

**Response to the General Assembly's
H.B. 66 Mandate to
Propose Recommendations
for Clinical Teaching Support**

November 15, 2006

Submitted by
The Ohio Board of Regents
in

Consultation with Representatives from:
Northeastern Ohio Universities College of Medicine
Ohio University College of Osteopathic Medicine
Ohio State University College of Medicine
Wright State University College of Medicine
University of Cincinnati College of Medicine
University of Toledo College of Medicine
Case Western Reserve University College of Medicine

**Ohio Board of Regents
Clinical Teaching Study and Recommendations
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Introduction

Preparing physicians to serve Ohio's health care needs is the primary goal of the six public medical schools in Ohio. While all of the components of a medical education are important, possibly the most critical component in the training of a physician is the clinical work, where future doctors must apply the knowledge they have received in the classroom to real people with real health care problems. Clinical teaching is the teaching of essential skills needed by doctors to examine patients, assimilate information and make critical decisions to care for the patient.

Funding to support this vital element of physician training is provided by the General Assembly through the Board of Regents' operating budget. In FY 2006, total funding for clinical teaching was \$45.9 million, broken out as follows:

GRF 235-536 The Ohio State University Clinical Teaching	\$13,565,885
GRF 235-537 University of Cincinnati Clinical Teaching	\$11,157,756
GRF 235-538 Medical University of Ohio at Toledo Clinical Teaching	\$ 8,696,866
GRF 235-539 Wright State University Clinical Teaching	\$ 4,225,107
GRF 235-540 Ohio University Clinical Teaching	\$4,084,540
GRF 235-541 Northeastern Ohio Universities College of Medicine Clinical Teaching	<u>\$ 4,200,945</u>
Total	\$45,931,099

Clinical teaching funds are used in a variety of ways, but they primarily are used for the following purposes:

- Teaching of clinical skills, using standardized patients and patient simulators;
- Exposure of students to a range of patient care experiences at various types of settings;
- Support of the laboratory and clinical components of medical education, including problem-based lectures and discussion;
- Development of curriculum;
- Acquisition of specialized equipment and support of other services directly related to medical education.

Charge to the Board of Regents

A provision in House Bill 66 of the 126th General Assembly required the Board of Regents to study and develop a formula to allocate appropriations for clinical teaching support. The specific language in Section 209.64.22 is as follows:

The Board of Regents, in consultation with representatives of each of the six state-assisted colleges of medicine, shall study and propose recommendations for a formula to allocate appropriations for clinical teaching support. The consultation shall consider factors that reward medical schools for serving Ohio's health care needs in an equitable and efficient manner. Recommendations shall be submitted to the Office of

Budget and Management and the General assembly for consideration by November 15, 2006. A new method, approved by the Office of Budget and Management and the General Assembly, shall be implemented in fiscal years 2008 and 2009 for distributing funds for clinical teaching support.

This report is in response to that mandate.

Overall Funding for Medical Education in Ohio

Ohio supports the training of physicians at six public and one private colleges of medicine in line items in the Board of Regents operating budget that can be organized into 5 categories as follows:

- 1) Medical II model in the Board of Regents' State Share of Instruction formula;
- 2) Medical Line Items (Geriatrics; Primary Care, Family Practice, and Area Health Education Centers);
- 3) Clinical Teaching Line Items;
- 4) Additional Public Sector Line Items; and
- 5) Additional Private Sector Line Items.

Approximately one third of state funding for the training of physicians is allocated to the clinical teaching line items. The chart in Appendix I shows state funding for medical schools since FY 1995.

Clinical Teaching Consultation and Subcommittee

To learn more about clinical teaching support, the Board of Regents convened a consultation, led by Regent Jim Tuschman, with membership from each of the six public medical schools. The group met twice early in 2006 and gathered information on a variety of topics, including:

- Intent of the budget language
- History of the line items
- Economic impact of the state's medical schools
- The impending physician shortage
- Medical school funding
- Individual medical school's missions and activities

After listening to information on these topics, the group decided to form a subcommittee to examine how a formula for clinical subsidy support might be devised.

The subcommittee, led by Regent Walt Reiling, met in the spring of 2006 and examined several formulas that focused on funding per full-time equivalent (FTE) medical student. The subcommittee also discussed issues such as existing practices a formula might reward, future practices for which a formula might provide an incentive, and factors that might address Ohio's health care needs. The subcommittee also found that there is insufficient data about the training and retention of physicians in Ohio to guide policy decisions. For example, the Board of Regents does not have data detailing the number of

medical students who stay in Ohio for a residency program, or the number who establish a practice in Ohio. Without sufficient data on the migration patterns of Ohio's medical graduates, the subcommittee was unable to fully understand the pipeline issues that affect medical school enrollment, subsequent residency programs, and the establishment of medical practices in Ohio. This lack of data makes it difficult, if not impossible, to make sound public policy decisions about medical school funding and its impact on the state.

This line of discussion has prompted the Board of Regents and the medical schools to attempt to obtain data about the current supply of physicians in Ohio and projections of physicians for the future and to undertake a more comprehensive approach to the issue of an impending physician shortage. The Regents recently convened a separate Physician Supply and Demand Consultation to study whether enough physicians of the right type are being trained in Ohio and whether enough physicians of the right type are staying in Ohio. The charge to the Physician Supply and Demand Consultation can be found in Appendix IV.

History of the Clinical Teaching Line Items

State funding to support clinical teaching began in 1971. In that year, in House Bill 475 of the 109th General Assembly, the legislature appropriated funds to three teaching hospitals:

Ohio State University Hospitals
University of Cincinnati General Hospital
Medical College of Ohio Hospital

Appropriations to these institutions continued throughout the 1970s and in 1975, budget language specified that the funds were to be used for the clinical teaching facilities of medical colleges, including support of medical research. During the 1970s, three additional public colleges of medicine were established in Ohio. These were:

Northeastern Ohio Universities College of Medicine, established in 1973
Wright State University College of Medicine, established in 1974
Ohio University College of Osteopathic Medicine, established in 1975

In 1979, in House Bill 204 of the 113th General Assembly, appropriations to all six state-supported colleges of medicine were made, and budget language governing these line items refers to using the funds for both "Clinical Teaching Facilities" and "Clinical Teaching." Appropriations to these six institutions have continued to the present.

How are Clinical Teaching Funds Used?

As stated in the introduction, clinical teaching funds are primarily used to support the laboratory or clinical components of medical and other health professional education affiliated with each of Ohio's six state medical colleges. Two universities (The Ohio State University and the University of Toledo) operate clinical facilities for the instruction of medical and other health personnel. The four other public medical schools (Ohio University, the

University of Cincinnati, Wright State University and Northeastern Ohio Universities' College of Medicine) conduct clinical education in community facilities through affiliations or consortium agreements.

State support for clinical teaching at each of these institutions supports the teaching component of medical students in the clinical setting; patient care is not funded with these funds. Each medical college utilizes the subsidy in different ways depending upon the relationship that the medical school has with its clinical care facilities and its complement of health professions education and training programs.

In addition, all six public medical colleges are engaged in research, community service, homeland defense and national security. For information about each college's mission, demographics, tuition and student indebtedness, educational activities, clinical care, research, community impact, and homeland defense initiatives, please see Appendix III.

Medical School Costs

The cost to educate and train physicians is rising. Although there are many reasons for rising costs, the major factors include an increasing focus on small group interactions between faculty and staff as opposed to lectures, the increased role of faculty supervision of medical students in the clinical setting, increased costs for technology, (e.g., computerized patient simulators, patient simulation laboratories, distance learning and the staff needed to operate this technology), and changing accreditation standards.

State Funding

As described above, state funding for public medical schools consists of 15 line items. The chart in Appendix I shows state funding for medical schools since FY 1995. In that year, total funding for medical schools totaled \$152.8 million, and funding for the clinical teaching line items totaled \$46.5 million. In FY 2007, state funding for medical schools is projected to decrease to \$149.6 million, a decrease of 2.09% since 1995. When this figure is adjusted for inflation using the Consumer Price Index, total funding has decreased by 27.3% in real terms. Funding for the Clinical Teaching line items has decreased by 1.2% since 1995, and when adjusted for inflation, it has decreased by 26.6% in real terms.

The Clinical Teaching Consultation and the subcommittee examined how clinical teaching funds are currently used and initiatives at each school to serve the health care needs of Ohioans and their respective Ohio communities. Total state support for public medical schools divided by the total number of medical school full-time equivalent students is approximately \$39,130, a \$194 increase in funding per FTE over funding levels in 1995. However, when adjusted for inflation, this amount is approximately \$9,873 less per FTE medical student than if 1995 funding levels had kept pace with inflation. This loss of inflation adjusted funding has come during a time when the cost to educate and train physicians has been escalating and student debt load is rising.

The Decision to Retain Base Funding

In light of funding decreases for public medical education and specifically for clinical teaching at a time when the cost of medical education is rapidly rising, the Regents, along with the members of the Clinical Teaching consultation, have concluded that each medical school's current base appropriation for clinical teaching is essential for providing funding stability at each medical college and should remain intact. However, all parties agree that any new funds should be distributed according to a formula. The consultation and the Board of Regents considered several formulas and determined that a formula based on the actual number of full-time equivalent students would best serve the interests of the state.

Formula to Distribute New Funds

The clinical teaching subcommittee examined three formulas prepared by Regents' staff to distribute new funds for clinical teaching. Each formula retained a base allocation equal to the current appropriation of \$45,931,099. Only additional funds, in excess of the current appropriation, were subject to proposed formula allocations. Each proposed formula used only FTE data in determining the allocation of new funds with an acknowledgment that FTE statistics alone may not be the only appropriate mechanism for allocating funds. The formulas were as follows:

- a. Formula Based on Actual FTEs
- b. Formula Based on Subsidy FTEs
- c. Formula to Provide Equity Funding to "Disadvantaged" Medical Colleges

The subcommittee also discussed the feasibility of using a portion of any new funds as an incentive to encourage the medical schools to collaborate to achieve certain public policy objectives. Funds might be used to encourage medical schools to share curriculum, technology and services. Funds might also be used to achieve certain goals to serve Ohio's health care needs. Schools could compete for these funds through a competitive process or the schools could join together to propose ideas and projects. Further discussion and investigation would need to occur to develop this initiative further.

