



**COLLEGE OF MEDICINE**



# **Strategic Plan**

**College of Medicine  
The Ohio State University**

**2012-2017**

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Dean, College of Medicine**

# Strategic Planning at The Ohio State University

## Supporting Faculty, Students, and the Structures that Foster their Success

Ohio State's future will be defined and driven by an unwavering commitment to our faculty, students and the structures—physical, administrative, curricular, and financial—that will foster their success. Such a commitment is founded in the overarching principles of the institution's vision, mission, values, and core goals.

### VISION

The Ohio State University is the model 21st-century public, land grant, research, urban, community engaged institution.

### MISSION

The University is dedicated to:

- Creating and discovering knowledge to improve the well-being of our state, regional, national and global communities;
- Educating students through a comprehensive array of distinguished academic programs;
- Preparing a diverse student body to be leaders and engaged citizens;
- Fostering a culture of engagement and service.

We understand that diversity and inclusion are essential components of our excellence.

### VALUES

Shared values are the commitments made by the University community in how we conduct our work. At The Ohio State University we value:

- Excellence
- Diversity in people and of ideas
- Inclusion
- Access and affordability
- Innovation
- Collaboration and multidisciplinary endeavor
- Integrity, transparency, and trust

### CORE GOALS

Four institution-wide goals are fundamental to the University's vision, mission and future success:

**Teaching and Learning:** to provide an unsurpassed, student-centered learning experience led by engaged world-class faculty and staff, and enhanced by a globally diverse student body.

**Research and Innovation:** to create distinctive and internationally recognized contributions to the advancement of fundamental knowledge and scholarship and toward solutions of the world's most pressing problems.

**Outreach and Engagement:** to advance a culture of engagement and collaboration involving the exchange of knowledge and resources in a context of reciprocity with the citizens and institutions of Ohio, the nation, and the world.

**Resource Stewardship:** to be an affordable public university, recognized for financial sustainability, unparalleled management of human and physical resources, and operational efficiency and effectiveness.



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## Letter from the Dean

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Shortly after his return to The Ohio State University, President Gee articulated a vision to take the University “from excellence to eminence.” At The Ohio State University Wexner Medical Center (OSUWMC), this vision of eminence is epitomized by the goal of becoming a top 20 academic health center as judged by the U.S. News Survey and National Institute of Health (NIH) grant level rankings. Indeed, OSUWMC has already established a solid foundation towards that goal, and its future is inextricably linked with the College of Medicine (COM). For its part, over the past decade the COM has developed growing partnerships with the other six OSU health science colleges to enhance trans-disciplinary training and research. Growing relationships with Nationwide Children’s Hospital and the Battelle Memorial Institute as well as with local and State government and industry partners seek to accelerate commercialization our intellectual property using novel strategies derived from venture capital companies that will promote job creation in Central Ohio. We are also working diligently to raise the academic productivity of our faculty and resume the decade long growth in our portfolio of National Institutes of Health (NIH) grants. We have also recently made investments in the COM Development team to enhance philanthropy, especially in the area of student scholarships. The OSU COM has long been known for its pedagogic originality, however, our new medical student curriculum promises to be among the most innovative in the country. However, the COM faces serious challenges which not only threaten its rise to eminence but the sustainability of its present operations.

### **Background**

The nation’s immense federal government entitlement debt burden and the slow pace and unevenness of economic recovery not only exert increased restraints on public and private health care payments but have resulted in 7 years of stagnant NIH funding. During this time NIH grants submissions have increased 20% while paylines have plummeted to record lows. While this challenge is borne by all U.S. Academic Health Centers, the OSUWMC and COM have institution-specific challenges. We compete with two large community hospital-based integrated health systems with more favorable payer mixes, larger local market shares, more extensive primary care networks, minimal academic-related costs and far better liquidity ratios and debt capacity. Furthermore, the medical center and COM endowments are not large enough to support the level of unfunded research-related expense expected of a top 20 medical school NIH grant recipient. The American Association of Medical Colleges (AAMC) estimates these uncompensated expenses to be 25 to 30% of each NIH dollar. Our research faculty rank last amongst AAMC medical schools in the percentage of their salaries covered by grants, a full three standard deviations below the AAMC mean. The COM also has one of the lowest total grant dollar amounts per net available laboratory square foot of space (research dollars/NASF). This low research productivity, coupled with a serious shortage of quality laboratory space, hampers growth of our basic and translational research enterprise. Clinical research productivity is also relatively low with a community hospital orientation to many departments. The COM Promotion and Tenure process has long exacerbated these problems by de-coupling objective measures of academic prowess to the promotion process. It has also resulted in profound academic variability and heterogeneity among tenured faculty.

According to AAMC data for 2011, our medical students are burdened by one of the highest levels of debt upon graduation of any U.S. medical school – now over \$152,000, exclusive of undergraduate debt. This compares with an average debt load of \$111,590 for top 20 medical schools. We also have one of the lowest levels of annual scholarship support, less than \$8000 per student, compared to nearly \$20,000 per student for top 20 schools.

Most significantly, even without the kind of aggressive programmatic investment required to achieve top 20 status, the COM has run a structural deficit for years. Moreover, current revenue streams are inadequate or at risk. For example, the COM has what is likely the lowest Dean's assessment on faculty group practice (FGP) revenue in the nation – an effective rate of 2.3% compared to a national median of around 10%. The portion of federal grant indirect (F&A) payments to the University received by the COM has dropped as our NIH funding has decline over the past year. As noted, student indebtedness prevents significant increases in tuition. Finally, State aid has dropped 26% over the past five years and will drop again this year by 3%. As a consequence, the COM will burn through its reserves by 2015 and be wholly dependent of medical center transfers. Equally concerning, these projections do not fully account for potential disruptions wrought to medical center operating margins by slow economic growth, its lack of a robust primary care network, progressive cuts in Medicaid and Medicare payments, and growing discipline from insurance companies in fee setting, tiering and bundling of payments.

### ***New Strategies Needed***

The confluence of successful recent investments in Signature Programs, a new hospital building, integration of the OSU Physicians group (OSUP) into a university employed faculty group practice (FGP), rising expectations for academic productivity and a bold new medical school curriculum, creates a strategic opportunity for the COM to take bold steps toward financial stability and academic eminence. Based on this strategic analysis, I would suggest that the OSUWMC and its COM seek to become exemplars of safe, effective, equitable, efficient, patient-centered and innovative value-based care. We must also strive for pioneering yet cost-effective approaches to undergraduate and graduate medical education. We must increase the quality and quantity of novel and clinically applicable basic and translational scientific research and invest heavily in informatics and genomics as well as promote the kinds of health care delivery research that will be vital to bending the Nation's health care cost curve while improving outcomes. Finally, we must develop new strategies that rapidly commercialize these discoveries to add revenue to the COM and jobs to Ohio.

This desired level of achievement will require continued re-investment in previously identified Signature Programs and Key Research Areas, particularly in cancer, neuroscience and transplantation. Therefore, new targeted Comprehensive Cancer Center and COM funding has been made available to recruit top academic solid tumor medical and surgical oncologists and tumor biologists. The OSUWMC and COM are committed to creating a world class Neuroscience Institute under the able leadership of the visionary neurosurgeon, Dr. Ali Rezai, and we are actively recruiting neurosurgeons, neurologists, psychiatrists and basic neuroscientists. The COM has also recently recruited two remarkable physician-scientist transplant surgeons and we are seeking immunobiologists to compliment their translational research areas.

However, greater breadth of basic, translational and clinical research is required across all fields to reach eminence as an academic health center. Thus, strenuous efforts are already underway to at least double research faculty salaries recovered through grant support in basic science departments. Recent changes to our promotion and tenure criteria as well as the setting of baseline academic fulltime equivalent (FTE) productivity standards must be supported to bring us in line with our peer institutions and to insure that never again does Ohio State rank last in *per capita* research funding generated by our basic research faculty. We must also increase grant funding in every clinical department, virtually all of who have seen drops in NIH grants over the past year.

To support this new level of academic productivity, the COM is moving to assist faculty in obtaining grant support by streamlining, and modernizing our Institution Review Board (IRB) processes, improving pre-award support services (e.g., providing assistance with grant preparation and editing), and establishing an internally competitive bridging grant program to aid previously productive faculty who are between NIH grants due to low pay-lines but who have great promise for future funding. Pilot grants are being put in place to sustain promising young researchers until they are fully funded. Funding has been set aside to repair poorly maintained research facilities. We also plan on returning a modest portion of indirect funds to individual investigators and their departments to support a P.I.'s laboratory infrastructure and incentivize grant acquisition. We have created a popular biweekly Research Newsletter that publicizes grant opportunities, research resources and research seminars while highlighting the work of innovative researchers. However, beyond increasing the productivity of current faculty, we must aggressively recruit funded investigators to our basic science and clinical departments and continue our aggressive retention efforts in the face of an extraordinarily competitive environment. Furthermore, the pursuit of eminence also requires support for new fields of clinical inquiry. Thus, support for healthcare policy and comparative clinical effectiveness research (CCER) should be provided.

Ultimately, emergence into the top 20 of U.S. medical schools will require both long-term financial sustainability and creation of a high performance culture. The former goal calls for both quantitative and qualitative expansion of the clinical enterprise, as well as a relentless pursuit of ever-greater efficiency in clinical operations. To achieve the level of superior performance common to top 20 medical centers, OSUWMC should undertake a bold "Clinical Transformation" initiative that will simultaneously enhance patient safety and satisfaction, optimize amenities and support services, and encourage innovation while improving financial performance. Such an initiative will also permit the rapid integration of CCER findings into clinical practice to better maximize value. Our goal should be to double our local market share as well as hospital system and faculty practice revenue while reducing administrative costs by 10% to 30% by leveraging economies of scale and best managerial practices. The resultant increased FGP and OSUWMC margins will allow for an incremental increase in the Dean's assessment to levels comparable to other U.S. medical schools without burdening individual practitioners and permit the continued availability of medical center investments in academic programs.

The pursuit of eminence also requires a robust development campaign with renewed efforts to enhance giving by grateful patients and alumni. Specific targets include creating annual giving campaign and endowments to support \$20 million in annual scholarships, ultimately fund a new \$250 million research tower and create additional research and academic endowments to recruit, support and retain top researchers. We must also seek restoration in the nearly 30% cut in State COM appropriations observed over the past 6 years in return

for expected derivative regional economic benefits created by expansion of our biomedical research activity. There also must be relentless internal and external marketing and communication of the OSUWMC and COM's academic and clinical achievements.

One unmitigated COM success story has been the growth and strong reputation of our School of Health and Rehabilitation Sciences (SHRS), ably led by Dr. Deborah S. Larsen. The School is a nationally recognized leader in the education of allied health providers in the fields of Athletic Training, Health Information and Management Systems, Medical Dietetics, Medical Technology, Occupational Therapy, Physical Therapy, Respiratory Therapy, and Radiologic Sciences and Therapy. They are about to begin a Physician Assistant program. Graduates from all these fields are in high demand. Moreover, the School runs a healthy surplus and has seen growth in its grant portfolio. Most programs are ranked in the top 20 of US programs.

In short, an agenda to permit the OSU COM to meet President Gee's goal of moving from "Excellence to Eminence" is proposed which builds on current institutional strengths, exploits productivity gains, and shrewdly invests in innovative programs to enhance the lives of Ohioans and move OSUWMC and its COM into the top 20 of U.S. academic health centers.

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## College Overview

The OSU COM, along with its School of Health and Rehabilitation Sciences (SHRS) and Graduate School of Biomedical Sciences offers a broad range of educational programming for medical, undergraduate and graduate students, as well as learning opportunities for residents, fellows and postdoctoral trainees. The COM also offers credit for continuing medical education (CME) and credentialing for professionals who seek to further their skill and knowledge base. Supporting the educational and research mission of the college are centers of learning, clinical and laboratory research facilities and a multitude of services to enhance the student's educational experience.

The OSU COM can trace its roots as far back as March 3, 1834 with the founding of the Willoughby University of Lake Erie in Willoughby, Ohio. In 1847, several faculty members started the Willoughby Medical College of Columbus in Columbus, Ohio on the corner of High Street and Gay Street in half of the Clay Club house. Almost immediately upon opening, the school was contacted by Mr. Lyne Starling, a wealthy local business owner, who offered \$30,000 to construct a new hospital and school complex on State and Sixth Street in Columbus. The concept of a hospital affiliated with a medical school, though commonplace now, was groundbreaking at the time. Dr. James Fairchild Baldwin and several faculty members left the school and in 1876 founded another medical school, the Columbus Medical College. In 1892, he and several faculty members resigned and started yet another medical school, the Ohio Medical College. After a donation of \$5,000, the Ohio Medical College was able to build Protestant Hospital, the forerunner of Riverside Methodist Hospital. In 1907, the Ohio Medical College merged with the Starling Medical College to form the Starling-Ohio Medical College. In 1914, the Starling-Ohio Medical College became affiliated with The Ohio State University.

In 2011, the COM marked many milestones. It was awarded NIH funding for its MD/PhD program, making it a formal NIH Medical Scientist Training Program, one of only 44 medical schools in the country and the only new school to receive the funding in the past 10 years. The College also was proud to have another faculty member elected to the Institute of Medicine of the National Academies. However, because of the challenging funding environment and relatively low grant productivity amongst research faculty, our NIH research revenues dropped in FY 2011 causing a decline in our Blue Ridge Institute rankings of US medical school NIH funding from 42 to 43. Given the intense competition for NIH funding the COM has seen unprecedented efforts to recruit our well-funded investigators to other institutions necessitating generous retention packages. Even these efforts are not always successful as witnessed by the recent recruitment of the Chair of Neurosurgery to the Brigham and Women's Hospital.

A major obstacle to our recruiting top undergraduates is our lack of scholarship support. Based on AAMC data, graduating OSU COM students are burdened by one of the highest levels of debt of any U.S. public medical school – now over \$152,510, not including undergraduate debt. This compares with an average debt load of \$111,590 for top 20 medical schools. We also have one of the lowest levels of annual scholarship support, around \$7,800 per student, compared to \$19,200 per student for top 20 medical schools. Despite this disadvantage, undergraduates accepted for admission to the class of 2016 have the highest MCAT scores and grade point averages and reflect the greatest number of under-represented minorities (URM) admitted in the school's history.



