

Medical Grand Rounds Presentation

September 10, 2004

STATE OF THE DEPARTMENT

BY

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Chairman, Department of Medicine

It is a remarkable pleasure to present a capsule picture of this great department. This picture shows why the Johns Hopkins Department of Medicine is viewed as an outstanding Department. I salute all of the faculty and trainees for their individual roles in this great enterprise.

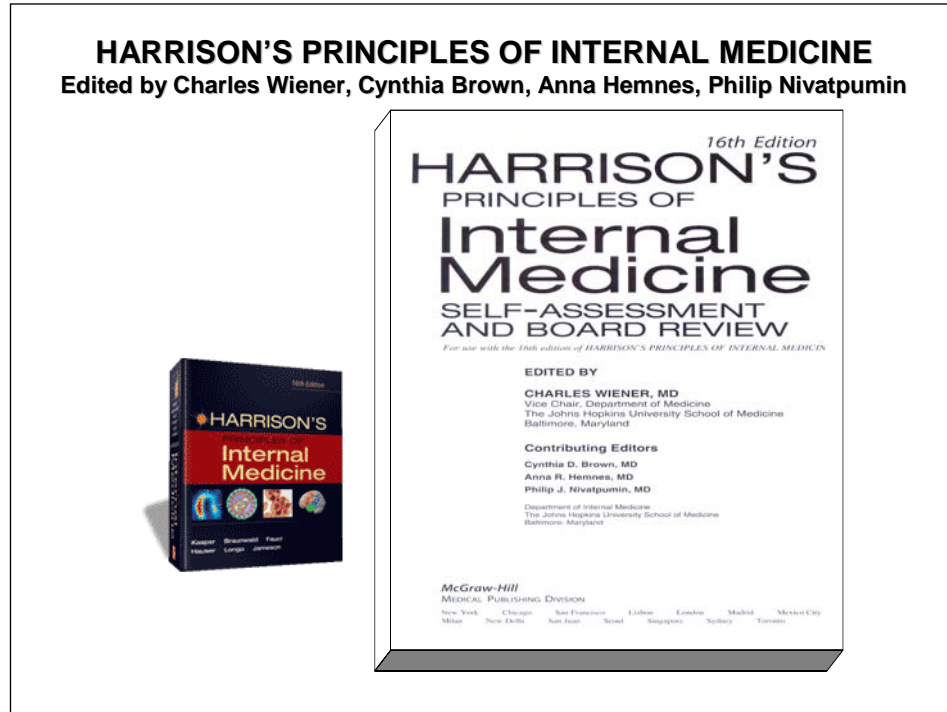


Figure 1. Recent publication from Charles Wiener (Director of our housestaff program) with 3 of our Assistant Chiefs of Service (Chief Residents).

Last year I introduced the Osler Medical Handbook, an outstanding contribution of our Housestaff to education and patient care nationally. This year, I will point out that Charlie Wiener (senior editor) and three of the four Assistant Chiefs of Service (Chief Residents) from last year were contributing editors to the Harrison's Internal Medicine Self-Assessment and Board Review book. It is wonderful to see work that represents outstanding efforts of great educational value beyond the walls of Hopkins.

This year again we have an outstanding group of very diverse faculty who have been promoted to the rank of Professor (Figure 2):

- Bill Bishai is making outstanding contributions to the understanding of tuberculosis in laboratory studies. His studies hold great promise of providing new understanding and management strategies.
- Bob Bollinger pursues international public health

through clinical trials and infectious disease

education for healthcare professionals.

- Fred Brancati contributes to understanding of common diseases as a clinical epidemiologist, and is now head of the Division of General Internal Medicine.
- Joshua Hare is a translational laboratory investigator looking forward to using stem cell biology to help heal acute myocardial infarction.
- Richard Lange was recruited from UT Southwestern to head Clinical Cardiology. He is a renowned clinician, investigator, and educator.
- Brian O'Rourke is a laboratory investigator who has advanced our knowledge of electromechanical coupling in the heart.
- Haya Rubin is a clinical investigator who has created new methods for assessing care strategies and outcome.
- Steve Schulman, an outstanding clinician, teacher and clinical investigator, is also the director of the Coronary Care Unit.
- Jeremy Sugarman, our new bioethicist, was recently recruited from Duke and will have a significant impact on this Department.
- David Thomas studies Hepatitis C from clinical manifestations to fundamental molecular genetics.
- Andrea Zachary is an expert in applied immunogenetics. She has had a tremendous impact on the recent "incompatible" donor transplant program.

Our Department has almost 450 total full-time faculty (Figure 3). For those who don't understand the term full-time, it means that Johns Hopkins Medical School pays their salary. They are distributed with two-thirds of the faculty on this campus and one-third on the Bayview Campus.

Department of Medicine	
FULL PROFESSORS	
APPOINTED & PROMOTED 2003 – 2004	
William R Bishai, MD, PhD	Infectious Diseases
Robert C. Bollinger, MD, MPH	Infectious Diseases
Frederick L. Brancati, MD, MHS	General Internal Medicine
Joshua Michael Hare, MD	Cardiology
Richard A. Lange, MD	Cardiology
Brian O'Rourke, PhD	Cardiology
Haya R. Rubin, MD, PhD	General Internal Medicine
Steven P. Schulman, MD	Cardiology
Jeremy Sugarman, MD	General Internal Medicine
David Lee Thomas, MD, MPH	Infectious Diseases
Andrea A. Zachary, PhD	Immunogenetics Laboratory

Figure 2. Faculty promoted or appointed to Professor of Medicine in the last academic year.