Recommendations

On September 21, 2006, the Program Effectiveness, Research, and Technology Committee of the Ohio Board of Regents heard a report on the work of the Clinical Teaching Consultation by Jack Brose, D.O., Dean of the Ohio University College of Osteopathic Medicine and Chair of the Ohio Council of Medical School Deans. The committee also discussed various formula options.

On October 19, 2006, the Regents adopted a resolution in response to the mandate in H.B. 66 of the 126th General Assembly requiring the Board of Regents, in consultation with the six public colleges of medicine, to study and develop a formula to allocate appropriations for clinical teaching support. (Please see Appendix II for a copy of the entire resolution.)

The Board of Regents recommends the following:

- That the current distribution of clinical teaching funding for each public college of medicine (totaling \$45,931,099) be retained as base funding in order to maintain funding stability;
- That an increase of 6% per year be requested for fiscal year 2008 and fiscal year 2009; and
- That any new funding is distributed based on the actual number of full-time equivalent students at each public medical school.

Formula Recommendation:

Under the formula, base funding for the six public medical schools is retained, and new funding is distributed based on the actual number of full-time equivalent students at each public medical school. If the current number of students at each institution stays the same for fiscal years 2008 and 2009, and if funding is increased by 6%, the distribution will be as follows:

Formula Option # 1, Projected Earnings FY 2008			
Medical School	Base Allocation	FTE Allocation	Formula Allocation
University of Cincinnati	\$11,157,756	\$496,446	\$11,654,202
MUO	\$8,696,866	\$518,168	\$9,215,034
NEOUCOM	\$4,200,945	\$363,068	\$4,564,013
Ohio State University	\$13,565,885	\$716,672	\$14,282,557
Ohio University	\$4,084,540	\$360,418	\$4,444,958
Wright State University	\$4,225,107	\$301,093	\$4,526,200
Total	\$45,931,099	\$2,755,866	\$48,686,965

Formula Option # 1, Projected Earnings FY 2009			
Medical School	Base Allocation	FTE Allocation	Formula Allocation
University of Cincinnati	\$11,157,756	\$1,033,556	\$12,191,312
MUO	\$8,696,866	\$1,063,338	\$9,760,204
NEOUCOM	\$4,200,945	\$743,964	\$4,944,909
Ohio State University	\$13,565,885	\$1,465,256	\$15,031,141
Ohio University	\$4,084,540	\$738,005	\$4,822,545
Wright State University	\$4,225,107	\$632,963	\$4,858,070
Total	\$45,931,099	\$5,677,084	\$51,608,183

Medical School	FY 2007	FY 2008	Annual Change (%)	FY 2009	Annual Change (%)
University of Cincinnati	\$11,157,756	\$11,654,202	4.45%	\$12,191,312	4.61%
MUO	\$8,696,866	\$9,215,034	5.96%	\$9,760,204	5.92%
NEOUCOM	\$4,200,945	\$4,564,013	8.64%	\$4,944,909	8.35%
Ohio State University	\$13,565,885	\$14,282,557	5.28%	\$15,031,141	5.24%
Ohio University	\$4,084,540	\$4,444,958	8.82%	\$4,822,545	8.49%
Wright State University	\$4,225,107	\$4,526,200	7.13%	\$4,858,070	7.33%
Total	\$45,931,099	\$48,686,965	6.00%	\$51,608,183	6.00%

**Clinical Teaching Consultation Members
Institutional Representatives**

Associate Dean Daniel Ornt, MD, FACP
Case Western Reserve University, School of Medicine
10900 Euclid Avenue
Cleveland, Ohio 44106

Dean Jeffrey Gold, MD
Medical University of Ohio in Toledo (MUOT)
300 Arlington Avenue
Toledo, OH 43614

Dean Lois Nora, MD, JD
Northeastern Ohio University College of Medicine (NEOUCOM)
4209 State Route 44
P.O. Box 95

Dean John A. Brose, DO
Ohio University College of Osteopathic Medicine
204 Grosvenor Hall
Athens, OH 45701

Dean Fred Sanfilippo, MD, PhD
The Ohio State University
200 Meiling Hall
370 West Ninth Avenue
Columbus, Ohio 43210

Dean David Stern, MD
University of Cincinnati College of Medicine
P.O. Box 670555
Cincinnati, OH 45267-0555

Dean Howard Part, MD
Wright State University School of Medicine
P.O. Box 927
Dayton, OH 45401-0927

**Clinical Teaching Consultation Members
Ohio Board of Regents Representatives**

James M. Tuschman
Regent

Walt Reiling, MD
Regent

Garry Walters
Interim Chancellor

Rich Petrick
Vice Chancellor for Finance

Deborah Gavlik
Associate Vice Chancellor
Finance and Governmental Relations

Clinical Teaching Consultation Subcommittee Members

Jerry Friedman

Advisor for Health Policy and Director of Government Relations
The Ohio State University
100 Bricker Hall, 190 North Oval Mall
Columbus, Ohio 43210

Matt Filipic

Vice President for Business and Fiscal Affairs
Wright State University School of Medicine
University Hall 328, Main Campus
Dayton, Ohio 45435

Kathy Brooks

Chief Financial Officer
Ohio University College of Medicine
Grosvenor West - 015
Athens, Ohio 45701

Sheri Stoll

Vice President of Administration & Finance
Northeastern Ohio Universities College of Medicine
4209 State Route 44, PO Box 95
Rootstown, Ohio 44272

Andy Filak, MD

Senior Association Dean
University of Cincinnati College of Medicine
P. O. Box 670555
Cincinnati OH 45267

William McMillen

Vice President for Government Relations
University of Toledo, Health Science Campus
UH 3510
Toledo, Ohio 43606

Daniel Ornt, MD, FACP

Vice Dean for Education and Academic Affairs
Case Western Reserve University, School of Medicine
10900 Euclid Avenue
Cleveland, Ohio 44106

Walt Reiling, MD

Regent
Ohio Board of Regents

Appendix I - Medical School Funding – State Totals

Medical School Funding - State Totals

Item	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	% Change FY 1995-2007
State Share of Instruction	\$87,725,189	\$91,651,797	\$95,441,448	\$100,012,715	\$102,582,918	\$106,280,220	\$107,813,394	\$103,302,476	\$100,878,049	\$101,975,773	\$96,550,453	\$92,109,373	\$90,052,737	2.65%
Medical II Model	\$87,725,189	\$91,651,797	\$95,441,448	\$100,012,715	\$102,582,918	\$106,280,220	\$107,813,394	\$103,302,476	\$100,878,049	\$101,975,773	\$96,550,453	\$92,109,373	\$90,052,737	2.65%
Medical Line Items	\$1,639,846	\$1,991,362	\$1,199,000	\$2,870,000	\$2,020,000	\$2,095,000	\$2,074,000	\$1,988,000	\$1,957,278	\$1,653,337	\$1,571,756	\$1,571,756	\$1,571,756	-0.76%
474 AHEC	\$5,620,986	\$2,694,912	\$3,278,000	\$9,995,000	\$5,933,000	\$6,230,000	\$6,476,000	\$6,146,000	\$5,994,906	\$5,308,255	\$5,053,855	\$4,548,470	\$4,548,470	-19.09%
519 Family Practice	\$1,013,176	\$1,013,176	\$522,000	\$1,385,000	\$1,033,000	\$1,062,000	\$1,077,000	\$1,077,000	\$1,022,000	\$1,016,343	\$750,110	\$750,110	\$750,110	-23.74%
526 Geriatric	\$963,666	\$2,721,893	\$2,846,000	\$4,331,000	\$2,873,000	\$3,017,000	\$3,136,000	\$2,976,000	\$2,959,829	\$2,620,812	\$2,495,209	\$2,245,888	\$2,245,888	-17.50%
528 Primary Care	\$2,721,893	\$1,401,776	\$2,846,000	\$4,331,000	\$2,873,000	\$3,017,000	\$3,136,000	\$2,976,000	\$2,959,829	\$2,620,812	\$2,495,209	\$2,245,888	\$2,245,888	-17.50%
Medical Line Items Subtotal	\$10,910,401	\$7,291,128	\$10,434,000	\$17,711,000	\$11,864,000	\$12,404,000	\$12,763,000	\$12,112,000	\$11,928,356	\$10,370,272	\$9,870,930	\$9,116,024	\$9,116,024	-16.45%
Clinical Line Items	\$13,770,131	\$14,183,235	\$14,609,000	\$14,989,000	\$15,270,000	\$15,821,000	\$15,836,000	\$15,030,000	\$14,869,591	\$13,565,865	\$13,565,865	\$13,565,865	\$13,565,865	-1.48%
539 OSU Clinical	\$11,325,745	\$9,708,000	\$12,015,000	\$12,328,000	\$12,559,000	\$12,848,000	\$13,025,000	\$12,362,000	\$12,058,138	\$11,157,756	\$11,157,756	\$11,157,756	\$11,157,756	-1.49%
537 UIC Clinical	\$8,827,804	\$9,092,638	\$9,365,000	\$9,609,000	\$9,798,000	\$10,015,000	\$9,798,000	\$9,656,000	\$9,399,665	\$8,696,866	\$8,696,866	\$8,696,866	\$8,696,866	-1.49%
538 MCO Clinical	\$4,417,382	\$4,550,000	\$4,550,000	\$4,668,000	\$4,756,000	\$4,865,000	\$4,932,000	\$4,881,000	\$4,566,056	\$4,225,107	\$4,225,107	\$4,225,107	\$4,225,107	-1.49%
539 WSU Clinical	\$4,146,035	\$4,270,416	\$4,399,000	\$4,513,000	\$4,598,000	\$4,703,000	\$4,768,000	\$4,526,000	\$4,414,144	\$4,084,540	\$4,084,540	\$4,084,540	\$4,084,540	-1.48%
540 OU Clinical	\$4,146,035	\$4,270,416	\$4,399,000	\$4,513,000	\$4,598,000	\$4,703,000	\$4,768,000	\$4,526,000	\$4,414,144	\$4,084,540	\$4,084,540	\$4,084,540	\$4,084,540	-1.48%
541 NEOLCOM	\$46,504,470	\$47,889,604	\$49,337,000	\$50,748,000	\$51,701,000	\$52,889,000	\$53,617,000	\$50,889,488	\$49,637,536	\$45,931,099	\$45,931,099	\$45,931,099	\$45,931,099	-1.23%
Additional Line Items - Public Sector	\$1,509,546	\$1,000,000	\$500,000	\$250,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	-100.00%
546 OSU Cancer Hosp.	\$1,005,469	\$1,033,633	\$1,067,000	\$1,195,000	\$1,331,000	\$1,943,000	\$2,041,000	\$1,937,000	\$1,889,033	\$1,344,378	\$1,277,019	\$1,277,019	\$1,277,019	-27.01%
572 OSU Clinics	\$2,514,015	\$2,035,633	\$1,567,000	\$1,445,000	\$1,331,000	\$1,943,000	\$2,041,000	\$1,937,000	\$1,889,033	\$1,344,378	\$1,277,019	\$1,277,019	\$1,277,019	-49.20%
Additional Line Items - Private Sector	\$3,994,478	\$3,994,478	\$3,994,000	\$4,108,000	\$4,089,000	\$4,182,000	\$4,239,000	\$4,023,000	\$3,924,395	\$3,171,488	\$3,011,271	\$3,011,271	\$3,011,271	-24.61%
616 CWRU	\$450,000	\$450,000	\$450,000	\$460,000	\$469,000	\$500,000	\$495,000	\$470,000	\$456,290	\$407,072	\$397,500	\$390,000	\$390,000	-78.28%
543 Podiatric Medicine	\$5,172,792	\$4,444,478	\$4,444,000	\$4,568,000	\$4,569,000	\$4,682,000	\$4,734,000	\$4,493,000	\$4,382,645	\$3,578,540	\$3,408,771	\$3,261,271	\$3,261,271	-36.95%
Total Medical School Funding	\$152,826,867	\$153,322,638	\$161,223,448	\$174,484,715	\$172,014,918	\$178,198,220	\$180,968,394	\$172,733,964	\$168,715,619	\$163,200,062	\$157,038,272	\$151,694,786	\$149,638,150	-2.09%

