

STATE *of the*  
Department

■ *Department of Medicine* ■

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**T**his annual State-of-the-Department essay is for use by the members of our faculty, trainees, students, interested alumni and friends of Johns Hopkins as well as potential applicants, Housestaff and fellows.

The Department of Medicine at Johns Hopkins continues to respect and emulate the tradition of William Osler, the founder of this great Department. We exist with commitment to the principles which he established in this Department and which characterized his professional career.

We believe that this Department has and is contributing significantly to the progress of discovery in biomedical science and to improvement in human health across the broadest of perspectives. We are deeply committed to three broad initiatives. First, we believe in innovation and in bringing solutions to

health problems including scientific discoveries at the bench, clinical studies in the area of therapeutics, outcomes research, health economics, public policy and access to care. Our second commitment is to clinical excellence in the care of our patients in a cost effective manner. The third commitment is to educate at every level. This starts with involvement of high school and college students in our programs with encouragement toward entering medicine and in particular, academic medicine. At the heart of education are our medical housestaff and fellowship programs. Finally we have major Continuing Medical Education (CME) and faculty development programs for ourselves as well as health professionals regionally and internationally. The aim of this essay is to document our achievements and discuss the strategies and the challenges to this Department.

## ■ Research ■

In 2002 as I became Chair of the Department I placed emphasis on the promise of an enhanced focus on multi-investigator and center grants. Most often the

head of the research unit would be a member of the Department of Medicine. We should lead multi-

investigator and multi-disciplinary research with a focus on a specific adult diseases.

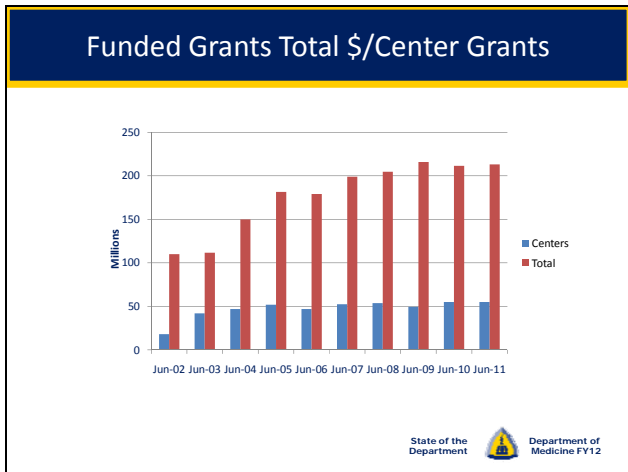


Figure 1

Figure 1 shows the overall picture of our research funding over the past 9 years. The portion of that funding (shown in blue) is the funding for multi-investigator grants in which the principal investigator is in the Department of Medicine.

Between fiscal year 2002-2010 we have seen more than doubling the research revenue in terms of grants awarded to the Department. At least 50% of that increase is in these multi-investigator grants!

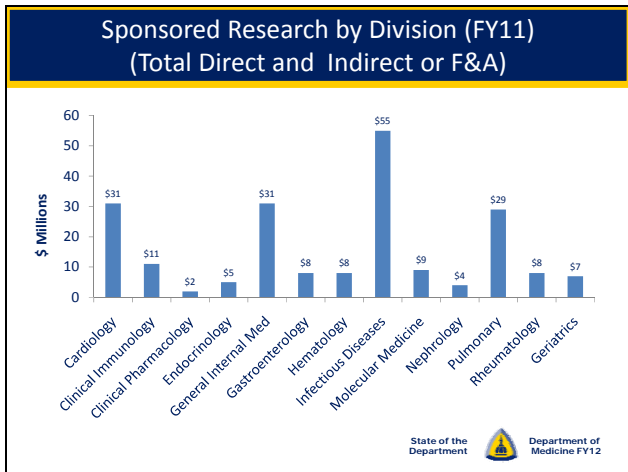


Figure 2

In terms of divisions or academic units the highest research funding in the Department of Medicine is for the programs in Infectious Diseases, Cardiology, Pulmonary Medicine and General Internal Medicine. Although less in terms of actual total dollars we enjoy

extraordinarily strong research programs in each and every one of our divisions (Figure 2).

Research funding has stabilized as our faculty has not expanded (except hospitalists) over the last few years (Figure 3).