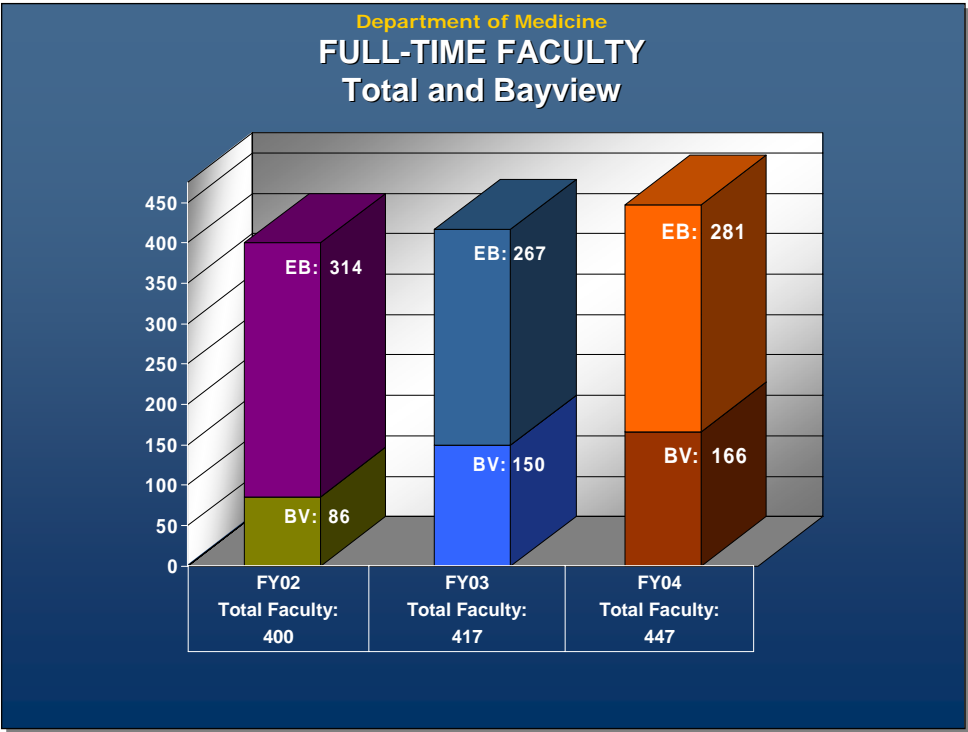


Figure 3. Total Faculty of the Department of Medicine and displayed by campus (Bayview and Broadway campus).

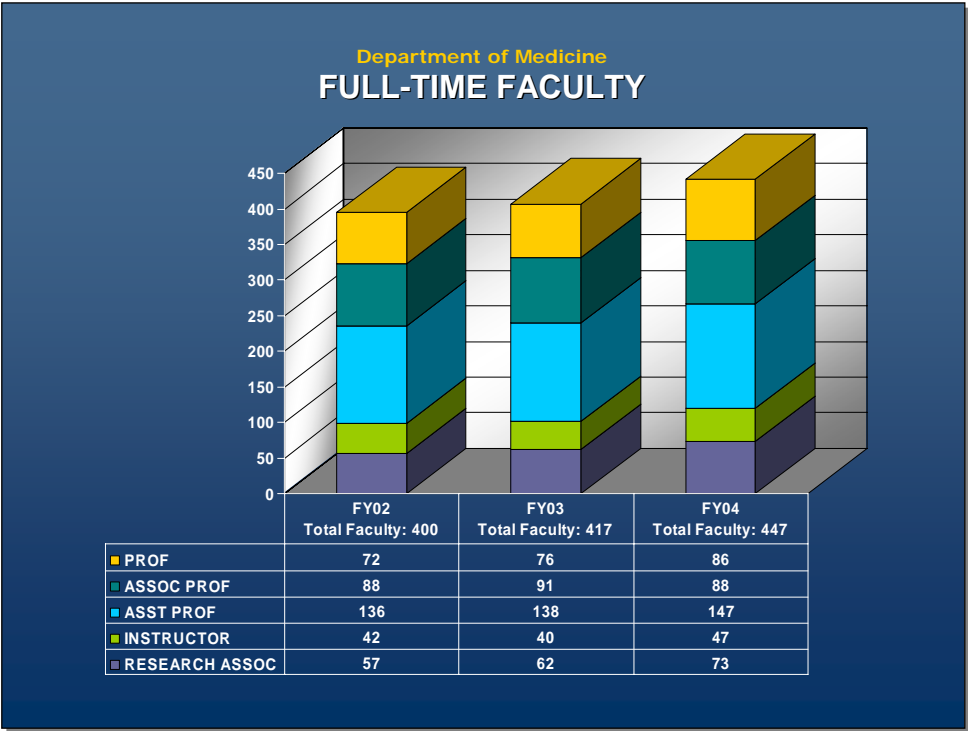


Figure 4. Change in full time faculty over 3 years by academic rank.

We increasingly see potency in our academic programs and clinical programs on the Bayview campus. There are fantastic opportunities in our growing Divisions at Bayview, particularly in Pulmonary, Rheumatology, Allergy and Clinical Immunology and Geriatrics.

Figure 4 shows a breakdown of the faculty by academic rank over the last three years. It is very rewarding that we are increasing our number of Professors. Our assistant professors, instructors, and research associates are increasing. But, it is notable that there is a decreasing number of associate professors. Looking at this carefully, it is clear that we are promoting fewer women assistant professors to associate professor. This year through evaluation of annual report data, we intend to identify factors that are contributing to this measurable gender difference. Anne Rompalo (chair) and the Women’s Task Force, will be leading this effort.

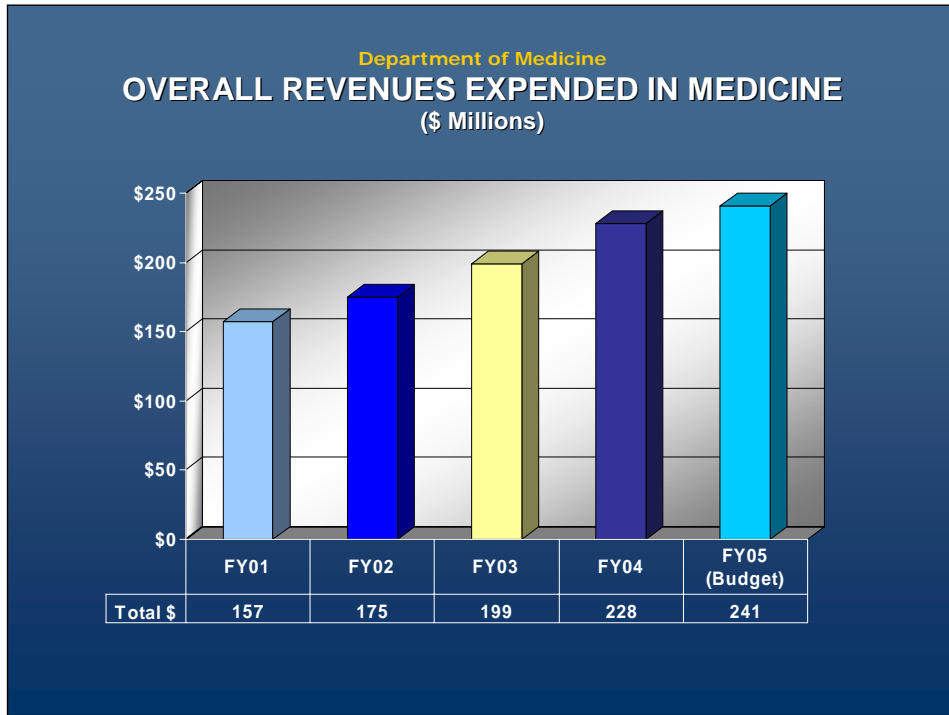


Figure 5. Total funds spent by the department over 4 years and plans for expenditures this year.