Analysis

Medical II Model	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	
Total Medical	\$97,725,189	\$91,651,797	\$95,441,448	\$100,012,715	\$102,582,918	\$106,280,220	\$107,813,394	\$103,302,476	\$100,878,049	\$101,975,773	\$96,550,453	\$92,109,373	\$90,052,737	
Change since FY 1995	0.0%	0.3%	6.3%	14.2%	12.5%	18.6%	18.4%	13.0%	10.4%	6.6%	2.8%	-0.7%	-2.1%	
Revenue Debt	\$318,599,715	\$332,591,696	\$341,701,000	\$345,925,000	\$362,193,000	\$356,446,000	\$324,548,000	\$293,946,612	\$264,574,646	\$246,044,911	\$216,836,400	\$200,619,200	\$200,795,300	
GO Debt	\$1,878,793,406	\$2,001,769,555	\$2,094,002,000	\$2,208,825,000	\$2,300,693,000	\$2,432,363,000	\$2,518,388,000	\$2,456,087,000	\$2,410,468,722	\$2,410,306,722	\$2,445,213,376	\$2,548,174,869	\$2,548,174,869	
Change since FY 1995	0.0%	6.5%	10.9%	17.6%	22.5%	29.5%	34.0%	30.7%	28.3%	28.3%	30.1%	31.4%	35.6%	
Medical Share of GRF	8.13%	7.66%	7.74%	7.90%	7.48%	7.33%	7.19%	7.03%	7.00%	6.77%	6.42%	6.14%	5.87%	

Inflation-Adjusted Medical Funding Totals

Total Medical in CPI-adjusted constant 1995 \$	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	
1995 \$	\$152,826,867	\$148,925,239	\$153,096,938	\$163,137,956	\$157,553,382	\$157,708,530	\$155,728,872	\$146,329,384	\$139,740,545	\$131,666,905	\$122,542,922	\$115,486,046	\$111,141,773	
Change since FY 1995	0.0%	-2.6%	0.2%	6.7%	3.0%	3.2%	1.9%	-4.3%	-8.6%	-13.8%	-19.8%	-24.4%	-27.3%	
Total GRF in CPI-adjusted constant 1995 \$	\$1,878,793,406	\$1,944,357,428	\$1,978,828,067	\$2,065,183,620	\$2,104,595,517	\$2,152,683,631	\$2,167,146,071	\$2,080,642,906	\$1,998,382,741	\$1,944,708,266	\$1,908,092,773	\$1,879,861,323	\$1,892,603,415	
Change since FY 1995	0.0%	3.5%	5.3%	9.9%	12.0%	14.6%	15.3%	10.7%	6.3%	3.5%	1.6%	0.1%	0.7%	
Consumer Price Index*	152.4	156.9	160.5	163.0	166.6	172.2	177.1	178.9	184.0	188.9	195.3	200.2	205.2	

Analysis - Clinical Teaching Line Items, Adjusted for Inflation

Total Clinical Line Items in CPI-adjusted constant 1995 \$	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	
1995 \$	46,504,470	48,595,810	46,847,095	47,447,823	47,294,312	46,807,888	46,139,078	43,110,383	41,112,829	37,056,112	35,841,779	34,967,990	34,144,721	
Change since FY 1995	0.0%	0.0%	0.7%	2.0%	1.7%	0.7%	-0.8%	-7.3%	-11.6%	-20.3%	-22.9%	-24.8%	-26.6%	

*CPI for all items, all urban consumers (base period: 1982-84=100). Source: U.S. Bureau of Labor Statistics. NOTE: 2006 and 2007 CPI figures are estimates based on a 2.5% inflation per year.

**Appendix II - Regents' Resolution Regarding State University
Regarding Clinical Teaching**

OHIO BOARD OF REGENTS

Agenda Item 3.4 Regents' recommendations in response to H.B. 66 regarding state university clinical teaching

RESOLUTION

WHEREAS, Am. Sub. House Bill 66 of the 126th General Assembly requested the Board of Regents, in consultation with representatives from each of the six state-assisted colleges of medicine, to study and develop a formula to allocate appropriations for clinical teaching support; and

WHEREAS, the Ohio Board of Regents convened a Clinical Teaching Consultation consisting of representatives from each of the six state-assisted colleges of medicine; and

WHEREAS, the Clinical Teaching Consultation and a subcommittee of the consultation met over a period of six months and studied the history of funding for clinical teaching and considered factors that reward medical schools for better serving Ohio's health care needs in an equitable and efficient manner; and

WHEREAS, the staff of the Board of Regents in consultation with the Clinical Teaching Consultation has proposed recommendations for funding for the 2007 – 2009 biennium in a document titled "Response to the General Assembly's H.B. 66 Mandate to propose Recommendations for Clinical Teaching Support" and has proposed options to distribute any new funds that the General Assembly may appropriate (see attached report); and

WHEREAS, the council of medical school deans has studied the options and recommends basing the formula distributing any new funding on the actual number of full-time equivalent students at each public medical school; and

WHEREAS, the Board of Regents has considered the recommendations and the advice of the medical school deans; and

NOW, THEREFORE,

BE IT RESOLVED: that the Board of Regents recommends the following:

- a) That the current distribution of clinical teaching funding for each public college of medicine (totaling \$45,931,099) be retained as base funding in order to maintain funding stability;
- b) That an increase of 6% per year be requested for fiscal year 2008 and fiscal year 2009; and
- c) That any new funding is distributed based on the actual number of full-time equivalent students at each public medical school.

**Appendix III – Overview of Costs of Medical Education and
Reports from Each of Ohio’s Public Medical
Schools**

Costs of Medical Education Overview for the CTS Task Force

In their landmark study published in *Academic Medicine* in 1997, Jones and Korn acknowledged that the "cost of educating a medical student has been of intermittent public concern for most of the twentieth century". As we enter the 21st century, that concern has once again surfaced within the State of Ohio as budgetary issues precipitate a careful look at all expenditures. The particular issue at hand is the Clinical Teaching Subsidy.

The first clinical teaching subsidy was provided to the Ohio State University in 1955. Dr. Richard Rupert, the first Vice Chancellor for Health Affairs of the Ohio Board of Regents, who helped write the Regents' Higher Education Master Plan of 1976, has indicated in a conversation with Mr. Richard Lewis, that the Clinical Teaching Subsidy was incorporated into the Master Plan as a *permanent* subsidy for MCO (now MUO), OSU, and UC. Developmental appropriations were later made available to NEOUCOM, OU, and WSU as those schools were created. As part of Am.Sub HB 291, the biennial appropriations for FY84 and FY 85, the Ohio General Assembly established appropriations for the clinical teaching subsidy for each of Ohio's six state assisted medical colleges. This initial allocation was based on data derived from a national study conducted by the Institute of Medicine of the National Academy of Sciences for the U.S. Congress in 1974. At that time, this study provided what was deemed to be the most comprehensive and accurate model for constructing the cost of medical school teaching. Based on that model, the approximate cost of clinical teaching for a university based medical college was calculated to be \$13,514 per student. The legislature agreed that the costs for community based medical colleges, based on the reality that they also incurred costs associated with teaching medical students in clinical settings, would be calculated at the level of \$9500 per medical student.

Distribution of the subsidies is determined in each biennial budget bill. The following description of the program is provided by the Ohio Board of Regents at:

<http://www.regents.state.oh.us/progs/obrprog2.html>

Description: The Clinical Teaching Subsidies support the laboratory or clinical components of medical and other health professions education affiliated with each of Ohio's six state medical colleges. The Ohio State University, the University of Cincinnati and the Medical College of Ohio operate clinical facilities for the instruction of medical and other health personnel. Ohio University, Wright State University and Northeastern Ohio Universities' College of Medicine conduct clinical education in community facilities. The subsidy supports the teaching component of medical students in the clinical setting; patient care is not funded by this subsidy. Each medical college utilizes the subsidy in different ways depending upon the relationship that the medical school has with its clinical care facilities and its complement of health professions education and training programs.

Population Served: Medical students as well as residents and local community practitioners from their involvement in the teaching-learning process.

Services/Activities:

* There were 3,947 medical students in state-assisted medical schools in the 1992-1993 academic year. A significant majority of the students receive some clinical experience each year.

* Areas of training supported by the subsidy include medicine, nursing, pharmacy, physical and occupational therapy, and medical technologies.

* Some medical colleges also use this support for special initiatives, such as new teaching programs, acquisition of specialized equipment and support of other services directly related to medical education and the sharing of information.