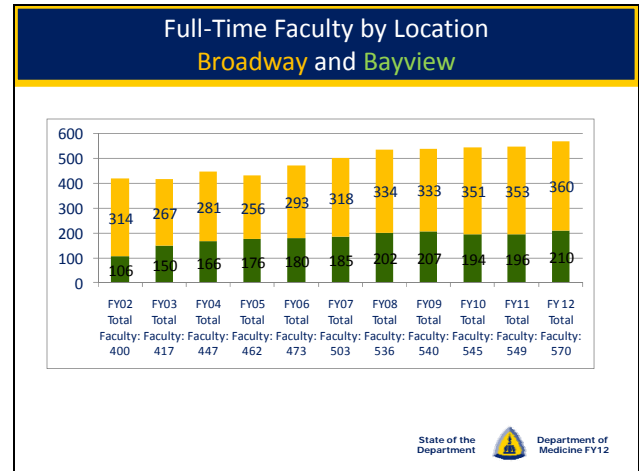


Figure 3

One of the most important signs of support for our Department and its research programs is the commitment of the Institution to expand our laboratory and clinical research efforts. Between the years of 2002-2008 the research space in the Department of Medicine increased from 128,000 square feet to 201,000 square feet. This very appreciable increase in space has been met almost exactly by an increase in research funding so that the dollars of research funding per square foot have remained essentially constant at about \$1,000 per square foot. In my experience this ratio rivals any Department of Medicine in the country in terms of the density of the research funding per unit space.

Recently the Department gained research space in the new John G. Rangos Sr. Family Foundation Building (Figure 4). This is the first building to open in the Hopkins biotechnology complex. In addition to research units within the Department of Medicine, 100,000 of the 300,000 square feet in the building will be occupied by the basic science departments in the Johns Hopkins Medical School. This is the first time that there is a conscious effort to integrate laboratory research programs of the Department of Medicine and the basic science departments. I anticipate that center grants and other collaborative research efforts will be

enhanced even further by this geographic proximity of basic science in the Department of Medicine. The programs in the Department of Medicine which occupy 20,000 plus square feet of space in the Rangos Building are the Epigenetics program, our program in Hepatitis C, our basic laboratory program in HIV/AIDS and a portion of our laboratory based Nephrology program.

**John G. Rangos Sr. Family Foundation Building**

Medicine Programs:

- Epigenetics
- Hepatitis C
- HIV
- Nephrology

Figure 4

The second of our research strategies is to promote research core units. Very strong units now exist in epigenetics, genetics, proteomics, a variety of microscopy facilities and in mass spectrometry (Figure 5).

**Promote Research Core Units**

- Bayview Genomics Core  
Kathleen Barnes
- Bayview Proteomics Center  
Jennifer Van Eyk
- Epigenetics  
Andrew Feinberg

Figure 5

Kathleen Barnes leads the Bayview Genomics Core unit, Jennifer Van Eyk, leads the Bayview Proteomics Unit and Andrew Feinberg, is the Director of our Epigenetics program. We are currently putting

emphasis on establishing a tissue and clinical data management unit.

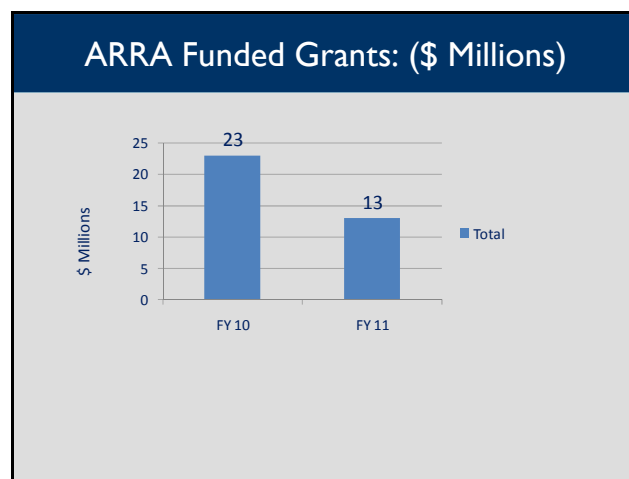


Figure 6

**FY 2010 Awards > \$1m/yr (direct costs)**

Lisa Cooper, MD, MPH  
Division of General Internal Medicine  
"Hopkins Center to Eliminate Cardiovascular Disparities"

Chi Dang, MD  
Division of Hematology  
"Stand Up to Cancer", Univ. Pennsylvania

Susan Dorman, MD  
Division of Infectious Diseases  
"Tuberculosis Clinical Diagnostics Research Consortium (CDRC) from NIH, NIAID"

Jennifer van Eyk, PhD  
Division of Cardiology  
"Proteomics Center on Heart Failure"  
Sponsor: NHLBI

Jonathan Zenilman, MD  
Division of Infectious Diseases  
"Phase I CTU for Therapeutics Against Infectious Diseases"  
Sponsor: Clinical Research Management, Inc.