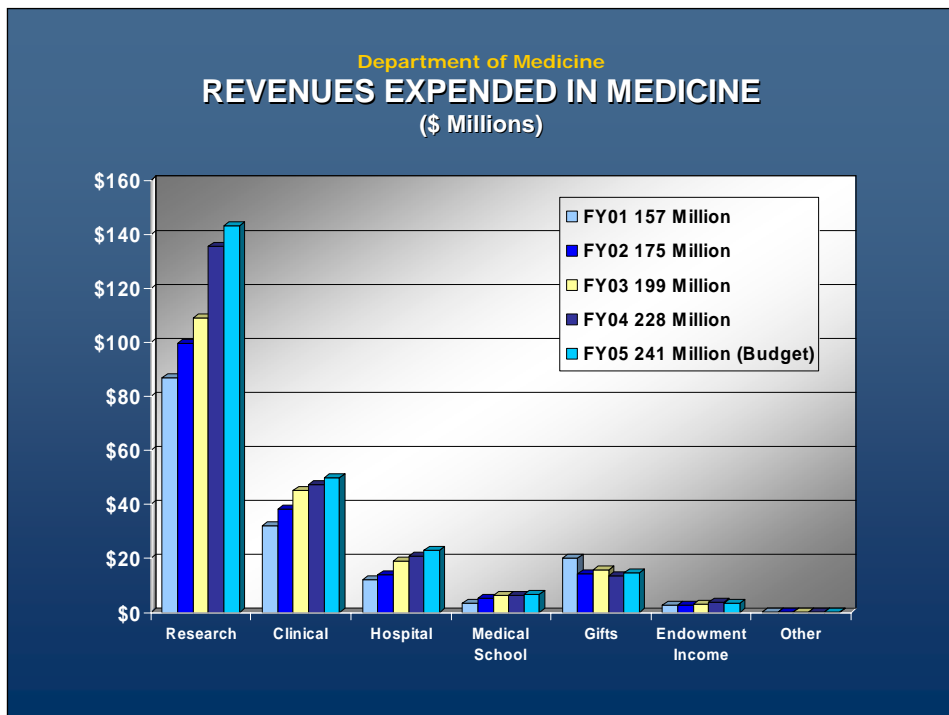


Figure 6. Sources of funds expended by the department over 4 years and projected for this year.

This is a large and complex Department with many sources of revenue. The total revenues of the Department (that is the money we take into the Department and spend within the Department on pursuing our mission) is now almost \$250 million per year (Figure 5) The growth rate over the last several years has been substantial.

That growth rate as shown in Figure 6 on the left hand side is related to research

revenue. The increase is also a reflection of the growth and effectiveness of our clinical enterprise. Combining the Johns Hopkins Hospital support this year and our anticipated clinical revenue, the total is approximately \$70 million. So, it is fair to say that this Department's research enterprise generates twice the amount of money as the entire clinical enterprise. This is remarkable since so much of our effort is directed toward a clinical enterprise that is diverse and effective.

I am pleased that I am again participating directly in NIH sponsored research.

Soon, I will have 20% of my effort on an NIH grant to lead a resuscitation research consortium. Parenthetically, this grant does not require any additional space and the only piece of equipment I need is my telephone!!

Research Programs:

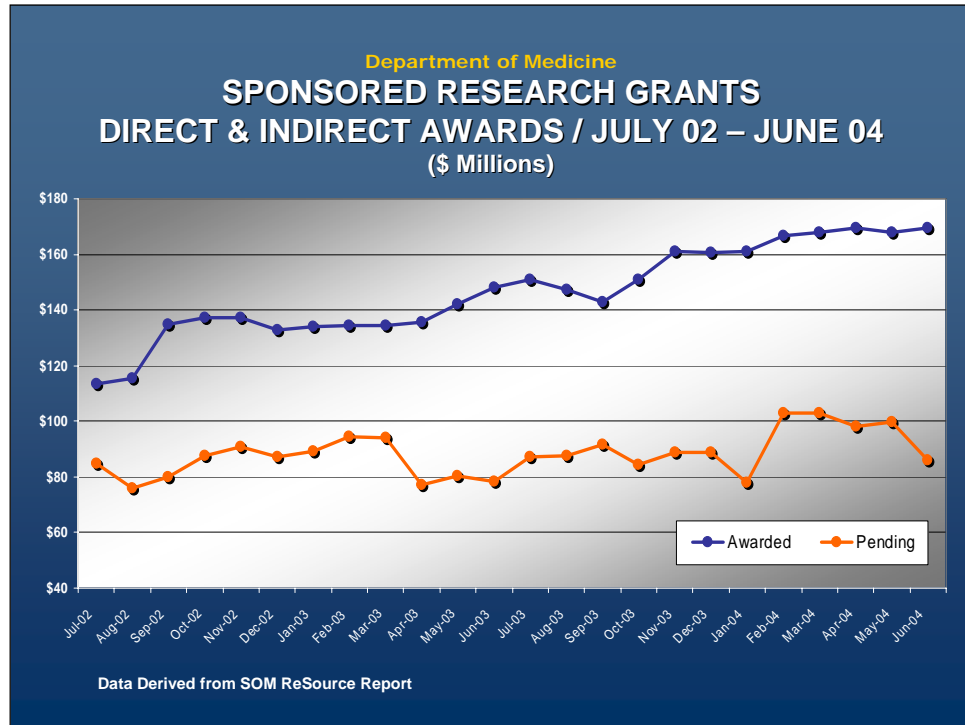
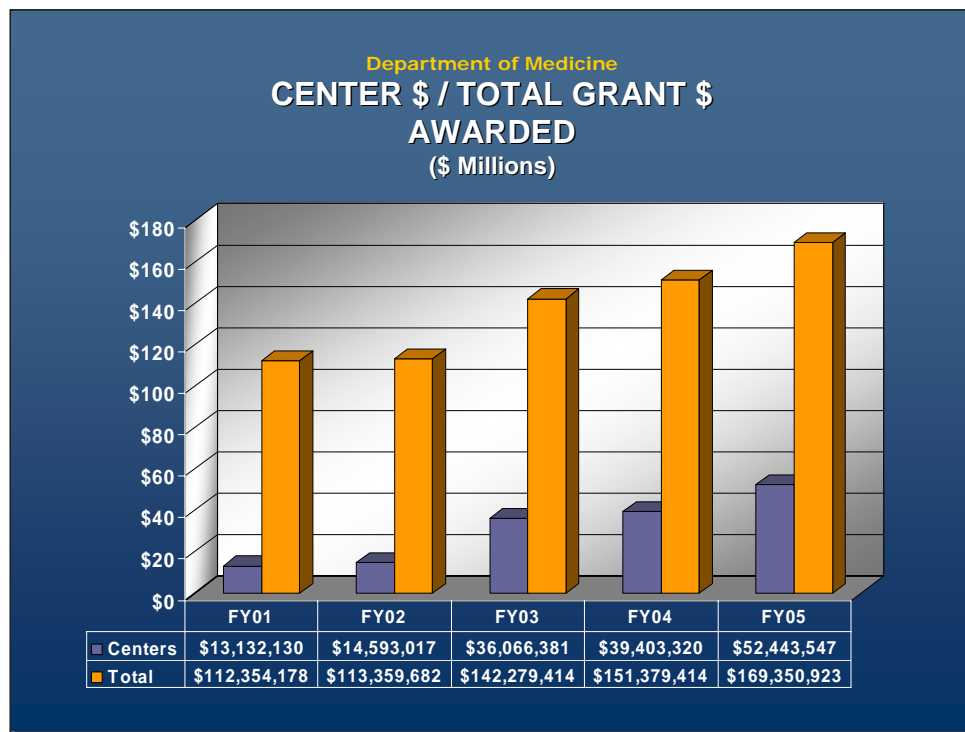