When Am. Sub HB 291 was passed and signed into law, the following appropriations were implemented:

Medical College	FY 84	FY 85	FY 05
MCO (now MUO)	\$ 7,300,000	\$ 8,100,000	\$ 8,696,866
NEOUCOM	\$ 3,400,000	\$ 3,800,000	\$ 4,200,945
OSU	\$12,595,000	\$13,095,000	\$13,565,885
OU	\$ 3,125,000	\$ 3,800,000	\$ 4,084,540
UC	\$ 7,492,000	\$10,392,000	\$11,157,756
WSU	\$ 3,400,000	\$ 3,800,000	\$ 4,225,107

As noted above, despite the reality that the Bureau of Labor Statistics reports that the purchasing power of a dollar has fallen almost exactly a half since 1983 (i.e. it would take \$1996 in today's dollars to buy what \$1000 bought in 1983), the funding levels at present are barely above the amounts funded in FY 85.

In their study, *On the Cost of Educating a Medical Student*, Jones and Korn reported estimates of total educational resource costs of between \$72,000 and \$93,000 per student per year in 1996 dollars. Even at that time they acknowledged that "Unless society is prepared to change dramatically its concept of the well educated physician, opportunities for significant reductions in the cost of medical education are difficult to visualize."

In reality, the costs of medical student education have continued to rise as the medical schools in Ohio strive to maintain their excellence in education. Although each school has a unique program, the following changes in the approach to medical education are common themes that each school has needed to address. Each of these following changes is a relatively recent phenomenon. The previous consideration for the implementation of the CTS was based on an understanding that there already were additional costs in medical education related to clinical and laboratory training. Clinical education, with its one on one and small group interactions between teacher and learner, is an expensive proposition. In essence, these are new costs that are above what could be considered the baseline funding established decades ago.

Faculty issues:

Several issues come into play in the discussion of faculty time. Of paramount importance are: (1) the shift away from lecture based curriculum to small group activities requiring the participation of an increased number of faculty, (2) the increased role of faculty supervision of medical students in the clinical setting, (3) an increased emphasis on professionalism that has developed in response to the concerns of society and (4) the need to develop a greater integration of clinical faculty into what was previously referred to as the basic science curriculum in the first two years. In addition to the direct participation of clinical faculty in the curriculum, there is the time required to coordinate and integrate the material into a coherent curriculum. Medical education is no longer the sum of individual parts, but is a coordinated integrated course of study.

An additional cost for faculty is related to teaching skills development. This includes not only the time required of faculty to participate in programs that provide them with the tools to be effective teachers. Each school, in compliance with accreditation standards, has needed to develop an appropriate infrastructure of expertise in pedagogy to support such faculty development.

Medical schools are relying upon increased participation by clinical faculty who are under ever increasing pressure to increase their clinical loads. The presence of medical students in the clinical settings has a negative effect on the ability of the clinical faculty member to generate income. This is at a time when clinical faculty are reeling under the cost of liability (malpractice) insurance premiums that also lead to a decrease in their revenue. There is concern that some physicians have discontinued taking students into their offices in part as a result of the malpractice crisis. The teaching of medical students in the clinical setting, indeed the essence of medical education, is increasingly jeopardized by the lack of availability of funding to pay for the time of clinical teachers.

Technology:

New initiatives:

Technological advances have led to the increased use of simulation in medical education. As noted in the Journal of Critical Care (Volume 20, Issue 3, September 2005), "The adage "see one, do one, teach one" is no longer acceptable." This is particularly true in the ICU where lack of adequate skill of trainees or supervision by attending physicians can have adverse consequences. In addition, the difficulty in (1) ensuring exposure of trainees to a broad range of clinical problems and (2) observing these same encounters for evaluation purposes poses a significant challenge to clinician teachers." Simulation has helped to provide an answer and to improve the training of medical professionals. All medical schools in the State of Ohio, in accordance with medical school and residency accreditation requirements, have developed programs that incorporate simulation into medical education. This is a costly endeavor, not only in the equipment, supplies and facilities components, but in the training of an appropriate cadre of educators to run the programs.

Simulation is also utilized to teach and evaluate teamwork and communication skills. In addition to mannequins and other technology driven components, standardized patient programs have been developed to further enhance the teaching and evaluation of professionalism and the doctor-patient relationship. The standardized patients (actors who portray patients) receive thorough training and are paid for their time. Again, a core infrastructure, including facilities and appropriately trained faculty, have been added costs to the medical education program.

A key aspect of the clinical simulation programs is their impact on patient safety and risk reduction.

Simulation is already implicitly required for accreditation purposes by both the LCME and the ACGME. It is anticipated that, for example for Surgery residency programs, simulation will be incorporated as an explicit requirement within the next few years.

Infrastructure:

Clinical education does not occur in a void. Medical students and other trainees, as well as practicing physicians, are faced with a rapidly increasing knowledge base. Our medical schools are strong contributors to the development of and dissemination of new knowledge. Health care professionals require rapid access to this knowledge base. Each medical school must support a high level information technology (IT) infrastructure. Key components include full connectivity, including wireless access, to library resources. Physicians and those in training, now need access to information in the clinical setting and even at the bedside. Rapid and ready access to information allows for evidence based medical care. Obviously, the provision of a robust IT infrastructure comes with not insignificant costs. In addition, many of the schools have developed programs of distance learning using the Internet.

Regulatory standards:

Medical education is not exempt from the need to comply with increased oversight by accrediting bodies and other regulatory programs. For example, the Liaison Committee on Medical Education (LCME) and Commission on Osteopathic College Accreditation (COCA) continually revise the accreditation standards. As new standards are developed and existing ones interpreted, medical schools must develop programs to comply. For example, the accrediting body has sharpened its focus on communication skills. Schools have been challenged to improve education in this area. The state of the art is the use of standardized patient programs, a costly venture, as described above.

Medical schools have been required to develop programs to train all health care professionals and document their compliance with a myriad of rules and regulations ranging from the Health Insurance Portability and Accountability Act (HIPAA) to universal precautions to protect both patients and caregivers from communicable diseases. Credentialing, not only of licensed providers, but of medical students, comes with a cost. For example, it is now expected that background checks are completed on matriculants.

The liability insurance (malpractice) crisis has not spared medical schools. The premiums for coverage of the faculty have skyrocketed along with those for all other physicians. Volunteer faculty may feel that they are at increased risk should they participate in medical education and ask that the medical schools share in the cost of their insurance.

Cultural competence:

There is a well recognized need within the medical education community and medicine as a whole that increased attention needs to be paid to the issues of providing culturally competent care and creating a diverse work force. The Ohio medical schools are full cognizant of these issues. Active programs have been designed to develop faculty with the appropriate skill sets not only to practice culturally competent care, but to teach it. Creation of a diverse work force is a complex problem. Medical schools are at the forefront in recognizing that individuals from underrepresented minority groups must be cultivated early. Pipeline programs working with high schools and colleges have been created to address this need.

Disaster Preparedness:

Clinical medical education needs to adapt to the changing healthcare environment. The events of 9/11 have heightened awareness of the need to have a workforce that is trained in disaster preparedness. This includes the recognition of and ability to respond to both natural disasters and terrorist attacks. The Ohio medical schools have exhibited the appropriate response by incorporating key topics into the curriculum. In addition, researchers within Ohio are key players in areas related to homeland security. The clinical enterprises within our academic health centers are prepared to respond appropriately should there be exposure to weapons of mass destruction or terrorist attacks.

Andrew T. Filak, Jr., M.D.
For the Ohio Council of Medical Deans
Clinical Teaching Subsidy Task Force
December 7, 2005

III.I - Medical University of Ohio at Toledo



College of Medicine

Mission Statement

The Medical University of Ohio was founded by the Ohio General Assembly in 1964. As the area's only academic health science center, the University is a leader in the education of students in health sciences, in biomedical research, and in the delivery of health services to the citizens of northwest Ohio. The mission of the Medical University of Ohio at Toledo is to improve the human condition through the creation, dissemination and application of knowledge using wisdom and compassion as our guides.

The mission of the College of Medicine is to (a) educate physicians who will excel in their profession by serving their diverse communities and society with knowledge, compassion and care, (b) advance medicine through research and scholarly work, and (c) provide and promote medical service through its faculty, the University Medical Center, and the Medical University of Ohio's affiliates. Key values include:

- *Discovery:* As an academic health center we vigorously pursue research opportunities to obtain new knowledge for the education of tomorrow's health-care providers and for the treatment and healing of those in need.
- *Education:* We provide the highest level of health education to our students, employees and the community and foster a culture of lifelong learning.
- *Diversity:* We are committed to creating an environment that recognizes and welcomes the differences and independent thoughts that each of us possess.
- *Excellence:* We always strive for the highest level of quality in everything we do to support our mission of education, research and patient care.

School Demographics

- The College of Medicine admits 145 – 150 students annually and has a current enrollment of 594.
- 232 residents and fellows in 21 graduate education accredited programs.
- The College of Medicine has 285 full-time faculty members, and more than 800 physicians in the region serve as mentors and preceptors in a volunteer capacity for our students.

Tuition & Indebtedness

Tuition and fees for in-state residents has risen 43% since 2001-02, and the average indebtedness of our graduates with debt has increased 20.6% since 2001.

Graduation Year	Average Debt
2001	\$104,080
2002	\$106,071
2003	\$115,413
2004	\$116,059
2005	\$125,473

Academic Year	Tuition & Fees
2001-02	\$15,136
2002-03	\$16,760
2003-04	\$18,650
2004-05	\$20,004
2005-06	\$21,654

Education

- The curriculum of the College of Medicine is composed of an integrated basic/clinical science four-year approach to medical education with emphasis on clinically oriented objectives and problem-based learning. During the third and fourth years, students are required to complete 8 weeks of clinical experiences in the Area Health Education Centers (AHEC). This gives students the opportunity to work with physician preceptors in small to medium sized communities throughout northwest Ohio.
- In 2005, the first-time taker pass rate of our students on the United States Medical Licensing Examination – Step 1 was 97.4% compared to a national average of 93%. Additionally, the first-time taker pass rate of our students for 2004-05 on Step 2CK was 95% compared to a national average of 94%, and on the newly introduced Step 2CS the first time taker pass rate was 96% the same as the national pass rate.
- The College of Medicine offers dual degree programs that combine the M.D. degree with and M.P.H. or Ph.D.
- The Center for Creative Instruction and the Department of Neurosciences at the Medical University of Ohio have partnered with McGraw-Hill publishing companies to develop Anatomy and Physiology Revealed (APR). APR is an interactive dissection program that uses a unique layering approach to study the human body.
- The Ruth M. Hillebrand Clinical Skills Center has received national attention for its interactive and formative educational experiences. The Center, funded by a \$1.9 million endowment, uses standardized patients and simulation to educate learners in a variety of disciplines.
- The College of Medicine’s Academic Test Center is one of only eight centers in medical schools in the United States approved to offer the United States Medical Licensing Examination Steps 1, 2, and 3.
- 285 continuing medical education programs, totaling 2,500 instructional hours, were coordinated in 2005 by the Office of Continuing Medical Education with 14,800 physicians and 22,128 non-physicians participating.

