STATE *of the* Department

▪ *Department of Medicine* ▪

SEPTEMBER 5, 2008

This 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. 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 progress in discovery in biomedical science and to improvement of human health across the broadest of perspectives. We are deeply committed to 3 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 matter. The third commitment is education 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) 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 great Department.

Figure 1 is a list of the members of the faculty who were promoted to the rank of Professor or were recruited from other institutions and were appointed at the rank of Professor within the past year. Figure 2 lists new Associate Professors. These faculty members span the horizon of American medicine and innovation as I have described above.

Professors
Appointed or Promoted 2007-2008

- John A. Flynn, MD, MBA, General Iinternal Medicine
- Charlotte A. Gaydos, PhD, MPH, Infectious Disesases
- Gail Geller, ScD, General Iinternal Medicine
- David E. Kern, MD, General Iinternal Medicine
- Joao A.C. Lima, MD, MBA, Cardiology
- Hamid Rabb, MD, Nephrology
- Richard R. Rubin, MD, PhD, Endocrinology
- Scott M. Wright, MD, General Iinternal Medicine

Figure 1

Associate Professors Promoted 2007-2008

Mohamed G. Atta, MBBCh, Nephrology
Mary Catherine Beach, MD, MPH, General Internal Medicine
Daniel J. Brotman, MD, General Internal Medicine
Susan E. Dorman, MD, Infectious Diseases
Eric A. Engels, MD, MPH, Infectious Diseases
Derek M. Fine, MD, Nephrology
Kelly A. Gebo, MD, MPH, Infectious Diseases
Sherita Hill Golden, MD, Endocrinology
Fellicia Hill-Briggs, PhD, General Internal Medicine
Suzanne M. Jan de Beur, MD, Endocrinology
Sergey V. Kantsevoy, MD, Gastroenterology
Albert C. Lardo, PhD, Cardiology
Yukari C. Manabe, MD, Infectious Diseases
Annabelle Rodriquez-Oquendo, MD, Endocrinology
Sarbjit S. Saini, MD, Allergy & Clin. Immunology
Jodi B. Segal, MD, MPH, General Internal Medicine
Larissa A. Shimoda, PhD, Pulmonary
Michael B. Streiff, MD, Hematology

Figure 2

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 6 years since my arrival as Chair of the Department. 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 objectives. They are a remarkable group of leaders and I am very proud of them. Figure 3 lists members of the Vice Chair group and other senior leaders who form my Executive Committee. Fifty percent of this very talented group are women. This Executive Committee has aided me

Executive Committee

Adrian Dobs, MD, Vice Chair, Faculty Development
Charles Wiener, MD, Vice Chair, Education & Housestaff
Charles Barbara, Administrator
Charles Turner, Director, Development
David Hellmann, MD, Chair, DOM Bayview
Doug Brooks, Director of Finance
Gordon Tomaselli, MD, Vice Chair, Research
Myron L. Weisfeldt, MD, Chair
Patricia Thomas, MD, Associate Vice Chair, Education
Redonda Miller, MD, Vice Chair, Clinical Operations
Susan MacDonald, MD, Deputy Chair

Figure 3

tremendously in guiding this department administratively in a data driven manner towards innovation, fiscal responsibility and focused growth. My administration also places an emphasis on open communication, on collegiality, and above all on inclusion of all, regardless of race, ethnicity or gender.

Research

Next, I turn toward the research strategies and accomplishments of this Department. 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, in which the head of the research unit would be a member of the Department of Medicine. We appropriately should lead multi-investigator and multi-disciplinary research with a focus on a specific adult disease.

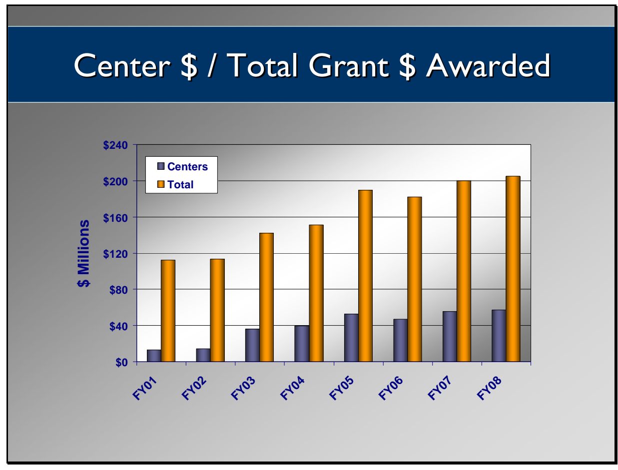


Figure 4

Figure 4 shows the overall picture of our research funding over the past 7 years. The percentage of that

funding (shown in blue) is the funding for multi-investigator grants in which the principle investigator is in the Department of Medicine.