State of the Department of Medicine FY11

Figure 7

Another highlight of the Department's research program is the focus on demographic disparities and efforts to improve health in the underserved community of East Baltimore. Currently there is \$44 million in committed funding for these programs over the next 5 years. Several of the programs are listed in Figure 6. Shown in Figure 7 are new grants that were awarded in the past year for more than a million dollars per year. Listed is only the Principal Investigator of the grants; most of these grants have many faculty members contributing to them. Of course the final goal for our research programs is to produce great discoveries and we are accomplishing that goal. Contributions have been made to our

knowledge and understanding of fundamental biology, the pathophysiology and treatment of human disease, and the epidemiology of human disease. Clinical trials and outcomes research have decreased the impact of disease on human health.

## ■ Clinical Programs ■

The Department of Medicine currently discharges 28,000 patients per year at Hopkins Hospital and the Bayview Medical Center. Our patient care is primarily designed to provide quality services. At the same time, we work towards understanding disease better, and improving the treatment and management of disease. Most importantly we intend to teach the next generation of academically committed physicians’ clinical knowledge and to pass on to the next generation the spirit of the Oslerian commitment to each single patient. Osler emphasized the enormous value of the careful history, the detailed examination, testing and contemplation. We continue to espouse those principles.

Our efforts on both campuses have been to develop a data driven program to improve operational efficiency. This is largely focused itself on a “length of stay program” but in pursuit of shortening length of stay we have emphasized the timeliness of consultative service, the timeliness and proper decisions with regard to procedures and testing and the initiation of treatment. It is very clear that this type of orientation not only results in economic advantage but also results in improved outcomes. Our efforts to shorten length of stay within the Department of Medicine have been passed on to other departments through efforts to organize and encourage broad hospital attention of all departments to the issues of timely and effective care.

During the past year we initiated a number of major quality and patient safety initiatives. We have achieved outstanding performance in documented hand hygiene. We have reached and exceeded national standards for deep vein thrombosis prophylaxis screening. We now have a rapid response team throughout the medical service and in fact now cover parts of other services where on call physicians are more difficult to identify. Our core measures are nearly uniformly above Maryland and national standards.

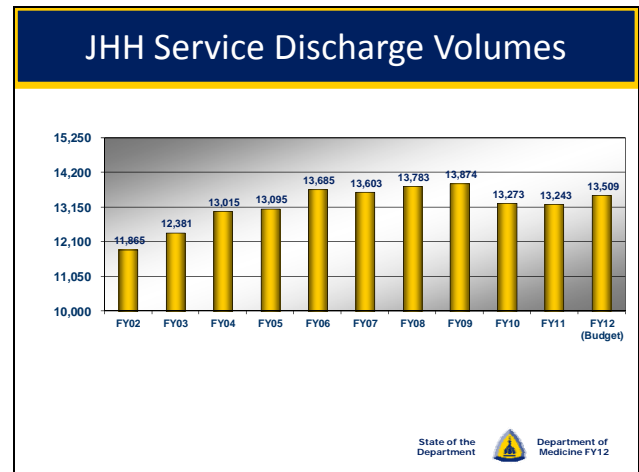


Figure 8

Over the last 5 years we have increased our discharges from Hopkins Hospital (approximately 12,000 to 14,000) (Figure 8). A similar increase in discharges occurred on the Bayview campus over this period of years, again about 12,000 to over 13,000 in the most recent year (Figure 9). At the Hopkins Hospital discharges are lower by about 4% the last two years. This largely represents good news! Fewer uninsured patients in need of emergent care are coming to our Hospital. The East Baltimore community because of our efforts is healthier!