The institution's collective desire and commitment to elevate both the Medical Center and COM into the top echelon of U.S. academic health centers are palpable. However, the national health care financing trends, intense local competition, falling NIH pay-lines and high student indebtedness pose substantial obstacles to the attainment of this goal. These challenges necessitate novel and bold approaches to our tripartite mission of high value clinical care, research and education.

### Strategic Vision of the College Of Medicine

We share a common vision: working as a team, we will shape the future of medicine by creating, disseminating and applying new knowledge, and by personalizing health care to meet the needs of each individual.

### Strategic Mission of the College of Medicine

All areas of the Ohio State COM are driven by our mission: to improve people's lives through innovation in research, education and patient care.

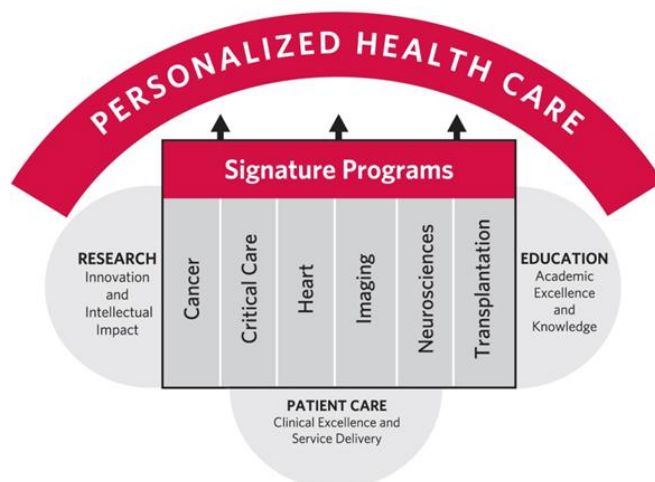
**Shared Values** Central to how we carry out our mission and vision are our core values: excellence, collaborating as ONE university, integrity, personal accountability, transparency, diversity, relentless innovation, simplicity in our work, empathy, compassion, and leadership.

### Strategic Goals

- Be among the top 20 academic medical centers and become a top 10 NCI-funded Comprehensive Cancer Center.
- Become a high performance organization and workplace of choice.
- Generate an investment fund for mission development and scholarships.

### Strategic Portfolio

We have targeted our growth to be in Signature Programs with selective investment in other initiatives. Our over-arching strategy for health care delivery is a focus on personalized medicine in which a patient's demographic, genetic and health status as well as family and community setting, personal goals and psychiatric make-up are all used to optimize care.



## Strategic Scan

### EXTERNAL THREATS

As noted previously, the future of the OSU COM and the OSUWMC are inexorably entwined, such that forces that impact one invariably impact the other. Some of the major areas of concern are as follows:

#### A. Local competitors

Four local hospitals have higher mean Hospital Consumer Assessment of Healthcare Providers and Systems Survey (HCAHPS) *i.e.* publicly reported patient satisfaction scores: New Albany (85%), Dublin Methodist (79%), Grant (76%), and Riverside (75%). In 2013, Mount Carmel Health System will open 60 new beds and expand cardiac and orthopedics/neurology treatment areas at their St. Ann's Hospital located in a Northeast suburb of Columbus to service a rapidly expanding population. OhioHealth maintains a superior market share in OSUWMC's primary service area (PSA). OhioHealth also recently announced a \$321 million expansion at their Riverside location adding a 10-story Neurosciences tower which will include 224 new patient rooms. This tower, which will house orthopedic, stroke and cardiac patients, is expected to open in the summer of 2015. In addition, both local health systems have announced plans to build new outpatient campuses in Grove City.

There is also the threat of new entrants such as for-profit hospital chains. For example, Louisville, Ky.-based Springstone Inc. plans to open the 72-bed Dublin Springs Psychiatric Hospital as early as August. Finally, potential disruptive innovations such as inexpensive off-shore for-profit medical schools contracting directly with local hospitals for residency slots for their students or off-shore hospitals contracting directly with Ohio employers to provide heavy discounts for expensive procedures (*e.g.*, joint replacements) must be considered.

#### B. Economic Factors

1. Unsustainable National Healthcare Expenditures – While the exact nature of changes in healthcare access, financing and delivery wrought by the Patient Protection and Affordable Care Act (PPACA) will ultimately reflect both political and economic determinants as well as Supreme Court decisions, there is no doubt that profound change is coming to the U.S. healthcare industry and academic health centers will be at the center of this change. Contributing to rising national healthcare expenditures are a combination of new technologies, an aging population, and rising levels of obesity. However, the primary contributor is the relentlessly rising volume of care driven by our discounted fee-for-service (FFS) payment system (1). Moreover, even though national healthcare inflation has been somewhat mitigated by the recent recession and persistently high unemployment, it remains around 4% and still exceeds the general inflation rate by a factor of nearly two (2). Additionally, healthcare spending is expected to accelerate to 5.8% per year between now and 2020 to 19.8% of GDP. Since 55% of U.S. healthcare spending is borne by employers, there will be substantial pressure on third party administrators and insurers to reduce fees, tier their products so as to direct patients to the least expensive provider and to “bundle” payments for care instead of paying the physician and hospital separately in an effort to hold premiums steady. Health

care spending by the federal government represents an ever-increasing portion of our already excessive 53% debt to GDP ratio and this number is expected to reach 90% by 2020 (1). Thus, there is almost no doubt that substantial reductions in federal Medicare spending will be a cornerstone of any future meaningful deficit reduction plan. Indeed, the recent failure of the Bipartisan Deficit Reduction Committee to resolve ideological disputes over needed tax increases and entitlement reform will trigger 2% per year reductions in Medicare spending for the next decade.

2. State Budget Cuts to Higher Education – State appropriations for educational subsidies were recently reduced 15.5% and have dropped 26% over the past 5 years. Moreover, they will drop another 3% next year.
3. Potential for Significant Cuts in Indirect Medical Education (IME) and Graduate Medical Education (GME) Funds – Up to a 60% reduction in these important sources of graduate medical education funding sources could occur depending on the outcome of the next election.
4. State Medicaid Reimbursement Changes - State budget deficits are also forcing significant reductions in Medicaid spending nationwide as a large portion of state budgets are consumed by Medicaid expenditures. Indeed, the State of Ohio had to eliminate an \$8 billion budget deficit for the SFY 2012 – 2013 biennium. The Kasich Administration, through its Office of Health Transformation, is seeking to transform Medicaid by achieving five priorities: improving care coordination, integrating behavioral and physical health care, rebalancing long-term care, modernizing provider reimbursements, and balancing the budget. Although the enacted budget includes \$376 million in savings through “modernizing hospital payments,” Ohio hospitals worked to minimize the budget’s negative impact on them through the use of a revised franchise fee structure that returns substantial funds to hospitals and through continuation of a higher Prospective Payment System (PPS) base rate. Nonetheless, the director of the Ohio Department of Job and Family Services has been instructed to implement purchasing strategies and rate reductions for Medicaid services. The state currently is undertaking a budget neutral revision of its DRG system to make it more accurate. Further, the state is establishing new Medicaid managed care contracts, which will require negotiation with new managed care plans. Given the proportion of Medicaid in OSUWMC's payer mix, such changes could have a significant impact on both inpatient and ambulatory care revenue.
5. Federal Cuts in Medicaid Disproportionate Share Hospital (DSH) payments - The PPACA reduces Medicaid DSH payments by \$14.1 billion from FFY 2014 - 2020, based on a formula the Secretary of Health and Human Services will develop through future regulation. Congress continues to consider reductions in DSH payments as a mechanism to pay for other policies. The Middle Class Tax Relief and Job Creation Act of 2012 extends PPACA-mandated DSH payment reductions for one additional year. This provision is estimated to generate \$4.1 billion in savings. Reimbursement will decrease substantially if expanded coverage does not offset the DSH cuts. As OSUWMC cares for a significant number of uninsured and poor patients, these cuts could have a significant impact on revenue.
6. Effect of Economic Slowdown – Beyond the impact of pending federal deficit reduction initiatives on Medicare and Medicaid, reduced federal spending will result in the creation of a fiscal drag on the U.S. economy with potential adverse effects on GDP growth. The impact of such austerity measures on the U.K. economy, which has slipped back into

recession, is emblematic of this threat. Since GDP is the sum of spending by consumers, investment by businesses, government spending, and net exports, a reduction in government spending of the magnitude required to balance the budget or to the extent proposed by House Republicans, coupled with the lingering effects of capital market deleveraging, could trigger a renewed (double dip) recession or a prolong period of very slow growth reminiscent of Japan's economy in the 1980's and 90's. In any case, these macro-economic trends would further reduce healthcare demand and revenues.

Alternatively, toleration of sustained deficit spending as proposed by the Democratic Senate and White House threatens to trigger inflation and raise interest rates that would also limit future federal discretionary spending.

7. Growth of Consumer-Directed Health Plans – A final threat to OSUWMC and faculty practice patient-service revenues comes from reduced employer spending on healthcare. Today, U.S. businesses cover about 55% of healthcare costs. No other developed economy so burdens its industries. General Motors spends more for healthcare than steel with healthcare costs adding \$2000 to the sticker price of every automobile, helping to explain the relatively non-competitive state of our auto industry (3). The cost of healthcare for Starbucks employees matches the cost of its coffee purchases (4). Over the past few years, large employers began demanding greater value for their healthcare dollars and are increasingly turning to consumer-directed plans, with high co-pays and high deductibles, to force employees to also seek value in their healthcare purchases. All of these trends will certainly result in a relative reduction of FFS-derived net patient service income in the next few years and drive fundamental healthcare delivery reform in the long run, culminating in formation of accountable care organizations (ACOs) reimbursed by some form of capitation (*vide infra*).

### **C. Value-based purchasing**

The quality of U.S. healthcare remains a major concern. The U.S. spends 50 to 100% more *per capita* than other industrialized nations but ranks 37<sup>th</sup> in performance according to the World Health Organization (5). Americans receive about half of recommended preventive care (6). Conversely, although its methodology has been criticized, a study of Medicare spending patterns found more than two-fold differences in spending per patient between regions with the highest and lowest quintile costs, yet higher spending was not associated with better outcomes, higher patient satisfaction, or improved access to care (7). Moreover, preventable medical errors add \$77 billion to total outpatient costs (8).

The realization that relentlessly rising discounted FFS volume exacerbates the marginal quality of care currently being delivered in the U.S., prompted CMS to move toward a hospital value-based purchasing system (9). This system will impact inpatient Medicare payments beginning in FY 2013 based on discharges accruing on or after Oct. 1, 2012. Value-based payments will be made to acute care hospitals, predicated either on how well the hospital performed or how well it improved on specific quality metrics. Metrics will be based on performance across 25 of 45 Hospital Compare reporting measures (<http://www.medicare.gov/quality-care-finder/>). These 25 indices include 17 clinical process-of-care measures (70% of risk) and eight HCAHPS measures (30% of risk); the higher the performance or improvement during a fiscal year the higher the hospital's value-based incentive payment. However, meeting the thresholds for bonus payments will be difficult and the potential to lose 1% of payments is substantial. In addition, beginning in 2013, penalties for readmissions will be added and failure to meet thresholds could result

in a further 1% reduction in Medicare revenues ramping up to 3% by 2015. Also in 2015, hospital acquired condition rates will add yet another 1% risk. These changes appear to be moving ahead despite recent evidence from the Congressional Budget Office that neither Medicare Disease management nor Value-based payment demonstration projects substantial reduce health spending. Thus, academic health centers like OSUWMC, with a sicker, more complex patient mix will be particularly vulnerable and a single-minded focus will be needed to optimize patient safety, satisfaction and outcomes.

#### **D. Accountable Care Organization (ACO)**

The PPACA has also authorized CMS to contract with ACOs. The rationale behind the so-called "Shared Savings Program" is to promote accountability for a given population of Medicare beneficiaries, improve the coordination of FFS care, encourage investments designed to transform health care processes to maximize high quality and efficient service delivery, and incentivize higher value in healthcare. While the exact statutory requirements for establishing an ACO are subject to Congressional modification and are likely to evolve, the basic structure is as follows:

- An ACO must be accountable for the quality, cost, and overall care of the Medicare FFS beneficiaries attributed to it. Patients will be "attributed" to a given ACO if they received the majority of their primary care visits from a physician in that ACO.
- Participating organizations must contract for at least 3 years and include sufficient primary care professionals to cover at least 5,000 Medicare FFS beneficiaries.
- If the actual costs of care provided to recipients were less than expected, the ACO could "gain-share" or split the savings with the ACO. Two different models have been recently proposed which allow ACOs to take progressively greater gain share in return for greater financial risks.
- These added revenues require that the ACO meets quality and patient satisfaction targets. The PPACA also authorizes the HHS Secretary to begin partial capitation payments.

Once established, ACOs would be in position to transition from traditional FFS contracts to bundled contracts that cover all physician and hospital services for a single fee. Specialists would be paid for management of an acute medical episode, or an interval of care for a chronic medical condition. Affiliate primary care providers working in "patient centered medical homes" could have a portion of their payments for their Medicare patients be capitated (*i.e.*, paid per member per month instead of FFS). In its final iteration, payments could be based on value (health outcomes for a given medical condition per dollar spent). The ACO format, if proven to reduce costs and improve quality, could quickly be adopted by commercial/managed care payers or ACOs could contract directly with employers.

The risks of not moving quickly to offer an ACO would include loss of Medicare patients and ultimately loss of a large portion of the total patient base to competitor hospital-based and multispecialty practice-based ACO's. The latter are particularly problematic to academic health centers like OSUWMC, since they will view hospitals as cost centers. The primary barrier to the entry of OSUWMC into this arena is a shortage of primary care providers (PCPs). Deloitte recently completed an analysis of this issue for OSUWMC and estimated we would need an additional 150 PCPs to reach the median for successful

academic health centers. This shortage of PCPs is the focus of active discussion by medical center leadership. Conversely, the risks of premature adoption of an ACO format include high implementation costs, reduced FFS revenues, and decreased productivity of newly developed, affiliated or acquired primary care practices.

