regulation of hnRNP-E1 and Related Genes [NIH]	\$ 190,000	\$ 96,900
FARAG, S.	QMS Technology to Deplete T Cell Alloreactivity [NIH-NCI]	–	–
HICKEY, R.	Development of a Breast Cancer Selective Therapeutic Agent [Department of Defense, US Army]	250,000	81,420
LOEHRER, P.	Eastern Cooperative Oncology Group [NIH-NCI]	218,566	111,579
MALKAS, L.	A Structure/Function Analysis of a Tumor Specific Protein [NIH-NCI]	190,000	97,850
MATEI, D.	A Low-Dose Decitabine Strategy for Restoring Ovarian Cancer Sensitivity [NIH/NCI]	225,000	116,397
MILLER, K.	MPA Revisited: A Phase II Study of Anti-Metastatic, Anti-Angiogenic Therapy in Postmenopausal Patients with Hormone Receptor Negative Breast Cancer [NIH-NCI]	–	–
ORSCHELL, C.	Multifaceted Interventions to Amplify HSC Engraftment [NIH-NHLBI]	237,045	122,078
	Medical Countermeasures Against Radiological Threats: Product Development Support Services [University of Maryland / NIH-NIAID]	1,111,539	571,863
ROBERTSON, M.	Phase III of Gemcitabine and Dexamethasone and Cisplatin Compared to Dexamethasone, Cytarabine and Cisplatin as Salvage Chemotherapy for Patients with Relapsed or Refractory Aggressive Histology Non-Hodgkin's Lymphoma [Queens University Kingston / NCI Canada]	–	–
	Mechanisms of STAT4 Deficiency in the Immune System of Cancer Patients [NIH-NCI]	171,000	76,357
SLEDGE, G.	Center of Excellence for Individualization of Therapy for Breast Cancer [Department of Defense, US Army]	1,064,838	128,000
SROUR, E.	Extrinsic Modulation of Hematopoietic Stem Cell Fate [NIH-NHLBI]	242,750	116,491
STORNILO, A.	A Phase III Randomized Study of Exemestane vs. Placebo in Postmenopausal Women at Increase Risk of Developing Breast Cancer [Queens University Kingston / NCI Canada]	4,100	1,597
TURCHI, J.	Recognition and Repair of Cisplatin-DNA Repair [NIH/NCI]	140,401	72,307
	Development of Methodologies for the Analysis of DNA Repair Capacity to Predict the Response to Platinum Based Therapies [NIH/NCI]	110,474	59,656
VETERANS AFFAIRS			
ANTONY, A.	Folate Receptor-Targeted Therapy for Cervical Cancer (Merit Review) [VA]	124,800	–
BOSWELL, S.	Oncogene Intervention into Hematopoietic Signaling (Merit Review) [VA]	150,000	–
MATEI, D.	Role of Tissue Transglutaminase in Ovarian Cancer (Merit Review) [VA]	128,750	–
SOCIETIES, FOUNDATIONS, AND OTHER			
CARDOSO, A.	Notch Modulates IL7-triggered STAT Signaling in Childhood T-cell Leukemia [St. Baldrick's Foundation]	50,000	–
CARNEY-DOEBBELING, C.	Contract services for Dr. Caroline Carney-Doebbeling [FSSA, Medicaid]	114,833	23,696
	Investigation of Best Practice Flow and Navigation for Colorectal Cancer Patients with Psychosocial Distress [Purdue University]	118,930	–
CRIFE, L.	Fostering Humanism in Clarian's Culture: A Professional Development Program [Clarian Health Partners]	–	–
FARAG, S.	A Phase I Study of SF1126 in Patients with Relapsed or Refractory Multiple Myeloma [Multiple Myeloma Research Foundation]	198,566	49,142
	Enhancing Cord Blood Stem Cell Engraftment by CD26 Inhibition in Patients with Hematological Cancers [V Foundation]	181,818	18,182
HAHN, N.	Prostate Cancer: Genetic Risk in African-Americans and Caucasians - Evaluation of Host Polymorphisms [Clarian Health Partners]	40,000	–
	Prostate Cancer Screening Pilot Program [Wishard Memorial Foundation]	–	–
HANNA, N.	Hoosier Oncology Group Chairperson [Hoosier Oncology Group]	66,664	–
HELFT, P.	Impact of Internet Information on Patients and Oncologists [American Cancer Society]	134,974	10,798
	Ethical Communication Skills for Surgery Residents [Clarian Health Partners]	40,000	–
HICKEY, R.	Evaluation of caPCNA as a Biomarker for the Detection of Cancer [CS Keys]	40,860	4,763
IVAN, M.	Roles of microRNAs in the Response to Hypoxia [Elsa Pardee Foundation]	42,770	10,693
MALKAS, L.	Preliminary Validation caPCNA as a Therapeutic Target [CS Keys]	–	–
	Targeted Peptidomimetic Evaluation [CSTX]	227,273	72,727
MATEI, D.	The Functional Role of PDGFR in Ovarian Carcinoma [American Cancer Society]	135,000	10,800

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Hematology/Oncology - Societies, Foundations, and Other (cont.)</i>			
MILLER, K.	Genomic and Proteomic Analysis of Docetaxel and Capecitabine as Primary Chemotherapy for Stage II-III Breast Cancer [Breast Cancer Research Foundation]	\$ 208,333	\$ 41,667
	EphA2 Induces Resistance to Tamoxifen and Provides a Novel Target for Therapy [Susan G. Komen Cancer Foundation]	—	—
SCHNEIDER, B.	Pharmacogenetics of Angiogenesis in Breast Cancer [The ASCO Foundation]	—	—
SLEDGE, G.	Angiogenesis as a Therapeutic Target in Breast Cancer [Breast Cancer Research Foundation]	208,333	41,667
	ECOG Breast Committee [Frontier Science Technology Research Foundation]	14,528	4,757
	Studies Directed Toward the Eradication of Brain Metastases of Breast Cancer [T.R.U.E. Research Foundation]	—	—
	Sledge Research Project [Walther Cancer Institute]	—	—
	Project 1: Examination of the Human Kinome for Novel Genome-specific Therapeutic Targets in Triple-negative Breast Cancer; and Project 2: Association of Genetic Variability with Receptor Activation of Tumor Angiogenesis Inhibitors [Komen]	160,000	40,000
	ASCO President Elect [ASCO]	83,200	—
STORNILO, A.	The Breast Cancer Clinical Trials Consortium [Johns Hopkins University]	83,333	16,667
	Breast Cancer Research Consortium Trials [Johns Hopkins University]	—	—
	A Phase II, Randomized, Open-label Trial of Pre-Operative (Neoadjuvant) Letrozole (Femara) vs. Letrozole in Combination with Bevacizumab (Avastin) in Post-menopausal Women with Newly Diagnosed Operable Breast Cancer [University of Alabama-Birmingham]	—	—
SUVANNASANKHA, A.	The Role of c-FLIP in Multiple Myeloma [Multiple Myeloma Research Foundation]	—	—
	From Laboratory to Clinic: Dimethylaminoparthenolide in Myeloma [Multiple Myeloma Research Foundation]	—	—
TURCHI, J.	Analysis of DNA Repair Capacity to Predict and Target Chemoresistant Small Cell Lung Cancer [Flight Attendant Medical Research Institute]	100,000	8,500
INDUSTRY			
ABONOUR, R.	A Multicenter, Randomized, Parallel Group, Double-blind, Placebo-controlled Study of CC-5013 Plus Dexamethasone vs. Dexamethasone Alone in Previously Treated Subjects with Multiple Myeloma [Celgene]	—	596
	Palifermin for the Reduction of Oral Mucositis in Single-dose Evaluation: A Randomized, Blinded, Active-control Trial of Palifermin to Evaluate Oral Mucositis in Subjects with Hematologic Malignancies Undergoing Fractionated Total Body Irradiation and High Dose Chemotherapy with Autologous Peripheral Blood Progenitor Cell Transplantation [Amgen]	1,000	245
	Safety of Infusion of Ex Vivo Selectively Amplified Unrelated Cord Blood Stem Cells in Subjects with Hematological Malignancies Receiving Unrelated Cord Blood Transplantation [Viacell]	—	11
	An Observational Extension Study to Evaluate Long Term Outcomes in Subjects Who Received Ex Vivo Selectively Amplified Umbilical Cord Blood Stem Cells in Study CBoo1-03 [Viacell]	—	101
	A Multicenter, Single-arm, Open-label Expanded Access Program for Lenalidomide Plus Dexamethasone in Previously Treated Subjects with Multiple Myeloma [Celgene]	10,500	2,294
	A Randomized, Placebo-controlled Trial to Evaluate Palifermin in the Reduction of Acute Graft vs. Host Disease in Subjects with Hematologic Malignancies Undergoing Allogeneic Transplantation [Amgen]	30,000	4,420
	A Phase II Study of Oral LBH589 in Adult Patients with Multiple Myeloma Who have Received at Least Two Prior Lines of Therapy and Whose Disease is Refractory to the Most Recent Line of Therapy [Novartis]	13,384	3,158
	A Phase II Randomized, Double-blind, Placebo-controlled Trial to Assess Safety and Efficacy of Velafermin for Prevention of Oral Mucositis in Hematologic Cancer Patients Receiving Autologous Stem Cell Transplant [PPD Development]	1,417	4,033
	A Randomized, Double-blind, Multicenter Study of Denosumab Compared with Zoledronic Acid in the Treatment of Bone Metastases in Subjects with Advanced Cancer (Excluding Breast and Prostate Cancer) or Multiple Myeloma [Amgen]	29,946	5,831
	A Phase I Safety Study of Enzastaurin plus Bortezomib Therapy in the Treatment of Relapsed or Refractory Multiple Myeloma [Lilly]	51,614	9,356
	Hepcidin Biomarker Study in Patients with Multiple Myeloma [Lilly]	13,538	2,701
CHIOREAN, E.	An Open Study of AMG 706 in Subjects with Advanced Gastrointestinal Stromal Tumors Who Developed Progressive Disease or Relapsed While on Imatinib Mesylate [Amgen]	—	29