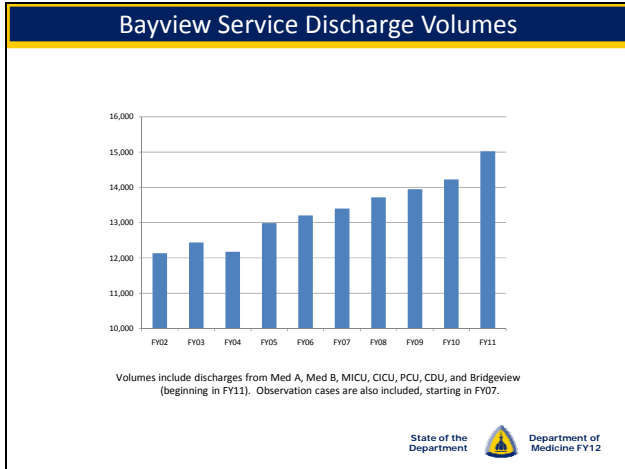


Figure 9

We believe that patients that have undergone transplantation have very special needs in terms of medication delivery and care. This year we began a combined multidisciplinary unit in which all kidney and liver transplantations patients are under the care of a single nursing service and a single focus on the needs of patients who have undergone transplantation.

Figure 10 is a tribute to the effectiveness of our nursing service leadership and to the growing collegiality and partnership between physicians and nurses in caring for our patients. Over the past year, there is a very significant decrease in the number of nurses who have left our service and an increase in hiring new nurses. Thus, at the present time, our nursing work force is large enough so that we are almost entirely free of part-time nurses from commercial agencies as shown in Figure 10. All of our nurses are familiar with the Hopkins systems, our computer systems, our approaches to care and our ways of ensuring patients' safety and quality care.

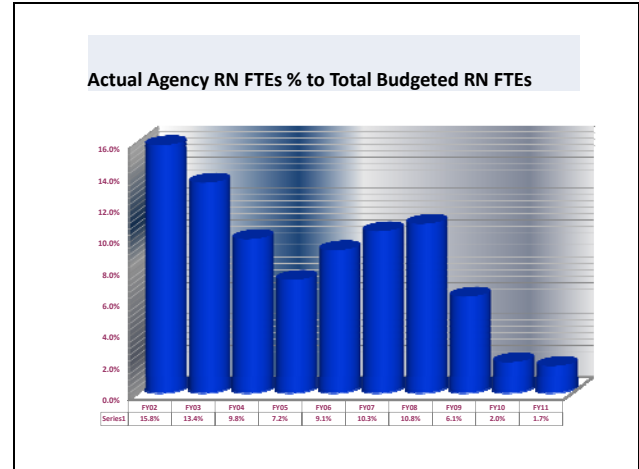


Figure 10

With very significant Johns Hopkins Hospital support we have begun a number of specialized inpatient services concentrating a faculty member on some aspect of care. Most prominent and successful has been our adult sickle cell program. It is the only organized program for adult sickle cell disease that we are aware of in the state of Maryland.

We are now following some 400 patients with adult sickle cell disease. The adult sickle cell center provides outpatient infusions (Figure 11) and long-term management of sickle patients. Dr. Sophie Lanzkron is the leader of this program. The program as a whole provides outpatient care as well as inpatient consultation. We maintain a newsletter and a patient support group. Currently the sickle cell center is opened from 8AM-5PM seven days a week. Figure 12 shows the remarkable decrease in inpatient admissions of sickle cell patients seen in the center over the last year of operation. Very clearly there is a learning curve associated with taking care of these complex patients. It is remarkable that currently only 10% of the patients seen in the sickle cell center are admitted into the hospital, whereas patients coming to the emergency department when the sickle center closes have an admission rate of about 50%.

Figure 13 shows the notable decline in hospital admissions for adults with sickle cell disease in Baltimore City. We believe that this decline in discharges of about 25 patients per month is related to the opening of our center and its reduced admission rate. This results in a savings of 2.4 million dollars per year for healthcare of sickle patients in all of Baltimore City.

In addition to sickle cell, there are a number of other clinical programs to improve patient care and enhance safety. We have an inpatient/outpatient program focused on use of anticoagulant medications to improve safety in the use of these very important therapeutic agents. Our commitment to sleep medicine is expanding on both campuses with the Bayview center focusing largely on research and a clinically oriented sleep center at the Johns Hopkins Hospital. We also have diabetes specialized services on both campuses as well as programs targeted at patients with illicit substance abuse problems. A new effort is in the area of nutrition where we are exploring the opportunities to develop a hospital based program. Our hospital infection epidemiology program and faculty have been expanded and have made a major impact on issues such as intensive care unit blood stream infections and vaccinations. Each of these specialized services has a strong teaching component with the primary targets being the medical housestaff and nursing.