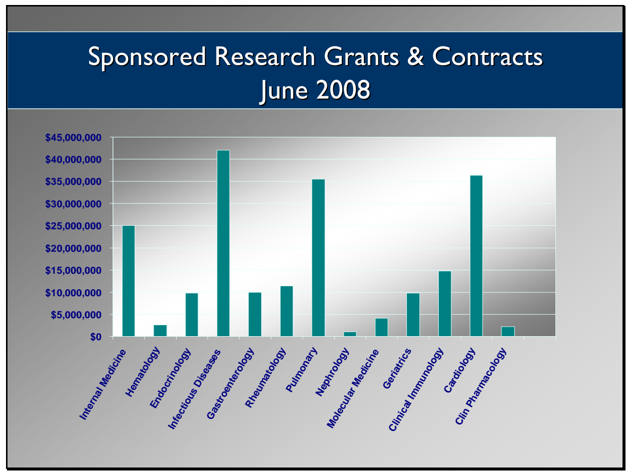


Figure 5

Between fiscal year 2002-2008 we have seen a doubling the research revenue in terms of grants awarded to the Department. At least 50% of that increase is in these multi-investigator grants!

In terms of divisions or academic units the highest research funding in the Department of Medicine is for the programs in Infectious Diseases followed by programs in 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 5).

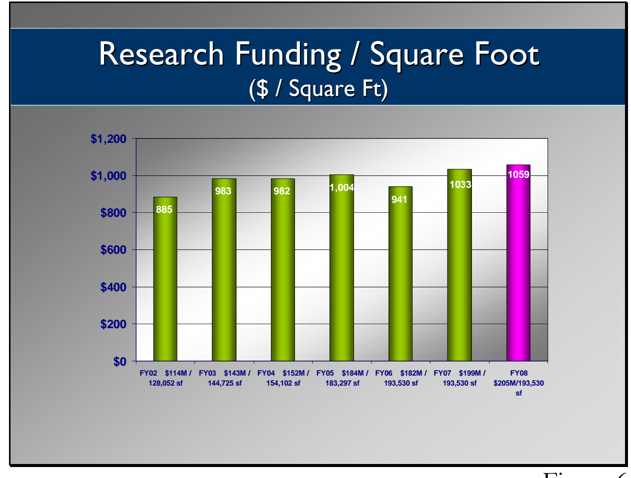


Figure 6

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 194,000 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 (Figure 6). 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 has gained new research space in the new John G. Rangos Sr. Family Foundation Building (Figure 7). This is the first building 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 look forward to seeing 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 will 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.

Figure 7

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 8).

Figure 8

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

We are currently advancing and putting emphasis on establishing a tissue and clinical data management unit.

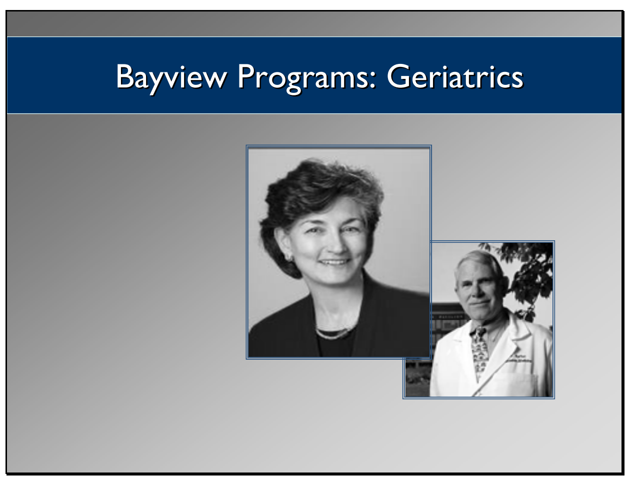


Figure 9

The third of our research strategies has been to expand research on the Bayview campus. At this point I will highlight only one of the major programs that has progressed and advanced in terms of its research potency on the Bayview campus: the Geriatrics program.