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Hematology/Oncology - Industry (cont.)</i>			
CHIOREAN, E.	A Phase II Study of XL999 Administered Intravenously to Subjects with Metastatic Colorectal Cancer [Exelixis]	\$ -	\$ 597
	Phase I Study of Every Other Week Anti-Vascular Endothelial Growth Factor Receptor 2 Monoclonal Antibody IMC-1121B in Patients with Advanced Solid Tumors Who have Failed Standard Therapy [ImClone Systems]	36,094	9,428
	A Phase II Dose Escalation Study of the Safety, Efficacy, and Pharmacokinetics of Gluphosphamide in Combination with Gemcitabine in Advanced Solid Tumor in Pancreatic Cancer and Pancreatic Adenocarcinoma [Threshold Pharmaceuticals]	-	118
	A Phase I / II Study of MGCD0103 in Combination with Gemcitabine [Methylgene]	46,194	9,562
	Phase I Dose Escalation Study of Oral SKI-606 in Subjects with Advanced Malignant Solid Tumors [Wyeth]	-	114
	Phase I Dose Escalation Trial of 2-Deoxy-D-Glucose Alone and in Combination with Docetaxel in Subjects with Advanced Solid Malignancies [Threshold]	-	4,231
	An Open-label, Phase Ib Study to Assess the Long Term Safety Profile of Pazopanib in Cancer Patients [GlaxoSmithKline]	40,215	377
	An Open-label, Two-period, Randomized, Crossover Study to Evaluate the Effect of Food on the Pharmacokinetics of Single Doses of Pazopanib in Cancer Patients [GlaxoSmithKline]	26,575	4,500
	Pilot Study of Gemcitabine with Novel RAF Kinase-Vascular Endothelial Growth Factor Receptor Inhibitor Sorafenib and Radiotherapy in Patients with Locally Advanced Unresectable Pancreatic Adenocarcinoma [Bayer]	47,917	2,298
	A Phase I Open-label, Safety, Pharmacokinetic and Pharmacodynamic Dose Escalation Study of SF1126, a PI3 Kinase Inhibitor, Given Twice Weekly by IV Infusion to Patients with Advanced or Metastatic Tumors [Semafore]	144,201	27,710
	Phase I Study of Anti-platelet Derived Growth Factor Receptor Alpha Monoclonal Antibody IMC-3G3 in Patients with Advanced Solid Tumors Who No Longer Respond To Standard Therapy or for Whom No Standard Therapy Exists [Imclone]	73,024	14,610
	A Phase I, Multicenter, Open-label, Dose Escalation Study Evaluating the Safety and Tolerability of EZN-2968, a Locked Nucleic Acid Antisense Oligonucleotide Against Hypoxia Inducible Factor-1A Administered as a Daily 2-hour Intravenous Infusion x 5 Days Every 4 Weeks in Adult Patients with Advanced Solid Tumors or Lymphoma [Enzon]	109,185	19,299
	Phase I Dose-Escalation Study of Sorafenib and Bevacizumab in Combination with Paclitaxel in Patients with Solid Tumors [Genentech]	70,758	6,063
	A Randomized Double-blind Phase III Study of RAD001 10 mg/d Plus Best Supportive Care vs. Placebo Plus Best Supportive Care in the Treatment of Patients with Advanced Pancreatic Neuroendocrine Tumor [Novartis]	27,276	4,137
	Phase I Dose-interaction Study of Sorafenib and Bevacizumab in Combination with Paclitaxel in Patients with Solid Tumors [Bayer]	48,559	1,051
	Phase I, Pharmacokinetic, Pharmacodynamic Trial of PTK787 and Paclitaxel in Combination for Advanced Solid Tumors [Novartis]	46,000	9,973
	An Open-label Study to Investigate the Safety, Tolerability, Pharmacokinetics, and Pharmacodynamics of the AKT Inhibitor GSK690693 Given on Various Schedules in Subjects with Solid Tumors or Lymphoma [GlaxoSmithKline]	50,276	3,807
	A Phase I, Multicenter, Open-label, Dose Escalation Study of the Safety, Pharmacokinetics and Anti-tumor Activity of TH-302 in Patients with Advanced Solid Tumors [Threshold]	63,776	8,254
	A Multicenter, Open-label, Noncomparative Phase I Clinical and Pharmacokinetic Study of Oral TAK-285 in Patients with Advanced Cancer [Takeda Global]	99,559	17,062
	A Pharmacokinetic Study of Enzastaurin in Cancer Patients with Varying Degrees of Hepatic Dysfunction [Lilly Research Labs]	35,001	6,347
	A Phase III, Randomized, Double-blind, Placebo-controlled, Multicenter Study Evaluating the Efficacy and Safety of IPI-504 in Patients with Metastatic and/or Unresectable Gastrointestinal Stromal Tumors Following Failure of at Least Imatinib and Sunitinib [Infinity]	34,059	6,538
	A Phase II Study of Hyperacute Pancreatic Cancer Vaccine in Combination with Chemotherapy and Chemoradiotherapy in Subjects with Surgically Resected Pancreatic Cancer [Newlink Genetics]	-	94
	A Phase I / II, Multicenter, Dose Escalation Study to Determine the Safety, Efficacy and Pharmacokinetics and TH-302 in Combination with A) Gemcitabine or B) Docetaxel or C) Pemetrexed in Patients with Advanced Solid Tumors [Threshold]	43,876	5,251
	A Phase I Dose Escalation / Phase II, Single-armed, Open-label Study of CP-870,893 in Combination with Gemcitabine in Patients with Chemotherapy-naïve Surgically Incurable Pancreatic Cancer [Pfizer]	61,343	10,259

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Hematology/Oncology - Industry (cont.)</i>			
CHIOREAN, E.	A Randomized Phase I / II, Multicenter, Open-label Trial of PR104 and Sorafenib in Patients with Advanced Hepatocellular Carcinoma [Proacta]	\$ 16,882	\$ 2,368
	A Phase I, Multiple-dose Study of the Safety and Tolerability of Single Agency REGN421 Administered Every 3 Weeks in Patients with Advanced Solid Malignancies [Regeneron]	10,700	—
	A Randomized, Open-label, Multicenter Study of Single Agent Larotaxel (XRP9881) Compared to Continuous Administration of 5-FU for the Treatment of Patients with Advanced Pancreatic Cancer Previously Treated with a Gemcitabine-containing Regimen [Sanofi-Aventis]	7,500	542
CLARK, R.	A Randomized Phase III Study of Pemetrexed in Combination with Cisplatin vs. Cisplatin Monotherapy in Patients with Recurrent or Metastatic Head and Neck Cancer [Lilly]	—	—
	A Randomized, Open-label Phase II Study of BIBW 2992 versus Cetuximab (Erbitux®) in Patients with Metastatic or Recurrent Head and Neck Squamous Cell Carcinoma (HNSCC) after Failure of Platinum-containing Therapy with a Crossover Period for Progressing Patients [Boehringer]	24,909	1,728
CRIFE, L.	A Randomized, Open-label Study of Oral CEP-701 Administered in Sequence with Standard Chemotherapy to Patients with Relapsed Acute Myeloid Leukemia Expressing FLT-3 Activating Mutations [Cephalon]	1,850	2,053
	An Open-label Extended-use of Oral CEP-701 in Patients with Hematologic and Non-Hematologic Malignancies Who Have Completed a Clinical Study of CEP-701 [Cephalon]	1,125	361
	An Open-label, Phase I / II, Multicenter Dose Escalation Study of Zosuquidar, Daunorubicin, and Cytarabine in Patients Ages 55-75 with Newly Diagnosed Acute Myeloid Leukemia [Kanisa]	1,000	246
	An Open-label, Phase I / II Trial of Gemtuzumab Ozogamicin in Combination with Zosuquidar in Patients Age 55-75 Years with CD33 Positive Acute Myeloid Leukemia in First Relapse [Kanisa]	—	1
	A Pivotal Randomized Study of Lonafernib vs. Placebo in the Treatment of Subjects with Myelodysplastic Syndrome or Chronic Myelomonocytic Leukemia Who are Platelet Transfusion-dependent with or without Anemia [Schering-Plough]	396	—
	A Multicenter, Double-blind, Randomized, Parallel-group Study of the Efficacy and Safety of Two Lenalidomide Dose Regimens in Subjects with Relapsed or Refractory B-Cell Chronic Lymphocytic Leukemia [Celgene]	3,941	180
	Randomized, Blinded, Multicenter Study of Proteinase III PR1 Peptide Mixed with Montanide ISA-51 VG Adjuvant and Administered with GM-CSF in Elderly Patients with AML in First Complete Remission or Adults in Second Complete Remission: A Pivotal Study [Ingenix]	5,303	3,684
	A Phase I, Multicenter, Dose Escalation Study of CAT-8015 in Patients with Relapsed or Refractory Chronic Lymphocytic Leukemia, Prolymphocytic Leukemia, or Small Lymphocytic Lymphoma [Cambridge Antibody]	1,020	587
	A Phase II Study of XL999 Administered Intravenously to Subjects with Acute Myeloid Leukemia [Exelixis]	—	—
	A Phase II, Open-label, Multicenter Clinical Study of the Safety and Efficacy of SNS 595 Injection in Patients 60 Years of Age with Previously Untreated Acute Myeloid Leukemia [Sunesis]	30,539	6,858
	A Phase I, Open-label, Dose Escalation Study of CC-11006 in Subjects with Low- or Intermediate-1-Risk Myelodysplastic Syndromes [Celgene]	9,803	1,106
	Phase Ib, Open-label, Multicenter, Dose Escalating, Clinical Study of the Safety, Tolerability, and Pharmacokinetic and Pharmacodynamic Profiles of SNS-595 Injection in Combination with Cytarabine in Patients with Relapsed or Refractory Acute Myeloid Leukemia [Sunesis]	59,804	9,491
	A Phase I / II Multicenter, Open-label Trial of the Safety and Efficacy of R935788 in Patients with Relapsed/Refractory B-Cell Lymphoma [Rigel]	6,759	2,619
	Phase II Study of Proteinase 3 Pr1 Peptide Mixed with Montanide ISA 51 VG Adjuvant and Administered with GM-CSF in Low Risk and Intermediate-1 MDS [The Vaccine Company]	11,333	1,581
	A Phase I, Open-label, Dose-ranging Study to Evaluate the Pharmacokinetics and Safety of Azacitidine Administered Subcutaneously and as Different Oral Formulations in Subjects with Myelodysplastic Syndromes, AML, Lymphoma, and Multiple Myeloma [Celgene]	13,633	1,831
	A Multicenter, Open-label, Singe-arm Study of Weekly Alvocidib in Patients with Previously Treated B-Cell Chronic Lymphocytic Leukemia (CLL) or Prolymphocytic Leukemia Arising from CLL [Sanofi-Aventis]	37,667	7,782
	A Phase I Study of LY2523355 in Patients with Acute Leukemia [Lilly]	89,494	14,049
EINHORN, L.	Phase II Study of Cisplatin Plus Epirubicin Salvage Chemotherapy in Refractory Germ Cell Tumors [Pharmacia]	15,500	2,760
	Phase II Study of Oxaliplatin plus Bevacizumab Salvage Chemotherapy in Patients with Germ Cell Tumors [Genentech]	64,275	7,208