The Department of Medicine on both campuses pioneered physician order entry systems and electronic medical records and partnered with the informatics and technical staff in improving these fully implemented systems; making it more physician-friendly and safer. We have supported and have been part of executive safety rounds across the institution.



Figure 11

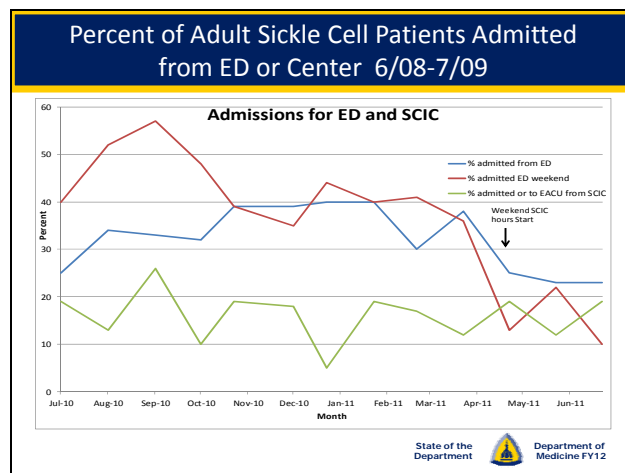


Figure 12

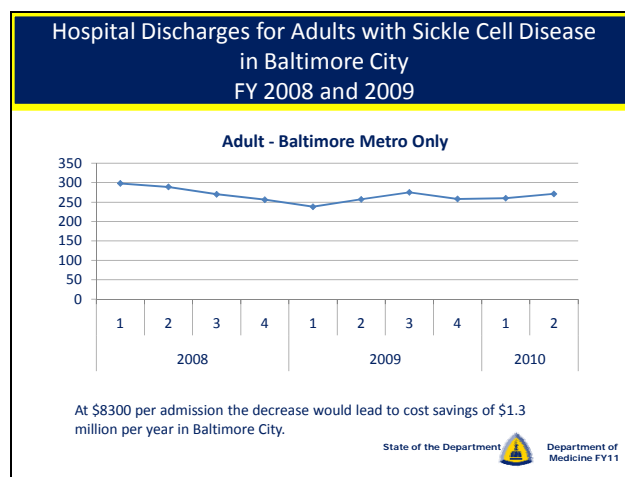


Figure 13

We want to continue to improve service excellence this year by increasing our attention to the physician, as well as the patient, as our customer. We are also targeting a variety of quality indicators as national benchmarks for excellence.

## ■ Educational Programs ■

As we turn our attention to teaching and education we again see the Department of Medicine following the Osler tradition. We play a leadership role in the formulation and direction of teaching and in being identified as teachers of excellence throughout the School of Medicine. Medicine faculty are the singular leaders in designing and implementing the new Johns Hopkins Medical School curriculum, “Genes to Society”. This curriculum integrates basic science and clinical medicine throughout the four years of medical school education. There is a focus on individuality, systems biology, and the environment which are emerging as important determinants of human disease and its treatment. There is also a new Institute for Excellence in Education at JHU SOM that is directed by a member of the DOM faculty (Joseph Cofrancesco).

Johns Hopkins Medical School has created four “colleges” that divide the students into smaller groups for counseling and informal education. Nearly half of the individual leaders of the college program are from the Department of Medicine.

Both the Osler Housestaff program and the Bayview Housestaff program graduates gain outstanding fellowship or other opportunities on completing their Housestaff training. Below is a list of the programs or positions for those Housestaff completing training in July, 2011:

- Cardiology-Cleveland Clinic (2)
- Cardiology-JHH (4)
- Heme/Oncology-JHH
- Pulmonary and Critical Care-JHH (2)
- Oncology Fellowship-NIH (2)
- GIM Practice-South Dakota
- GIM Practice-JHH
- Cardiology-UCSF (2)
- GI/Hepatology-UPenn

Under the leadership of David Hellmann, Roy Ziegelstein and Colleen Christmas, the Housestaff program on the Bayview campus has begun a new program to enhance the ability of the residents to understand more about the social and community contexts of the patient’s illness and care. This program allows Housestaff under mentors to reduce their workload for one month during the Housestaff training for this purpose. During this period, Housestaff will go to patients’ homes and visit with