John Burton (Figure 9) led the Division of Geriatrics until 2002. He formed the very strong clinical base and clinical academics of this division. In his honor the Geriatrics building on the Bayview campus is named the John Burton Pavilion. In 2002, Linda Fried became the director of the geriatric and aging programs on both campuses. It was her challenge to augment the research programs on the Bayview campus. She has now left the Department to become the Dean of Columbia University School of Public Health.

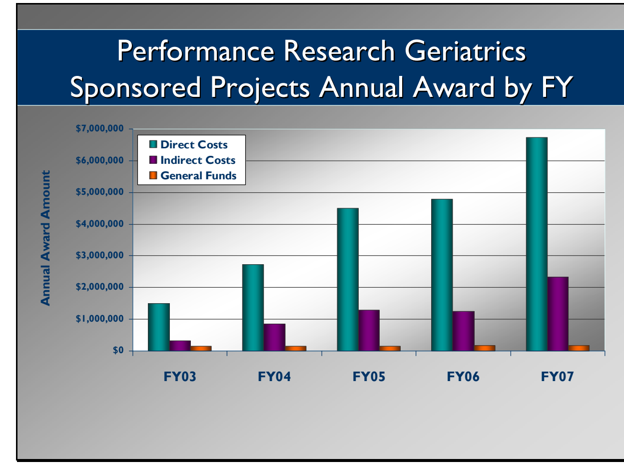


Figure 9

Figure 10 shows the remarkable increase in both the direct and indirect research costs recovered through her leadership efforts. This division has gone from a little more then a million dollars a year in research funding to now over 9 million dollars in total research funding.

Paralleling the growth of our research programs on the Bayview campus are the clinical programs on the Bayview campus. This growth has resulted in a substantive increase in the number of faculty on that campus (Figure 10).

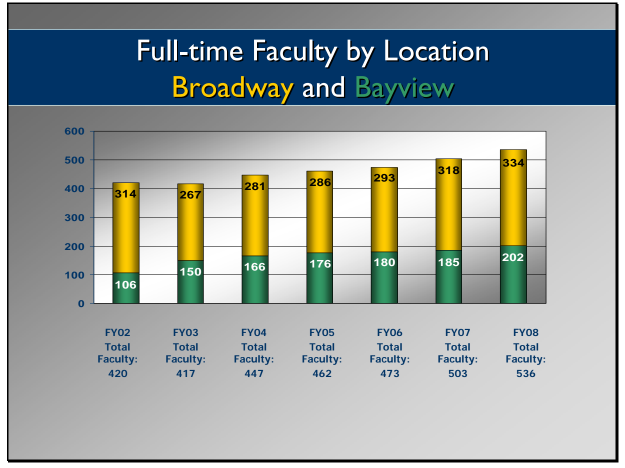


Figure 10

In the past 6 years the number of faculty on the East Baltimore campus has been essentially stable at a little over 300 faculty members. In the meantime the number of faculty on the Bayview campus has increased from 106 to over 200 faculty members. Between the two campuses the Department of Medicine now has over 500 full-time faculty members. The full-time status means that these individuals are compensated and work for Johns Hopkins University within the Department of Medicine.

Of course our final strategy for our research programs is our goal is to produce great discoveries. Discoveries that have come from the Department of Medicine have been major. Contributions have been made to our knowledge and understanding of fundamental biology, the pathophysiology and treatment of human disease, the epidemiology of human disease and clinical trials and outcomes research that decrease the impact of disease on human health.

▪ Clinical Programs ▪

Turning our attention to patient care and hospital operations, the Department of Medicine currently discharges 27,000 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.

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 clearly 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 same issues.

In Figure 12 on the left hand side in the orange bars is the length of stay for the Johns Hopkins Hospital excluding patients who stayed more then 50 days.