Figure 7. Yearly total funded grants to Principle Investigators in Medicine (plotted monthly) in blue and pending grants in orange.



In discussing Figure 6, I said there was \$140 million of research revenue for this department. This includes only the funds we bring and that we spend in this Department. Figure 7 includes money for the entire program of principal investigators in the Department of Medicine, including the funds going to other departments. So, as you see in the blue we are nearing \$170 million of research revenue yearly. Of our approximate 450 full-time faculty approximately 100 are clinician educators or clinician scholars who do not primarily conduct funded biomedical research. Thus, there are about 350 faculty who perform some funded biomedical research. If one divides 170

Figure 8. Total awarded grants by year in orange and (of those) Center Grants with the Principle Investigator in the Department of Medicine in blue. This shows huge growth in Center Grants with the PIs in Medicine.

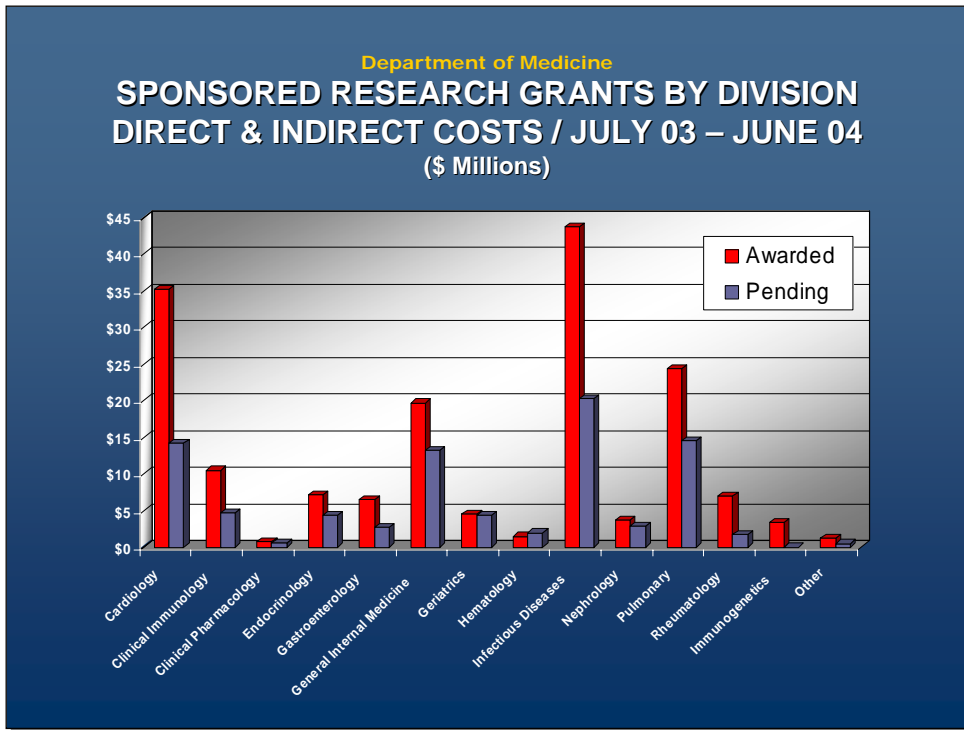


Figure 9. Awarded grants by division in red and pending or applied for grants in blue.

(Figure 8) is from center grants in which the principal investigator is in the Department of Medicine. This does not include center grants where a faculty member of another department is the principal investigator

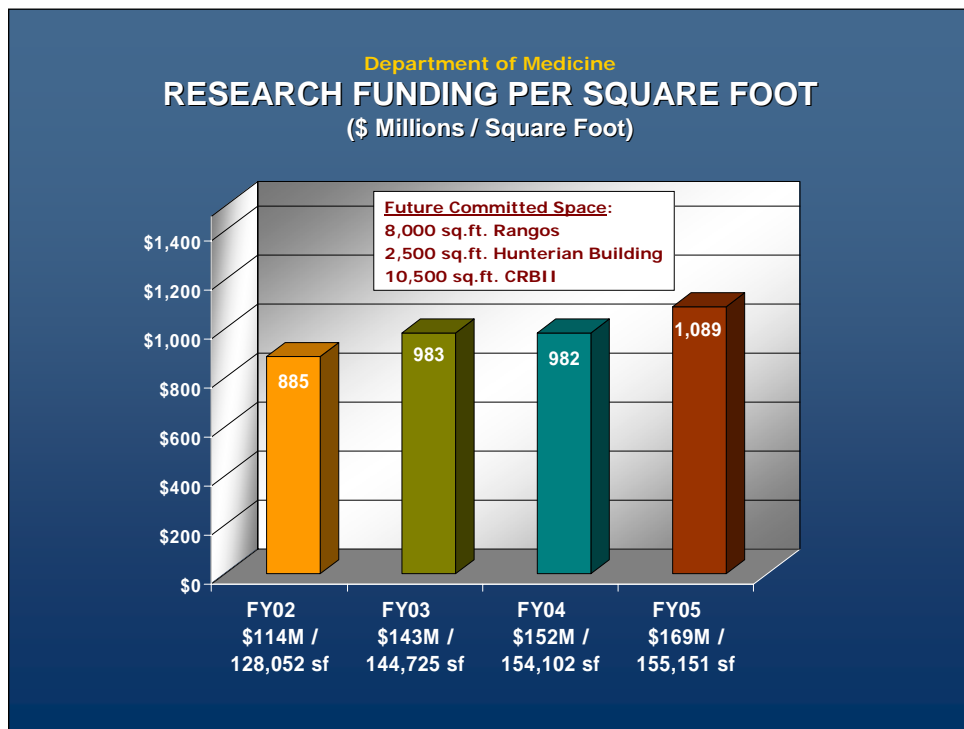


Figure 10. Four year increase in research funding per square foot of research space with table of space and total funds below each bar.

million by 350 it is \$500,000. Thus, on the average each of the 350 faculty is bringing in to the Department approximately \$500,000 of research revenue per year, mostly from the NIH. Remarkable!