## **E. Declining NIH Paylines**

Data extracted from the NIH web site and analyzed by the Federation of American Societies for Experimental Biology (FASEB) demonstrate ominous trends in federal funding of research in academic health centers (10). For example, in constant dollars the FY 2012 budget and the President's proposed FY 2013 budget are \$4 billion lower than in FY 2003, the peak appropriation year and are now at their lowest level since FY 2001. Similarly, the number of research project grants funded by NIH has declined every year since 2004. For example, total research project grant (RPG) applications receiving funding have declined 8.4% from 37,401 in 2004 to 34,253 in FY 2013. The most common types of RPGs, R01s and equivalent grants, have declined 10.4% from 29,970 to 26,862 during the same period. Success rates for individual applications have fallen more than 43.4% in the past decade from 32% for R01 applications (including multiple submissions of the same grant) to 18.7% in 2011. Worse yet, most proposals that are funded are subject to draconian (25%) budget cuts and/or reduced numbers of years funded. Similarly, the maximum allowable salaries derived from NIH grants has dropped from \$199,700 for awards issued before December 23, 2011 to \$179,700 for awards issued on or after December 23, 2011. In the past year, pay-lines in most institutes have reportedly dropped below 12%. Finally, with further federal budget cuts either mandated or likely over the next five years, there is little prospect for a substantial increase in NIH budget allocations. Thus, the research enterprise of academic health centers must find alternative sources of funding.

## **INTERNAL ENVIRONMENT**

### **A. Teaching and Learning:**

1. Educational Innovation – The introduction of the new COM curriculum, *Lead, Serve and Inspire* (LSI) this September with its focus on meeting the Accreditation Council for Graduate Medical Education (ACGME) core competencies, will represent an enormous step forward for undergraduate medical education. Among the new curriculum's many innovations are:
  - a. Tighter integration of basic science and clinical learning.
  - b. Reinforcing fundamental science teaching throughout all four years of medical student education.
  - c. Earlier introduction of clinical experiences.
  - d. Novel team learning and faculty coaching elements.
  - e. New emphasis on critical thinking skills, patient safety and use of research.
  - f. Rethinking of epistemological strategies for medical learning with an increased emphasis on point of care knowledge acquisition.

The new curriculum should go a long way towards reducing the variability in clinical skill acquisition plaguing contemporary U.S. medical education. The implementation of a qualifying clinical practice examination and end-of-clerkship exam employing Objective

Structured Clinical Exams (OSCEs) in a new simulation center and/or with standardized patients are also excellent additions. However, the new curriculum will also present major logistical challenges and increased need for educational software, simulation, small group space and master teachers. The initial price tag for LSI was \$ 6 million, though we have been able to find \$ 3 million in offsets to reduce the economic impact.

2. Robust Admission Pool – In 2011, a total of 4,540 students applied, 988 were interviewed, 509 were accepted (11.2%) and 264 matriculated. The average class GPA of matriculates was 3.64 and their mean MCAT scores were as follows: biology 11.5, physical sciences 11.37 and verbal reasoning 10.42. The 264 matriculants represented an unanticipated 18% increase in class size over our typical class size of 220 students. A root cause analysis was carried out after my arrival and determined that lax control over the admitting process and poor reporting tools during the 2010-2011 recruitment season were reasonable for the unanticipated increase in matriculates. Administrative adjustments have now been put in place to prevent a recurrence. As is mandated, the error was immediately reported to the Liaison Committee on Medical Education (LCME), the nationally recognized accrediting authority for medical education programs leading to the MD degree. As a result of these discussions we agreed to hold our class sizes to less than 195 for the next two years. The unexpectedly large class that entered in 2011 has required significant accommodations in class room size, library services, and demand for small group instructors. It has also strained our scholarship resources. However, the smaller class sizes that will enter in 2012 and 2013 will allow for a more manageable roll out of our new LSI curriculum. We will also assess the performance of these smaller classes as we consider what would constitute the optimal class size for the OSU COM in order to maximize our students' educational experience.
3. Quality of Clinical Teaching – In 2011 our student satisfaction with their medical education was higher than the national average at 92.9%. In addition, the student satisfaction across fundamental science courses and clinical department clerkship offerings were all at or above the national average. However, in two years when the unexpectedly large class admitted in 2011 begins their clinical rotations we anticipate some difficulties will be encountered in accommodating all these extra students at our currently available clinical sites. In addition, the OhioHealth medical system, which provides about 30% of our current medical student clinical rotations, has just signed a definitive agreement with Ohio University Heritage College of Osteopathic Medicine that recognizes OhioHealth as the "Preeminent Education Partner" for the osteopathic college's new central Ohio extension campus in Dublin. Simultaneously, since D.O. granting schools are not subject to the LCME's strict standards regarding class size, the Heritage College recently announced an increase in their annual class size from 50 to 200. Thus, it is very unlikely that OSU COM students will be able to continue their rotations at many OhioHealth facilities without substantial deterioration in their access to patients and a reduction in individual learning opportunities. Thus, unless an alternative robust set of clinical rotation sites can be identified, the class size at OSU COM may need to be reduced by 30%.
4. Physician Scientist Training – The recent acquisition of the NIH-supported Medical Student Training Program (MSTP) will permit a doubling in the number of MD-PhD students which will help reinforce the value and importance of research among all students and increase the overall competitiveness of the school. However, with only 5% of our entering students enrolled in a MD-PhD program, we lag far behind top 20 schools

the COM which generally offer 10% of their admission slots for MD-PhD training. To compete effectively with these schools and enter the top echelon of academic health centers we will need to double the number of our MD-PhD matriculates. Substantial additional scholarship funding would be required to achieve this goal.

5. School of Health and Rehabilitation Sciences – The availability of this nationally recognized leader in the education of allied health providers creates a truly unique opportunity to promote team and practice-based learning in the COM. Under the leadership of Deborah S. Larsen, PT, PhD, the school is thriving financially and academically. Individual programs include: Athletic Training, Health Information and Management Systems, Medical Dietetics, Medical Technology, Occupational Therapy, Physical Therapy, Respiratory Therapy, and Radiologic Sciences and Therapy. However, Atwell Hall presents a serious limitation to growth and recruitment of top students since it is currently too small to service the current number of students and faculty. In addition, the building has chronic problems with its heating, ventilation and air conditioning (HVAC) system, lacks windows and sound abatement systems, has Spartan furnishings and a general lack of amenities. The facility needs to be replaced as soon as is practicable.
6. Concerns with Tuition, Indebtedness of Students – In 2011 - 2012 the COM tuition was \$31,425 for in-state students and \$35,640 for out-of-state residents. As noted previously, the average indebtedness of graduating OSU COM seniors was \$152,510. This compares with an average of \$137,197 among public medical school according to AAMC data and an average debt load of \$111,590 for top 20 (private and public) medical schools. According to AAMC data, 87.9% of our students graduate with debt compared with 84.9% for all schools. About 93% of our medical students received some form of financial aid, however 81.7% receive loans while only 18.2% receive scholarships. We also have one of the lowest levels of *per capita* annual scholarship support in the Nation, around \$7,800 per student, compared to \$29,200 per student for top 20 schools. Thus, there is an immediate need for a tripling in available scholarship funds.
7. Diversity – The introduction of the MedPath one year post-baccalaureate program has significantly helped OSU COM increase the percentage of under-represented minority (URM) students in the entering class from 6% to 14%. A number of other strategies have also been employed to generate a welcoming environment for minority students.



## **B. Research and Innovation:**

### **1. Major Grant Successes:**

*Clinical and Translational Science Award (CTSA)* – In 2008, OSU was awarded a \$34 million five year Clinical and Translational Science Award by the NIH. This grant funds the OSU Center for Clinical and Translational Research under the leadership of Rebecca D. Jackson, M.D., Ph.D. The Center takes advantage of unique campus-wide resources, including faculty from the six other health science colleges and three non-health science colleges (*i.e.*, Business, Engineering and Social Work). However, an equally innovative facet of the Center is its partnership with Nationwide Children's Hospital, the Battelle Memorial Institute, and the Appalachia Community Cancer Network, among others. This novel multidisciplinary approach should accelerate the development of outstanding translational and clinical research with an attendant increase in grant revenue and enhancement of clinical innovation and reputation. A major emphasis of the Center is the training of clinical and translational researchers. Unfortunately, the CTSA is up for renewal and it is unclear how many centers will be funded and for how long. Renewal is far from certain and excellent centers have recently been de-funded.

*The OSU Comprehensive Cancer Center (CCC)* – Under the energetic leadership of Dr. Michael Caligiuri, the CCC recently renewed its core grant and National Cancer Institute (NCI) designation with a rating of exceptional. This provides 5 more years of funding, and is the highest rating the NCI can bestow. In doing so, the NCI review panel noted that the OSU CCC is “the model for other matrix university-based centers.” The CCC’s 278 members are drawn from 13 different OSU colleges. In 2009 there were 1,200 patients enrolled in clinical trials. With the core grant, CCC members generated over \$50 million in NCI funding in 2009 and contributed over 393 high impact publications (impact factor >10) from 2004 to 2009. Center strengths include its director, Mike Caligiuri, a leading cancer researcher with over 261 publications, an H-index of 64 and \$15 million in personal grant support. The Center includes a SPOR grant for its leukemia program.

2. Recent Stagnation in OSU COM NIH Funding – Unfortunately, these successes with major grants must be weighed against a general across the board decline in NIH funding in most OSU COM clinical and basic science departments. According to the Blue Ridge Institute for Medical Research ([http://www.brimr.org/NIH\\_Awards/NIH\\_Awards.htm](http://www.brimr.org/NIH_Awards/NIH_Awards.htm)), in 2011 the OSU COM received \$94,500,783 in direct and indirect NIH grant support, excluding research and development (R&D) and American Recovery and Reinvestment Act (ARRA) Awards. This represents a 4.7% decrease from the 2010 figure of \$99,124,848 and a drop in ranking from 42<sup>nd</sup> to 43<sup>rd</sup> nationally. Among clinical departments traditionally garnering the largest share of NIH funding in a given medical school, the OSU department of Medicine dropped in rank from 29<sup>th</sup> in 2010 to 35<sup>th</sup> in 2011. Among major Signature Programs, Neurosciences component departments ranged in rank from 12<sup>th</sup> for Neurosurgery to a very poor 64<sup>th</sup> for Neurology. The Imaging Signature Program’s one department, Radiology, ranked 44<sup>th</sup>. Among basic science disciplines, Physiology ranked 52<sup>nd</sup>, Pharmacology 60<sup>th</sup>, and Biochemistry 42<sup>nd</sup>. Thus, there is substantial opportunity to make progress with disciplined and focused recruitment.
3. Record Retention Threats – Of equal concern has been the recent uptick in aggressive recruitment of COM faculty. Significant losses have been observed in the CCC including

Tim Hui-Ming Huang, Ph.D, a well-funded expert in epigenetics, who was recruited to the University of Texas at San Antonio and Dr. Nino Chiocca, Chair of Neurosurgery, recently recruited to the Brigham and Women’s Hospital in Boston. Additional current “at risk” faculty include Drs. Carlo Croce, Denis Guttridge, Balveen Kaur and Richard Fishel, all of whom have multiple NIH grants.

### **C. Outreach and Engagement:**

1. Opportunity to Engage all OSU Health Colleges to Create New Models of Training – The Colleges of Medicine, Dentistry, Nursing, Optometry, Pharmacy, and Public Health, and the COM’s School of Health and Rehabilitation Sciences have a unique opportunity to abandon their traditional educational “silos” and train all their students together where appropriate, and to embrace a team and system perspective, which better reflects the actual delivery of care today. This is the future of undergraduate medical education and OSU is ideally positioned to be a leader in system-based education that empowers each member of the healthcare team. In a similar vein, these schools can coordinate community-based research and care.

2. Community Initiatives:

*Medicaid Technical Assistance and Policy Program (MEDTAPP)* – The OSU COM, through the Office of Health Sciences has taken the lead on a statewide initiative to position Academic Health Sciences as a resource to support state and local governments by providing technical assistance and policy development foundation and decision support to the Ohio Medicaid Program. Most recently, led by OSU COM, a trans-institutional collaborative of OSU Colleges secured federal Medicaid matching funds of up to \$4.2 million to educate, train and retain undergraduate and graduate students and residents in community venues with a significant penetration of Medicaid eligible individuals. The resultant interdisciplinary education and team training will enable our students to experience clinical practice as part of innovative service delivery models in medically underserved communities. These funds will enable a modest refinancing of state appropriated funds to further the practice opportunities for learners within and across the Health Sciences and the larger university

*Weinland Park Neighborhood* – The Weinland Park neighborhood is a dense, compact urban area totaling a third of a square mile, just southeast of OSU. Historically a working-class neighborhood, the area has experienced steady and significant economic decline and disinvestment over the decades. Recently, the OSU Provost sponsored an International Poverty Solutions Collaborative (IPSC). Medical Center involvement has been primarily manifest through a premature birth prevention program known as Moms2B. Using a church kitchen as a gathering point for Wednesday lunches the program teaches participants nutritious shopping and preparation of food, while monitoring their pregnancies and supporting their physical, social and emotional needs. These gatherings are staffed by interdisciplinary teams of physicians, nurses, midwives, nutritionists, and social workers; while also providing service learning for students.

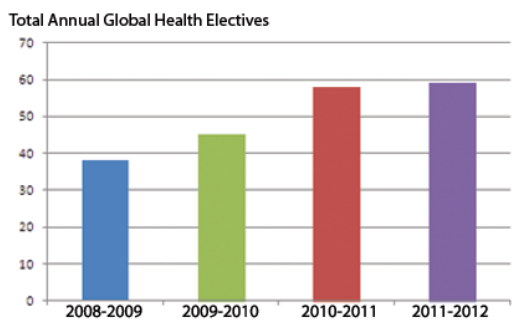
*Partners in Achieving Community Transformation (PACT)* – Historically, Columbus’ near East side was a wealthy and prestigious community; and certain areas were thriving African-American communities. Construction of an interstate highway during the 1960s effectively isolated this community. The out-migration of middle-class residents and

disinvestment has resulted in dilapidated housing stock, deteriorating infrastructure, loss of homeownership and reduction in the socioeconomic well-being and health of the community. The OSUWMC has partnered with the city of Columbus Job Creation Tax Incentive mechanism to invest in the redevelopment of the Near East Side Neighborhoods around University Hospital East (UHE). In 2011, OSUWMC opened CarePoint East which provides ambulatory resources for primary care, diabetes, heart disease and orthopedics. Our outreach and engagement efforts also recognize the role social determinants play in the health of the community, and this project addresses: jobs and economic development, education, safe and vibrant neighborhoods, housing and health and wellness.