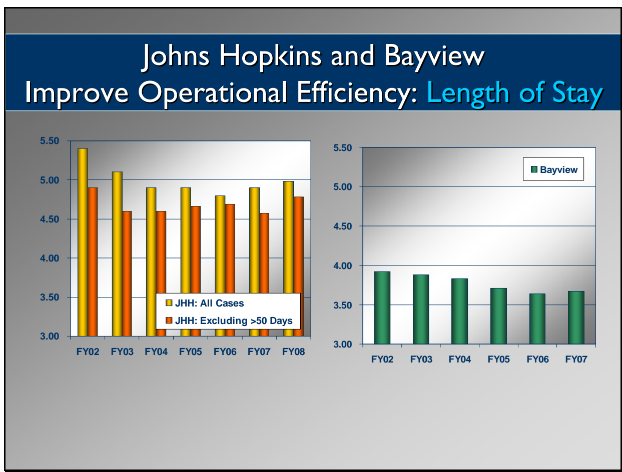


Figure 12

Since patients who stay more then 50 days have skewed economics of reimbursement in Maryland, we have excluded them. The orange bar data shows a significant, consistent shortening of length of stay over time to the last year. On the right hand panel is similar data for the Bayview Medical Center where the severity of illness is not as great. In the last year one day length of stay patients were not counted as admissions.

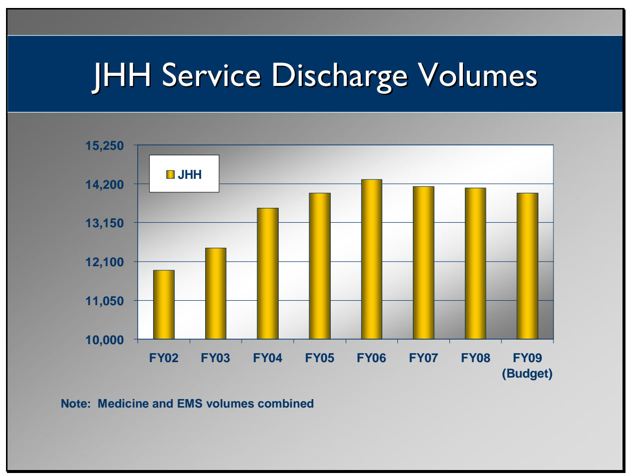


Figure 13

At Bayview the length of stay is shorter and the trends towards shortening length of stay are similar in terms of the temporal changes over the last several years. In part as the result of shortening length of stay we have been able to accommodate a greater volume of patients. We also have increased the number of beds in the medical service at Johns Hopkins in a modest fashion.

Over the last 5 years we have increased our discharges from Hopkins Hospital (approximately 12,000 to 14,000) (Figure 13). 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 14).

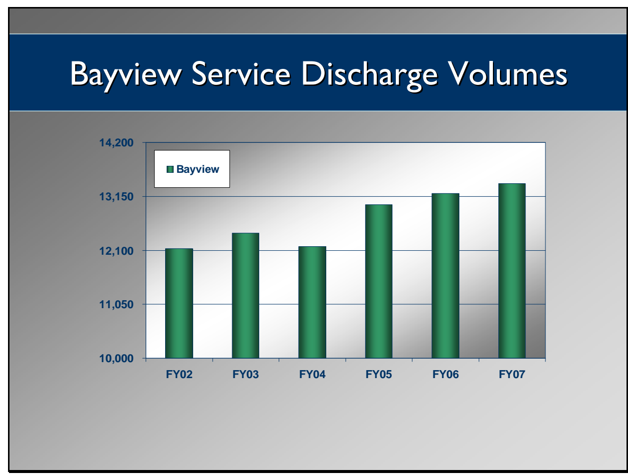
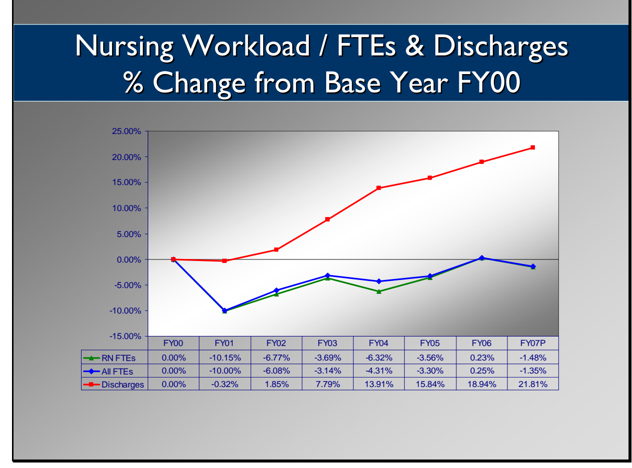


Figure 14

Figure 15 is a tribute to the efficiency and effectiveness of our nursing service. As discharges have increased by 20% as shown in the red, the number of RN FTE's (full-time equivalent) nurses and the number of entire support staff nurses have not increased. Thus, nurses and support staff are working harder and more efficiently and effectively. This is clearly a contributor to the financial health of the department as well as to the benefit of our patients.