- Cardiology-Columbia Presbyterian
- CDC/EIS-Atlanta
- GIM Practice-UCLA
- Hospital Medicine-USCF
- Cardiology-UMiami
- Hospitalist/GI-Howard County Hospital/TBA
- Cardiology-Vanderbilt
- Infectious Diseases-Duke
- Cardiology-Thomas Jefferson
- Cardiology-UNC
- Pulmonary and Critical Care-UColorado
- GI/Hepatology-Stanford
- Hospitalist/Oncology-JHH/TBA
- Pulmonary and Critical Care-UMich
- Oncology-Duke
- Cardiology Research/Cardiology-JHH/TBA
- Cardiology-UTSouthwestern
- Heme/Onc-Dana Farber
- Geriatrics-JHH (4)
- Rheumatology-JHH
- ID-NIH
- District Director of Public Health at Virginia Department of Health
- Hospitalist-Corpus Christi, TX
- Endocrinology-U. Miami
- Cardiology-UMD
- ID-UPenn
- Hospitalist-UMich
- GI-JHH
- Medical Program Director, Samaritan’s Purse in Haiti/GIM-JHH
- Private Practice-York, PA

the patient there and with their family and other social contacts. As well, during this special month, the Housestaff will have more time to discuss impediments to care and discuss other opportunities for better care with their patients. This entire program is called the Aliko initiative, named after a donor, who has provided very substantial support for this very remarkable effort (Figure 14).

Last year also the Department of Medicine at the Johns Hopkins Hospital began a new residency program designed to train leaders for healthcare of the urban community. The Johns Hopkins Urban Health Residency will focus training and attention on those issues that are so important to the care of inner city, over underserved populations. This includes emphasis on the family as the important care unit. The first program began in July, 2010 and is a 4 year Medicine/Pediatrics program with qualification for certification in both medicine and pediatrics. The program will extend for 2 years of work-study where the individual trainee will be employed within the Johns Hopkins Community Physicians work force and will receive tuition benefits in obtaining a MPH, MBA or other Master's Degree. The program will have a great number of specialized training opportunities in those issues of healthcare that are so important to this type of community (Figure 15). The program admits 4

trainees per year and is led by Leonard Feldman and Rosalyn Stewart, both of whom are Med/Peds trained physicians. The second parallel program in Internal Medicine only began in July, 2011 with 4 trainees per year.

We are working to increase the research activities of our medical Housestaff and our fellowship programs. We have increasing financial support for the scholarly efforts of the Housestaff.

Finally, it is not surprising that at every honor ceremony the teaching faculty of the Department of Medicine is broadly recognized for excellence.

We are committed to gender equity and increasing the diversity of trainees at every level particularly diversity in terms of increasing our underrepresented minority trainees (Figure16 and 18).



Figure 14

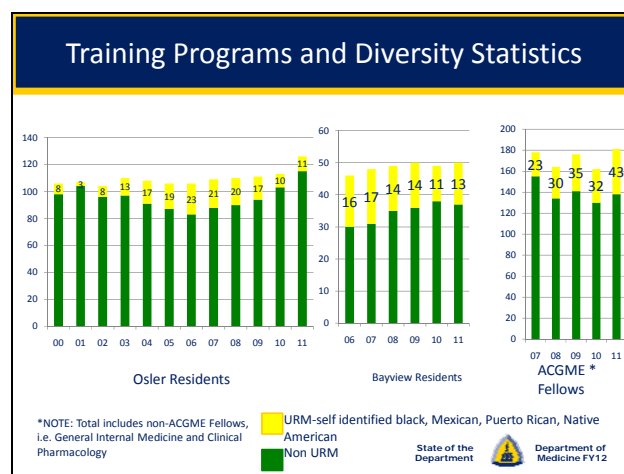


Figure 16

**Johns Hopkins Urban Health Residency:**  
 Len Feldman, MD and Rosalyn Stewart, MD, MS, MBA

- Starts July, 2010
- 4 per year in each program
- Med-Peds qualifying: 4 years
- Then: Two Years work/study in East Baltimore, Med only: 3 years
- Tuition MPH, MBA or other Masters
- Special emphasis: family clinic, mental health, violence, substance abuse, systems of care

Figure 15

## ■ Faculty Development ■

As a result of a retreat of the faculty of the Department of Medicine three years ago we put special emphasis and efforts into the area of faculty development. In particular we look to aiding our Assistant Professors to achieve the type of scholarship and contribution that will allow them to advance their careers and advance as members of the faculty of Johns Hopkins. We sponsor and encourage our junior faculty to participate in faculty development courses. These courses provide insights to junior faculty on issues such as grants support, mentoring, national leadership, and a variety of technical subjects important to an academic career. We insist that every member of the faculty, particularly our junior faculty, have a written annual review by their division chief or unit director. These annual reviews are very important in terms of allocating and understanding resources, and they provide necessary mentoring for each faculty member.