*Partnership with the Columbus Metropolitan Housing Agency* – The Columbus Metropolitan Housing Agency is another a medical center partner as it seeks to redevelop the 25 acres that abut University Hospital East and are the sight of a public housing development that has outlived its usefulness and is scheduled to be demolished in 2013. The partners have received a \$300,000 planning grant to develop a master plan for this site and the surrounding area and to identify the barriers and opportunities to leverage additional partners and investments to revitalize and transform that community.

*St. Clair Commons – St. Clairsville, Belmont County* – A planned development of a Patient Centered Medical Complex in Belmont County that will serve 250,000 persons across eight Appalachian counties starting in 2015. The COM has engaged in planning for educational and research opportunities in this environment. Other Health Science Colleges, along with Social Work, Education and Human Ecology, Architecture and OSU Extension have also been at the table to explore the opportunities to develop rural service learning and research opportunities. For the COM this presents an alternative venue to explore P4 medicine and re-establish a rural residency initiative.

3. Global Health – Created and led by Daniel D. Sedmak, M.D., the Office of Global Health Education (OGHE) provides medical students at OSU with the opportunity to learn about global health issues through didactic, self-study and participatory learning with the focus on developing nations. Through the OGHE, all fourth-year medical students have the opportunity to participate in a Global Health Elective (GHE) at an international site for which they receive credit and funding. Students expand their health care knowledge by spending 1-2 months in a developing nation providing patient care at a rural clinic, hospital, or community health program. These experiences foster a spirit of service, cultural appreciation, and global partnership. Approximately, 30% of fourth-year medical students participate in a GHE, a number which has steadily increased, visiting countries throughout the world as shown in the following figures.



The number of students completing Global Health Electives continues to increase each year. This chart shows the increase between 2008 and 2012.

In addition to the OGHE, the Health Sciences Center for Global Health (HSCGH), an NIH Fogarty International designated center, co-directed by Daniel Sedmak, MD and Mary Ellen Wewers, PhD, MPH, is a collaboration among the OSU Colleges of Dentistry, Medicine, Nursing, Optometry, Pharmacy, Public Health, and Veterinary Medicine. The HSCGH works to increase student interest in global careers, prepare students for those careers and to promote, develop and coordinate interdisciplinary global health education and research throughout the health sciences colleges and the larger community. Graduate and professional students can enroll in the Graduate Interdisciplinary Specialization in Global Health program, which provides students with access to interdisciplinary coursework and formal recognition of such study on their transcripts.

*Graduate Interdisciplinary Specialization for Global Health (GISGH)* – The GISGH was created in 2009, as a university-wide program offering current OSU graduate and professional students advanced educational opportunities in the field of global health. This program is the most sought after interdisciplinary specialization at OSU with 86 students, including 28 medical students, currently enrolled in the program. In addition to the classroom work, students can apply for an international practicum, a mentored hands-on global health activity to be completed at an OSU HSCGH-designated or approved site in a developing country. This activity is structured by the student and program faculty mentor to include on-site participation in research, clinical training opportunities (treatment or prevention) or outreach as appropriate to the students training. Funding for the field experiences comes from a NIH Fogarty grant (Daniel Sedmak, M.D., PI), and matching funds from the students’ home college. Over 40 awards have been made to students from all seven health sciences colleges.

*Metro High School* – One of the principal aims of the center’s NIH Fogarty International grant is to generate an interest in global health careers in students at all levels. A partnership developed between Metro High School and OSU COM has resulted in a program of global health activities and curriculum for high school students. Dr. Sedmak developed and teaches “Introduction to Global Health” each spring at Metro High School. The course culminates in a trip to an international site that matches the theme of the teaching, i.e., western versus traditional Chinese medicine, medicinal plants, etc. Metro students also participate in Global Health Day activities at OSU.

4. Student Led Initiatives and Community Outreach:

*PODEMOS* – The Partnership for Ongoing Developmental, Educational, and Medical Outreach Solutions (PODEMOS) provides both essential primary care services to marginalized communities in Honduras and a valuable educational experience to its student participants from OSU. Founded in 2008 by OSU medical students, PODEMOS makes semi-annual trips in June and December to address acute and chronic problems in the communities it serves.

*International Health Interest Group* – The student-led International Health Interest Group educates medical students about the rewards of being involved in global medicine, and assists in facilitating experiences for pre-clinical students.

*Buckeyes without Borders (BWB)* – This OSU graduate student advocacy group strives to foster global health awareness and the benefits of interdisciplinary health care teams on positive patient outcomes through outreach and education to the OSU and Central Ohio communities. They currently have over 90 members from dentistry, medicine, nursing, optometry, pharmacy, public health, SHRS, and veterinary medicine who are creating service projects locally and abroad.

#### D. Resources Stewardship:

There are multiple financial threats to the OSUWMC and COM that if not properly managed could impair the quality of our education, research and patient care efforts:

1. Favorable Hospital System Profitability Ratios But Significant Liquidity Risks – In 2011 OSUWMC enjoyed excellent profitability ratios with a robust operating margin, strong return on assets (10.48%), and outstanding days in accounts receivable of 43 days. The excess of revenues over expenses (EROE) was \$145,609,508. It also had solid age of plant (8.8 years) and average payment period (35.9 days) indices. Less favorable were its current ratio of 1.97, days of cash on hand of 66 days and cash to debt ratio of 0.57, suggesting less than optimal liquidity.

**Table 1: OSUWMC financial ratios and comparable ratios for academic health centers with varying bond ratings**

	2009	2010	2011	A-rated	Aa	Baa
<b>Annual DSCR</b>	6.7	6.28	5.1	6.3	5.2	2.9
<b>Max. Annual DSCR</b>	9.91	8.51	7.2	6.5	5	2.8
<b>Debt to Capitalization ratio</b>	31.01%	31.16%	44.75%	29.30%	33.70%	46.40%
<b>Debt to Cash Flow</b>	1.25	1.3	2.4	2.6	3	5.2
<b>Cushion Ratio</b>	8.7	7.9	5.9	28.45	18.23	9.06
<b>Operating Margin (%)</b>	7.60%	7.46%	8.09%	4.50%	3.10%	0.60%
<b>Excess Margin (%)</b>	7.71%	7.47%	8.09%	7.80%	6.00%	2.80%
<b>Capital Spending Ratio</b>	1.24	1.35	2.91	1.8	1.7	1.2
<b>Op. Cash Flow Margin (%)</b>	12.48%	12.26%	12.46%	11.20%	9.90%	8.00%
<b>Return on Assets</b>	11.99	12.04	10.48	6.3	5.2	2.6
<b>Age of Plant (years)</b>	7.91	7.94	8.79	8.8	9.7	10.5
<b>Current Ratio</b>	1.65	1.77	1.97	1.9	2.1	1.9

<b>Cur. Ratio + board rest. funds</b>	2.31	2.43	2.88			
<b>Days Accounts Receivable</b>	49.2	44.21	43.27	51.2	49.1	48.50
<b>Ave. payment period (days)</b>	40.71	39.19	35.93	60.7	57.7	53.20
<b>Cash on hand (days)</b>	59.01	62.72	66.1	253	181	111
<b>Cash to debt (%)</b>	98.05%	103.83%	57.44%	180%	139%	71%
<b>Total asset turnover</b>	1.57	1.58	1.29	>1.02		
<b>Fixed asset turnover</b>	3.17	3.25	2.74	>3.59		
<b>Net Assets to total assets</b>	0.56	0.55	0.47	>0.62		
<b>Total return on assets</b>	0.11	0.11	0.10	>0.03		

Fortunately, OSUWMC does not issue bonds directly. Rather debt is incurred by the University which has an outstanding bond rating and was recently able to issue a long-term fixed rate bond at a remarkably low 3.19% interest rate. Liquidity issues remain a concern however, with days cash on hand recently dropping to 47 days as a result of various factors including delays in billing accruing the implementation of the Epic electronic billing system component and delays in reimbursement by Medicaid and commercial payors. Overall, the medical center is in sound financial shape though it should continue to address liquidity concerns and push to increase days of cash on hand to over 111 days (comparable ratio for academic medical centers with Baa bond rating).

In 2014, OSUWMC will open a new tower, which will house the new James Cancer Hospital, and the Solove Research Institute, as well as new critical care facilities and integrated space for research, education and patient care. This facility will dramatically increase revenue opportunities as well as fixed costs. Thus, there is a need to dramatically increase admissions between 2012 and 2014 to insure that there is adequate utilization of the increased bed numbers. The crucial dependency of the COM on medical center transfers to maintain and grow its educational and research programs cannot be over-stated. Thus, significant improvements in market share, net patient service revenue coupled by operating expense reductions are needed to provide an estimated \$25 to 300 million in additional annual academic enrichment dollars needed for the COM to meet its strategic goals.

2. OSU Physicians' Group (OSUP) – OSU Physicians' Group (OSUP) - Originally faculty were distributed amongst 26 specialty specific LLC's, each with its own Tax Identifier Number (TIN) and billing department. They are currently being reorganized into a contemporary faculty group practice (FGP) plan which, by July 1, 2012 will have enrolled about 80% of its 900 physicians as employees of the University. This will allow better alignment of physician practice goals and clinical activities with the OSU COM and Health System hospitals. As of March 31, 2012, OSUP/FGP gross revenues had increased 5.5% from the prior year, while net patient revenues increased 2.2% over the same period. However, operating expenses had increased 1.8%. There was a 18% increase in OSUP net assets in FY 2012 compared with FY 2011, but much of this driven by a 9% increases in non-operating income. There are several threats to the OSUP/FGP including stagnant or declining patient volumes and market share, and excessive expenses due to redundant staff reflecting the original multi-LLC structure. For example, there are 41 HR staffers for a relatively small multispecialty practice compared with three at Yale for a comparably sized faculty group practice. Other threats include a relatively poor payor mix, and evidence of substantial operational inefficiencies at the individual practice level, all remnants of the prior decentralized model. Such inefficiencies include high bump

rates, high patient cancellation and no-show rates, long delays in 3<sup>rd</sup> next available appointments, a lack of physician extenders, as well as inefficient revenue cycle and scheduling procedures. Additionally, while orthopedic, neurosurgical and endoscopy services are projected to be areas of significant growth and profitability in the coming decade, OSUWMC lags the local market in these areas.

3. Unfavorable Hospital and FGP Expense Profiles in View of Future Revenue Projections – According to a recent Deloitte consulting report these external health care macro- and micro-economic trends will reduce payments to the OSUWMC, our FGP/OSUP and, indirectly, to the COM, by at least 10%. Furthermore, without adequate scale and a primary care base, there is the risk of substantially greater revenue reductions in the future. This coupled with our excessive hospital operating costs (e.g., FTE/bed and cost/bed ratios that are 60% greater than found in the OhioHealth and Mount Carmel health systems) pose major fiscal challenges to the long term health of the OSUWMC and, *pari passu*, the OSU COM. Thus, strenuous efforts must be undertaken to expeditiously expand market share, and develop a primary care base while simultaneously reducing hospital expenses.
  
4. COM Structural Deficit – A crucial requirement for the evolution of the COM from excellence to eminence, will be the Dean’s ability to exploit opportunities to recruit clinical and research “stars”, both within the Signature Programs and in other areas. The coming disruptions in academic health centers created by Medicare and Medicaid cuts, health care delivery reform and a stagnant NIH budget will present many such opportunities in the next five years for schools of medicine with the requisite financial and infrastructure resources. Conversely, retention of our own productive faculty poses another serious financial burden on the COM. Unfortunately, the COM is projected to run substantial deficits over the next 5 years based on the FY2012 COM-Office of Health Sciences (OHS) Commitments Summary as seen in Table 2. For example, standard operating expenditures (e.g., utilities, salaries, etc.) as well as the cost of much needed, and long deferred, laboratory maintenance and modernization coupled with the cost of meeting recruitment commitments will produce annual deficits of between \$5.1 million and \$22.7 million between FY2012 and 2016. This will burn through the FY 2011 COM reserves of \$18,762,782 to create an aggregate deficit of \$49 million at the end of FY2016. However, when one adds proposed funding for the Neuroscience signature program, basic science research and scholarship support, annual operating deficits increase to between \$10.5 and \$29.3 million over at least the next 4 years with an average deficit of \$23.6M per year and a cumulative deficit of \$92,630,656 by the end of FY 2016.

**Table 2: OSU COM and OHS Annual Operating Deficits and Cumulative Deficit after exhaustion of Current Reserves (in millions)**

	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	Total Deficit
Deficit with no new academic investment	\$5.1	\$22.7	\$19.1	\$16.9	\$10.23	<b>\$48.9</b>
Deficit with proposed academic enrichment	\$10.5	\$29.3	\$28.5	\$27.4	\$22.1	<b>\$92.6</b>

While some of the proposals for new commitments can no doubt be trimmed, others are very much needed. Moreover, as noted above, the need for long-term retention packages

for academic “superstars” must be anticipated. Moreover, the path to eminence will require greater breadth of basic, translational and clinical research, far more innovative clinical programs and support for new fields of clinical inquiry such as comparative effectiveness and patient safety research. Indeed, this report will make additional recommendations for both near term investments and long-term commitments to achieve the goal of driving the COM into the top 20 of U.S. schools of medicine within the next decade. Thus, it is realistic to estimate that to be successful in achieving the desired reputational advances without the COM being encumbered by large deficits, there is a need for an additional \$25 to 30 million per year of support, not including the effects of cost of living increases and inflation or unanticipated retention requirements.