- The College of Medicine recently developed and implemented a web-based clinical case logging system to track and monitor the clinical education experiences of students throughout the curriculum, and in addition this same system allows us to monitor students' required educational activities in their clinical years.

Clinical Care

- University Medical Center includes three hospitals and 319 licensed beds, providing acute and tertiary care, rehabilitation, and child and adolescent psychiatry services.
- University Medical Center had 10,501 admissions, 27,595 emergency room visits, more than 160,000 outpatient visits, and provided more than \$11 million in charity care during the twelve month period ending June 30, 2005.
- University Medical Center is the only hospital in northwest Ohio performing organ transplants.
- University Medical Center operates Life Flight, an air-ambulance service, as a joint program with Mercy Health Partners.
- The faculty practice plan, Medical University of Ohio Physicians, is the largest multi-specialty physician group in northwest Ohio with 175 faculty members providing primary and specialty care to residents of the region.

Research

- During fiscal year 2005, the College of Medicine received \$19,622,557 in grants and contracts to support research programs.
- During fiscal year 2005, the Medical University of Ohio was selected to co-lead a \$25 million study funded by the National Heart, Lung and Blood Institute to investigate treatments for renal artery stenosis.
- University Medical Center is the first cancer center in northwest Ohio to participate in a landmark National Cancer Institute breast cancer study comparing the benefits of partial breast irradiation to whole breast radiation to treat early stage breast cancer.
- The Center for Clinical Research was established in July 2005 to promote and facilitate clinical and translational research, and support the training and development of clinical investigators.
- The Center for Neurological Disorders is involved in major clinical trials for the treatment of Parkinson's Disease including trials of neuroprotective and novel therapeutic agents.

Community Impact

- The University plans, organizes, and supports various community events promoting health education and wellness.
- University Medical Center provides more than 85% of the care to persons with HIV in northwest Ohio and is one of only two centers in Ohio receiving Ryan White title 4 funding.
- University Medical Center has the only inpatient child psychiatry program in the region.
- The Department of Psychiatry maintains two grants from the Ohio Department of Mental Health to train residents and medical students in public and community psychiatry.
- The College of Medicine annually organizes and sponsors summer academic enrichment programs in medicine and biomedical sciences for disadvantaged high school and undergraduate students.
- MUO students run a Community Care Clinic providing free health care to the uninsured population of northwest Ohio.
- 80% of the physicians practicing in the greater Toledo area have graduated or received training from Medical University of Ohio.

Homeland Defense and National Security

- University Medical Center is a Level I trauma center.
- The University in cooperation with Owens Community College has a program to train paramedics and first-responders.
- Provide continuing education courses in disaster preparedness, recognition and response for public health, medical and nursing practitioners in northwest Ohio.
- University faculty designed, developed and delivered table-top and functional terrorism exercises for local, regional and state use, and assist local public health departments and hospitals in disaster planning and preparedness.
- Several College of Medicine faculty members are engaged in bioterrorism research funded by the NIH.
- MUO has the capacity to be a regional leader in disaster preparation, recognition and response due to a combination of applicable field and clinical practitioners engaged in public health and medicine.

III.II - Northeastern Ohio Universities College of Medicine



NORTHEASTERN OHIO UNIVERSITIES COLLEGE OF MEDICINE

Mission Statement

Northeastern Ohio Universities College of Medicine (NEOUCOM) is the public medical school for northeast Ohio. Since its charter class graduated in 1981, NEOUCOM has produced 2,248 alumni; more than half of these physicians choose to live and work in Ohio to provide needed health care services.

NEOUCOM serves as the medical college for three state universities: The University of Akron (UA), Kent State University (KSU) and Youngstown State University (YSU). Building upon this spirit of collaboration, NEOUCOM recently established a College of Pharmacy to alleviate a shortage of pharmacists. NEOUCOM, the three founding universities and Cleveland State University (CSU) make up the educational consortium for the pharmacy program. The College also is home to the Consortium of Eastern Ohio Master of Public Health program, offered in partnership with UA, CSU, KSU, YSU and Ohio University.

NEOUCOM is successfully meeting its mission of graduating qualified physicians oriented to the practice of medicine at the community level. The College has produced physicians engaged in all specialties of medicine and has a particular emphasis on primary care: family medicine, internal medicine, pediatrics and obstetrics/gynecology. As a community-based medical school, NEOUCOM is improving the quality of health care in northeast Ohio through: the education of medical students; assistance to the residency programs in the affiliated hospitals; continuing education of physicians and other health professionals; the participation of faculty and students in the development of new knowledge through research and consortial education of graduate students in the biomedical, community health and behavioral sciences; and the provision of community service programs and health education throughout the region.

School Demographics

For the 2005-06 academic year, NEOUCOM has 461 students in four medical school classes. Over the past five years, the average size of a first-year medical school class has been approximately 115 students. On average, NEOUCOM has 105 graduates each year. The classes are almost evenly split between male and female students and more than 90 percent of our students come from Ohio. NEOUCOM will monitor the need for additional physicians in Ohio and the nation and may increase its class size by five percent over the next decade.

NEOUCOM partners with eight teaching hospitals in Akron, Barberton, Canton and Youngstown, Ohio, to offer graduate medical education through 41 residency programs with approximately 621 resident physicians. The teaching hospitals rely heavily on residents to provide quality, cost-effective care for hundreds of thousands of Ohio patients. Through its Office of Continuing Professional Education, NEOUCOM offers continuing education for practicing physicians, nurses and other allied health professionals. In 2004, more than 6,000 health care professionals took part in a NEOUCOM CPE program.

Tuition and Indebtedness

NEOUCOM has consistently tried to find ways to prevent its students from shouldering the full burden of reductions in state support. The College has a proven track record of cost containment and finding ways to improve business practices.

Even with recent reductions in staff, the adoption of energy-saving measures and better business practices, the College, like all of Ohio's medical schools, has found it necessary to increase tuition. Since 2000, NEOUCOM's tuition has increased from \$12,813 to \$23,307 in 2005. The debt load carried by NEOUCOM students is well below national and state averages for medical students. For the NEOUCOM graduating class of 2004, average student debt was \$92,940; the national average in 2004 was \$109,139. This debt load is significant for medical students, since, after graduation, they still face years of residency before beginning to work on their own. Additionally, many NEOUCOM medical students are first-generation physicians and come from middle-income families. Double-digit hikes in tuition place heavy burdens on these families and may price some promising Ohio students out of a medical education.

Education

A process to transform the medical school curriculum began in October 2003. The result is a new Integrated Steps Curriculum that represents the most significant changes in the College of Medicine's educational offerings since its inception. This curriculum will be offered in five steps throughout all four years of medical study, with each step building upon previous instruction. The integrated curriculum includes new courses and other educational activities that will be taught by teams and will combine the expertise of NEOUCOM's faculty from basic medical, clinical and community health sciences. By utilizing both standardized patients and patient simulators, NEOUCOM's program is a national model for the effective teaching of clinical skills in the state-of-the-art William G. Wasson, M.D., Center for Clinical Skills Training, Assessment and Scholarship.

As the College continues with its mission of education, research and service, it is gaining a regional and national reputation for the positive impact it has in patient care and medical education. This is exemplified in an increase in private support. The NEOUCOM Foundation continues to receive contributions supporting medical education through a variety of constituents. Annual unrestricted gifts support academic programs, research, equipment, and student scholarship. Recently, NEOUCOM received a \$2 million gift to support a clinical chair position and a \$1.5 million unrestricted gift.

In 2002 NEOUCOM received \$1.1 million in federal funding for an innovative distance learning and technology initiative. The project links the College, several area hospitals, and veteran's and underserved medical clinics to enhance medical training, education and care. The Medical Education Network Teaching Ohio Region III Project, or MENTOR, established an electronic link between NEOUCOM and the facilities for the purpose of sharing medical education resources and provide interactive, real-time video-conferencing for medical faculty, residents, students, administrators, patients and other personnel.

Clinical Care

NEOUCOM was founded in the spirit of collaboration in an effort to avoid unnecessary duplication of services. As the medical school for three state universities, NEOUCOM is unique among this nation's 124 allopathic medical schools. Rather than developing a hospital system that would compete with private health care providers, NEOUCOM partnered with existing health care facilities in the region. By not operating its own teaching hospital, the medical school is able to focus on what it does best—education, research and community service. The College provides a value-added service to multiple hospitals throughout the region. NEOUCOM's educational consortium includes eight teaching hospitals, two boards of health and nine community hospitals where more than 1,800 volunteer clinical faculty train our students. Charity care provided by the eight Ohio teaching hospitals with which NEOUCOM partners amounts to more than \$260 million each year. NEOUCOM is in the process of working with local elected officials and Portage County's hospital to establish a clinic for the underserved. This clinic will help improve access to health care for all of Portage County's residents and ease the burden of uncompensated care faced by the hospital.

Research

NEOUCOM continues to develop relationships with the private sector, such as with biotechnology companies Chantest and ChanXpress, which bring scientists and technology to NEOUCOM for potential collaborative research which could spawn medical innovations. Moreover, NEOUCOM is leading the way in the development of an NIH-funded Regional Translational Research Center which could catalyze medical innovations. Many of our investigators are nationally known for their groundbreaking research in skeletal biology and bone disease, infectious disease and virology, auditory neuroscience and behavioral systems, clinical outcomes and health policy, and cardiovascular medicine and lipid metabolism. In 2004 NEOUCOM received \$5.9 million in external grants and agreements. Federal grants accounted for \$3.94 million of the total. To date, 18 patents have been issued to NEOUCOM for innovative advancements in the field of biotechnology.

Community Impact

As a community-based medical school, NEOUCOM works with a network of underserved clinics, community service organizations, urban and rural hospitals and boards of health. NEOUCOM's focus on primary care medicine makes for better, well-rounded physicians, regardless of their specialties. The College serves as the hub for the Consortium of Eastern Ohio Master of Public Health program—a collaborative degree program involving five state universities.

NEOUCOM medical students are required to devote time to community service. Many volunteer at free clinics, such as Open M in Akron, while others travel with volunteer clinical faculty to rural and migrant worker health clinics throughout northern Ohio.