As I suggested three years ago, research is changing. Center programs and large grants are now the state-of-the-art and essential for gaining and using the tools that are being developed to understand and conquer human disease. Almost a third (30%) of our total research revenue

and our faculty has a project in it. Some of these center grants in our Department are for core research units such as in proteomics, epigenetics and human genetics. Others are for programs with a central theme combining basic and clinical investigators. This is a change in the research culture and a major shift in the type of funding we obtain, and all of this has occurred in the last five years (Figure 8). This change will be reflected in how we write papers, examine authorship, look at the

way we do research and promote our research faculty.

In divisional “competition” for research funding (Figure 9), infectious disease has edged ahead of cardiology. Pulmonary and critical care medicine continues to surge. General Medicine and the other divisions are all meritorious with smaller faculty, but with research funding per investigator that is very similar across our divisions.

One of the data points that I look at because there is national comparative data, is the dollars of research revenue per square foot of space -- How efficient and collaborative are you? Do we use the resource of space in an optimal way? The usual desired standard is in the range of \$350 to \$500 revenue per square foot. This year we passed \$1,000/ft², and we are almost at \$1,100 per square foot despite the fact that our research space has gone from 128,000 to 155,000 square feet (Figure 10). In other words, our research revenue is growing faster than our space. We are efficient and collaborative!

We have modest commitments to further space going forward once the Cancer Research Building II is in place. A large increase in space will go to the infectious disease program. And, once the basic science building is built, there will be another 8,000 square feet of space for the Department. I am very hopeful that on the Bayview Campus as the intramural NIH building is completed, we will see at least another 25,000 square feet of space coming to the Department. If this happens, the Department will have a total of approximately 200,000 square feet of research space. I believe this increase in space will be important to the continued growth and development of our research enterprise.

Patient Care Programs:

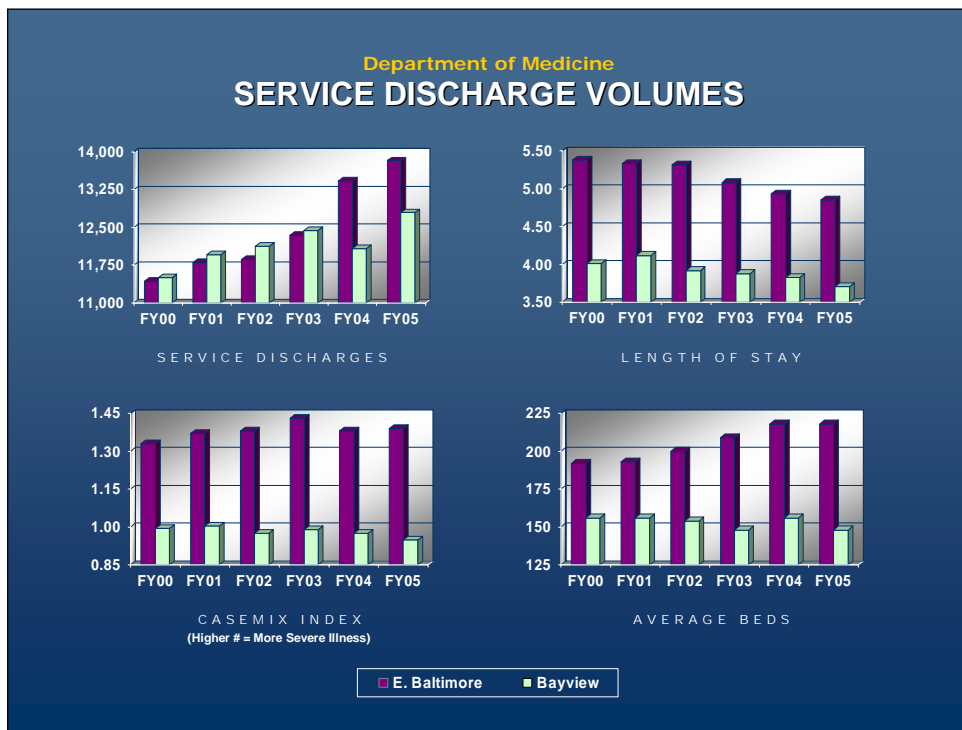


Figure 11. Clinical Performance on the Broadway campus in purple and the Bayview campus in light blue over 5 years and projections for this year.

Our record in patient care, the volumes and effectiveness in the way we take care of patients, is equally remarkable. In Figure 11 the purple is this campus, and the lighter shade bars are the Bayview Campus. What you see are some very extraordinary facts. Total discharges by the medical service have been very similar between the two campuses until the recent increase on the Broadway campus. Bayview has a smaller faculty, more Hospitalists, and fewer beds than on this campus. Length of stay is shorter. On the Broadway campus, last year there was a remarkable increase in discharges and we are hoping for

further increase this year. This increase has been fueled by having more beds available due to shortening of length of stay and modestly because of opening new beds. Severity of illness remains constant across the two campuses. We are shortening length of stay and at the same time improving quality of care. This is not a program designed to move people out of our hospital prematurely. It is a program that provides the care in a better way so that the patient will obtain the care they require more quickly and leave when appropriate. Patients should be in better health because they received timely care, have been in the hospital for a shorter time, and had fewer complications.

Along the same theme, one initiative we instituted over the last two years is to have consultations completed in a timely fashion. If requested in the morning, consultations should be completed and communicated to the primary care team on the same day, and procedures performed by the end of the next day. As a result of doing this successfully in Medicine, we have pressed radiology and other surgical services to achieve the same goals. And, that is happening! In addition to our superb nursing staff, we have excellent case managers rounding with our teams and involved in patient care. We have increasingly effective and focused work rounds and social services. We have created three specialized clinical services in the last two years: care of sickle cell patients, care of diabetes patients, and care of patients requiring anticoagulation. On each service there are already objective data demonstrating that these initiatives are impacting positively in terms of increase in volumes as well as shortening length of stay. We are also collecting data to demonstrate an improvement in patient outcomes.