5. Lack of a Sustainable Financial Model for the COM – Of great concern to the COM’s future is the lack of a sustainable, long-term, financial model. The COM has what is likely the lowest Dean’s assessment on faculty group practice (FGP) revenue in the Nation – an effective rate of 2.3% compared to the average rate of 10% in the U.S. (11). Moreover, OSUP/FGP clinical faculty leadership are understandably reticent to an increase in the Dean’s assessment. Tuition cannot be increased due to the high levels of student indebtedness. The portion of federal grant indirect (F&A) payments to the University received by the COM has dropped as our NIH funding has declined over the past year. Finally, State aid has dropped 26% over the past five years and will drop again this year by 3%. There is a need for a gradual increase in the Dean’s assessment to 5%, an increase in the COM allocation of F&A and tuition costs, and a resumption of much needed preventative and reparative maintenance of University buildings.

6. Information Technology (IT)

*Medical Informatics* – The OSUWMC IT Strategic Plan is comprehensive yet practical. Goals include optimizing the recently installed Epic electronic health record (EHR) to support patient care, teaching and research; supporting the physical expansion of the Medical Center; broadening available data analytic capabilities across all mission areas; and efforts to deploy specific systems and capabilities to improve the administration and productivity of research. There are 340 IT employees in the central IT department who work collaboratively with their colleagues in various departments. These numbers are comparable to other top tier academic health centers.

*Electronic Health Record (EHR)* – In 2006, OSUWMC began transitioning to an integrated EHR by contracting with Epic Systems Corporation. The initial phase included deployment of an ambulatory EHR at both owned and affiliated clinic locations on campus and throughout the Central Ohio area. Functionality includes: problem and medication lists, computerized provider order entry (CPOE), nursing and physician documentation, office automation and pre-populated patient lists from clinic schedules. This rollout finished in the summer of 2011. A patient accessible health record option, OSUWCMMyChart, was also included and now has over 30,000 participants. This personalized health record/portal provides patients with a secure communication route with their physicians, the ability to request prescription refills, to request appointments, and to view test results. In October 2011, the acute care component of Epic’s EHR went live. Its functionality includes: patient scheduling, registration, admitting and billing for all OSUWMC areas, emergency department automation, inpatient CPOE, chart review, physician and nursing notes, medication bar-coding, as well as intensive care, operating room, cardiac procedural and labor & delivery documentation and monitoring. A particularly outstanding feature of this project is the inclusion of an educational



component. Thus, medical students can view the EHR, draft inactive orders for later activation by a resident or attending, and generate outpatient notes as they participate in the multi-disciplinary care team. In addition a LEARN environment has been implemented that is available for the medical students that contains scenario-based patients for classroom teaching. Research support features include identification of potential clinical trial candidates, differentiating research orders from standard orders, and collecting research specific data for approved studies.

The only major drawback of the Epic installation was a major hit to the Medical center and FGP Accounts Receivable. This has exacerbated liquidity problems with days of cash on hand dropping to 47 days by mid-May, 2012.

*Data Analytics* – There is a pressing need to begin to mine data available from Epic and accessible through our inchoate information warehouse (IW). The availability of a robust IW and teams of analysts dedicated to both research and to clinical “hotspotting” hospital and OSU Health Plan patients to identify potential cost outliers and bring to bear expense mitigation strategies is enormous. Significant investments are needed in the Department of Biomedical Informatics and in the staffing of our much touted though poorly staffed Personalized Medicine (P4) program. The COM is currently evaluating the next phase of IT and IW functionality needed by researchers in order to ensure optimal productivity, access, and support and expects this to be a major focus in the coming year.

## THE FUTURE

Based on this strategic analysis, OSU COM should seek to move from excellence to eminence by becoming exemplars of safe, effective, equitable, efficient, patient-centered and innovative care in its FGP. The COM should strive for excellence in education and training, and conduct novel, clinically-applicable basic and translational scientific research, while protecting patient’s lives and the economic well-being of Ohio and the Nation through cutting-edge comparative effectiveness and patient safety research. During this path to eminence, OSU COM should also enhance an already strong commitment to its immediate community, to the State of Ohio, to its employees, to a diverse workplace, and to its own unique culture.

## Succeeding in Our Strategic Focus Areas

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***Teaching and Learning (Provide unsurpassed, student-centered learning experiences led by engaged, world-class faculty and enhanced by a globally diverse student body)***

**Strategic Focus areas:**

**A. Develop pioneering educational approaches to create a favorable brand identity and become a destination of choice for prospective medical students:** To compete for the best undergraduate students now, rather than wait for premier clinical and research programs to propel the OSU COM into the top 20 of U.S. medical schools, requires a highly innovative curriculum and an increased focus on pedagogic excellence. This change must be consensus-driven, empirically-based, well-communicated, cautiously implemented and periodically validated.

The curricular architecture of U.S. medical schools has changed remarkably little over the past 100 years. However, the pace of medical discoveries, the demand for more primary

care physicians, the need for training in multidisciplinary teams, and the “threat” of disruptive competitors such as the new primary care two year medical schools all call for radical curricular reform. The Macy Foundation recently concluded:

*“Although medical educators have implemented countless curricular innovations over recent decades, medical education has not kept pace with growing public expectations of physicians or with the novel demands of an increasingly complex health care system. As a consequence, medical students too often graduate without all of the knowledge and skills that 21st century physicians need and without fully appreciating the role that professional values and attitudes play in sustaining medicine as a moral enterprise.”*(12)

To address these concerns recommendations include:

1. Fully implement the new *Lead, Serve, Inspire* (LSI) Curriculum with its focus on simulation, small group learning, team training and elimination of “wasted learning” – Christiansen contends that the U.S. undergraduate medical education system needs to take a page out of lean manufacturing practices to insure that only “value added” elements persist in curricula and that content continuously adapts to knowledge demands (*i.e.*, just-in-time learning) (13). The new COM curriculum is an excellent start in that direction, attempting to integrate fundamental science and clinical learning with serial assessments to confirm sequential mastery of topics while minimizing variability in clinical skills among graduates. This approach should also improve the efficiency of knowledge acquisition and retention. However, there is also a need to continue to incorporate modern IT tools such as multiple medical schools sharing “great teachers” through web-casting, interactive web-based instruction, and employing mobile devices. For example, the COM’s use of iPods and the medical student module in Epic will allow students access to helpful resources at the “point of learning” and to apply that knowledge without risk to the patient, respectively.
2. Increase Accountability and Financial Support for High Quality Teaching – There is a need to enhance the perceived quality of teaching in both the basic science and clinical years. Full use should be made of “teach the teachers” resources as well as development of the new curriculum’s faculty coaches. A key to improving teaching is enhanced accountability. Thus, student evaluation scores for individual courses and clerkships should be widely published. Teaching payments to individuals and departments should be adjusted at each year’s budget planning process based on hours taught and performance evaluation scores, with bonuses going to outstanding individuals, basic science course leaders and clinical departments (mission-based budgeting).
3. Consider Implementing a Thesis Requirement – A substantial effort has been made to increase student participation in basic, translational and clinical research. Through a variety of funding mechanisms we have attempted to support every rising 2<sup>nd</sup> year and other students interested in summer research fellowships. This year there was a record number of inductees into our COM Landacre Society which requires prior conduct of publishable research. However, more is needed to insure that OSU medical students have amassed sufficient research experience to render them competitive for top residency slots and to guide them into careers in academic medicine. One approach is implementation of a research thesis requirement for graduation. Although the literature is sparse, and data are subject to ascertainment bias (14), there is support for the linkage between a medical student research thesis requirement and a higher degree of later academic productivity. This mandatory requirement should be phased in and would be

optional for current students. Research could involve clinical, basic or translational studies, comparative effectiveness, community or global health improvement, patient safety or public policy research. Theses should be of publishable quality. To encourage high quality efforts, a tuition-free 5<sup>th</sup> year should be offered and students encouraged to pursue a Master's Degree in Clinical or Basic Research as part of their thesis work. This effort should enhance the academic orientation of OSU COM graduates.

- B. Increase Scholarship Aid:** Top 20 medical schools, with smaller class sizes, are able to provide around \$20 million per year in scholarship support. The OSU COM provides around \$6 million. There is a need to leverage traditional strong alumni loyalty into an annual giving campaign. With nearly 13,000 medical students, resident and fellow alumni, a campaign to obtain, on average, \$1,000 per year would allow us to dramatically close the scholarship gap while we solicit larger gifts to build scholarship endowments. The ultimate goal would be to provide \$20 million in annual support. This would allow us to provide competitive financial aid packages to retain the best Ohio students in state where they are more likely to stay on practice. In addition, we are working the Governor's office to increase the availability of scholarships to COM graduates willing to serve primary care residencies in Ohio and remain in practice here for at least three years.
- C. Determine the optimal class size:** As noted, the OhioHealth medical system, which provides about 30% of our current medical student clinical rotations, has just signed a definitive agreement with Ohio University Heritage College of Osteopathic Medicine that recognizes OhioHealth as the "Preeminent Education Partner" for the osteopathic college's new central Ohio extension campus in Dublin. Thus, given the vital role played by OhioHealth Hospitals in training our third and fourth year students, unless an alternative robust set of clinical rotation sites can be identified, up to 30% of our current class size could be left without optimal clinical rotation opportunities within three years. In addition, as noted above, our current lack of scholarship endowments has led to a non-competitive level of graduating student indebtedness. Lack of scholarships has also reduced the attractiveness of the COM to top Ohio undergraduates applying to medical schools. Furthermore, while we have one the Nation's best track records for attracting under-represented minority (URM) students, we are not able to compete for the top academic URM students due to a lack of "full-ride" scholarships. Smaller class sizes would help us meet all these challenges. Thus, as part of our up-coming LCME self-study process we will be evaluating the impact of smaller class sizes on our ability to attract and train the Nation's top undergraduates interested in careers in academic medicine.

**Research and Innovation (create distinctive and internationally recognized contributions to the advancement of fundamental knowledge and scholarship and to the solutions of the world's most pressing problems)**

To transition from excellence to eminence, OSUWMC and its COM must renew their focus on improving operational efficiencies to reduce costs and expand market share to increase revenue. Resultant surpluses should be re-invested in basic, translational, clinical and comparative effectiveness research. Meeting these ambitious goals will require a consensus-based process of ongoing strategy and tactic development, transparency and accountability in decision-making and open lines of communication. Leadership must be disciplined, principled, and tenacious in its pursuit of excellence.

General prospects for increased NIH research funding are guarded at best over the next five years (15). Moreover, recent changes in the pharmaceutical industry will diminish this source of research funding, as companies eschew risky and prolonged drug discovery in favor of acquiring bio-tech start-up firms with established products and focusing on late-stage clinical trials. Thus, to compete for research funding in the next few years, the COM must be disciplined in its recruitment and retention of promising young investigators while broadening its menu of research offerings. There should be continued priority investments made in select Signature Programs, but achieving top 20 status will also require both re-energizing the basic science departments and enhancing translational and clinical research in clinical departments beyond the Signature Programs. In addition, to truly broaden the COM's research offerings, additional funding should be made available to support interdepartmental, trans-collegiate comparative effectiveness research (CER) and an increasing emphasis should be placed on patient safety research. Researchers in these areas will be able to seek funding not only from the NIH but from other federal agencies. As such, the following is proposed:

**Strategic Focus areas:**

**A. Invest in the Neuroscience Signature Program:**

The pace of clinical and NIH reputation building in this Signature Program should be enhanced. The Department of Psychiatry was not ranked on the most recent U.S. News and World Report Survey, while Neurology was ranked 46<sup>th</sup>. Table 3 below indicates 2011 NIH grants in total dollar amounts and the relative national ranking of constituent departments in NIH funding. From this table, it is clear that there is a need for substantial investments in neurology and psychiatry.

**Table 3: NIH funding and National Rankings for OSU Neuroscience Signature Program Departments**

<b>Department</b>	<b>NIH Grant Dollars</b>	<b>NIH Ranking</b>
Neurosurgery	\$ 1,720,556	12
Neuroscience	\$ 5,374,582	16
Psychiatry	\$ 3,496,108	48
Neurology	\$ 457,934	64

\*From the Blue Ridge Institute, excludes both R & D contracts ARRA Awards

1. Department of Psychiatry – With the recruitment of a new Chair for the OSU COM Department of Psychiatry, there is an opportunity to enhance both the clinical and translational research strength of the department. With the exception of successful departmental researchers within the Institute for Behavioral Medicine Research (IBMR) and a handful of clinical researchers in child and adolescent psychiatry, federally funded Departmental research has been seriously limited in scope and impact. Current research within the Department of Psychiatry has focused on pediatric mood disorders, stress and health/psychoneuroimmunology, and psychiatric aspects of autism and developmental disorders. A clinical trials group within the Department has conducted and continues to conduct circumscribed industry-sponsored research. The new Chair, Dr. John Campo, must have access to attractive recruitment packages for new faculty, including mid-career and senior faculty researchers capable of serving as role models and mentors to junior faculty and trainees. The ability to recruit at least six research faculty, with initial packages averaging approximately \$1,000,000 each will be critical to establishing a

credible research portfolio for the Department. The Department compensation plan will be modified to provide incentives for faculty who submit competitive research proposals and to reward funding success. Departmental access to some portion of indirect revenue from funded grants would have potential to be transformational and seed additional success. The recruitment of an experienced Vice Chair for Research in the next 3 years will be important in consolidating and expanding the development of a Departmental research culture. An internal grant review and approval process is envisioned to foster collaboration and increase the chances of successful submissions. Access to the resources of the CTSA, as well as to statistical support and seed money for pilot proposals, will be of great importance. Collaborative recruitments will be explored with the IBMR and other programs such as Neurosciences.

**Table 4: Staged Recruitment of Psychiatry Research Faculty**

<b>Faculty</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<b>Full Professors</b>			1		
<b>Associate Prof.</b>	1	1		1	
<b>Assistant Prof.</b>			1		1
<b>Total = 6</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>

2. OSU Neuromodulation Center – A key strategic goal of the OSU Neuroscience Signature Program is to increase clinical trials and applications of Deep Brain Stimulation and Spinal Cord Neurostimulation. Under the leadership of Dr. Ali Rezai, much progress has been made. He has requested support to assemble a team of research nurses, clinical research coordinators, research assistants with FDA IND application expertise, biostatistician support, and requisite software and hardware. We have recently obtained a \$2.7M commitment from the State of Ohio to support this program and are working with the Governor’s office for additional funding for commercialization efforts.