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Hematology/Oncology - Industry (cont.)</i>			
FARAG, S.	A Phase III, Randomized, Multicenter Trial Comparing G-CSF Mobilized Peripheral Blood Stem Cell with Marrow Transplantation from HLA Compatible Unrelated Donors [National Marrow Donor Program]	\$ -	\$ -
	An Open-label, Dose Escalation Safety and Tolerability Trial Assessing Multiple Dose Administrations of Anti-KIR (1-7F9) Human Monoclonal Antibody in Subjects with Multiple Myeloma [Novo Nordisk]	37,825	3,316
	A Phase I Trial of Myeloablative Conditioning Using Clofarabine and High-dose Busulfan for Patients with Refractory Hematological Malignancies Undergoing Allogeneic Hematopoietic Stem Cell Transplantation [Genzyme]	78,650	7,697
	Investigation of the Cylex ImmuKnow Assay [Cylex]	10,000	2,000
	A Phase 1 Study of ENMD-2076 in Patients with Relapsed or Refractory Multiple Myeloma [Entremed]	31,590	5,273
HAHN, N.	A Multicenter, Open-label, Randomized, Phase III Trial Comparing Immediate Adjuvant Hormonal Therapy in Combination with Toxotere Administered every Three Weeks vs. Hormonal Therapy Alone vs. Deferred [MDS Pharma]	-	-
	Phase II Efficacy and Pharmacodynamic Study of 2-Methoxyestradiol Nanocrystal Colloidal Dispersion in Patients with Taxane-refractory, Metastatic, Hormone-refractory Prostate Cancer [Entremed]	3,585	293
	A Randomized Phase II Study of Docetaxel +/- ZD6474 (Zactima) in Metastatic Transitional Cell Carcinoma [AstraZeneca]	-	-
	In Vivo Study of Subcutaneous 5-Azacididine for the Treatment of Urinary Bladder Cancer [Pharmion]	21,650	4,769
	A Phase III, Randomized, Double-blind, Placebo-controlled Study of Abiraterone Acetate + Prednisone in Patients with Metastatic Castration-resistant Prostate Cancer Who have Failed Docetaxel-based Chemotherapy [Cougar Biotechnology]	20,257	3,577
HANNA, N.	A Phase I Open-label Study of Continuous Oral Treatment with BIBF 1120 ES Together with Premetrexed in Previously Treated Patients with Non-small Cell Lung Cancer [Boehringer]	-	28
	A Randomized, Controlled Trial Comparing Safety and Efficacy of Carboplatin and Paclitaxel Plus or Minus Sorafenib in Chemo-naïve Patients with Stage IIIB-IV Non-small Cell Lung Cancer [Bayer]	9,540	1,945
	An Open-label, Randomized Phase II Study of Efficacy and Tolerability of ABT-869 in Advanced or Metastatic Non-small Cell Lung Cancer [Abbott]	69,429	9,969
	A Phase I / IIa Study Evaluating the Safety, Pharmacokinetics, and Efficacy of ABT-263 in Subjects with Small Cell Lung Cancer [Abbott]	3,250	627
	A Phase I / II Study of Oral MKC-1 Administered Twice Daily for 14 Consecutive Days Every 3 Weeks in Combination with Pemetrexed [Entremed]	189,631	27,418
	Multicenter, Randomized, Double-blind, Phase II Trial to Investigate the Efficacy and Safety of Oral BIBF 1120 plus Standard Pemetrexed Therapy Compared to Placebo Plus Standard Pemetrexed Therapy in Patients with Stage IIIB / IV or Recurrent Non-small Cell Lung Cancer [Boehringer Ingelheim]	12,770	-
LOEHRER, P.	Phase II Study of Alimta in Patients with Advanced Thymic Carcinoma [Lilly]	-	-
	A Phase II Multicenter Study of Erbitux (Cetuximab) in Patients with Refractory, EGFR-negative Metastatic Colorectal Carcinoma [ImClone]	-	183
	A Phase II Study of Erlotinib Plus Bevacizumab in the Treatment of Advanced Thymoma and Thymic Carcinoma [Genentech]	-	-
	Phase II Study of ZD1839 (Iressa) Treatment of Advanced Thymoma [AstraZeneca]	-	-
	Kenya Cancer Project [Lilly]	53,500	6,500
	A Randomized, Double-blinded, Placebo-controlled, Multicenter, Phase III Study of Patients with Advanced Carcinoid Tumor Receiving Sandostatin LAR and RAD001 10 mg/d or Sandostatin LAR and Placebo [Novartis]	48,033	9,779
	A Phase II, Multicenter, Two Tier Study of IMC-A12 in Combination with Depot Octreotide in Patients with Metastatic, Well- or Moderately-differentiated Carcinoid or Islet Cell Carcinoma [Imclone]	44,030	4,150
	Phase II Trial of AZD0530 for Patients with Relapsed / Refractory Thymic Malignancies (Thymoma and Thymic Carcinoma) [Astrazeneca]	49,000	7,052
	A Multicenter, Randomized, Blinded Efficacy and Safety Study of Pasireotide LAR vs. Octreotide LAR in Patients with Metastatic Carcinoid Tumors whose Disease Related Symptoms are Inadequately Controlled by Somatostatin Analogues [Novartis]	14,313	2,143
	Multicenter Phase II Study of Belinostat (PXD101) in Previously Chemotherapy Treated Thymoma and Thymic Carcinoma [Topotarget]	34,911	5,549
LOGAN, T.	A Phase IIa Study Testing the Biologic Activity and Safety of Autologous Renal Cell Carcinoma Total mRNA and huCD4OL mRNA Co-transfected Dendritic Cell Vaccine in Patients with Newly Diagnosed Stage IV Renal Cell Carcinoma [Argos Therapeutics]	29,571	4,706
	A Phase II Study of GW786034 Using a Randomized Discontinuation Design in Subjects with Locally Recurrent or Metastatic Clear-cell Carcinoma [GlaxoSmithKline / Icon Clinical]	16,941	2,591

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Hematology/Oncology - Industry (cont.)</i>			
LOGAN, T.	The High-dose Aldesleukin (IL-2) "SELECT" Trial: A Trial Designed to Prospectively Validate Predictive Models of Response to High Dose IL-2 Treatment in Patients with Metastatic Renal Cell Carcinoma [Novartis]	\$ 10,000	\$ 2,599
	A Phase II, Open-label, Single-arm Study to Evaluate the Efficacy, Safety, Tolerability and Pharmacokinetics of Ticilimumab in Patients with Advanced Refractory and/or Relapsed Melanoma [Pfizer]	13,228	29
	Phase III Study in Patients with Untreated Unresectable Stage III or IV Melanoma Receiving Dacarbazine and Ipilimumab vs. Dacarbazine with Placebo [Bristol-Myers Squibb]	1,125	4,000
	A Phase I, Ascending, Multi-dose Study of BMS-663513, an Agonistic Anti-CD137 Monoclonal Antibody, Administered Every Three Weeks in Patients with Malignant Melanoma [Bristol-Myers Squibb]	147,270	4,421
	Phase II Study of 2-Methoxyestradiol Nanocrystal Colloidal Dispersion Alone and in Combination with Sunitinib Malate in Patients with Metastatic Renal Cell Carcinoma Progressing on Sunitinib Malate [Entremed]	21,575	30
	Extended Schedule, Escalated Dose Temozolomide vs. Dacarbazine in Stage IV Metastatic Melanoma: A Randomized Phase III Study of the EORTC Melanoma Group [Schering-Plough]	6,210	1,766
	A Randomized, Double-blind, Placebo-controlled, Multicenter Phase III Study to Compare the Safety and Efficacy of RAD001 Plus Best Supportive Care vs. BSC Plus Placebo in Patients with Metastatic Carcinoma of the Kidney which has Progressed [Novartis]	185	279
	A Phase II Study of the c-Met RTX Inhibitor XL880 in Subjects With Papillary Renal Cell Carcinoma [GlaxoSmithKline]	122,684	21,793
	A Phase II, Open-label, Single-arm, Multicenter Study Evaluating the Safety and Antitumor Activity of IPI-504, a Novel Small Molecule Inhibitor of Heat Shock Protein 90, in Patients with Metastatic Melanoma [MedImmune]	12,236	1,910
	A Phase I, Open-label, Single-arm Study to Establish the Safety of Administering CP-675,206 as a One-Hour Infusion in Patients with Surgically Incurable Stage III or Stage IV Melanoma [Pfizer]	49,440	10,535
	Characterization of the Anti-VHL-Neoantigen T Cell Immune Response by Somatic VHL Mutation Typing and Testing of T Cell Specificity [Argos Therapeutics]	7,489	1,560
	A Randomized, Multi-dose, Open-label, Phase II Study of DMS-663513 as a Second-line Monotherapy in Subjects with Previously Treated Unresectable Stage III or Stage IV Melanoma [Bristol-Myers Squibb]	44,740	9,789
	An Open-label, Multicenter, Expanded Access Study of RAD001 in Patients with Metastatic Carcinoma of the Kidney who have Progressed Despite Vascular Endothelial Growth Factor Receptor Tyrosine Kinase Inhibitor Therapy [Novartis]	13,008	285
	VEG108844, a Study of Pazopanib vs. Sunitinib in the Treatment of Subjects with Locally Advanced and/or Metastatic Renal Cell Carcinoma [GlaxoSmithKline]	9,972	1,229
	A Randomized Phase III Clinical Trial to Evaluate the Efficacy and Safety of Treatment with OncoVEXGM-CSF Compared to Subcutaneously Administered GM-CSF in Previously Treated Melanoma Patients with Unresectable Stage IIIB, IIIC and IV Disease [Biovex]	9,150	29
	A Phase II Study Testing the Safety and Activity of AGS-003 as an Immunotherapeutic in Subjects with Newly Diagnosed Advanced Stage Renal Cell Carcinoma with Sunitinib [Argos Therapeutics]	35,064	4,959
	A Multicenter Phase II Study to Evaluate Tumor Response to Ipilimumab Monotherapy in Subjects with Melanoma Brain Metastases [Bristol-Myers Squibb]	20,298	2,842
	A Rollover Protocol for Patients who Received CP-675,206 in Other Protocols [Pfizer]	12,414	486
	A Randomized, Double-blind, Phase III Trial of STA-4783 in Combination with Paclitaxel vs. Paclitaxel Alone for Treatment of Chemotherapy-naïve Subjects with Stage IV Metastatic Melanoma (SYMMETRY) [Synta]	63,191	6,419
MATEI, D.	Phase I / II Trial of Decitabine as a Sensitizer to Carboplatin in Platinum Resistant Recurrent Ovarian Cancer [MGI Pharma]	16,668	2,055
	An Open-label, Phase II Study of the Safety and Efficacy of Glufosfamide in Ovarian Cancer [Threshold]	9,808	1,687
	A Phase II, Single-arm Study of Volociximab Monotherapy in Subjects with Platinum-resistant Advanced Epithelial Ovarian Cancer or Primary Peritoneal Cancer [Biogen IDEC]	3,015	1,687
	A Randomized, Double-blind, Placebo-controlled, Multicenter Trial of Abagovomab Maintenance Therapy in Patients with Epithelial Ovarian Cancer after Complete Response to First-line Chemotherapy [Pharmaceutical Research Associates]	16,647	2,075
	A Phase II Study of AP23573, a mTOR Inhibitor, in Female Adult Patients with Recurrent or Persistent Endometrial Cancer [Ariad]	–	77
	A Multicenter, Randomized, Double-blind, Parallel-arm, Two-stage Study of the Efficacy and Safety of AVE0005 (VEGF Trap) Administered Intravenously Every 2 Weeks in Patients With Platinum-resistant and Topotecan-and/or Liposomal Doxorubicin-resistant Advanced Ovarian Cancer [Sanofi-Aventis]	2,800	1,051
	A Randomized, Parallel-group, Open-label, Active-controlled, Multicenter, Phase III Trial of Patupilone vs. Pegylated Liposomal Doxorubicin (Doxil®/Caelyx®) in Taxane/Platinum Refractory/Resistant Patients with Recurrent Epithelial Ovarian, Primary Fallopian, or Primary Peritoneal Cancer [Novartis]	3,062	–