This year under Dr. Yngvild Olsen's direction, we have a specific emphasis on increasing the number of individuals who can go from our inpatient services to an outpatient management program in substance abuse. We hope this program will not only affect our length of stay, because patients will be transitioned more promptly to outpatient care, but also will decrease the prevalence of substance abuse itself and decrease the number of admissions and repeat admissions for these members of our community. We also hope that in a year's time three of the four Osler Medical Service firms will be regionally localized, each with their own monitored beds. We will then have physicians, nurses, social workers on one team rounding together, "knowing each other's name," and knowing the patients better. And, we hope through this improved collegiality and sense of teamwork that we will continue to improve quality of care and provide more efficient care.

The new Eclipsis Physician Order Entry System is a major step forward in improving patient care and safety for our Institution. I am very proud that the Department of Medicine has led the entire institution in the implementation of this system. We are in the process of instituting it universally across the medical service. There is a very important aspect of that computer-based system that can provide useful (rather than annoying) feedback with regard to drug utilization. This is also a major cost-saving and safety project for this year.

Educational Programs:

In education, we really have an increasing role in broad leadership at the medical student level. In particular I am pleased that, Charlie Wiener is chairing a committee to reform our current medical school curriculum, Pat Thomas has entered a new position in the Dean's Office as Associate Dean for Curriculum, Redonda Miller is one of the new Assistant Deans for Student Affairs, and Derek Fine is the new director of Year 2 Human Pathophysiology.

Institutional and Philanthropic Support:

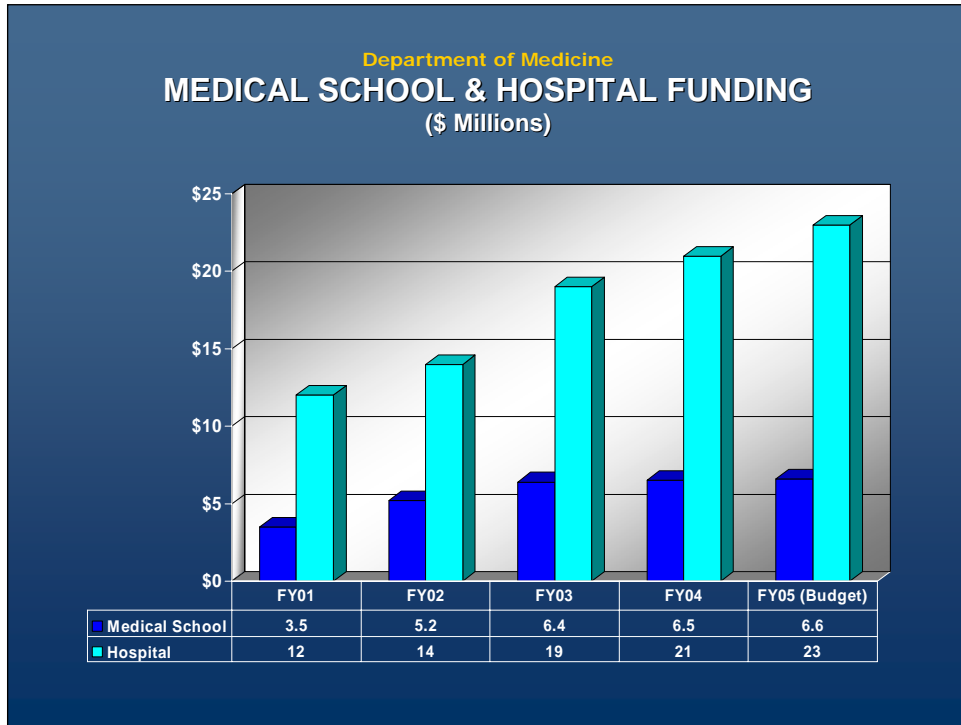


Figure 12. Funding from the Medical School (blue) vs. the Hospital (light blue).

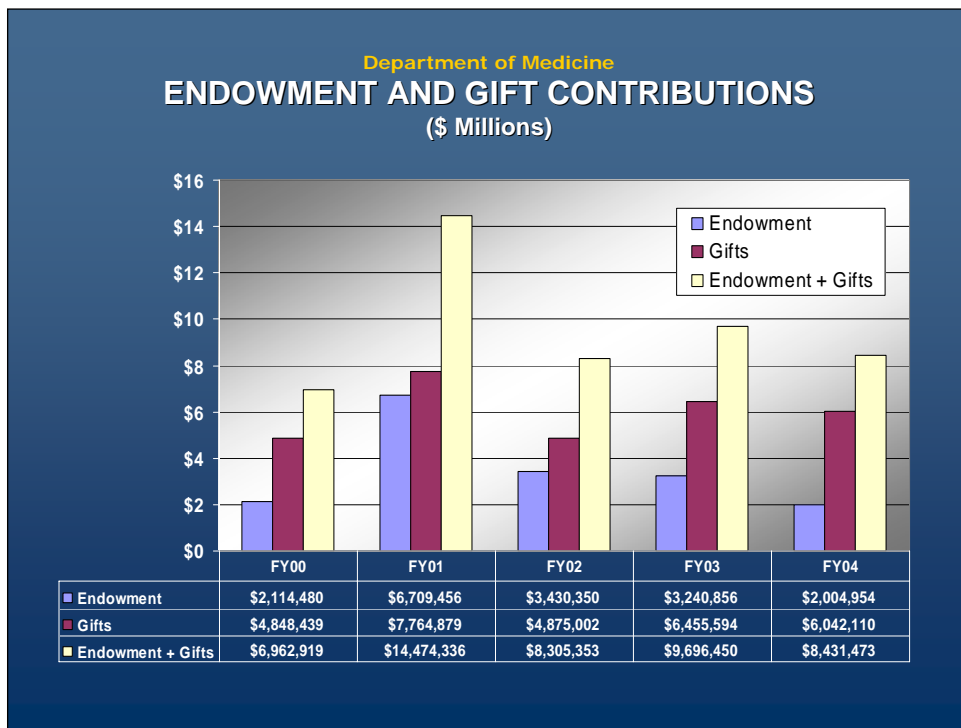


Figure 13. New funds into endowment (light blue) and gift contributions (purple) over 5 years. Light bars represent the total.

Turning to some of the other aspects of the way the department runs, I would like to focus on the revenues that we receive from the hospital for our programs, and from the medical school as the return of indirect cost to support the infrastructure for our research enterprise. (Fig 12) As you can see, this department is serving the Hospital's mission in terms of its economics and its efficiency of care. The Hospital has invested generously in this Department of Medicine and in its programs. Over the

last five years, funding from the Hospital to our Department has doubled (from roughly \$10 million to over \$20 million).