	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07P
RN FTEs	0.00%	-10.15%	-6.77%	-3.69%	-6.32%	-3.56%	0.23%	-1.48%
All FTEs	0.00%	-10.00%	-6.08%	-3.14%	-4.31%	-3.30%	0.25%	-1.35%
Discharges	0.00%	-0.32%	1.85%	7.79%	13.91%	15.84%	18.94%	21.81%

Figure 15

On both campuses we now have 8-10 physicians who are full-time inpatient hospitalists. Figure 16 shows the growth of discharges on the hospitalist service for Johns Hopkins Hospital. This service now discharges some 1,500 patients per year. Our hospitalist service does not have Housestaff from the Osler service but has a large cadre of senior medical students and Housestaff from other programs.

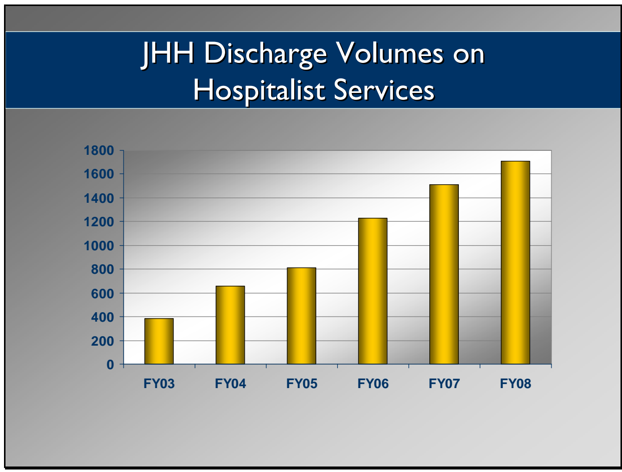


Figure 16

With very significant Johns Hopkins Hospital support we have begun a number of specialized inpatient services concentrating a single faculty member on some aspect of care supported by nurses and physician assistants in pursuing excellence of care in each of these problem areas in adult medicine. Most prominent and successful has been our adult sickle cell program. It is the only organized program for sickle cell disease that we are aware of in the state of Maryland. We are now following some 300 patients with adult sickle cell disease and will open a separate geographic sickle cell center and day hospital within the next several months.

We have an inpatient/outpatient program focused on use of anticoagulant medications, improving safety in the use of these very important therapeutic agents. We have an expanding sleep center on both campuses with the Bayview center focusing largely on research and a clinically oriented sleep center at the Johns Hopkins Hospital campus. We 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 the program similar to a number of the other specialized services. Figure 17 shows one of the newsletters for our adult sickle cell program.

Our hospital epidemiology program and faculty have been expanded and have made a major impact on such issues as intensive care unit blood stream infections.

The Department of Medicine on both campuses pioneered physician order entry systems and partnered with the informatics and technical staff in improving physician order entry and making it more physician-friendly and safer. We have supported and have been part of executive safety rounds across the institution. Each of these specialized services has a strong teaching component with the primary targets being the medical housestaff and nursing.

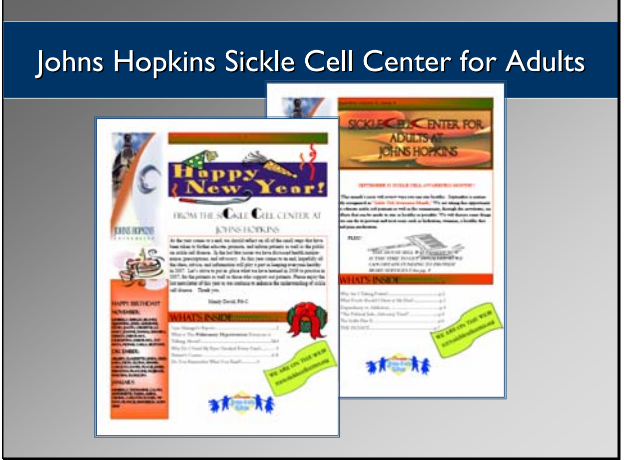


Figure 7

In terms of service excellence, we want 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. We have provided the singular leaders in constructing the new Johns Hopkins Medical School curriculum. This curriculum integrates basic science and clinical medicine throughout the four years of medical school education. There is greater exploration of human genetics as well as other aspects of molecular biology which are emerging as important determinants of human disease and its treatment.