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Hematology/Oncology - Industry (cont.)</i>			
MATEI, D.	A Randomized, Double-blind, Placebo-controlled, Phase II Trial of Paclitaxel in Combination with AMG 386 in Subjects with Advanced Recurrent Epithelial Ovarian or Primary Peritoneal Cancer [Amgen]	\$ 26,008	\$ 7,002
	A Phase Ib Study of LY573636-Sodium in Combination with Alimta (Pemetrexed) in Patients with Platinum-resistant Ovarian Cancer [Lilly]	40,785	5,344
	A Randomized Phase II Trial of Deforolimus Compared to Progesterin in Female Adult Patients with Advanced Endometrial Carcinoma Following One Line of Chemotherapy [Ariad]	6,687	694
	Phase II Randomized, Double-blind, Multicenter Study to Assess the Efficacy of ZAD2281 in the Treatment of Patients with Platinum Sensitive Serous Ovarian Cancer Following Treatment with Two or More Platinum Containing Regimens [Astrazeneca]	9,950	482
	A Double-blind, Randomized, Phase II Study Evaluating the Efficacy and Safety of Sorafenib Compared to Placebo in Ovarian Epithelial Cancer or Primary Peritoneal Cancer Patients who have Achieved a Complete Clinical Response after Standard Platinum/Taxane Containing Chemotherapy [Bayer]	3,000	–
	Chemotherapy After Prostatectomy for High Risk Prostate Carcinoma: A Phase III Randomized Study [VA Cooperative Studies]	42,099	–
MEHTA, R.	A Randomized, Double-blind, Placebo-controlled, Clinical Outcome Study of ARC1779 Injection in Patients with Thrombotic Microangiopathy [Archemic]	69,069	14,652
MILLER, K.	Phase II, Open-label, Single-arm Study of Capecitabine (Xeloda) in Combination with Bevacizumab (Avastin) as First-line Treatment for HER2-Negative Metastatic Breast Cancer, Followed by Chemotherapy in Combination with Bevacizumab at Time of Progression [Roche]	167	39
	A Randomized Phase II Study of SU011248 vs. Standard of Care for Patients with Previously Treated, Advanced, Triple Receptor Negative Breast Cancer [Pfizer / Icon Clinical]	8,398	–
	A Phase I Study of Paclitaxel in Combination with SU011248 for Patients with Breast Cancer as First-line Treatment in the Advanced Disease Setting [Pfizer / Icon Clinical]	5,409	93
	A Treatment Protocol for Patients from a Prior SU011248 Protocol [Pfizer]	19,895	3,266
	A Randomized, Double-blind, Multicenter Study of Denosumab Compared with Zoledronic Acid (Zometa®) in the Treatment of Bone Metastases in Subjects with Advanced Breast Cancer [Amgen]	69,069	14,652
	Anti-angiogenesis Therapy Following Preoperative Treatment of Early Stage Breast Cancer [Genentech]	96,000	21,265
	Phase II Study of Dasatinib for Advanced Estrogen/Progesterone Receptor-positive or Her2/neu-Positive Breast Cancer [Bristol-Myers Squibb]	–	708
	Phase I / II Clinical Trial of the Combination of Intravenous KOS-1022 and Trastuzumab [Kosan Biosciences]	68,367	6,131
	A Phase II Study of Oral MKC-1 Administered Twice Daily for 14 Consecutive Days Every 4 Weeks in Patients with Advanced or Metastatic Breast Cancer [Entremed]	116,107	22,331
	An Exploratory Study of the Biological and Clinical Activity of Sunitinib Malate as a Component of Neoadjuvant Therapy for Breast Cancer [Pfizer]	119,145	40,049
	A Phase II, Randomized, Double-blind, Multicenter Study of Exemestane with and without SNDX-275 in Postmenopausal Women with Locally Recurrent or Metastatic Estrogen Receptor-positive Breast Cancer, Progressing on Treatment with a Non-steroidal Aromatase Inhibitor [Syndax]	50,057	5,499
	A Phase II, Single-arm, Open-label Study of Trastuzumab-MCC-DM1 Administered Intravenously to Patients with HER2-Positive Metastatic Breast Cancer [Genentech]	69,638	11,545
	Adjuvant Paclitaxel and Trastuzumab for Node-negative HER2-positive Breast Cancer [Genentech]	8,500	397
	A Phase Ib / II, Open-label Study of the Safety, Tolerability, and Efficacy of Trastuzumab-MCC-DM1 in Combination with Pertuzumab Administered Intravenously to Patients with HER2-positive Locally Advanced or Metastatic Breast Cancer Who Have Progressed [Genentech]	12,095	96
	A Phase I / II Study of GRN163L in Combination with Paclitaxel and Bevacizumab in Patients with Locally Recurrent or Metastatic Breast Cancer [Geron]	231,427	38,101
NELSON, R.	A Phase III, Open-label, Prospective, Multicenter Study of the Efficacy, Tolerability, Safety, and Pharmacokinetics of Immune Globulin Subcutaneous (Human), IgPro20 in Subjects with Primary Immunodeficiency [ZLB Behring AG]	70,164	16,989
	A Multicenter Extension Study on the Safety and Efficacy of IgPro10 in Patients with Primary Immunodeficiency [ZLB Behring AG]	25,622	4,545
	Safety in Hemolytic PNH Patients Treated with Eculizumab: A Multicenter, Open-label Research Design Study [Alexion]	–	13
ROBERTSON, M.	Phase III, Randomized, Double-blind, Placebo-controlled Trial of Favid and GM-CSF vs. Placebo Plus GM-CSF Following Rituximab in Subjects with Follicular B-cell Non-Hodgkin's Lymphoma [Favrilie]	3,736	3,799
	Phase II Trial of Favid (Patient-specific Idiotypic/KLH) and GM-CSF in Subjects who Demonstrated Progressive Disease and Did Not Receive Favid on Study Favid-o6 [Favrilie]	–	91
	A Phase III Clinical Study to Investigate the Prevention of Relapse in Lymphoma Using Daily Enzastaurin [Lilly]	39,537	8,350

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Hematology/Oncology - Industry (cont.)</i>			
ROBERTSON, M.	Phase III Study of Gemcitabine, Dexamethasone, and Cisplatin Compared to Dexamethasone, Cytarabine and Cisplatin as Salvage Chemotherapy for Patients with Relapsed or Refractory Aggressive Histology Non-Hodgkin's Lymphoma [Lilly]	\$ —	\$ 309
	Randomized, Open-label, Phase II Trial Comparing Rituximab Plus Sargramostim to Rituximab Monotherapy for the Treatment of Relapsed Follicular B-Cell Lymphoma [Berlex]	42,046	6,577
	A Phase I, Dose Escalation Study to Assess the Safety and Biological Activity of Recombinant Human Interleukin-18 (SB-485232) Administered by Intravenous Infusion in Combination with Rituximab in Adult Patients with B Cell Non-Hodgkin's Lymphoma [GlaxoSmithKline]	168,155	26,488
	Hematology/Oncology Fellowship Training in Minority Patient Populations [Lilly]	50,000	—
	A Phase II Multicenter, Single-arm, Open-label Study to Determine the Efficacy and Safety of Single-agent Lenalidomide in Subjects with Mantle Cell NHL Who have Relapsed or Progressed after Treatment [Celgene]	13,451	107
	An Open-label, Randomized, Phase II Study of R-CHOP Plus Enzastaurin vs. R-CHOP in the First-line Treatment of Patients with Intermediate and High-Risk Diffuse Large B-Cell Lymphoma [Eli Lilly]	5,000	—
RUSHING, D.	A Pivotal Trial to Determine the Efficacy and Safety of AP23573 when Administered as Maintenance Therapy to Patients with Metastatic Soft Tissue or Bone Sarcomas [Ariad]	44,754	8,960
	A Phase II Trial of Dasatinib in Advanced Sarcoma [Bristol-Myers Squibb]	26,082	5,340
	Gastrointestinal Stromal Tumors Registry Protocol [Novartis]	4,875	105
	A Phase I / II, Multicenter, Dose Escalation Study to Determine the Safety, Efficacy and Pharmacokinetics and TH-302 in Combination with Doxorubicin in Patients with Advanced Soft Tissue Sarcoma [Threshold]	—	—
	Phase II Trial of Chemotherapy in Sporadic and Neurofibromatosis Type 1 Associated High Grade Unresectable Malignant Peripheral Nerve Sheath Tumors [SARC]	—	—
SAYAR, S.	Potential of Immunotherapy to Convert a Complete Cytogenetic Remission in Chronic Myelogenous Leukemia to a Molecular Complete Remission: Randomized Phase II Study of Proteinase 3 PR1 Peptide Mixed with Montanide ISA-51 VG Adjuvant and Administered with GM-CSF and Peginterferon Alfa-2b (PEG-INTRON®, Schering Corporation) [The Vaccine Company]	9,743	1,549
	An Open-label Phase II Trial of LY2181308 Sodium Administered to Patients with Refractory or Relapsed Acute Myeloid Leukemia [Lilly]	32,748	6,112
	Phase I, Open-label, Dose Escalation Study of the Combination of Sorafenib and Vorinostat in Poor-risk Acute Myelogenous Leukemia and High-risk Myelodysplastic Syndrome [Bayer]	49,320	939
	A Randomized Phase II Study of Oral Sapacitabine in Elderly Patients with Acute Myeloid Leukemia Previously Untreated or in First Relapse [Cyclacel]	16,316	1,232
	A Phase II Simon Two-stage Multicenter Study and Pilot Pharmacodynamic Investigation of GTI-2040 in Combination with High Dose Cytarabine (HiDAC) in Refractory and Relapsed Acute Myeloid Leukemia [Lorus Therapeutics]	21,066	3,162
	A Randomized, Double-blind, Placebo-controlled Study of the JAK Inhibitor INCB018424 Tablets Administered Orally to Subjects with Primary Myelofibrosis, Post-Polycythemia Vera-Myelofibrosis or Essential Thrombocythemia Myelofibrosis [Incyte Genomics]	—	—
SCHNEIDER, B.	Differential Response of Breast Cancer Patients on E2100 Treated with Bevacizumab as a Function of Genetic Polymorphisms of VEGF [Genentech]	51,685	17,315
	A Screening Study of Patients with Breast Cancer to Evaluate Urine PGE-M Levels and Cyclooxygenase 2 Expression in Tumor Samples [Tragara]	32,314	5,179
	A Phase Ib Study to Assess the Safety, Feasibility, Pharmacokinetics, and Activity of PTC299 Monotherapy or Combination Therapy with Hormonal Agents in Patients with Metastatic Breast Cancer [PTC Therapeutics]	—	—
SCHWARTZ, J.	A Randomized, Two-arm, Multicenter, Open-label Phase II Study of BMS-354825 Administered Orally at a Dose of 70 mg Twice Daily or 140 mg Once Daily in Subjects with Chronic Myeloid Leukemia in Accelerated Phase or in Myeloid or Lymphoid Blast Phase [Bristol-Myers Squibb]	1,411	51
	A Randomized, Two-by-two, Multicenter, Open-label Phase III Study of BMS-354825 Administered Orally at a Dose of 50 mg or 70 mg Twice Daily or 100 mg or 140 mg Once Daily in Subjects with Chronic Phase Philadelphia Chromosome or BCR-ABL Positive Chronic Myeloid Leukemia [Bristol-Myers Squibb]	327	54
	CTN Protocol 0402: A Phase III, Randomized Multicenter Trial Comparing Sirolimus/Tacrolimus with Tacrolimus/Methotrexate as GVHD Prophylaxis after HLA-matched, Related Peripheral Blood Stem Cell Transplantation [National Marrow Donor Program]	—	—
	CTN Protocol 0403 A Phase III, Randomized Double-blind, Placebo-controlled Trial of Soluble Tumor Necrosis Factor Receptor: Enbrel (Etanercept) for the Treatment of Acute Non-infectious Pulmonary Dysfunction [National Marrow Donor Program]	—	—
	A Phase I Study Using Tacrolimus, Sirolimus, and Bortezomib as Acute Graft vs. Host Disease Prophylaxis in Allogeneic Peripheral Blood Stem Cell Transplantation [Millennium]	—	1,438