NEOUCOM's Economic Impact: Results of a recent statewide study show that NEOUCOM was responsible for generating more than 1,700 jobs and \$2.3 million in total state tax revenue. The economic impact of NEOUCOM equaled \$79 million in 2002. Businesses operating within the state in the wholesale, retail, service and manufacturing sectors benefit from direct expenditures of NEOUCOM and its staff on goods and services.

The number of NEOUCOM alumni who choose to stay in the state and provide health care services also helps to boost the economic impact of the College. These physicians contribute to the economy as taxpayers, employers and purchasers of goods and services.

In November 2005, the Ohio Board of Regents unanimously approved the creation of a doctor of pharmacy program at NEOUCOM. Within eight years of its establishment, this program is projected to have a positive impact of more than \$51.45 million on northeast Ohio's economy and generate 399 jobs; statewide, the impact is projected to be \$58.32 million, generating 528 jobs.

Homeland Defense and National Security

The safety of our nation's water supply may soon be more secure, thanks to research being conducted at NEOUCOM. In 2004 the Department of Homeland Security (DHS) awarded the College a grant of nearly \$800,000 to further its investigation into better ways of detecting fluid-borne microbes.

This grant is being used to fund development of a device that rapidly identifies dangerous microbes, such as bacteria or viruses, located in fluids. The work incorporates microbial detection with liquid crystal signaling to provide an immediate determination of the presence of microbes, such as anthrax or plague, which could be used in germ warfare. Currently, no technology provides real-time microbial detection for our nation's water supply; thus scientists and healthcare providers must wait for eight to 48 hours for results after water samples are collected.

Additionally, NEOUCOM offers a variety of continuing medical education programs on bioterrorism for physicians. NEOUCOM took part in a national bioterrorism outcomes study to evaluate the role, effectiveness and outcomes of CME in educating and informing physicians on issues related to bioterrorism. Also, the College's Office of Geriatric Medicine and Gerontology received a federal grant to provide distance learning opportunities on bioterrorism for health care professionals, law and safety forces, emergency personnel and public health professionals. Streaming videos and other learning tools are posted on a Web site that provides information to help improve a community's ability to meet the health care needs of older adults in the event of a bioterrorist attack or emergency.

III.III - The Ohio State University College of Medicine



The Ohio State University College of Medicine

Mission Statement

As part of one of the most comprehensive health science campuses in the nation, The Ohio State University College of Medicine provides future physicians, medical researchers and educators with outstanding learning opportunities – in the classroom, exam room and the community – and continues to improve health care delivery to Ohio, the Midwest and the nation. The College's spirit of invention in medical education, clinical care and research has received much national recognition, and is one of the reasons why OSU continues to attract some of our country's best students, residents, faculty and staff to Ohio.

Our mission is "To improve people's lives through innovation in research, education, and patient care."

School Demographics

Founded in 1914, the College of Medicine includes 840 medical students, and 520 medical residents and fellows in more than 60 graduate medical education programs. The College's alumni total more than 12,000, with approximately 5,300 in Ohio. OSU medical school alumni can be found taking care of patients in every one of the Buckeye state's 88 counties.

The College is ranked in the Top 25 of all medical schools in the nation for student academic quality (entering class GPA, Medical College Admission Test scores), according to *U.S. News & World Report's* Best Colleges of Medicine 2006 rankings. From 2002-2004, applications to the College rose 28 percent -- more than triple the national average.

Tuition and Indebtedness

An increasing concern and barrier to attracting the best and brightest students to Ohio and into medical education is the escalating cost of pursuing a medical degree. Decreasing traditional sources of funding support, coupled with the need to stay competitive with national benchmark institutions and to maintain the standard advanced technologies demanded by medical education, has forced medical schools to increase tuition, which has added significantly to student debt load. The increased debt burden at graduation naturally limits some students from pursuing lower-paying specialties or practices in underserved communities in Ohio, and may keep talented students from choosing medical careers in the first place.

Entering Class	Tuition (based on 1 st year, 3 quarters)	
	Resident	Non-Resident
2005	23,451	39,480
2004	21,924	47,955
2003	19,305	43,863
2002	17,439	40,608
2001	15,195	37,200

Graduating Class Medical School Debt *(does not include undergraduate debt)*

Graduation Year	Average Debt
2005	\$119,141
2004	\$109,139
2003	\$79,527
2002	\$92,253
2001	\$83,841

Education

Ohio State helped forge the American medical curriculum, and remains a recognized leader today. Understanding that students have different learning styles, Ohio State created the nation's first Independent Study Program in 1970, developed a problem-based learning curricular pathway in 1990, and in 2002, produced a hybrid curriculum that combines the best of the problem-based and lecture-discussion approaches. The College offers two curriculum pathways for mastering the basic sciences: the Integrated and the Independent Study pathways. Choice of curricula allows students to self-select into the method of learning that works best for them, a special option that attracts top students from around the nation.

In a major 2004 report on U.S. medical school's curricula, the Institute of Medicine of the National Academies singled out Ohio State as one of four exemplar curricula in the nation for the teaching of the behavioral and social science components of medicine.

Maintaining a competitive edge and producing excellent physicians for Ohio and beyond means having the resources to adequately invest in medical education innovation. Also, national accreditation groups for medical education have called for increased training in clinical skills, and medical students are now required to pass the U.S. Medical Licensing Clinical Skills Examination as part of their medical licensure process. To respond to these needs, the College made a major investment to create a state-of-the-art Clinical Skills Education and Assessment Center in 2004. The Center simulates actual patient care and gives students hands-on patient interaction and medical procedures training in a safe, controlled environment.

The ultimate goal of the Center – which is being used by allied medical students, medical students, residents, faculty, community EMS personnel and even organ transplant educators -- is to improve community health care quality by standardizing and improving physicians' interactions with patients. The technological advances in the OSU Center have brought educators

from leading U.S. medical centers -like Duke University- to Columbus to witness how the Center helps build the clinical skills of future doctors.

Guiding the students' training are 1,063 full-time faculty members at the College of Medicine. Also, more than 300 community physicians from around Ohio – from Van Wert to Green to Washington to Cuyahoga counties - serve as auxiliary preceptors for our students during their clinical training.

The College received \$1.5 million in NIH training grants in FY 2004, and has embarked on a major campaign to expand private support of medical student scholarships. The College offers several training programs for combining the MD degree with other degrees, including a PhD, MBA, MHA, MPH and JD.

Clinical Care

Faculty in the OSU Physician Practice Plan admit more than 46,000 patients annually and experience some 780,000 outpatient visits and surgeries per year, including more than 90,000 emergency department visits. The range of primary and tertiary care facilities, together with a large and diverse patient population, provides students with extensive patient care exposure. Faculty and health care staff provide more than \$100 million in charity care per year.

Thirteen specialties at the Ohio State University Medical Center are recognized as among the best in the country, according to the latest "America's Best Hospitals" issue of *U.S. News & World Report* magazine.

OSU Medical Center programs recognized in the Top 50 nationally are: cancer (29), digestive disorders (46), geriatrics (31), gynecology (26), heart and heart surgery (39), hormonal (19), kidney disease (28), neurology/neurosurgery (24), orthopedics (28), respiratory (19), rehabilitation (9), urology (32), and ears, nose and throat (18). The "America's Best Hospitals" issue is compiled using data collected annually from more than 6,000 U.S. hospitals. This year, information was collected for 17 medical specialties.

When it opened in 2004, the Ross Heart Hospital placed Ohio State among a small group of academic medical centers that have melded cardiovascular research with clinical care to form integrated heart care programs tailored to the needs of the patient. Ohio State students train in one of the most technologically advanced systems in the world, and the American Hospital Association recognized this fact by honoring the medical center with its "Most Wired Innovator Award."

For several consecutive years, the OSU Medical Center has also been named one of the nation's top health care networks for its use of communications technologies – including computerized patient records and electronic Physician Order Entry – which cut down on medical errors and better serve patients.

Clinical discovery and leadership from Ohio State faculty

- Ohio State is a world leader in the development and use of robotics in surgery. Ohio State was the first U.S. medical center to perform a complete heart bypass using minimally invasive robotics technology. Minimally invasive surgery shortens patient recovery time and minimizes lost productivity.
- In 2003, an Ohio State faculty member became the first physician in the United States to implant a digital pacemaker in a patient.
- Ohio State pioneered the diagnosis and treatment of heart failure. The drug, Dobutamine, researched and developed by Carl Leier, MD, helps heart failure and heart transplant patients throughout the world.

Research

Ohio State's College of Medicine continues to recruit and retain top faculty and staff who are dedicated to the mission of translating scientific discoveries into effective medical treatments. OSU researchers now hold more than \$156 million in external research funding, all of it focused on finding the causes of disease and injury, the treatments and – wherever possible – the ways to prevent. External research funding to the College has doubled in the past four years.

The **National Institutes of Health** rank several Ohio State academic departments among the top nationally for NIH research funds awarded. These include: the OSU Department of Neurosciences - ranked 9th nationally, the Department of Microbiology/Immunology/Virology - ranked 20th, the Department of Surgery - ranked 28th, and the Department of Obstetrics and Gynecology - ranked 30th.

Other research advancements at Ohio State:

The new 14-story, 400,000-square-foot Biomedical Research Tower (BRT) at OSU, will be the largest research facility on the OSU campus, housing over 180,000 square feet of lab space and nearly doubling the amount of biomedical research space on campus. Research laboratories will be dedicated to experimental therapeutics (cancer), heart and lung disease, neurobiology of disease, imaging, microbial pathogenesis, pharmacogenomics, bioinformatics, diabetes, structural biology and tissue engineering. It will also provide a centralized home for educating students.

Due to be completed in December 2006, the BRT is expected to generate an estimated \$3.7 billion in economic impact and 17,000 new jobs during its first 10 years of operation. Research conducted in the building is projected to attract significant external financial support and generate patent and licensing opportunities. **The \$151 million facility was funded without State of Ohio or OSU monies.**

In addition to attracting external research dollars from state and federal sources, Ohio State is aggressively pursuing **corporate and institutional partnerships** to create opportunities in education, research, and patient care innovation, as well as produce the revenue that will accelerate the pace of new medical treatments and discoveries. Some of those partners include: Battelle Memorial Institute, Intuitive Surgical, Inc., Philips Medical Systems, Siemens, Stryker Corporation, and the United States Surgical Corporation.