**New Professors**

Landon S. King, MD  
 Naresh M. Punjabi, MD, PhD  
 Patricia A. Thomas, MD  
 Marcia Irene Foo Canto, MD  
 Stuart Campbell Ray, MD

State of the Department  Department of Medicine FY11

Figure 17

We have begun a significant effort to identify either a division chief or another individual within each division as their “mentor-in-chief” for that division or unit. The mentor-in-chief is an individual who faculty members can consult with regard to the adequacy or the approach to mentoring that they are receiving. In addition, the mentor-in-chief is responsible for monitoring and making their own assessment of the progress of each individual faculty member, particularly junior faculty, within their unit or division. They ensure that optimal mentoring is afforded to each faculty member.

Figure 17 is a list of the members of the faculty who were promoted to the rank of Professor within the

past year. These faculty members span the horizon of American medical excellence and innovation.

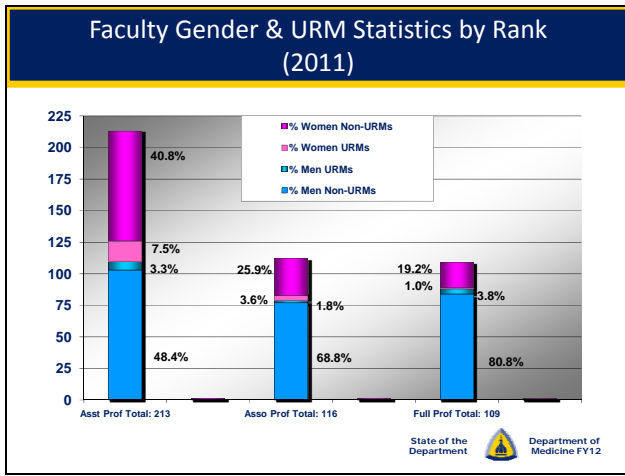


Figure 18

### Executive Committee

- Myron L. Weisfeldt, MD, Chair
- Susan MacDonald, MD, Deputy Chair
- Adrian Dobs, MD, Vice Chair, Faculty Development
- Hamid Rabb, MD, Vice Chair, Research
- Steve Sisson, MD, Vice Chair, Clinical Operations
- Sanjay Desai, MD, Vice Chair, Education & Housestaff
- David Hellmann, MD, Chair, DOM Bayview
- Karen Davis, Director, Nursing
- Paul Scheel, MD, Chief, Nephrology
- Gordon Tomaselli, MD, Chief, Cardiology
- Staff: Charles Barbara, Administrator
- Charles Turner, Director, Development
- Doug Brooks, Director of Finance

Figure 19

These efforts towards mentoring have been concentrated in part to be certain that women who are now joining our faculty at the Assistant Professor level advance at the same rate as men in terms of their scholarship, contributions and academic rank. As indicated in Figure 18, currently 47% of our Assistant Professors are women, 30% of Associate Professors and 20% of full Professors. Each of these numbers have increased substantially over the last 15 years. On the average it typically takes 10-15 years for a faculty member to advance from Assistant Professor to Professor. Given this time sequence, it suggests women are advancing in this Department at a similar rate to men.

In terms of the Division leadership, on the East Baltimore campus and the Bayview campus, we have 20 identifiable Divisions. Sixteen of these 20 divisions have had new leadership in the last 7 years. The characteristics of these new division chiefs are that they are deeply committed to both basic and translational research, clinical medicine, and education at every level. Additionally they must embrace our gender and diversity programs and our overall Departmental objectives. These are a remarkable group of leaders. Figure 19 lists the Deputy Chair and Vice Chairs and other senior leaders who form the Executive Committee. My administration places an emphasis on open communication, on collegiality, and above all on inclusion.

## ■ Finances ■

One of the challenges of academic medicine today is how to maintain the financial health, salary structure, and investments in programs and initiatives. We are increasingly emphasizing new sources of revenue that are outside of the usual lines of peer reviewed research and clinical patient care revenue for the individual care of patients. We are successfully pursuing nontraditional sources of revenue for academic programs. These areas include licensing and royalty of

our intellectual property, business contracts related to the business of medicine as such as renal dialysis and sleep study operations.