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Hematology/Oncology - Industry (cont.)</i>			
SCHWARTZ, J	A Phase III, Randomized, Double-blind, Placebo-controlled Study to Evaluate the Efficacy and Safety of Prochymal (Ex-vivo Cultured Adult Human Mesenchymal Stem Cells) Infusion in Combination with Corticosteroids for the Treatment of Newly Diagnosed Acute GVHD [Osiris Therapeutics]	\$ 8,613	\$ 1,101
SLEDGE, G.	Vascular Targeting and Anti-Angiogenic Combination Therapy in Preclinical Model Systems [Aventis]	43,500	21,499
	Enzastaurin in Breast Cancer [Lilly]	123,596	41,404
STORNILO, A.	An Open-label, Phase Ib Roll-over Study to Assess the Long-term Safety Profile of Lapatinib in Cancer Patients [GlaxoSmithKline]	53,455	10,778
	A Randomized, Multicenter, Open-label, Phase III Study of Lapatinib in Combination with Trastuzumab vs. Lapatinib Monotherapy in Subjects with Metastatic Breast Cancer Whose Disease has Progressed on Trastuzumab-containing Regimens [GlaxoSmithKline]	8,550	1,195
	A Phase II Study of Lapatinib for Brain Metastases in Subjects with ErbB2-positive Breast Cancer Following Trastuzumab-based Systemic Therapy and Cranial Radiotherapy [GlaxoSmithKline]	–	–
	A Phase III, Randomized, Open-label, Multicenter Study Comparing GW572016 and Capecitabine (Xeloda) vs. Capecitabine in Women with Refractory Advanced or Metastatic Breast Cancer [GlaxoSmithKline]	1,782	–
	A Randomized, Double-blind, Placebo-controlled, Multicenter, Phase III Study Comparing GW572016 and Letrozole vs. Letrozole in Subjects with Estrogen/ Progesterone Receptor-positive Advanced or Metastatic Breast Cancer [GlaxoSmithKline]	7,989	2,992
	Phase II Trial of Cetuximab Alone and in Combination with Carboplatin in ER-negative, HER-2 Non-overexpressing Metastatic Breast Cancers [Bristol-Myers Squibb]	–	18
	An Open-label, Expanded-access Study of Lapatinib and Capecitabine Therapy in Subjects with ErbB2 Overexpressing Locally Advanced or Metastatic Breast Cancer [Pharmanet]	8,050	1,634
	A Phase I, Dose Escalation Study to Assess the Safety and Tolerability of Lapatinib in Combination with Carboplatin, Paclitaxel, with and without Trastuzumab in Subjects with Metastatic Breast Cancer [GlaxoSmithKline]	207,702	15,978
	A Phase II Study of Lapatinib plus Topotecan or Lapatinib plus Capecitabine in the Treatment of Recurrent Brain Metastases from ErbB2-positive Breast Cancer Following Cranial Radiotherapy [GlaxoSmithKline]	9,679	3,491
	A Phase II, Open-label, Randomized, Multicenter Trial of Pazopanib in Combination with Lapatinib Compared to Lapatinib Alone as First-line Therapy in Subjects with Advanced or Metastatic Breast Cancer with ErbB2 Fluorescence [GlaxoSmithKline]	4,246	1,024
SUVANNASANKHA, A.	Phase II Study of Revlimid, Oral Cyclophosphamide and Prednisone for Patients with Newly Diagnosed Multiple Myeloma [Celgene]	48,000	8,399
SWEENEY, C.	Phase I Dose Escalation Study to Determine the Safety, Pharmacokinetics and Pharmacodynamics of BMS-582664 in Patients with Advanced or Metastatic Solid Tumors [Bristol-Myers Squibb]	–	–
	A Single-center, Open-label, Dose Escalation, Safety and Pharmacokinetic Study of Panzem Nanocrystal Colloidal Dispersion Administered Orally to Patients with Advanced Cancer [Entremed]	108,728	22,488
	The Effect of Enzastaurin on CYP3A: Enzastaurin - Midazolam Pharmacokinetic Interaction in Cancer Patients [Lilly]	–	574
	An Open-label Study of Oral Enzastaurin HCl in Patients with Advanced or Metastatic Malignancies [Lilly]	–	97
	An Open-label, Dose Escalation Study to Evaluate the Safety, Pharmacokinetics, and Pharmacodynamics of AMG 102 with AMG 706 and AMG 102 with Bevacizumab in Adult Subjects with Advanced Solid Tumors [Amgen]	–	35
	A Phase I, First in Human, Open-label, Sequential Dose Escalation Study to Evaluate the Safety, Tolerability, Pharmacokinetics and Pharmacodynamics of AMG 102 in Patients with Advanced Solid Tumors [Amgen]	–	106
	A Phase I, Open-label Study of E7974 Administered on Days 1, 8, and 15 of a 28-Day Cycle in Patients with Solid Malignancies or Lymphomas [Eisai Medical Research]	824	2,494
	Phase I Dose Escalation Study of BMS-690514 in Patients with Advanced or Metastatic Solid Tumors [Bristol-Myers Squibb]	129,447	20,764
	A Phase I, Escalating Dose Study of CT-322, a VEGFR-2 Antagonist, as Monotherapy in Patients with Advanced Solid Tumors and Non-hodgkin's Lymphoma [Pharmaceutical Research Associates]	76,086	15,951
	A Phase I Safety and Pharmacokinetic Study of SU011248 and Capecitabine in Patients with Advanced Solid Tumors [Pfizer]	4,125	1,764
DIVISION SUMMARY: HEMATOLOGY/ONCOLOGY			
	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL	\$ 4,155,713	\$ 1,652,495
	VETERANS AFFAIRS TOTAL	403,550	–
	SOCIETIES, FOUNDATIONS, AND OTHER TOTAL	2,249,415	354,059
	INDUSTRY TOTAL	5,720,211	949,475
TOTAL		\$12,528,889	\$ 2,956,029

CONTRACTS AND GRANTS

PRINCIPAL
INVESTIGATOR TITLE

ANNUAL
DIRECT COST ANNUAL
INDIRECT COST

INFECTIOUS DISEASES

PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES

BROWN, D.	HPV in Adolescent Women [NIH]	\$ 233,444	\$ 119,056
DUBÉ, M. / GOLDMAN, M.	Endothelial Dysfunction Due to HIV-1 Protease Inhibitors [NIH]	-	-
FIFE, K.	A Double-blind, Randomized, Controlled Phase III Study to Assess the Prophylactic Efficacy and Safety of gD-Alum/MPL Vaccine in the Prevention of Genital Herpes Disease in Young Women who are HSV-1 and -2 Seronegative [St. Louis University / NIH]	57,261	14,315
GOLDMAN, M.	ACTG 5224s: A substudy of Protocol A5202: Long-term Metabolic Assessments in Subjects treated with Emtricitabine/Tenofovir or Abacavir/Lamivudine with either Efavirenz or Atazanavir with Ritonavir [Social and Scientific Systems / NIH]	8,577	2,873
	Adult AIDS Clinical Trials Unit [NIH]	359,054	93,591
GUPTA, S.	HIV, Inflammation, and Endothelial Dysfunction [NIH]	525,913	283,993
JANOWICZ, D.	Characterization of Lipoproteins in <i>Haemophilus ducreyi</i> Pathogenesis [NIH]	101,414	6,039
JOHNSON, R.	Cellular Immunity to Chlamydia at the Epithelial Interface [NIH]	245,250	111,454
SPINOLA, S.	Midwest Sexually Transmitted Infection and Topical Microbicide Cooperative Research Center [NIH]	1,072,207	296,935
	SPEAR, P. (Northwestern University)	\$ 215,405	
	FORTENBERRY, J. (Pediatrics)	71,151	
	LAIMINS, L. (Northwestern University)	163,425	
	ZIMET, G. (Pediatrics)	95,396	
	SPINOLA, S. (Infectious Diseases)	148,059	
	KATZ, B. (Biostatistics)	122,939	
	ORR, D. (Pediatrics)	168,562	
	BATTEIGER, B. (Infectious Diseases)	87,270	
	Training in Sexually Transmitted Diseases Including HIV [NIH]	165,393	13,276
	Human Immune Response to <i>Haemophilus ducreyi</i> [NIH]	245,250	124,555
	Biennial Symposium on <i>Haemophilus ducreyi</i> Pathogenesis and Chancroid [NIH]	1	-