An additional vital effort of this Department is its success at philanthropy, fundraising and development. These are dollars that we can use to initiate exciting pilot programs, and they support efforts that will sustain the creativity and excellence in all aspects of our mission. Figure 13 shows our track record in these

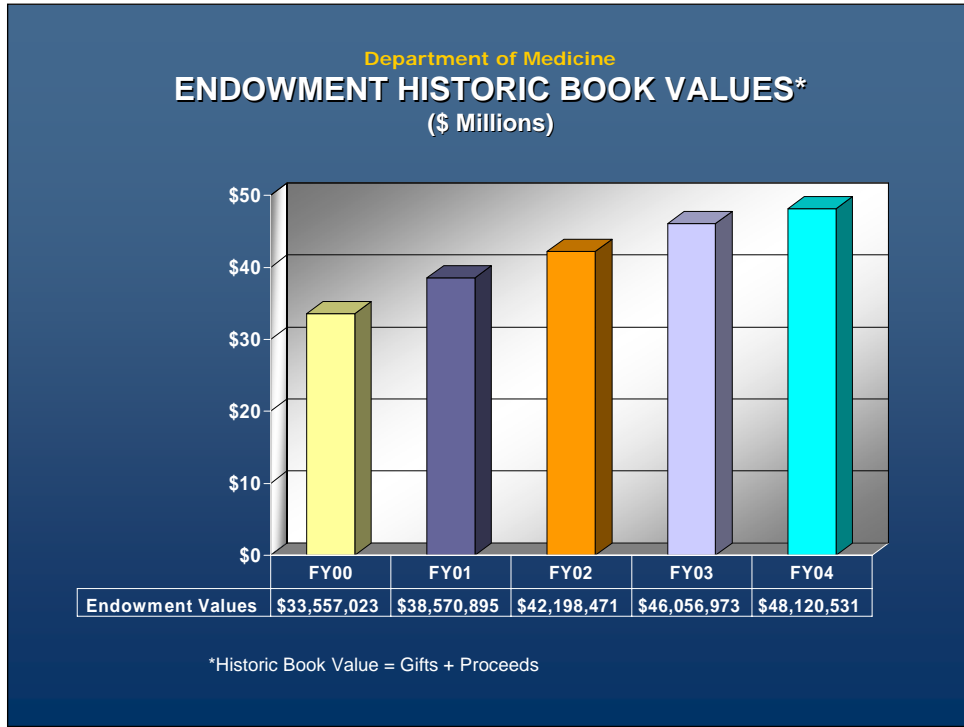


Figure 14. Growth of Endowment of the Department of Medicine over 5 years.

efforts. Total of funds raised is in white year by year, the purple is our gifts that we can spend, and the blue is funds coming into endowments. Almost all of the endowments are for Chairs within the Department. There are also some endowed lectureships and fellowship programs. Figure 14 shows the entire endowment of the Department. As you can see, over a five-year period endowment has increased from a little over \$30 million to nearly \$50 million. Money that comes from Chairs is used to

support the salary of our senior faculty, particularly those who are beyond the NIH salary cap. Also, the funds can be used for other purposes that enhance the program of the individual who sits in the chair. Therefore, these are very important monies. We are very appreciative of our Development staff and our entire faculty who have made efforts to increase our philanthropic support.

I have a remarkable leadership team that works with me in all of the efforts that I have talked about:

- Susan MacDonald is a superb Associate Chair.
- Dave Hellmann, as Chair of Medicine at Bayview, is always a partner and always supportive. He speaks eloquently to the remarkable developments at Bayview and how the integration and relationships between these two campuses have so successfully supported our faculty, our clinical programs, our teaching and education.
- Roy Ziegelstein, the Associate Chair at Bayview and Director of the Housestaff Program, is a remarkable leader on that campus.
- Charlie Wiener is a very strong leader of the Osler Medical Housestaff program and Vice Chair for Education.
- Paul Scheel is Vice Chair of Clinical Affairs.
- Gordon Tomaselli is Vice Chair for Research.

Our administrative leadership team is superb:

- Charlie Reuland (now Dr. Reuland) received his doctoral degree in public health. He knows more than just the business aspects of the department – he understands our research, our clinical and our education programs, and has a remarkable commitment to all of medicine.
- Melissa Feld, at the Bayview Campus, has similar characteristics and similar insights and is a tremendous contributor.
- Karen Haller is Director of Nursing both for the entire hospital and the Department of Medicine.
- Chuck Turner, our Director of Development, is part of this administrative team.

- In education besides Charlie Wiener, Pat Thomas is Associate Vice Chair of Education within the Department, and additionally Associate Program Director for the Housestaff program.
- The other Associate Program Directors of the Housestaff Program are Redonda Miller and Steve Sisson.

I want to finish with a bit of candor. I want to tell you what my response is to the ten most frequently-asked questions that I am asked about this department.

Top 10 questions I get asked (sometimes indirectly):

1. *Why are diversity and gender issues so important?*

If we do not address these issues, women and minority physicians and scientists who have the greatest talents will not be pursuing our mission. We will lose credibility as an institution and as a public trust. It is also clear that our leadership in research, health care and teaching related to gender and race will be maximized by the presence of female and under-represented minority investigators or clinicians. It is important to academic medicine to have women and minority leaders and it is important for Hopkins Department of Medicine to train these leaders. Our success in academic career development for our non-minority trainees stimulates me to think that we can have the same success with training of individuals representing both genders and all minority groups in our society.

The Diversity Council of the Department, under the leadership of Gary Wand and staffed by Emma Stokes, has successfully marshaled forces and friends to impact meaningfully to increase diversity, particularly on the Osler housestaff.

2. *Why serve the Hospital's financial mission?*

An economically successful Hospital is a much more effective site for care, teaching and clinical investigation. The Hospital has been and is very supportive of the clinical academic programs of the Department of Medicine. Examples of this support include:

- (a) Increasing ongoing support for many critical clinical programs: particularly transplantation, cardiovascular and gastroenterology programs and the new inpatient hematology service.
- (b) Allowing incentive funds to be used to pilot important clinical programs such as sickle cell anemia treatment, anticoagulation management and diabetes management services.
- (c) Funding of the pilot Hospitalist service.
- (d) Funding the new effort to improve care of patients with substance abuse.