The Technology Commercialization & Partnerships initiative was established in 2003 at the medical center to provide the educational infrastructure needed to spur OSU researcher's inventions and innovations into the marketplace. Together with the newly formed **UMC Partners group**, Ohio State faculty have created several start-up companies which are poised to propel economic growth and impact community health.

Research discovery and leadership from Ohio State faculty

- Discovery of hairy cell leukemia, and development of deoxycoformycin to cure hairy cell leukemia.
- Developed methods for assessing the recovery of nervous system function following spinal cord contusion and developed models to test potential spinal cord injury treatments, including nerve cell transplantation.
- Ohio State is one of only 39 elite institutions in the nation to receive the National Cancer Institute's prestigious Comprehensive Cancer Center designation. The OSU-CCC includes more than 200 researchers in multiple fields working to find answers to better understand cancer diagnosis, treatment and prevention.
- OSU maintains the second largest database on breast cancer outcomes in the nation.

Community Impact

Ohio State medical students see a great range of community health conditions -- the common and the rare -- in rural family practice clinics in Logan County and robotic surgical suites in Columbus. They also develop a deep "service-learning" attitude through experiences with community health organizations and free clinics, and expand their education to the global classroom by immersing themselves in international health programs in developing countries.

Examples of programs making a difference in Ohio communities and beyond:

The Community Project requires that all 210 first-year students work in a community agency in Central Ohio for a minimum of 12 hours. The objective is to increase understanding of the community agencies that promote the health and well-being of their patients, and introduce students to the scope of social and health care issues. Sites include city and state agencies, home health agencies, charitable and religious organizations, hospices, mental health agencies, and psychiatric and addiction treatment centers.

This service focus in the curriculum pays off. The past two years, Ohio State medical students provided more community service hours to the Central Ohio community than any other OSU students, and were recognized with the University's top awards for service and outreach.

M.D. Camp is an intensive, three-week summer day camp for 11th and 12th grade students in Ohio Public Schools who come from backgrounds that are underrepresented in medicine (Black, Mexican, Puerto Rican, American Indian and Appalachian) and who have an interest in pursuing medical or science careers. OSU College of Medicine faculty and medical students provide instruction in the sciences, medical specialties and current health issues. Workshops include Suturing, CPR, First Aid, Dissection and Physical Exam. There is also a Graduation/White Coat Ceremony, Service Project and Research Project.

Free Clinics for Asians, Latinos and other underserved community members are held several times per month at OSU's Rardin Family Practice Center north of campus. Medical students, under the watchful eye of faculty physicians, hone their communication, language, clinical and cultural awareness skills at the clinics. The student-run Columbus Free Clinic has been honored with the Community Service Award and funding from the Association of American Medical Colleges.

The Ohio State University Rural Program is one of just 30 rural graduate medical education programs across the country, and the first of its kind in Ohio. Since June 2000, the program has graduated four physicians, three of whom are serving in rural communities.

The Nisonger Center at the College of Medicine, founded in 1966, is designated by the U.S. Administration of Developmental Disabilities as one of 60 "University Centers for Excellence in Developmental Disabilities" in the United States. Among its primary focus areas, the Nisonger Center conducts interdisciplinary rural developmental and behavioral diagnostic clinics in Appalachian counties in Ohio. The Center received the National Ambulatory Pediatric Association Health Care Delivery Award from the Pediatric Academic Societies, for its work with the clinics in underserved areas of Appalachia.

Ohio State and University of Michigan researchers have joined forces to explore the reasons for the high cervical cancer incidence and mortality in Appalachia. They are working with health care personnel in a 17-county region in Appalachian Ohio to identify environmental, health and lifestyle factors that contribute to cervical cancer.

Homeland Defense and National Security

The U.S. Department of Defense has granted \$2 million for faculty at the School of Allied Medical Professions in Ohio State's College of Medicine and Indiana University to study the rehabilitation needs of severely wounded military personnel. Faculty are examining the many issues, both physical and psychological, faced by soldiers returning from war with traumatic injuries that require amputation of major limbs. The research draws on Ohio State's long-standing strength in traumatic brain injury rehabilitation research. The goal of the research will be to optimize rehabilitation, independence and quality of life for veterans who suffer the loss of a limb in combat.

The Center for Microbial Interface Biology (CMIB) at Ohio State's College of Medicine and the University of Minnesota are leading a multi-university national program to plan a Regional Center of Excellence for Biodefense. The work – supported by a \$1 million grant from the National Institute of Allergic and Infectious Diseases in the National Institutes of Health - will increase the country's resources for discovering new diagnostic tests, therapies and vaccines for infectious agents in case of an attack.

III.IV - Ohio University College of Medicine



Ohio University College of Medicine

Mission Statement

The mission of OU-COM is to educate students to become physicians practicing osteopathic medicine in service to the region, the state, and beyond. Integral to that mission, OU-COM commits itself to: 1) generating and disseminating new knowledge and understanding through research and scholarly activities; 2) serving the health needs of people within the Appalachian region; 3) embracing diversity and public service, with integrity and respect for those served; and 4) emphasizing primary care and improving the well-being of underserved populations.

School Demographics

The College of Osteopathic Medicine admits 100-115 students annually. Twenty-two classes (1,844 students) have graduated from the College and 421 students are currently enrolled. Fifty-six (56%) percent of graduates are in primary care in Ohio and 18 percent are in communities of less than 10,000 people, many of which are in underserved areas.

The College's pre-doctoral curriculum includes two years of study at the Athens campus and two years of clinical training coordinated through a consortium - Centers of Osteopathic Research and Education (CORE). The CORE system (13 teaching sites) includes hospitals in all quadrants of the state, with assistant deans (physicians) and administrative staff at each CORE site who steward the needs of third and fourth year medical students during their clinical rotations. Over 1000 volunteer faculty members in affiliated teaching hospitals, ambulatory clinics and private practice offices provide academic training for physicians. The Athens campus has 106 total faculty members in the clinical, basic sciences, and social medicine; additional science faculty members are supported by the OU College of Arts and Sciences.

OU-COM and the CORE hospitals are partners in over thirty-five various specialty types of internships and residency programs in Ohio. OU-COM co-sponsors over 85 separate osteopathic graduate medical education (internship and residency) programs. In addition to its student education programs, there are currently 495 trainees in these internship and residency GME programs. The CORE also has partners with 3 out-of-state Colleges of Osteopathic Medicine (COM). These COMs send an average of 110 medical students to CORE training hospitals to fulfill their 3rd and 4th year clinical requirements. This relationship brings additional revenue into the CORE system and out-of-state student spending in Ohio as well as the opportunity to retain these students in Ohio intern and residency programs.

Tuition and Indebtedness

With the continued reductions in state funding, OU-COM has implemented many cost saving strategies in order to keep tuition costs as low as possible. However, it has been necessary to pass on significant increases in tuition to the students in order to maintain quality teaching programs. During the period of FY2001 to FY2005, in-state tuition and fees increased by 56% (\$13,824 to \$21,594).

Student indebtedness averages (total medical school debt load) for OU-COM students are rising. Comparisons of debt load at OUCOM from FY2001 to FY2005 indicate a 25% increase in the average student total debt for medical school (from \$106,107 to \$132,916). These figures do NOT include any undergraduate debt a student has incurred (according to NASFAA Journal of Student Financial Aid, 2005, the average undergraduate debt is \$18,900). During the period of FY2001-FY2005, 74% of OU-COM students' medical school debt fell into the range of \$100,000 to \$175,000.

It is important to note the future effects of these continuing rising costs. It is projected that 20%-25% of our incoming Class of 2009 will reach the Stafford Loan aggregate limit of \$189,125 before completing their medical education.

Graduation Year	Average Debt
2001	\$106,108
2002	\$114,607
2003	\$109,434
2004	\$124,795
2005	\$132,916
2006	TBD

Fiscal Year	Tuition and Fees
FY 2000-01	\$13,824
FY 2001-02	\$15,057
FY 2002-03	\$17,868
FY 2003-04	\$19,473
FY 2004-05	\$21,594
FY 2005-06	\$22,845

Education

Students enrolled in OU-COM study in one of two tracks – the Patient-Centered Continuum (PCC) curriculum or the Clinical Presentation Continuum (CPC) curriculum. Both curricula are based on principles of adult learning and view medical education as an organized, clinically integrated building process that extends from the first day of medical school through residency training and beyond.

Students in both curricula begin interacting with real patients in the first weeks of their medical education. This early clinical exposure requires additional clinical faculty time while seeing patients and is quite time intensive for interaction with neophyte students.

Standardized patient encounters are simulations during all four years of medical school which prepare students for newly constructed licensure exams using this method. In addition, this technique is used to address several of the new accreditation standards which mandate evaluation of global achievement against 7 physician competencies.

During 2004-2005, 28 grants from external funding sources totaling \$7,026,357 were active. These grants generated a total of \$2,538,947 in FY04/05, with 78% of these dollars provided from federal, 19% from private, and 3% from state and local sources.

In the fall of 2005, OU-COM began implementing a three-year grant (\$708,883) from the Health Resources and Services Administration (HRSA) designed to integrate the concepts of patient safety, evidence-based medicine, and cultural competence into all four years of the curriculum. In 2003 and again in 2004, HRSA provided funding to establish (total of \$727,290) the Appalachian Rural Health Institute (ARHI). ARHI provided the structure to then establish the Center for Diabetes and Cardiovascular Research.

Clinical Care

The OU-COM physician practice plan (private corporation), University Medical Associates, Inc., provided unreimbursed care totaling approximately \$3.2 million in 2004-2005. OU-COM's Community Service Programs provide approximately \$300,000 annually of charity care or reduced cost care to 21 counties in Southeast Ohio. As estimated in the 2002 Economic Impact Study by Tripp Umbach Healthcare Consulting Inc., total uncompensated care provided by OU-COM's training hospitals throughout Ohio equaled over \$100 million in 2002 with Athen's O'Bleness Memorial Hospital providing \$10 million in free care.

Research

During 2004-2005, there were 29 ongoing extramural research grants totaling \$8,874,500. These grants earned \$1,961,971 in 04/05 (12 were new external research grants) with 21% of these dollars provided by federal sources and 79% by private sources. This also includes 5 pharmaceutical company clinical research studies which brought in \$26,353 of income (studies included hypertension prevention, hypertension, cardiovascular, dyslipidemia, and diabetes).