The Center for Neuromodulation is focused on restoring quality of life by offering cutting-edge and innovative treatments to patients with chronic physical, emotional, behavioral and cognitive disability due to neurological disorders. Functional neurosurgery or neuromodulation is among the most rapidly growing areas in medicine with enormous potential for helping patients with a variety of neurological conditions. Neuromodulation involves the use of implantable devices for deep brain stimulation (DBS), spinal cord stimulation (SCS), peripheral nerve stimulation (PNS), intrathecal pumps (ITP) as well as resection and lesioning procedures to treat severe and disabling movement disorders, chronic pain and headaches, epilepsy, spasticity and brain injury. Neuromodulation practitioners include functional neurosurgeons, neurologists, physicians in the Physical Medicine & Rehabilitation (PMR) department, pain management, psychiatrists and psychologists and an emerging interface with non-neurological disciplines such as otolaryngology, cardiology, gastroenterology, urology and vascular surgery.

The comprehensive and interdisciplinary neuromodulation center at the OSUWMC will be among the first in the country to integrate evaluation and care for severe, intractable and disabled patients to improve their:

- Motor/movement function
- Cognitive function
- Behavioral functioning
- Self care and independence

- Social functioning
- Occupational functioning

3. New Leadership for the OSU Neuroscience Signature Program – Despite being one of the original six Signature Programs, little progress has been made over the past six years in establishing a coherent set of integrated neuroscience divisions. While the prior director, Dr. Chiocca, did an outstanding job rebuilding the Department of Neurosurgery, and specifically the neuro-oncology service, the Signature Program's other departments (*i.e.*, Neurology, Psychiatry, and Physical Medicine & Rehabilitation [PM&R]) languished clinically, financially and academically. Indeed, at my arrival, nationally prominent faculty in neuromodulation, neuromuscular disease and multiple sclerosis were extremely disgruntled and considering leaving. Over the past six months, I have been able to retain them and, independent of Signature Program support, developed a strategy for creating three centers of excellence in these areas. Fortunately, we have an opportunity to re-vitalize the Neuroscience Signature Program under the new leadership of Dr. Ali Rezai.

Dr. Rezai is a nationally recognized leader and an innovator in neurosurgery who has contributed significantly to the development of the neuromodulation specialty. He is an accomplished academician with over 130 peer-reviewed articles including papers in *Nature* and *Lancet Neurology* with an H-index of 39. He is the editor for the authoritative two-volume textbook of *Neuromodulation*, and serves on five journal editorial boards. Dr. Rezai has served as the PI or co-investigator on eight NIH grants, has given over 400 national and international lectures, and trained over 35 fellows in his specialty. He is currently developing a curriculum based neurosurgical simulator platform for resident training. Dr. Rezai has been in the leadership of national and international neurosurgery and neuromodulation societies. He is currently the President of the American Society of Stereotactic and Functional Neurosurgery (ASSFN), President of the North American Neuromodulation Society (NANS) and President Elect of the Congress of Neurological Surgeons (CNS).

Dr. Rezai's research focuses on mechanisms of neurostimulation, pacemakers and MRI safety, delineation of abnormal brain circuitry underlying disease, as well as developing neuromodulation devices and novel therapeutic strategies for those with chronic disease and disability. He has played a critical role assembling teams of OSU neurologists, PM&R specialists, psychiatrists and neurosurgeons to conduct clinical trials of DBS for treating Parkinson's disease, severe depression, obsessive-compulsive disorder and traumatic brain injury. More recently, his research has focused on disorders of cognition and behavior, which led to the initiation of pilot trials of DBS for the treatment of alcoholism, obesity, Alzheimer's, post-traumatic stress disorders and autism. In addition, he has collaborated with engineers from the OSU College of Engineering, to develop a novel micro-chip dental neurostimulator implant for cluster and migraine headaches that is activated via a hand held cell phone like device. This device is used as standard treatment in Europe. His team is now exploring the use of this technology to treat asthma and sleep disorders. Dr. Rezai has extensive experience with the FDA and regulations governing clinical research conduct. He has been the sole investigator sponsor of seven clinical trials involving FDA investigational Device Exemption (IDE) applications. Dr. Rezai has broad experience and expertise with intellectual property generation, device and technology development and commercialization of technology. He has 28 issued patents, more than 50 pending patents (12 since being at Ohio State), and has been the

scientific founder of three spin-off companies. He has worked in multiple capacities with regional and national medical device industry, venture capital and business leaders.

The COM has committed \$1.1M over a three-year period to support the newly revised Neuromodulation business plan. The COM does not plan for any support in years 4 and 5. The gap is to be funded through philanthropy, grants and additional clinical revenue sources. Table 5 below represents the current COM commitments.

**Table 5: Committed Support for the OSU Neuromodulation Center**

<b>Funding</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Total</b>
COM Support	\$408,855	\$403,416	\$316,900	\$0	\$0	\$1,129,171

**B. Invest in the Other Key Programmatic Areas**

While targeted investment in Signature Programs is a prudent strategy, it has limitations. First, given the fluid nature of the clinical reimbursement environment and the increasingly short life cycles of “hot” research areas, there is a significant risk that programs chosen because of their potential clinical and/or research financial remuneration may prove less attractive in five years. For example, rapidly declining Medicare reimbursement for specialty services could threaten the cardiac and transplant programs. Bundled and capitated payments in an ACO environment could cripple the profitability of the critical care and imaging programs. As “fashions” change, a lack of clinical and research breadth can have serious financial and reputational consequences. The second risk is political. Faculty members in non-signature programs may feel disenfranchised, hampering retention of productive faculty. Moreover, perceptions of favoritism may disrupt much-needed unit cohesion and institutional thinking, particularly if there is no culture of managing up wherein non-signature chairs and division directors position such programs in a favorable light. As such, a broader array of core programs should be supported, as far as is practicable, to permit a flexible response to both changing clinical remuneration and technology trends and NIH funding priorities and availability. The following strategies would permit such flexibility in a financially responsible manner:

1. Basic Science Departments – The previously designated three key research areas of behavioral medicine, biomedical informatics, and human genetics are vitally important since they have the potential to support virtually all other areas of basic, translational and/or clinical inquiry. Moreover, they have outstanding leaders and are fields of study likely to remain paramount over many decades. Thus, promised support should be sustained in the long run. However, individual departments in the School of Biomedical Science, including: Neuroscience; Molecular and Cellular Biochemistry (MCB); Molecular Virology, Immunology and Medical Genetics (MVIMG); Microbial Infection and Immunity (MI2); Physiology and Cell Biology; and Pharmacology, are also vital to the COM from teaching perspective. Currently, there is a lack of clear programmatic organization amongst these departments with overlapping scientific themes (e.g., neuroscience research occurs in the Neuroscience, MCB, Physiology and Pharmacology departments). Faculty members have scored low on satisfaction surveys for the past three years and outside reviewers have criticized the management style of individual chairs. Thus, re-organization of these departments, improvement in grant-related services, and consolidation of shared services is over-due. In addition, the Integrated Biomedical Science Graduate Program and Integrated Graduate Programs have had major issues

with the quality of students, adequacy of graduate student counseling, thesis committee functions and placement of graduates in academic departments. Finally, comparison of these departments with peer institutions, indicates opportunities for substantial improvement in research funding and training.

As shown on Table 6 (next page), of the basic science departments, none are in the top 10, and only Microbiology is in the top 20 of U.S. medical schools in NIH funding (reflecting the presence of a strong Faculty of Arts and Sciences microbiology department). Biochemistry and Physiology have been dropping in their ranking over the past four years. Indeed, the largest gap between OSU COM and other top medical schools is the relatively small number of NIH funded basic science faculty compared to benchmark institutions.

**Table 6: NIH funding and Rankings for OSU COM  
Basic Science Departments (in millions of dollars).**

Dept. / Division	2007		2008		2009		2010		2011	
	Amo unt	Ra nk	Amou nt	Ran k	Amou nt	Ran k	Amou nt	Ran k	Amou nt	Ran k
Biochem	7.9 M	22	8.0 M	21	7.9 M	25	7.7 M	25	5.7 M	42
Genetics	0.3 M	42	0.3 M	45	n/a	n/a	n/a	n/a	n/a	n/a
Microbiology	14.6 M	8	14.0 M	7	11.8 M	14	14.4 M	9	14.1 M	13
Pharmacol.	3.3 M	59	2.3 M	68	2.5 M	62	4.2 M	44	4.2M	60
Physiology	5.0 M	36	4.5 M	37	3.7 M	49	3.6 M	57	3.4 M	42

\*Amounts in millions of dollars; n/a – listing not available on the Blue Ridge Survey (1).

In their strategic plan for *Integrated Faculty Recruitment in the Biomedical Sciences*, the OSU COM basic science department chairs argue persuasively that extramural funding opportunities will increase when groups of basic biomedical scientists are recruited around innovative scientific themes. They proposed a common plan to close the gap between the COM and top ranked medical schools by focusing on new recruitments in three broad areas of basic and translational research: expression genetics, tissue microenvironment and systems biology and bioinformatics. They posit these three areas would create synergies among the basic science and clinical departments, signature programs and other OSU colleges and would comport with the OSUWMC commitment to personalized medicine.

- a. *Expression Genetics*: We must expand the focus of this line of inquiry to include the study of mutations, polymorphisms, copy number variations, epigenetic changes and microRNA dysregulation that ultimately result in changes in the expression and/or function of proteins and biochemical pathways. Clinical effects of such molecular defects range from congenital anomalies and cancer to the common complex diseases of diabetes, atherosclerosis and hypertension. Resultant studies would require heavy investment in high-throughput technologies applied to both model systems and human samples.
- b. *Tissue Microenvironment*: This area of research builds on the platform of expression genetics to investigate how changes in gene structure and function lead to disease states with recognizable biochemical signatures. The latter is a requisite step to the



identification of molecular targets for early detection, novel therapies and preventative strategies.

- c. *Systems Biology and Translational Bioinformatics*: The studies described above generate enormous volumes of data which must be efficiently analyzed to permit clinical applications. Systems biology allows for such analyses so that differences between healthy and diseased states can be identified.

Thus, to enhance the national stature and scientific quality of these crucial basic science departments, an investment of approximately \$1.8 million per year for 5 years for the targeted recruitment of 15 promising investigators in these three areas will be required. Special emphasis would be placed on trans-departmental and trans-collegiate proposals. It is anticipated that three competitive awards of \$600,000 would be given to those departments making the best strategic case for proposed recruitments. Thus, the total cost of this program would be \$9 million over five years. At the end of 5 years, it is expected that these recruits would bring in 1.5 R01s each for a total of 15 new R01's generating \$8.4 million in total annual grant support. They would also contribute materially to the generation of three new P01 center grants generating \$3.8 million per year. Thus the total ROI would be \$12.3 million in new annual NIH funding.

There is also an urgent need to complete long-deferred maintenance on Hamilton, Graves and Weisman. This includes repair of leaking roofs in all three buildings, fixing chronic plumbing and drainage problems, replacing broken and leaking windows, mold and insect remediation, upgrading IT and HVAC infrastructure, shoring up support beams in Weisman, new classrooms in Graves and modernizing labs in Hamilton Hall. The total cost of this renovation is around \$ 22 million. Funds must be found from the University to complete these much needed repairs.

- 2. Non-Signature Program Clinical Departments and/or Divisions – As noted, there are promising young physicians and researchers working in areas not designated for signature status. Failure to support these individuals threatens their retention. Moreover, as it is difficult to predict the next “hot” research or clinical area, a lack of clinical and research breath poses a serious threat to any academic health center. On the other hand, investments must be focused and tightly integrated into an overall plan to achieve academic eminence. Finally, it is impossible to generate sufficient NIH funding or recognition by either of the U.S. News surveys (hospital or academic) without clinical departments widely recognized for their clinical innovation and research prowess.

**Table 7: NIH funding and Rankings for OSU COM Clinical Departments (in millions of dollars).**

Dept./Division	2007		2008		2009		2010		2011	
	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank
Anesthesia	0.4	34	0.27	42	0.27	46	0.27	45	0.11	48
Dermatology	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Emerg. Med.	n/a	n/a	n/a	n/a	n/a	n/a	0.14	28	0.14	28
Family Med.	0.15	37	0.18	39	0.39	33	0.39	33	0.39	32
Internal Med	31.7	35	36.6	29	35.2	30	39.1	29	35.6	35
Ob/Gyn	0.62	48	0.53	55	0.83	43	0.73	47	0.39	58

Ophthalmology	0.08	66	0.1	61	n/a	n/a	n/a	n/a	0.38	59
Orthopedics	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Otolaryngology	0.3	33	0.79	22	1.41	17	1.65	15	1.7	16
Pathology	2.4	60	3.9	47	4.5	42	3.5	45	4.1	42
Psychiatry	2.2	58	2.9	55	3.6	51	3	55	3.5	48
Physical Med	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Radiology	1.5	44	1.6	39	1.4	41	1.2	44	1.4	44
Surgery	2.44	35	2.28	38	2.17	34	2.91	29	3.3	27
Urology	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

As can be seen from Table 7, five major clinical departments had no NIH funding in 2010, four had none in 2011 and four have not been ranked since 2007. Only Otolaryngology and Neurosurgery (see above) are in the top 20 and surgery entered the top 30 just this past two years. Thus, it is highly unlikely that the COM will be able to enter the top 20 of U.S. medical schools in terms of either NIH rankings or U.S. News academic or hospital rankings unless substantial progress is made in the majority of these departments in the quality and quantity of their translational and clinical research, as well as their ability to create innovative clinical programs. As a result, investments must be made in recruiting physician scientists and PhD scientists into these departments. I propose that \$11,525,000 in COM academic enrichment funds be committed over five years to seed such recruitments. Funding would be internally competitive, and require submission of a strategic plan indicating the importance of the proposed research area, a sustainable business plan, a list of potential candidates, and a description of how the recruitment would fit into a over-arching strategy to drive the department into the top 20 in that discipline. In addition, proposals must include a commitment by the department to match COM funding. To insure the adequacy of the recruitment package, proposals should be for a minimum of \$ 1.1 million (\$550,000 from the COM and \$550,000 from the proposing department) over 3 to 5 year period with up to 4 awards made per year.