3. *What is our clinical mission?*

From the Department retreat several years ago it is to: “Develop a *patient-centered clinical practice that is efficient, accessible, highly competent, compassionate, and synergistic with our missions of teaching and discovery.*” This means a clear commitment to the east Baltimore neighborhood in which we are located. Additionally, we are also committed to having a diverse patient group as that is essential to our teaching and research efforts. We admit a significant number of patients with diverse health problems to our hospitals. We are specifically expert in evaluation and management. We also need a significant cadre of patients with common serious conditions where research may advance patient care in a manner to have a major impact on human health.

4. *Why is teaching so undervalued?*

Teaching, with the exception of medical student tuition, is not a revenue generating activity. Tuition from medical students covers only 40 percent of the existing direct medical student teaching expenses as documented by Dr. David Nichols, the Vice Dean for Education. Also, while PGY 1, 2 and 3 housestaff are generally paid via a special direct allocation from the hospitals, Maryland has a unique system in which there is no separate allocation for direct or indirect costs of graduate medical education (housestaff and fellows). In many hospitals this amounts to over \$200,000 per house officer per year in revenue to the Hospital beyond revenue for individual patient care. Remarkably the Department of Medicine pays 10 percent of the Direct Costs of the Housestaff programs as per an arrangement between the Hospital and the School.

For many years the increasing teaching requirements for all students including graduate students have been met in academic medicine by expanding the faculty. This expansion also reflects the increased number of physicians needed to provide a growing array of specialized technical services. There is some value to this approach in terms of specialized instruction but there is an increasing problem of providing basic core teaching of the fundamentals of medicine to our students, for example the teaching of clinical skills.

The lack of financial resources derived from teaching helps to lower the value of teaching within the one class system of titles and promotions that Hopkins embraces. In promotion, as well, it is more difficult to achieve a national if not international reputation for teaching excellence vs. research achievement.

5. *Where is the money?*

We are told that the cost of doing research exceeds the revenue from research. The real indirect costs for research performance are greater than the indirect costs paid to JHU by the NIH. Indeed, this is consistent with a RAND publication from 2000. (RAND Corporation. *Paying for University Research Facilities and Administration*. Arlington, VA. 2000).

Adding to this funding problem for indirect costs is the NIH salary cap, the heavy investment of the Institution in new buildings, core units and facilities for performing research. All of these financial problems add to the limited funds available.

From a clinical medicine financing perspective, unlike other unregulated states, Maryland hospitals reap relatively small profit from their operations. So while our hospitals seldom lose large sums of money, they never make enormous profits from which more generous support of teaching and other activities could come and does in other states.

Also it is my opinion that we have unfavorable managed care contracts for Internal Medicine and its specialties relative to other academic medical centers.

Across the Institution, I suspect we have a relatively modest endowment compared to other research intensive institutions due to our relatively modest philanthropic base in Baltimore. This leads to a high clinical revenue tax to support the basic sciences.

Finally we have very large fellowship programs because we believe these programs are essential for our training of academic leaders. These programs are very costly and drain clinical profits in a major way. There is almost no Hospital or Medical School support for our fellowship programs including our clinical training programs. Remember all fellows supported by clinical revenue have

full taxation from the clinical revenue stream before their compensation is paid. "Taxation" is 12% dean's tax, 10% billing costs, 3 % compliance plus a percent of malpractice, space and clerical expenses. So to pay a fellow their usual salary, clinical revenues of about \$100,000 per fellow must be generated.

6. *What is really going on with "effort reporting"?*

Effort reports are a federal government requirement for any person receiving funds from the government toward salary. We would not have much of a problem if the government defined the work week as it does for federal research employees at the NIH or in the VA system: 40 hours per week is full time. We have a system where the work week is what ever time one spends on JHU activities. Therefore a 50% commitment on a grant for 50% salary support would mean 40 hours per week if one is working 80 hours per week.

The Institution is trying to get political support for a change in policy, but for now we must comply.

The Departmental leadership repeatedly pointed out the unique aspect of effort of faculty in the Department of Medicine, namely that some 150 faculty have more than 80% of their salary coming from the NIH or other government agencies.

Some relief is forthcoming. Some additional compensation will be provided to the Department to cover grant writing time, uncompensated teaching or clinical time and administrative time for which there is no other current source of funding. These funds will be allocated yearly by the Department on the basis of validated effort reporting and funding.

7. *Why don't we have more space?*

First, shown in Fig 10, space of Medicine over the last 3 years has increased by 35%. Most of this increase is laboratory space. Over the next year as CRBII building is completed, Medicine will see another increase of 12,500 sq feet. There is also a commitment to 8,000 square feet in the basic science building that is to break ground next Spring. The next major increase of uncertain size at present will be on the Bayview Campus. Once the new intramural NIH building is completed in 2.5 years or so, the G building will be returned by the NIH to Hopkins. We are hopeful that at least 50% of the 50,000 square feet of space in that building will come to Medicine. This would bring Medicine space to 200,000 square feet. This would complete a 50% increase in space over a 6 year period.

However, our productivity and density clearly outstrips the growth. I have supported an initiative to create a space bank across the Institution. The idea would be to insist that underused space be made available for periods of time, not to compromise the owner Department but to allow filling of the space realistically in terms of recruitment of investigators.

8. *Why don't we get indirect costs back like the basic science faculty?*

First, considerable funds do come to the department to cover central administrative costs and funds do go to divisions to cover their central administrative costs. Examples include telephone costs of \$1.9 million per year that are covered by departmental funds. I mention this because the department has launched a phone bill reduction effort so that available funds can go to other indirect costs. I cannot overstate the extent to which fellowship support takes away discretionary

and indirect cost funds. This expenditure is not present to any significant degree in basic science departments.

Finally I would add that in return for no formula driven return of indirect costs we have freedom to hire faculty as long as we have funds to support them and space to house them. The basic science faculty do received funds for each faculty member but the total number of basic science faculty for all basic science departments is about 100, compared to approximately 450 faculty in Medicine.

9. Why can't I get my corporate sponsored clinical trial off the ground?

We feel your pain and agree. More importantly Mike Klag, Vice Dean for Clinical Research, agrees and wants to hear about your problems in this arena. There is no question that Dr. Klag has done a great job in the IRB restructuring and in increasing efficiency and quality. We hope for the same in this new initiative that Mike Klag has accepted as part of his challenge and responsibility. We hope for uniform standards for Institutional turnaround times on commercial as we have for NIH and other peer reviewed grants.

10. In the end why do some consider us Number One?

- We believe in Collegiality and Respect.
- We produce Quality of Output in ALL arenas.
- We are committed to Hard Work.
- We are Entrepreneurial.
- We have Trainees of remarkable quality and commitment.
- We have Respect for academic pursuits across a broad horizon.
- We have a Tradition to uphold.
- We have the Ability to be honest and self critical.

Thank you so much.