In terms of our student population 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. Johns Hopkins Medical School has developed 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 have 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, 2008:

- Cardiology Fellowship-Cleveland Clinic
- ID Fellowship- JHH
- GI Fellowship- JHH
- Oncology Fellowship- JHH
- Hospitalist- Emerson Hospital, MA
- Oncology Fellowship- U. Chicago
- Oncology Fellowship- JHH
- Cardiology Fellowship- JHH
- Cardiology Fellowship- Mass. General Hospital
- Pulmonary Critical Care Fellowship- Vanderbilt University
- Cardiology Fellowship- U. Texas, Southwestern
- Cardiology Fellowship- Emory
- ID Fellowship- U.C.L.A.
- Pulmonary Critical Care Fellowship- JHH
- Cardiology Fellowship- Brigham and Women's Hospital
- Graduate Finance/ ID Fellowship- Columbia
- Cardiology Fellowship- U. Penn
- Rheumatology Fellowship- JHH
- Endocrine Fellowship- JHH
- Cardiology Fellowship- U.C.L.A.
- Oncology Fellowship- M.D. Anderson
- Renal/Geriatrics Fellowship- Duke
- Pulmonary Critical Care Fellowship- NIH
- Pulmonary Critical Care Fellowship- Harvard
- GI Fellowship- Mass. General Hospital
- Hospitalist-JHB
- ACS
- Primary Care TX
- ID Fellowship-NIH/JHH
- Primary Care-Washington, D.C.
- HIV Fellowship-Columbia
- Renal Fellowship-JHB
- Geriatrics Fellowship-JHH
- Cardiology Fellowship-Brigham
- Endocrine Fellowship-U. Penn

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.

Diversity

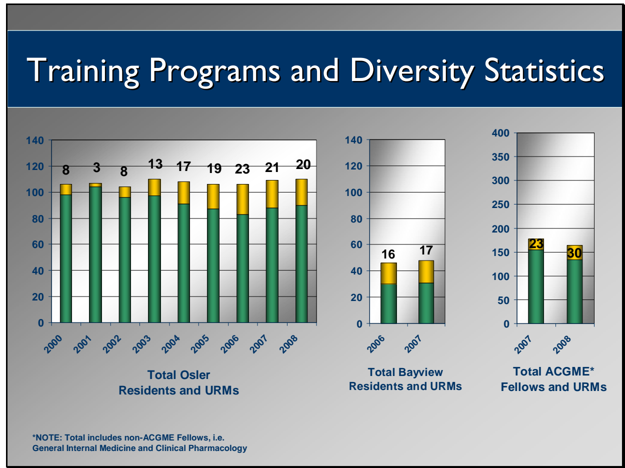


Figure 18

Figure 18 shows the results of our very conscious broad-based effort to increase underrepresented minorities presence on our Housestaff programs and our fellowship programs.

As you can see on this slide since our efforts began in 2002 we have had a major progressive and very significant increase in underrepresented minorities in both Housestaff programs now approximately 20% in the Osler Housestaff program and 25% in the Bayview Housestaff program. Our ACGME approved fellowship programs and other clinical training programs have 20% underrepresented minorities. Additionally, Assistant Professors are 11% underrepresented minorities. (Figure 19)