3. Enhance Academic Productivity of Research Faculty - There is also a pressing need to increase the generation of salary support among established investigators in the basic science departments. Senior faculty members receiving guaranteed 9 month salaries are not incentivized to obtain full coverage of their entire salaries from grants. Conversely, the COM basic science departments do not receive any portion of their indirect grant funding and are underfunded from an operational perspective. Thus, an additional level of support for the OSU COM basic science departments of \$5 million per year is needed to bring them in line with comparable top 20 medical schools. To address both of these concerns, over a three year period, \$5 million per year in existing medical center investments or new funding from the Health System will need to be (re)directed to the basic science departments. However, such funding should be incremental and pegged to substantial increases in the percent of faculty salaries covered by NIH grants. Thus, in aggregate for each 5% increase in salaries covered there would be an additional \$1 million redirected to the basic science departments. This would maximally incentivize chairs to encourage more complete salary coverage via grants among senior faculty with 9 month appointments or a relative reduction in their number vis-à-vis 12 month appointees. We have set as a goal that on average every basic science departments achieves 6 month salary recovery from grants for its faculty. The new College Promotions and Tenure document is designed to insure, that in the future, tenured faculty achieve far greater

research productivity. Efforts must continue to simplify research procedures and regulations, and facilitate the conduct of research in the COM. Toward this end we have started a biweekly Research Newsletter's to improve communication among researchers. The chairs have been asked to share information on ongoing recruitment efforts and department needs, to prioritize new recruitments, and to act collaboratively and synergistically in these efforts

4. Comparative Effectiveness and Health Policy Research – With the advent of advances in high throughput genetic sequencing and array technology, the promise of breakthrough discoveries and personalized medicine has never been greater, and I firmly believe OSU should be committed to embracing these technologies and their clinical applications. Unfortunately, neither the public nor Congress appear to fully appreciate the incremental nature of contemporary medical progress. Impatience with the pace of research progress is reflected in the increasing congressional pressure to focus NIH funding on clinical and translational research. On the positive side, this has spurred the funding of NIH Clinical and Translational Science Awards (CTSAs) which support OSU's Center for Clinical and Translational Science (CCTS). However, growing frustration with the pace of public health returns on biomedical research investment, concern with the cost of universal implementation of derivative technologies and drugs and a new focus on requiring immediate ROI for federal research dollars, threaten to undermine funding for such research. Indeed, all these factors, coupled with severe federal budget deficits have contributed to historically low NIH pay-lines and static NIH funding vis-à-vis other discretionary budget items. Indeed, during the past few years, while per capita spending on defense has grown to \$1600, federal spending for biomedical research has stagnated at about \$100 (15). A perfect storm is brewing for funding academic health centers as pharmaceutical industry spending on research, which had been double that of the NIH, is dropping precipitously in response to industry consolidation.

As a result, U.S. medical schools need to begin to develop a series of “hedgies” to transition away from strict reliance on NIH and industry for research funding. They must look for ways to increase healthcare value (*i.e.*, improving patient outcomes while decreasing costs). To address both of these opportunities, OSU should invest in the study of quality and value in healthcare delivery. Such comparative clinical effectiveness research (CER) has been defined by the Institute of Medicine (IOM) as “*the generation and synthesis of evidence that compares the benefits and harms of alternative methods to prevent, diagnose, treat, and monitor a clinical condition or to improve the delivery of care. The purpose of CER is to assist consumers, clinicians, purchasers, and policy makers to make informed decisions that will improve health care at both the individual and population levels*” (16). The 2009 American Recovery and Reinvestment Act appropriated \$1.1 billion for such research and authorized the IOM to prioritize national CER questions. In response, IOM ranked studies into 4 quartiles and made specific recommendations, such as the need for comparisons of effectiveness of comprehensive care coordination programs like medical homes versus usual care in managing chronic disease. In December 2010, the Department of Health and Human Services established the Federal Coordinating Council for Comparative Effectiveness Research to aid federal agencies in optimizing CER funding. Thus, over the next few years there will be increasing funding available for research seeking to improve healthcare value in the use of medications, new technology and patient management paradigms.

The OSU CCTS has already made important inroads into CER. In 2009, Thomas Wickizer, Ph.D. joined the faculty in the College of Public Health, Division of Health Services, Management and Policy. An expert in health policy and health services research, Dr. Wickizer serves as director of the Center for Health Outcomes Policy and Evaluation Studies (HOPES) at OSU. Moreover, the CCTS has sponsored seminars and 20 training grants in CER, and makes available statistical and economic expertise for studies and grant applications. Given this solid foundation, I would propose either expanding HOPES or forming a multi-college Center for Comparative Effectiveness Research (CCER) directed or co-directed by Dr. Wickizer with collaborators across all OSU health science colleges as well as the Colleges of Business and Social Work. There will also be a need for input from the Economics Department of the College of Arts and Sciences. Marshalling and leveraging these unique campus-wide resources gives OSU a unique advantage vis-à-vis competitors in this burgeoning field of inquiry.

An additional focus of such research should be devising strategies for improving community health among Ohio’s poorer, urban and rural populations. As Teutch and Fielding recently noted, “Clinical care consumes 95% of the health dollar but accounts for only about 20% of the determinants of health. The other 80% is determined by behaviors and the health of communities: the social and physical environments” (17). Thus, OSUWMC needs to anticipate the changing needs of the community it serves and develop inventive strategies that improve its actual health status.

I would suggest the recruitment of a physician co-director or key faculty member with a strong track record of publications, grant funding, commitment to innovative community health endeavors and government advisory roles. In addition to faculty, there will be a need to create a medical center-wide data repository that includes patient costs as well as process and outcome information. In addition, HOPES/CCER will need access to state, federal, WHO and insurance data bases. Some of these will require financial support. I would propose recruitment at the level of an associate professor in internal medicine (salary at the median AAMC Midwest region for “Total Medicine” or \$200,000 plus fringe). It is anticipated that 50% of their salary would be met by grants at start-up and 75% by year 3. Support funds would cover software, computers, administrative and clerical support, post docs, as well as database subscriptions and maintenance. Table 8 outlines the anticipated costs.

**Table 8: Proposed finding for Comparative Effectiveness Research**

<b>Faculty</b>	<b>Salary support x 3 yrs.</b>	<b>Start-up package over 5 yrs.</b>	<b>Total Investment costs</b>
Senior CER Investigator	\$ 322,500	\$ 500,000	\$ 822,500

Eventually two community health experts should be added by means of recruiting recent Robert Wood Johnson (RWJ) Foundation Clinical Scholar graduates. Finally, each clinical department and each health science college as well as the Colleges of Business, Social Work and Arts and Sciences should identify faculty with an interest in this area of research to form a comprehensive virtual faculty.

### **C. Insure adequate laboratory space and access to high-speed gene sequencing, epigenetic and microRNA profiling and other high throughput technology**

1. Enforce Space Allocation Rules – As noted above, while 99% of total research space is currently occupied, the actual grant support per ASF of this space is highly variable. Moreover, allocations of blocks for specific themes have resulted in variable *de facto* utilization. Thus, there is a need to equitably use current space, and to ensure that future allocations be based upon transparent, consensus-derived criteria. Among criteria to consider are a combination of recruitment goals, retention needs, links with mission-critical clinical services and center grants (e.g., Signature Programs), and investigator productivity in terms of high impact publications. Modestly different thresholds could be set for physician-scientists vs. basic-scientists given the competing duties of the former (e.g., \$250 vs. \$400 direct funding/NASF). Overall we would seek \$330 in total grant support per NASF. Currently, the COM is 11<sup>th</sup> from the bottom nationally in grant cost recovery per net assignable square foot, and last among public institutions in salary recovery for full-time research faculty.
2. Add Additional 270,000 NASF Research Building and 50,000 Cage Vivarium –There is already a pressing need to add lab space to meet extant recruitment commitments. However, with recent hospital construction, OSUWMC has already incurred significant interest and amortization (I&A) expenses. Thus, future capital funding should ideally be derived from some combination of state appropriations and private philanthropy.
3. Increase Research Linkages with the Battelle Memorial Institute, Nationwide Children's Hospital and other Partners in Personalized Medicine – Equipment needed for high throughput analysis requires strict economies of scale to be cost-effective. Thus, partnerships with other organizations where practicable should be aggressively pursued.

### **Outreach and Engagement (establish mutually beneficial partnerships with the citizens and institutions of Ohio, the nation, and the world so that our communities are actively engaged in the exciting work of The Ohio State University)**

- A. **Local Community:** Ensuring the entire local community is committed to OSUWMC and COM's success. Underserved communities must be engaged with a myriad of programs such as student tutoring, summer high school research grants, school and community-based clinics, and an engaged community advisory board. There should be a regular community-partnered surveys conducted to identify health needs among Columbus' underserved.
- B. **State:** Constantly educate the citizens of Ohio and their political leaders about the ROI of State appropriations to OSUWMC/COM in the era of a flattened global-knowledge driven economy.
- C. **Nation:** Seek bipartisan Ohio Congressional delegation support to transform the HOPES/CCER and the Clinical Transformation initiative into a recognized HRSA or AHRQ Centers of Excellence.
- D. **Global Community:** There is salutary trend among U.S. medical school and students to seek out medical mission opportunities. Most of these efforts are short term and focused on providing acute care. There are, however, growing examples of long-term, effective collaborations between U.S. academic health centers and under-resourced nations. For example, Indiana University has helped build and staff a hospital in Kenya. Yale has just

signed a contract with the Government of Rwanda to help staff a new medical school and train faculty. I believe that the OSU COM should identify a similar opportunities where students and faculty can do the most long-term good in a safe environment with a minimum of language and bureaucratic obstacles. Ideally this should be done through the auspices of a strong partner such as the Clinton Global Initiative's African health program and a politically stable host nation. The OSU Health Science College deans have begun an initiative to "twin" with two Ethiopian universities which have a similar array of health science colleges. It is hoped that this relationship will facilitate collaborations in research and education.

By keeping all its political stakeholders fully informed of the enormous benefits they accrue through their support of OSUWMC/COM in an honest, accurate and regular fashion, such support should continue to be forthcoming and, hopefully, increase. In addition, global outreach efforts are a moral and ethical obligation and have the added benefit of having great public relations value.

**Resource Stewardship (become the model for an affordable public university recognized for financial sustainability, unsurpassed management of human and physical resources, and operational efficiency and effectiveness)**

**Strategies to Effective Stewardship on the Path to Eminence:** The current structural deficit in the COM threatens to derail efforts to recruit and retain outstanding researchers, clinicians and educators. In addition, it leaves the COM exquisitely vulnerable to future revenue reductions from both public and private payers. The costs of developing and maintaining highly novel clinical programs, strong basic, translational, clinical and comparative effectiveness research efforts, as well as innovative educational programs cannot be borne solely by their respective contributions to clinical revenue, grant support and tuition. In a public medical school, these required academic support dollars must also come from some combination of state appropriations, philanthropy and restricted and unrestricted endowment income growth. However, even when these latter income sources are robust, increasingly public medical schools must rely on the overall growth of medical center and faculty practice surpluses (excess revenue over expenses - EROE). Thus, great efforts must be made to drive patient volume and build clinical revenue. Moreover, given the threat to current clinical revenue accrual due to health care reform, federal and state cuts to Medicare and Medicaid, respectively, fee reductions from managed care plans, and the threat of declining GDP due to reduced federal fiscal stimulus, substantial reductions in operating expenses must occur at both the Health System hospital and OSUP level.

**A. Setting Fair Decanal Assessment Rates on FGP Revenue:** Determination of what constitutes a "fair" assessment rate on faculty practice income is a highly contentious issue as clinicians may come to resent what they see as cross-subsidization of research and teaching activities at the cost of their own income. Such assessments, if set too high, also pose the economic risk of deterring faculty productivity. Conversely, if set too low, the academic mission of the institution cannot be carried out. As noted, the average deans tax in this country is around 10% (11). By comparison, the current OSU COM effective Dean's assessment is only 2.3%. Thus, a gradual increase in transfers to the COM over the next few years from 2.3% to 5% should be strongly considered, as should establishing a minimal level of departmental investment in research and medical student and resident/fellow education. This process should occur from the "bottom-up" and not the "top-down." That is, it should be driven by faculty and chairs in a consensual,

transparent, and iterative fashion and not by fiat from leadership. If the OSUWMC is to achieve top 20 status, its financial commitments must, in the end, match its academic reputational aspirations.

**B. Maximize OSUWMC operational support:** The second major source of research and educational enrichment funding for medical schools is their affiliated hospitals. The precise level of these transfers is dependent upon the overall profitability of the academic health center, the nature of its affiliation, and the philosophy of the hospital's management and board. In general, where the medical center and school are part of the same institution, one would anticipate higher levels of transfers. While the overall level of hospital academic support for U.S. medical schools is difficult to ascertain because of variable accounting practices, it appears to be at least comparable to the amount schools receive from their faculty practices (18). In addition, most academic health center hospitals cover a portion of the medical school clinical chair and division director salaries to account for their hospital administrative role. Such hospitals will also routinely invest in new clinical program development and assist in faculty recruitments.

**C. Improving OSUWMC Operational Efficiency:** To offset these needed increased transfers to the COM while maintaining robust OSUP and Health System net income, there is a need to enhance OSUP and hospital operating efficiencies. Recommendations offered toward that end include:

1. FGP/OSUP - Take steps to immediately improve the efficiency and value of the physician practice patient financial services (*i.e.*, billing), compliance, and contracting services, financial control systems, strategic planning and other administrative functions to reduce overall operating overhead from its current 47.6% to 40%, which better reflects normal practice overhead. Interventions could include:
  - a. Outsourcing high fixed cost business functions for which there are not economies of scale.
  - b. If applicable, use technology to boost point-of-service collections while centralizing other billing tasks. This alone has been shown to reduce billing costs by 4.5 cents on the dollar (19).
  - c. Expand office hours (*e.g.*, night and weekends) to more fully utilize space.
  - d. Hold office managers and physician directors strictly accountable for meeting practice operational goals including targeted expense reductions and increases in Press-Ganey scores or an equivalent patient satisfaction score.