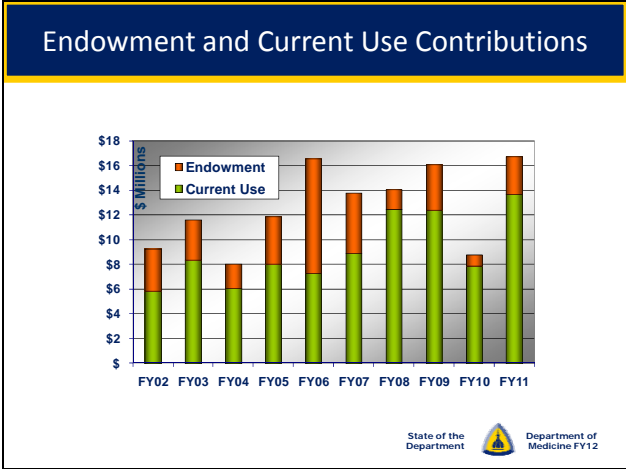


Figure 20

Largest among these efforts is our philanthropic effort (Figure 20). The success has grown considerably over the years. We enjoy gifts into programs of approximately 10-14 million dollars per year. As shown in Figure 21, these new contributions as well as market forces have resulted in a growth of our endowment over the last 5 years from 60 million dollars to almost 110 million dollars at this high point.

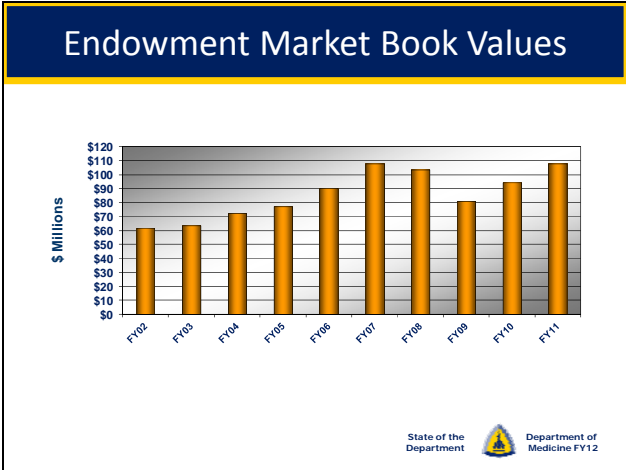


Figure 21

These endowment funds are extremely important to the stable long-term support of the department.

Also, I would comment with a sense of pride that for the last 6 years in the “academic or medical school rankings” from US News and World Report we are rated as either the first or second Department of Internal Medicine in the country. (In 2009, 2010 and 2011 number one). These ratings are based on reputation scores largely provided by medical school deans and senior faculty members as described by US News and World Report. It is a great honor to be considered at this level of excellence by our peers and by the deans of American medical schools.

Finally, let me return to Osler and one of the remarkable traditions that he embodied. As the Chair of the Department, Osler began a tradition of collegiality with his younger colleagues.

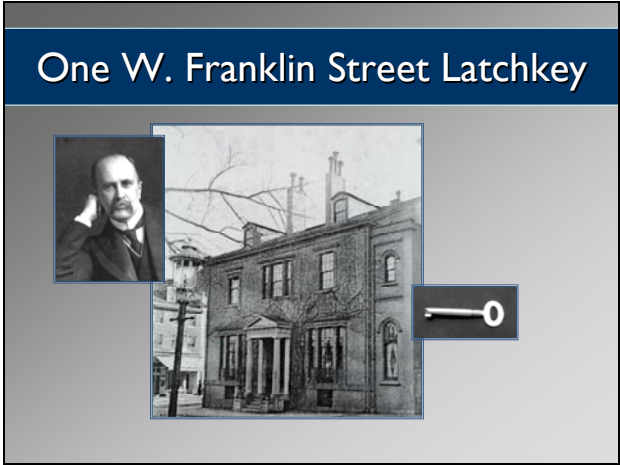


Figure 22

Osler gave his younger colleagues the key to his house at 1 West Franklin Street. That key is called the “latchkey” and it is pictured along with his house at 1 West Franklin Street in Figure 22. I can no longer as Chair of Medicine invite everybody in the department, over 500 faculty or 150 Housestaff or 175 fellows, to join me at my house and look through my library and books. But I can myself encourage the collegiality, the exchange of information, the warmth that was embodied in the latchkey group through my own efforts. I encourage all faculty to act in the tradition of Oslerian openness, collegiality, mentoring, and training to ensure the success of our next generation.