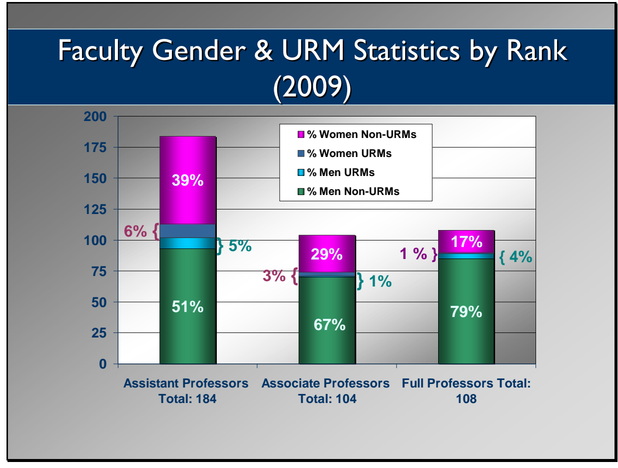


Figure 19

Faculty Development

As a result of a major retreat of the faculty of the Department of Medicine two years ago we have 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 in 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 and mentoring into national leadership and variety of technical subjects which are important to an academic career. We are insistent 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 mentoring which are needed for each faculty member to succeed.

Finally, we have begun a very 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.

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 also pursuing successfully other 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.

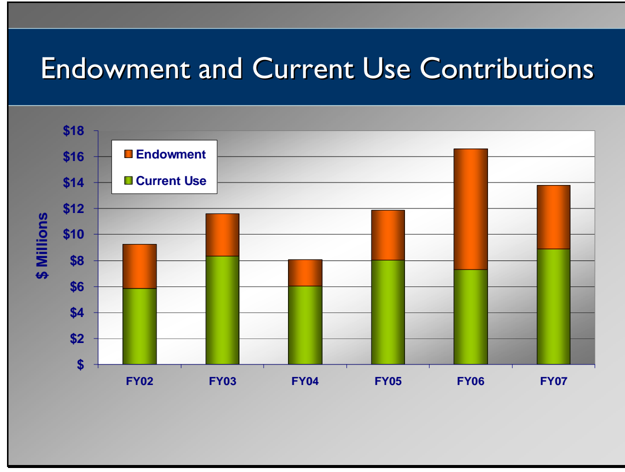


Figure 20

Largest among these efforts is our philanthropic effort (Figures 20 and 21). The success has grown considerably over the years. We currently enjoy gifts into programs of approximately 14 million dollars per year. As shown in figure 22, 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 over 100 million dollars.

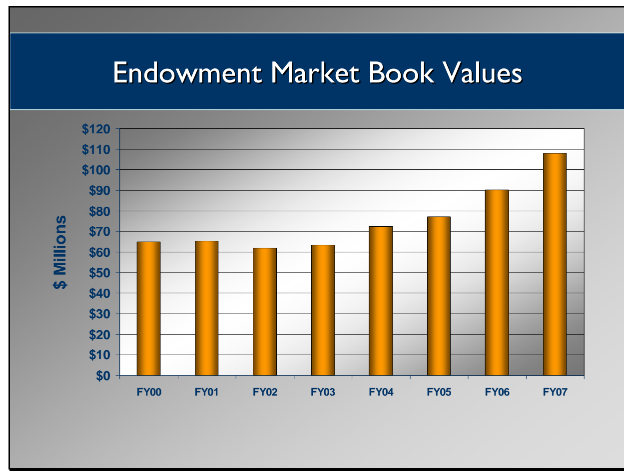


Figure 21

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

Also, I would just 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. 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.

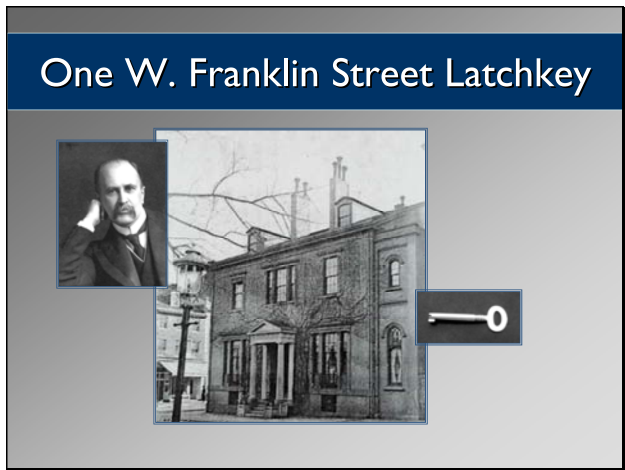


Figure 22

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, all 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 Osler, the openness, collegiality, the pride of mentoring, training and success of our next generation.