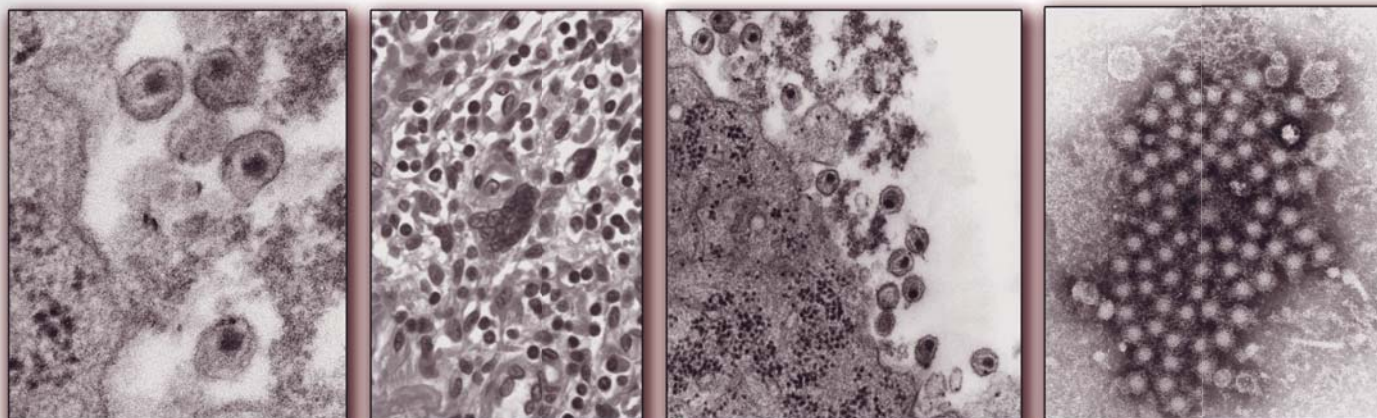
SOCIETIES, FOUNDATIONS, AND OTHER

FIFE, K.	HSV-HIV Transmission Study/Partners in Prevention [University of Washington / Gates Foundation]	239,604	1,943
	Partners Pre-exposure Prophylaxis Study [University of Washington / Gates Foundation]	1,140,412	5,002
WOOLS-KALOUSTIAN, K.	Recognition of HIV-related Kidney Disease in Kenya [Mt. Sinai School of Medicine]	4,616	-

INDUSTRY

BROWN, D.	Does Human Papillomavirus have a Latent State in Adolescent Women? [Merck]	28,090	9,410
	Comparison of Two Assays for Detection of HPV in Thin-prep Supernates [Kurabo]	29,650	7,412
FIFE, K.	A Multicenter, Randomized, Double-blind Study to Compare the Efficacy and Safety of Patient-initiated Famciclovir 1000 mg b.i.d. x 1 Day to Valacyclovir 500 mg b.i.d. x 3 days in Immunocompetent Adults with Recurrent Genital Herpes [Novartis]	6,601	1,651
	A Phase I Trial Evaluating Safety, Tolerability, and Immune Response of AG-707 Compared to Placebo in HSV-2 Seropositive Patients [Antigenics]	1,287	322
	A Phase II Dose Finding Study with ASP2151 in Subjects with Recurrent Episodes of Genital Herpes. Protocol for Phase 2 Study of ASP2151 [Astellas]	199,181	49,795
	Behavioral Factors and Symptoms Associated with HSV 2 Infection in Adolescent and Young Adult Women [GlaxoSmithKline]	40,800	10,200
	A Phase III, Randomized, Double-blind, Placebo-controlled, Multicenter, Efficacy and Safety Study of Imiquimod Creams in the Treatment of External Genital Warts [TKL Research]	51,423	12,856
	A Multicenter, Double-blind, Randomized, Parallel Group Study Evaluating The Therapeutic Equivalence and Safety of Perrigo Israel Pharmaceuticals LTD = S Butoconazole Nitrate Vaginal Cream, 2% and KV Pharmaceutical Company = S Gynazole 1 (Butoconazole) [Pharmanet]	6,336	1,584

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Infectious Diseases - Industry (cont.)</i>			
FIFE, K.	A Phase I, Randomized, Double-blind, Placebo-controlled Assessment of the Safety, Tolerability, and Activity of GS-9191 Ointment for the Treatment of External Genital and Perianal Warts Caused by Human Papilloma Virus Infection [Gilead]	\$ 69,224	\$ 17,306
GOLDMAN, M.	A Multicenter, Open-label, Controlled, Phase II Study to Evaluate Safety and Immunogenicity of MVA-BN (Imvamune) Smallpox Vaccine in 18 to 55-year-old Naive and Previously Vaccinated HIV Infected Subjects with CD4 Counts 200-500 [Bavarian Nordic]	4,650	1,163
	A Multicenter, Randomized, Double-blind, Comparative Trial of a Novel CCR5 Antagonist, UK-427,857, in Combination with Zidovudine/Lamivudine vs. Efavirenz in Combination with Zidovudine/Lamivudine for the Treatment of Antiretroviral-naive HIV-1 [Quintiles]	13,531	3,383
	An International, Multicenter, Prospective Observational Study of the Safety of Maraviroc Used with Optimized Background Therapy in Treatment Experienced HIV 1 Infected Patients [Pfizer]	2,000	-
GUPTA, S.	A Preliminary Evaluation of Fanconi Syndrome Due to Antiretroviral Therapies in HIV-Infected Persons [Gilead]	1,080	270
	A Multicenter, Open-label, Randomized Study to Assess the Metabolics, Efficacy, and Safety of Once-Daily Darunavir versus Atazanavir in HIV-Infected Treatment-naive Adult Patients [Tibotec]	17,078	4,269
	Effects of Etravirine on Endothelial Function in HIV-uninfected Adults: A Pilot Study [Tibotec]	18,000	4,500
	A Multicenter, Double-blind, Randomized, Placebo-controlled Extension Study Assessing the Efficacy and Safety of a 2 mg dose of TH9507, a Growth Hormone-releasing Factor Analogue, in HIV Subjects with Excess Abdominal Fat Accumulation [Theratechnologies]	5,470	1,368
	A Multicenter, Double-blind, Randomized, Placebo-controlled Study Assessing the Efficacy and Safety of a 2 mg Dose of TH9507, a Growth Hormone-releasing Factor Analogue, in HIV Subjects with Excess Abdominal Fat Accumulation [Theratechnologies]	8,580	2,145
JOHNSON, R.	A Phase III, Multicenter, Randomized Study of the Biological and Clinical Efficacy of Subcutaneous Recombinant, Human Interleukin-2 in HIV-infected Patients with Low CD4+ Counts Under Active Antiretroviral Therapy [University of Minnesota / Chiron]	2,240	560
VAN DER POL, B.	Chlamy-Check-1 Test [Healthcare Providers Plus]	612	153
	Sample Collection in Roche Preservative Fluid [Roche]	644	161
	Clinical Evaluation of the BD Viper System for the Direct Qualitative Screening of C. trachomatis and N. Gonorrhoeae in Liquid Based Cytology Specimens [BD Diagnostics]	19,570	4,893
	Clinical Performance Study of Abbott RealTime CT/NG [Abbott]	58,160	14,540
DIVISION SUMMARY: INFECTIOUS DISEASES			
PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL		\$ 3,013,764	\$ 1,066,087
VETERANS AFFAIRS TOTAL		-	-
SOCIETIES, FOUNDATIONS, AND OTHER TOTAL		1,384,632	6,945
INDUSTRY TOTAL		584,207	147,941
TOTAL		\$ 4,982,602	\$ 1,220,973



CONTRACTS AND GRANTS

PRINCIPAL
INVESTIGATOR TITLE

ANNUAL
DIRECT COST ANNUAL
INDIRECT COST

NEPHROLOGY

PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES

AGARWAL, R.	Hypertension in Hemodialysis Patients [NIH-NIDDK]	\$	—	\$	—
	A Novel Device for Determination of GFR Markers [Lynnntech / NIH]		—		—
	Pathobiology of Kidney Disease: Role of Iron [NIH-NIDDK]		271,647		67,506
ATKINSON, S.	Rho GTPases and Actin Cytoskeletal Function in Renal Ischemia [NIH-NIDDK]		212,500		109,349
BACALLAO, R.	Renal Molecular Cell Biology Training Program [NIH-NIDDK]		—		—
	ADPKD Connective Tissue Disorder Link [NIH-NIDDK]		—		—
	Pathologic Mechanisms in Autosomal Dominant Polycystic Kidney Disease [University of New Mexico / NIH]		34,688		18,731
CHEN, X.	Regulation of Vascular Calcification in Diabetes [NIH-NIDDK]		—		—
DAGHER, P.	Pathophysiology of Sepsis-induced Renal Injury [NIH-NIDDK]		240,000		124,225
FRIEDMAN, A.	Effects of Obesity and Protein Intake on the Kidney [NIH-NCRR]		118,064		8,006
MOE, S.	Musculoskeletal Disorders in Dialysis Patients [NIH-NIDDK]		115,911		8,394
MOLITORIS, B.	Ischemia-induced Actin Cytoskeletal Alterations [NIH-NIDDK]		174,228		77,482
	The O'Brien Center for Advanced Renal Microscopic Analysis [NIH-NIDDK]		679,352		285,720
	DUNN, K.	168,041			
	ATKINSON, S.	33,003			
	MOLITORIS, B.	146,128			
	MOLITORIS, B.	39,478			
	PHILLIPS, C.	92,231			
	PAYNE, M.	47,777			
	FIELD, L.	45,259			
	LAKKIS, F.	49,186			
	HENDERSON, J.	58,249			
	Rapid Optical Determination of GFR [PharmacoPhotonics / NIH]		37,060		20,012
NIHALANI, D.	Neph1 Signaling [NIH]		112,249		8,980
SUTTON, T.	Mechanisms of Microvascular Damage in Acute Kidney Injury [NIH-NIDDK]		171,500		74,520
YAQUB, M. S.	Folic Acid for Vascular Outcome Reduction in Transplantation [Rhode Island Hospital / NIH]		7,816		2,619