A reduction in operating expenses from 47.6% to 40% would generate \$20.1 million in additional FGP/OSUP net income which would help mitigate an increase in the Dean's assessment to 5%. If, simultaneously, an effort were made to maximize patient throughput, by meeting the 67<sup>th</sup> percentile for Medical Group Management Association (MGMA) patient no show and physician cancellation (bump) rates, next and third available appointment days, and RVU/FTE and otherwise eliminate constraints on growing patient volume, a comparable increase in new revenue could be generated.

2. Improve Health System Efficiency - There is a need to increase hospital EROE to: a) pay I&A for the new hospital expansion; b) enhance patient safety investments; c) enlarge our primary care base; d) make needed health care delivery changes to establish an ACO; and e) augment the COM academic enrichment fund to permit recruitment of high margin

clinical programs and related reputation-enhancing research operations. Thus, clinical leaders should be charged with assisting hospital administrators in reducing waste, increasing revenues and improving patient safety. This strategy should employ the following tactics:

- a. Reduce expenses and increase capacity by:
  - i. Reducing waste through decreased variation in equipment and supply purchases, decreased wasteful lab and medication ordering, and support of just-in-time inventories, where practicable.
  - ii. As part of the Clinical Transformation initiative, create fully empowered clinical service lines (CSLs) and/or operations councils whose leadership teams have required data, responsibility and authority to reduce waste while increasing the quality of care. The CSLs partner with hospital administration to reduce variability and fluctuation internal patient throughput (e.g., Emergency Department, Operating Rooms and medical-surgical units) by eliminating bottlenecks, and standardizing care. They also increase profitability by reducing per patient costs (e.g., eliminating excess labs, imaging, supplies and medications).
- b. Increase revenues from current volume by:
  - i. Optimizing hospital coding, charge capture, and revenue cycle.
  - ii. Replacing low CMI cases with high CMI cases in inpatient settings by transitioning the former to ambulatory settings.
- c. Reduce medical errors. Potentially preventable medical errors affect 10% of patients (20) and add about 9.5% to direct hospital expense (21) through increased ALOS, extra lab and imaging studies. Errors also generate significant malpractice-related indirect expenses. Moreover, Medicare, and increasingly commercial payers, will not reimburse costs associated with, and will soon penalize hospitals for, preventable adverse events. Thus, there is both a financial and ethical imperative for a major focus by the OSUWMC to reduce medical errors. The target should be robust (e.g., reductions to < 6 SD).

An increase in the hospital's net operating income of 33% would amount to \$40 million per year. This is double the proposed additional Health System transfer to the COM for academic enrichment.

**D. Enhance long-term funding by creating the correct enterprise scale:** To insure that OSUWMC thrives in the coming healthcare financing tumult, and to sustain recruitment of "star" clinicians and physician-scientists who can establish innovative clinical programs and centers of excellence, will require a significant increase in aggregate FGP/OSUP and Health System clinical revenues. Thus, the COM Dean, FGP/OSUP CEO and the Health System CEO must work together to drive patient volume and net patient service revenue by increasing market share for each profitable CSL as a result of becoming the patient and referring physician destination of choice:

1. Partnership - There are many opportunities to partner with competing health systems to achieve better balance and co-locate service to achieve optimal scale
2. Seek Variable Cost-Plus Carve Out Contracts - Target the highest CMI and reimbursing services where the Health System and FGP/OSUP's fixed costs are



already met, and where excess capacity has been created through the improved throughput and reduced ALOS measures described above. Such variable cost plus contracts can both yield additional net income and undercut the competition to drive market share.

3. Practice “Destination Medicine” to Drive Volume - Ultimately only superior products and services attract customers. Thus, the following steps need to be taken:
  - a. Consistently achieve Press-Ganey ranks above the 95<sup>th</sup> percentile for staff, nursing and providers in both ambulatory and inpatient settings.
  - b. Be first in region with new high-tech, cutting edge services (e.g., Robotic nephrectomies, genomic profiling of all malignancies for personalized-precision therapy).
  - c. Maximize innovative clinical trial volume, especially in cancer, cardiac and neuroscience areas both to enhance research funding and as a marketing tool to attract new patients.
  - d. As noted above, achieve exemplary hotel services in the Health System to improve patient satisfaction (e.g., “room service”, “super cleaning” and “quiet zones”).
  - e. Embrace a holistic marketing philosophy to ensure that both OSUP and Health System patient expectations are exceeded at every point of contact. Couple this with singular focus on web-based, direct-to-consumer marketing to relentlessly burnish the OSUWMC brand and drive both high CMI and optimally reimbursing patient volume.

As noted, these efforts to drive volume must occur coincident with short-term efforts to improve capacity by streamlining throughput, reducing ALOS and decanting low CMI volume to ambulatory care settings; and a long-term increase in hospital beds through new construction.

Ultimately, to achieve the scale required to create new research programs in clinical departments and develop innovative clinical practices, there must be a significant increase in FGP/OSUP volume and OSUWMC net income. This is an ambitious target, but achievable through the steps outlined above within the next decade. The resultant increase flow of decanal funds would, in turn, be re-invested in developing integrated clinical and research programs with targeted recruits of both ground-breaking clinicians and physician-scientists working in related translational research areas (e.g., liver transplant surgeons, hepatologists, and transplant immunologists). The physician-scientists would have their labs admixed with basic scientists working in related areas (e.g., immunobiology).

**D. Compliance:** It is absolutely essential that clinicians comply with CMS billing, HIPAA and other federal and state regulations. Failure to do so could incur large fines and revenue give backs. Each department should focus educational efforts on compliance and have one or more faculty dedicated to insuring and enhancing compliance. This should be an integral component of the Clinical Transformation initiative. We have recently engaged the Huron consulting group to assess all aspects of our pre- and post-award research operations.

**E. Upgrade technology transfer capabilities:** There is a need to heavily incentivize researchers to file patents and license discoveries through a user-friendly office of cooperative research which pro-actively solicits such efforts. For innovators within the system that already have well established ideas or concepts, aggressively pursue potential commercialization partners and opportunities. There is a need to also actively educate our faculty and staff on the importance of commercialization, encourage them to protect their ideas and ensure they actively partner with the University Technology Commercialization and Licensing Office led by Brian Cummings. Finally, we should greatly increase the number of joint ventures entered into by OSU to promote the creation of health science and delivery related companies which will generate revenue streams to support research and commercialize products that add value to health care and jobs to Ohio.

**F. Support for External Stakeholders:** As noted, there is already a pressing need to add research space to accommodate recruited scientists, and to keep up with competitors in the veritable academic “arms race” driving acquisition of expensive imaging equipment and high throughput system biology “omic” technology. There is also a need to expand clinical capacity and scope to accommodate evolution to an ACO and to build endowment principal. Funding for these major capital projects require some combination of state appropriations and private philanthropy. Suggested strategies include:

1. Increased State Appropriations - A well-organized, sustained advocacy campaign must be employed as the State of Ohio’s economy rebounds and the State Budget emerges from its current deficits. This advocacy must be meticulously planned and executed and should be based upon arguments demonstrating the significant direct and indirect multiplier effect of NIH grants on the state economy, including:
  - a. *Describe Direct State Economic Impact of NIH Grants* - In a report to Congress using the Regional Input-Output Modeling System (RIMS II) created by the Department of Commerce the overall impact of NIH funding on each state’s economy was estimated (22). This econometrics model measures the extent to which an investment in one industry affects all other industries in that region, and ultimately, the region’s economy. It includes hundreds of economic multipliers to measure the impact of new spending in different industries. The key outputs measured were the increased value of goods and services produced in the state, the number of jobs created, and employee earnings. Using this model, on average, each dollar of NIH funding going into a state generated more than twice as much in state economic output. For example, in 2007, Georgia received \$374 million in NIH funding which in turn generated \$883 million in new business activity in the state, creating 6,774 new jobs with an average wage per job of \$46,924 (*i.e.*, each dollar of NIH funding generated at least \$2.36 in economic activity).
  - b. *Note Indirect Economic Benefits of Biomedical Research* - Beyond these direct effects of NIH dollars on state and local economies, there are substantial indirect effects. These include patent applications and licensing of technologies for local commercial development. In addition, cutting-edge research generates local biotech start-up companies. For example, in the past 10 years more than 20 new bio-tech companies have been started in New Haven as a result of Yale research or researchers. During the same period in Baltimore, Johns Hopkins technologies spun off 11 such companies and an additional eight across the state. Given the

relatively hostile business environments of Connecticut and Maryland, Ohio would be in an even better position to foster incubation of such bio-tech companies.

2. Increase Medical Philanthropy - To support the \$222 million required for much needed new research infrastructure, to increase the OSUWMC/COM endowment by \$500 million to \$720 million, the level needed to sustain a top 20 academic program, and to provide stable funding for the new curriculum, it is clear that a major fund raising effort is required with a goal to raise at least \$725 million and, ideally, \$800 million in five years for both unrestricted endowment and restricted building and educational funds. Obviously the potential for both corporate and individual building and academic program “naming” opportunities abound. In addition, the following more prosaic steps can be taken:
  - a. *Begin a “Faculty and Friends” campaign* - This campaign would be modeled after a highly successful program at New York University-Langone Medical Center. Each faculty member would be given a fund-raising target to solicit from their patients. This figure would be set by each departmental chair, who would, in turn, be given a departmental fund-raising target. Any overage above that departmental target could be kept for investment in their individual department’s academic mission.
  - b. *Enhance Alumni and Corporate Giving to Support Medical Student Scholarships* – The COM just concluded the “Power to Change Lives” campaign which raised approximately \$24 million dollars for new medical student scholarships. However, to match, top 20 schools, the amount available for such scholarships must double. This would require a nearly \$100 million restricted endowment over and above that needed for research buildings and education noted above. An aggressive campaign should be undertaken including regular mailings, free conferences, access to the COM library and other resources for strong donors. In addition, consideration should be given to assignment of alumni “case-workers.” Penn Med has been very effective with this latter strategy. All funds collected should be dedicated to the medical education scholarship fund with a goal of ensuring that no OSU COM graduate incurs debt greater than \$120,000. Beyond, growing endowment, alumni should also be able to “adopt” a student and establish a personal mentoring relationship while materially supporting their tuition. This program will, in turn, encourage graduates to give back to the COM in the future. Pharmaceutical companies and insurance companies should also be approached to offer named scholarships through creation of restricted endowments.

## Tracking Our Performance

### College of Medicine Performance Scorecard - FY 2013

Key Results Area	Strategy Category	FY 12 YE Actual	FY 13 YE Target	FY12 PY YTD	FY 13 Actual YTD	Performance
<b>Financial Performance</b>						
Strategic Cash Balance	Resource Stewardship					
Average Student Indebtedness	Teaching and Learning					
Total College of Medicine Development Attainment	Resource Stewardship					
Total Scholarship Endowment Income	Resource Stewardship					
Development Dollars (Research Funds)	Resource Stewardship					
Percent Salary Recovery	Research and Innovation					
Revenue from Technology Commercialization	Resource Stewardship					
<b>Innovation &amp; Strategic Growth</b>						
Total Research Award Dollars (COM/OHS)	Research and Innovation					
Total Research Award Dollars (NIH)	Research and Innovation					
Number of Patents, Invention Disclosures, etc.	Research and Innovation					
Percent of Under-Represented Minority Students	Outreach and Engagement					
<b>Quality</b>						
Undergraduate GPAs of Entering Students	Teaching and Learning					
Average Test Score of Entering Students	Teaching and					

Key Results Area	Strategy Category	FY 12 YE Actual	FY 13 YE Target	FY12 PY YTD	FY 13 Actual YTD	Performance
Medicine – MCAT	Learning					
Outcome Assessment Scores: USLME Step 1 First time pass rate; USMLE Step 2 CK first time pass rate	Teaching and Learning					
<b>Productivity and Efficiency</b>						
Research Dollars per square foot (all facility average)	Research and Innovation					
Average NIH Award Value	Research and Innovation					
Faculty to Student Ratio	Teaching and Learning					
<b>Service &amp; Reputation</b>						
USN&WR Best Medical Schools	Research and Innovation					
Student Overall Satisfaction with Medical Education – Strongly Agree + Agree	Teaching and Learning					
<b>Workplace of Choice</b>						
Faculty Satisfaction with new curriculum	Teaching and Learning					
Student Satisfaction with new curriculum	Teaching and Learning					
Resident/Fellow Overall Job Satisfaction	Teaching and Learning					



Indicator exceeds target



Indicator is below target



Indicator close to target or awaiting recent data

## SUMMARY

OSUWMC and its COM have made substantial progress in the last decade and have responded exceedingly well to recent economic challenges. Indeed, in the face of significant stressors, the COM has successfully competed for several coveted federal grant awards and increased its overall NIH grant portfolio in the past three years, despite record low pay-lines. It has begun to embrace the patient safety movement and is poised to restructure its curriculum, providing an opportunity to become one of the nation's first truly inter-professional, system-based learning environments.

However, significant challenges remain. Nationally, OSUWMC and its COM are undervalued, despite its upward trend in clinical and research reputations. State appropriations have been repeatedly reduced. Moreover, OSUWMC must overcome continued liquidity issues and over-leveraging at a time when significant capital projects need funding. Both OSUWMC and FGP/OSUP must better compete for market share in their primary service area and secondary markets and function more efficiently in the inpatient arena. The level of research in clinical and basic departments, and especially among Signature Programs must be enhanced. Teaching in both basic and clinical departments needs renewed focus.

Nevertheless, the OSUWMC and its COM have solid fundamentals, and with hard work, desire, an expansive and inclusive vision, and vigorous leadership, they can overcome all of these challenges. An agenda to move from Excellence to Eminence should be pursued, which will build on strengths, exploit productivity gains, and shrewdly invest in innovative programs to enhance the lives of Ohioans and move OSU COM the top 20 of U.S. medical schools and the OSUWMC into the top quintile of academic health centers, as OSU itself assumes its rightful place among the nation's preeminent institutions.

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