VETERANS AFFAIRS

AGARWAL, R.	Masked Hypertension in Chronic Kidney Disease [VA]		150,000		—
MOE, S.	Mechanisms of Uremia and Vascular Calcification [VA]		150,000		—
MOLITORIS, B.	Understanding and Minimizing Aminoglycoside Nephrotoxicity [VA]		150,000		—

SOCIETIES, FOUNDATIONS, AND OTHER

DAGHER, P.	Statins for the Prevention of Renal Tubular Endotoxin Uptake [DCI]		—		—
DECKER, B.	Intradialytic Drug Removal by Short-Daily Hemodialysis [NKFI]		—		—
FRIEDMAN, A.	International Omega-3 Learning and Education Consortium for Health and Medicine [Purdue University]		—		—
HELLMAN, R.	Prevention of Radiographic Contrast Agent Induced Reduction in Renal Function by Carbonic Anhydrase Inhibitor (acetazolamide) in High Risk Patients Unable to Receive N-acetylcysteine or Bicarbonate Infusion Prophylaxis (Rescue Protocol) and Prevention [DCI]		59,837		8,976
KELLY, K.	Mechanisms of Renal Injury and Inflammation in Diabetes [Clarian Health Partners]		—		—
	Mechanisms of Diabetic Renal Injury [DCI]		41,667		8,333
KRAUS, M.	An International Registry to Compare Quotidian Dialysis with Thrice-weekly Conventional Hemodialysis: Is There a Survival Difference? [London Health Sciences Centre]		—		—
NIHALANI, D.	Kidney Filtration Assembly and Its Molecular Organization [DCI]		—		—
	Integrity of the Filtration Slit in Kidney is Dependent Upon Interactions Between Neph1, ZO-1 and Myo1c [Showalter Trust]		50,000		10,000

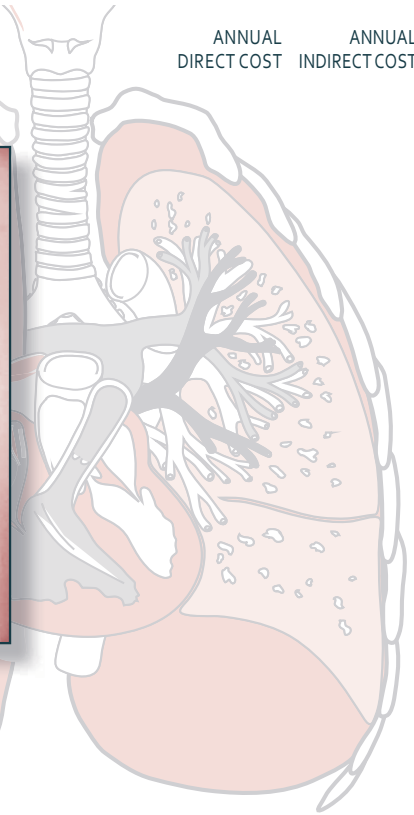
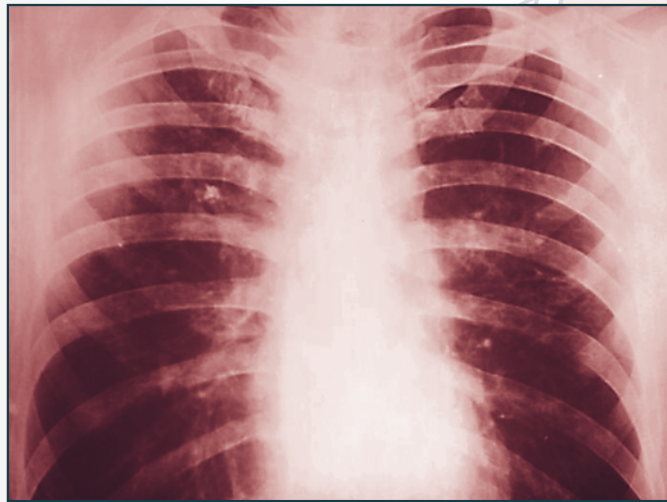
PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
<i>Nephrology (cont.)</i>			
INDUSTRY			
AGARWAL, R.	Vitamin D (Paracalcitol) for Albuminuria Lowering Study: A Phase II, Prospective, Randomized, Double-blind, Placebo-controlled Multicenter Study to Evaluate the Safety and Efficacy of Paracalcitol Capsules on Reducing Albuminuria in Type 2 Diabetic Nephropathy Subjects who are Currently Being Treated with Renin-angiotensin System Inhibitors [Abbott]	\$ 81,000	\$ -
BACALLAO, R.	Evaluation of Calcimimetics for the Prevention and Treatment of Cystic Kidney Disease [Amgen]	74,906	25,094
	A Phase III, Multicenter, Double-blind, Placebo-controlled, Parallel-arm Trial to Determine Long-term Safety and Efficacy of Oral Tolvaptan Tablet Regimens in Adult Subjects with Autosomal Dominant Polycystic Kidney Disease [Parexel]	4,400	1,100
CHEN, X.	The Role of Fetuin and BMP-2 in Vascular Calcification in CKD-V Patients [Genzyme]	8,696	1,304
DAGHER, P.	Effects of Peptide P13 on Renal Ischemia-reperfusion in Mice [Targeted Gene Delivery]	2,697	903
	Fellows Award for 2008 ASN Meeting in Philadelphia [Genzyme]	3,000	-
DUNN, K.	Research Collaboration Agreement with Eli Lilly and Company [Lilly]	274	87
KARP, S.	Outcome Trial Evaluating the Efficacy and Safety of Norditropin in Adult Patients on Chronic Hemodialysis - A Randomized, Double-blind, Parallel Group, Placebo-controlled, Multicenter Trial [Novo Nordisk]	-	-
	The Collaborative Study Group Trial: The Effect of Sulodexide in Overt Type 2 Diabetic Nephropathy [Medpace]	6,414	1,603
KRAUS, M.	Phosphorus and Calcium Removal During Long Hemodialysis Treatment Sessions [NxStage Medical]	5,495	1,373
	Following Rehabilitation, Economics, and Everyday Dialysis Outcome Measurements Study [NxStage Medical]	53,620	13,405
	Comparison of Nocturnal Hemodialysis and Short Daily Hemodialysis with the NxStage System One [NxStage]	1,600	400
MISHLER, D.	A Phase III, Randomized, Open-label, Comparative, Multicenter Study to Assess the Safety and Efficacy of Prograf/MMF, Modified Release Tacrolimus/MMF and Neoral/MMF in de novo Kidney Transplant Recipients [Fujisawa Healthcare]	7,347	1,837
MOE, S.	The Role of Vitamin D in Immune Function in Patients with CKD Stages 3 & 4 [Genzyme]	43,478	6,522
	The Evaluation of the Pathophysiology of CKD-MBD in a Naturally Occurring Rodent Model of CKD [Genzyme]	74,906	25,094
	Efficacy of Calcimimetics to Inhibit the Progression of Polycystic Kidney Disease [Amgen]	74,906	25,094
	Effect of Dietary Protein Source on Phosphaturia, PTH and FGF23 in Patients with CKD 3 and 4 [Shire Pharmaceuticals]	34,221	8,555
MOLITORIS, B.	Efficacy of GED-aPC in Ischemic Kidney Injury [Cardiome]	12,653	3,847
	Renal Grand Rounds [Merck]	5,000	-
	Examination of the Effect of Thrombomodulin on Contrast Induced Nephropathy [Lilly]	30,375	-
	Pharmacophotonics Grant [Pharmacophotonics]	-	-
	Center for Advanced Renal Microscopic Analysis [Quark]	206,250	-
	BMP-7 Peptides for Use in Acute Kidney Injury [Thrasos]	62,600	-
DIVISION SUMMARY: NEPHROLOGY			
	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL	\$ 2,175,015	\$ 805,544
	VETERANS AFFAIRS TOTAL	450,000	-
	SOCIETIES, FOUNDATIONS, AND OTHER TOTAL	151,504	27,309
	INDUSTRY TOTAL	793,838	116,218
TOTAL		\$ 3,570,357	\$ 949,071

CONTRACTS AND GRANTS

PRINCIPAL INVESTIGATOR	TITLE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST
PULMONARY, ALLERGY, CRITICAL CARE, AND OCCUPATIONAL MEDICINE			
PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES			
PETRACHE, I.	EMAP II, a Molecular Link of Inflammation and Apoptosis in Pulmonary Emphysema [NIH]	\$ 111,608	\$ 60,268
	Ceramide-induced Lung Destruction in Emphysema [NIH]	223,558	45,923
	Novel Protective Antiapoptotic Action of Alpha 1-Antitrypsin in Emphysema [Colorado University / NIH]	209,103	101,411
	Signaling Sphingolipids in COPD [University of Chicago / NIH]	10,000	5,100
TWIGG, H.	Pulmonary CD4+ T-Cell Repopulation in Immune Reconstitution Syndrome [Arizona / NIH]	134,154	68,929
WILKES, D.	Type V Collagen Prevents Lung Allograft Rejection [NIH]	250,000	117,500
VETERANS AFFAIRS			
HAGE, C.	Role of IDO in the Pulmonary Immune Response to Histoplasma Infection [VA]	50,000	-
	Bronchitis and Emphysema and Advice and Training to Reduce Hospitalization [VA Cooperative Studies]	53,023	-
PETRACHE	Novel Protective Functions of Alpha 1-antitrypsin Against Emphysema [Merit Review]	160,000	-
SOCIETIES, FOUNDATIONS, AND OTHER			
BUSK, M.	Asthma Clinical Research Center [American Lung Association]	156,250	-
	Study of Acid Reflux in Asthma [American Lung Association]	3,571	928
	Trial of Asthma Patient Education [American Lung Association]	8,451	2,197
PETRACHE, I.	Smoking Impairs Alpha 1-Anti Trypsin Pro-Survival Effect in the Lung [Flight Attendant Medical Research Institute]	100,000	8,500
	Effect of Ceramides on Apoptotic Cell Clearance (Efferocytosis) [American Heart Association - Midwest]	41,996	-
SANNUTI, A.	Cystic Fibrosis Foundation Therapeutics - Clinical Research [Cystic Fibrosis Foundation Therapeutics]	100,000	8,000
	Cystic Fibrosis Foundation Center Grant [Cystic Fibrosis Foundation]	54,740	-
INDUSTRY			
LAHM, T.	Differential Effects of Endothelin-Receptor Antagonists on Pulmonary Artery Relaxation and Cytokine Expression Following Endotoxemia [Encysive]	10,072	3,374
MATHUR, P.	A Randomized, Double-blind, Placebo-controlled, Parallel-group Trial Assessing the Rate of Decline of Lung Function with Tiotropium 18 mcg Inhalation Capsule Once Daily in Patients with Chronic Obstructive Pulmonary Disease [Boehringer]	2,946	736
	Pilot Study of the Spiration IBV System [Spiration]	46,171	11,003
SANNUTI, A.	A Multicenter, Randomized, Double-blind, Placebo-controlled Trial of Pulmozyme Withdrawal on Exercise Tolerance in Cystic Fibrosis Subjects with Severe Lung Disease [Genetech]	3,280	820
	A Phase III, Randomized, Double-blind, Placebo-controlled Clinical Study Evaluating the Efficacy and Safety of ALTU-135 Treatment in Patients with Cystic Fibrosis-related Exocrine Pancreatic Insufficiency [Altus]	4,761	1,190
	An Open-label Clinical Study Evaluating the Long-term Safety of ALTU-135 Treatment of Patients with Cystic Fibrosis-related Exocrine Pancreatic Insufficiency [Altus]	23,769	5,942
	Multidose Safety and Tolerability Study of Dose Escalation of Liposomal Aztreonam for Inhalation (Arikace) in Cystic Fibrosis Patients with Chronic Infections due to Pseudomonas aeruginosa [Transave]	6,257	1,564
	A Double-blinded, Multicenter, Randomized, Placebo-controlled Trial Evaluating Axtreonam Lysine for Inhalation in Patients with Cystic Fibrosis, Mild Lung Disease, and P. aeruginosa (AIR-CF4) [Gilead Sciences]	12,835	3,209
	Randomized, Double-blind, Placebo-controlled, Multicenter Study to Evaluate the Efficacy of Inhaled Ciprofloxacin Compared to Placebo in Subjects with Cystic Fibrosis [Bayer]	47,673	11,918
	A Randomized, Double-blind, Placebo-controlled Parallel Group Study to Investigate the Safety and Efficacy of Two Doses of Tiotropium Bromide (2.5 ig and 5 ig) Administered Once Daily via the Respimat Device for 12 Weeks [Boehringer]	3,282	820
	A Phase 3, Open-label, Follow-on Study of Multiple Course of Aztreonam Lysinate for Inhalation (AI) in Cystic Fibrosis Patients (AIR-CF3)- Adult [Corus]	5,061	1,265
SHESKI, F.	Airway Epithelium Gene Expression in the Diagnosis of Lung Cancer [Allegro]	4,680	1,170
WILKES, D.	The Role of RTP801 in Ischemia Reperfusion Lung Injury [Quark Biotech]	71,250	23,869
	Evaluation of Reactivity of Mononuclear Cells from Peripheral Blood to Collagen V. [ImmuneWorks]	5,725	1,431
DIVISION SUMMARY: PULMONARY, ALLERGY, CRITICAL CARE, AND OCCUPATIONAL MEDICINE			
	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL	\$ 938,423	\$ 399,131
	VETERANS AFFAIRS TOTAL	263,023	-
	SOCIETIES, FOUNDATIONS, AND OTHER TOTAL	465,008	19,625
	INDUSTRY TOTAL	247,762	68,312
TOTAL		\$ 1,914,216	\$ 487,068

PRINCIPAL
INVESTIGATOR TITLE

ANNUAL
DIRECT COST ANNUAL
INDIRECT COST



RHEUMATOLOGY

PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES

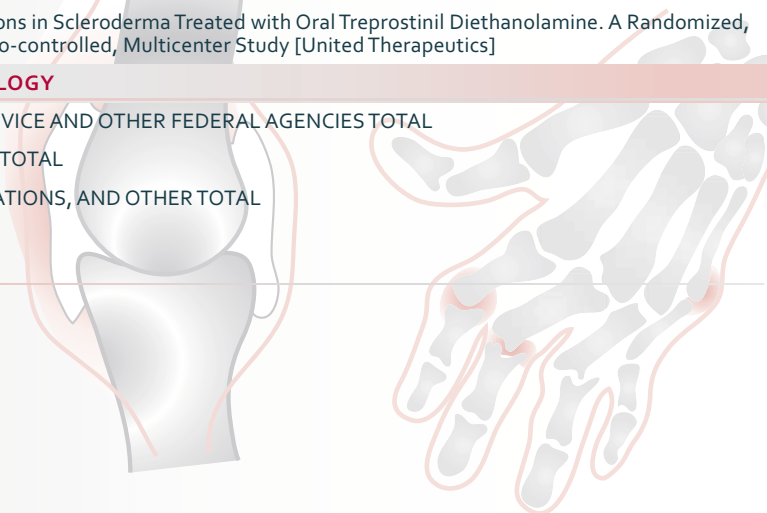
ANG, D.	Ethnic Disparity in the Use of Joint Arthroplasty [NIH]	\$ 29,936	\$ 1,606
	Exercise-Based Motivational Interviewing for Fibromyalgia [NIH-NIAMS]	520,149	167,849
	The Knee Arthroplasty Cognitive Behavioral Intervention (KABIC) Trial [University of Virginia]	9,479	4,834
FIFE, R.	Short Term Research Training Grant in Women's Health T35 [NIH-NIA]	6,696	240
MAZZUCA, S.	Markers of Progression of Knee Osteoporosis [NIH]	299,743	79,791

INDUSTRY

FIFE, R.	A Phase IIIb, Multicenter Study With a 12-Week Double-blind, Placebo-controlled, Randomized Period Followed by an Open-label, Extension Phase to Evaluate the Safety and Efficacy of Certolizumab Pegol Administered to Patients with Active Rheumatoid Arthritis [PPD]	2,500	1,123
	Randomized, Double-blind, Parallel Group, Placebo Controlled Multicenter Study Evaluating the Efficacy of PN 400 BID and Celecoxib 200 mg QD in Patients with Osteoarthritis of the Knee [Kendle International]	65,815	8,590
GRAU, R.	Digital Ischemic Lesions in Scleroderma Treated with Oral Treprostinil Diethanolamine. A Randomized, Double-blind, Placebo-controlled, Multicenter Study [United Therapeutics]	4,000	1,000

DIVISION SUMMARY: RHEUMATOLOGY

	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES TOTAL	\$ 866,003	\$ 254,320
	VETERANS AFFAIRS TOTAL	-	-
	SOCIETIES, FOUNDATIONS, AND OTHER TOTAL	-	-
	INDUSTRY TOTAL	72,315	10,713
TOTAL		\$ 938,318	\$ 265,033



DIVISION SUMMARY

DIVISION	ANNUAL DIRECT COST	ANNUAL INDIRECT COST	TOTAL
Biostatistics	\$ 3,326,923	\$ 895,009	\$ 4,221,932
Cardiology	3,935,026	1,462,793	5,397,819
Clinical Pharmacology	2,694,395	731,498	3,425,893
Endocrinology and Metabolism	4,137,378	1,405,939	5,543,317
Gastroenterology and Hepatology	4,594,667	1,599,099	6,193,766
General Internal Medicine and Geriatrics	28,292,522	1,944,012	30,236,534
Hematology /Oncology	12,528,889	2,956,029	15,484,918
Infectious Diseases	4,982,603	1,220,973	6,203,576
Nephrology	3,570,357	949,071	4,519,428
Pulmonary, Allergy, Critical Care, and Occupational Medicine	1,914,216	487,068	2,401,284
Rheumatology	938,318	265,033	1,203,351
TOTAL	\$ 70,915,294	\$ 13,916,524	\$ 84,831,818

SUMMARY OF FUNDING SOURCES

SOURCE	ANNUAL DIRECT COST	ANNUAL INDIRECT COST	TOTAL
Public Health Service and Other Federal Agencies	\$ 45,682,934	\$ 11,144,767	\$ 56,827,701
Veterans Affairs	4,115,888	–	4,115,888
Societies, Foundations, and Other	10,984,330	810,382	11,794,712
Industry	10,132,142	1,961,375	12,093,517
TOTAL	\$ 70,915,294	\$ 13,916,524	\$ 84,831,818

ANNUAL DIRECT COST SUMMARY

DIVISION	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES	VETERANS AFFAIRS	SOCIETIES, FOUNDATIONS & OTHER	INDUSTRY	TOTAL
Biostatistics	\$ 3,057,321	\$ 137,813	\$ 131,789	\$ -	\$ 3,326,923
Cardiology	2,710,814	218,421	284,907	720,884	3,935,026
Clinical Pharmacology	2,403,188	–	–	291,207	2,694,395
Endocrinology and Metabolism	2,343,599	350,064	866,659	577,056	4,137,378
Gastroenterology and Hepatology	3,502,491	–	120,000	972,176	4,594,667
General Internal Medicine and Geriatrics	20,516,603	2,293,017	5,330,416	152,486	28,292,522
Hematology /Oncology	4,155,713	403,550	2,249,415	5,720,211	12,528,889
Infectious Diseases	3,013,764	–	1,384,632	584,207	4,982,603
Nephrology	2,175,015	450,000	151,504	793,838	3,570,357
Pulmonary, Allergy, Critical Care, and Occupational Medicine	938,423	263,023	465,008	247,762	1,914,216
Rheumatology	866,003	–	–	72,315	938,318
TOTAL	\$ 45,682,934	\$ 4,115,888	\$ 10,984,330	\$ 10,132,142	70,915,294

ANNUAL INDIRECT COST SUMMARY

DIVISION	PUBLIC HEALTH SERVICE AND OTHER FEDERAL AGENCIES	VETERANS AFFAIRS	SOCIETIES, FOUNDATIONS & OTHER	INDUSTRY	TOTAL
Biostatistics	\$ 873,301	\$ –	\$ 21,708	\$ -	\$ 895,009
Cardiology	1,266,626	–	9,814	186,353	1,462,793
Clinical Pharmacology	635,974	–	–	95,524	731,498
Endocrinology and Metabolism	1,087,363	–	213,313	105,263	1,405,939
Gastroenterology and Hepatology	1,359,053	–	–	240,046	1,599,099
General Internal Medicine and Geriatrics	1,744,873	–	157,609	41,530	1,944,012
Hematology /Oncology	1,652,495	–	354,059	949,475	2,956,029
Infectious Diseases	1,066,087	–	6,945	147,941	1,220,973
Nephrology	805,544	–	27,309	116,218	949,071
Pulmonary, Allergy, Critical Care, and Occupational Medicine	399,131	–	19,625	68,312	487,068
Rheumatology	254,320	–	–	10,713	265,033
TOTAL	\$ 11,144,767	\$ -	\$ 810,382	\$ 1,961,375	\$ 13,916,524



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