OU-COM faculty member John Kopchick, Ph.D., is the inventor of Somavert, the first effective drug on the market for treating the disease Acromegaly. Acromegaly is a disease in which too much growth hormone is produced leading to gigantism and shortened lives. Somavert has made a major difference in the lives of people with this disease. Also, the Diabetes Center researchers have a number of drugs under development that promise to fundamentally change diabetes treatment.

In 2005 the College of Osteopathic Medicine received a grant from a private foundation for \$10 million towards a \$30 million integrated research facility on the Ohio University campus. In addition, the College received a \$1.4 million grant in 05/06 to support the CORE research initiative, musculoskeletal research, and the Diabetes Center.

Community Impact

In addition to its teaching mission, OU-COM provides high-quality medical care, service and education to a service area that extends throughout Southeastern Ohio. During 2004-2005, 25 grants from external funding sources totaling \$1,540,580 were active. These grants generated a total of \$843,207 in FY04/05, with 10% of these dollars provided from federal, 24% from private, and 66% from state and local sources.

Area Health Education Center (AHEC)--provides services in thirteen Southeast Ohio counties.

- Continuing education programs for physicians, nurses, and allied health professionals
- Clinical training for medical students that occurs in primary care settings.
- Community health education projects, such as Women's Health Month, Teen Suicide Prevention Program, School Visit Program, American Heart Association Training Center for Appalachian emergency providers and service learning projects for year 1 & 2 medical students.
- Health careers promotion, mentorship and medical career choice resources.

Community Service Programs [provided by OU-COM]

Community Service Programs (CSP) grew out of Childhood Immunization Program (CHIP) that began in 1994. The multi-county CHIP program, which travels to isolated rural areas in a mobile health van, was designed to reach children in 21 southeast Ohio counties. The program has grown to now provide community health services at no or low cost for children and adults using two mobile health vans or community sites.

- CHIP increases immunization rates in rural and underserved communities; serves 21 counties providing over 38,000 immunizations for over 25,000 children ages 0-18 in (since 1994); provides adult immunizations for flu and Hepatitis B.
- Healthy Adult Project (HAP) serves adults in 10 Southeastern Ohio counties (since May 2001) to provide breast and cervical screenings and education for over 275 women and blood pressure, glucose and cholesterol screenings and referrals for over 1,300 adults.
- Well Child Programs provides services to over 370 children and pregnant women in Athens County (since July 2000) with health education, assessments, financial support and referrals for children and pregnant women who qualify.
- AmeriCorps provides health education programs, screenings and access to healthcare encounters; over 42,000 children and families in Athens County served (since August 2000)
- Physical Clinics provide screenings for kindergarten, sports programs, school age physicals and adult school employees for the Athens area.
- Asthma Clinic (1999-2001) provided monthly clinic to provide pediatric follow up and education to parents and children with chronic asthma.
- Pediatric Behavioral Program provides assessments for Attention Deficit and other behavioral and mental disorders.
- Baby Steps Health Program provides support, education, and home visitation for high risk patients. In addition, education about pregnancy, delivery, post-partum and baby care and assistance with signing up for WIC and Health Start is provided.
- An OU-COM sponsored and staffed Community Free Health Clinic is provided to increase access to medical care for rural Ohio.

Homeland Defense and National Security

Undergraduate medical curriculum:

From 10/1/2003 through 9/30/2005, OU-COM participated in a *Bioterrorism Training and Curriculum Development Program* funded by the US Health Resources and Services Administration with the Ohio State University School of Medicine and other medical, nursing, and allied health schools in the state of Ohio.

Graduate Medical Curriculum—in OU-COM/CORE Sponsored programs statewide:

The four OUCOM/CORE Emergency Medicine residency programs (with sites in 7 major areas of the state) have provided centralized training for all residents and program directors in hazardous substance management and mass casualty management. Several “Hazmat” and Bioterrorism Disaster Life Support (BDLS) courses have been crafted and delivered over the past two years including bioterrorism preparedness protocols, transport training and first responder management of natural disaster and terrorism victims. All seven program and site directors and over 90 resident physicians completed this training in 2005. Additional programs are planned as part of an ongoing curricular plan.

III.V - University of Cincinnati College of Medicine



University of Cincinnati College of Medicine

Mission Statement

The University of Cincinnati Academic Health Center is committed to developing new knowledge in our research laboratories and clinical settings. We strive to transform and brighten the future for those afflicted with disease and disability by not only providing state-of-the-art care for patients, but also by developing new techniques and novel treatments. Our health professional students thrive in an environment where critical thought and learning are nurtured. We prepare our students for the health care challenges of tomorrow.

The mission of the University of Cincinnati College of Medicine is to improve the health of the public by educating physicians and scientists and by producing new knowledge.

The University of Cincinnati College of Medicine strives to graduate physicians with the knowledge, skills and professional behaviors necessary to advance to the next stage of their professional careers and to excel in their chosen areas of medicine.

School Demographics

The College of Medicine matriculates 165 medical students each year for a total enrollment of 660. The Physician Scientist Training Program (combined MD/PhD program), with a total complement of 38, receives NIH funding through the Medical Scientist Training Program grant process. A joint degree MD/MBA program is offered in conjunction with the College of Business Administration. The Colleges of Medicine and Law are exploring development of a combined MD/JD degree program.

The College of Medicine in conjunction with University Hospital sponsors 50 ACGME-accredited residency training programs and several additional institutionally approved specialty training programs with 543 resident physicians and fellows. The Department of Pediatrics, in conjunction with Cincinnati Children's Hospital Medical Center, sponsors 27 ACGME-accredited programs and several institutional fellowships with 297 trainees. The Department of Family Medicine works with Clinton Memorial Hospital in operating a rural Family Medicine residency program. Additional community hospital-affiliated training programs and the Cincinnati VA Medical Center also serve as sites for medical student education.

Tuition and Indebtedness

Consistent with national and statewide trends, the indebtedness of UC's medical students continues to rise.

Graduation Year	Average Debt
2001	\$ 99,888
2002	\$106,378
2003	\$ 95,808
2004	\$112,755
2005	\$127,213

Fiscal Year	Tuition and Fees
FY 2001-02	\$15,547
FY 2002-03	\$17,709
FY 2003-04	\$19,662
FY 2004-05	\$21,831
FY 2005-06	\$23,580

Education

The College of Medicine has established the following goals and competencies for the medical student education program: to provide a core curriculum that contains the essential information that enables each student to learn the scientific basis of medicine and the application of that knowledge to the practice of medicine; to provide a core curriculum that integrates the clinical applications of basic science concepts throughout the four year curriculum, as well as introduces students to the interviewing and physical examination skills integral to the practice of medicine; to cultivate and nurture a learning environment that fosters a humanistic and compassionate, as well as an ethical, respectful, and culturally competent approach to patient care and to working with other health care providers; to institute a teaching approach that fosters student enthusiasm, critical thinking and commitment to lifelong learning.

These goals are achieved through the use of an integrated curricular approach and a variety of teaching modalities such as lab, small group discussion, team-based learning, and lectures. UC prides itself on its clinical education program. This excellence in clinical training is highly dependent on intense student-faculty contact on the required and elective clinical rotations.

The College of Medicine counts 706 clinical faculty members among its 1,371 to the full-time equivalents along with 647 volunteer faculty members.

The Clinical Skills Lab with the use of simulation devices for medical education has been integrated into the major clerkships. The Center for Competency Development and Assessment, with a well-established standardized patient program, provides training and assessment of communication skills and professionalism. The Instructional Technology Center has developed interactive and online learning modules and has received grant support for several of these endeavors.

Clinical Care

UCPhysicians, the faculty practice plan, is an organization consisting of over 600 clinical faculty members of the University of Cincinnati College of Medicine representing most major specialties and subspecialties. The Vision of UCPhysicians is to achieve unparalleled excellence in the delivery of clinical care by the faculty of our College of Medicine. The Mission is to support the community and beyond through healing, teaching and research. UCPhysicians espouse the following values: Excellence in clinical practice and teaching; Health education of the community; A cost-effective approach to clinical care; Creative thinking and problem solving; Discovery of new knowledge; Respect for our patients; Compassion for our patients and their families; Collegiality and collaborative attitude among ourselves.

In their faculty roles, the members of UCPhysicians provide supervision of the clinical education of resident physicians and medical students. The faculty practice group provided \$6.7 million of uncompensated care in FY04 and \$7.7 million in FY05. Through its collaboration with University Hospital, UCPhysicians and the residency training programs provide a safety net for the uninsured and underinsured in our community.

Patient visits are projected to exceed 110,000 at the various UCPhysicians sites, with close to half of that occurring at the recently developed campus in Butler County. UCPhysicians has close to 200 non-physician employees.

Research

The University of Cincinnati, ranked among the top 25 public research universities in the United States, saw its research enterprise rise to more than \$330 million in 2005. The UC Academic Health Center and its affiliates were responsible for bringing in \$263 million (79 percent) of the research dollar total. **The College of Medicine ranks 19th** among public medical schools and 42nd among all medical schools for National Institute of Health funding.

Genome Research Institute:

UC took a major step toward becoming a world-wide leader in genetic research when it created the **Genome Research Institute (GRI)** in 2003. This 360,000 square foot facility combines the biological expertise of UC scientists with the chemistry powers of the pharmaceutical industry. Researchers at the GRI focus on the primary mechanisms of disease at the genetic, molecular and cellular level. Researchers have received attention for studies on obesity and metabolic disorders, cardiovascular disease and cancer.

State-of-the-art core facilities and high-profile partnerships make the GRI an attractive site for biotech firms to locate. Procter & Gamble Pharmaceuticals is just one of many GRI partners. Others include Wright State University, the Air Force Research Laboratory, Cincinnati Children's Hospital Medical Center, Meridian Bioscience, Girindus America and Acero. In addition, close to 400 new jobs have been created at GRI.

Vontz Center for Molecular Studies

Not only is the design of this research building stunning, but the work taking place in its laboratories is transforming fundamental biomedical understanding. The building is named in honor of Albert W. Vontz, Jr., Cincinnati businessman and UC alumnus. Mr. Vontz died in 2002, leaving behind a lasting legacy for medical research inside a work of art. Researchers at the Vontz Center focus on the discovery and understanding of the underlying genetic and molecular mechanisms that contribute to the development and progression of diseases such as cancer, brain and nervous system disorders, diabetes and obesity. The Vontz Center is home to many core facilities for researchers at the UC Medical Center.

Grant Awards:

UC investigators continue their outstanding work in basic science and clinical areas. Among the recent major grant awards are:

- \$19.8M to Cardiology for the genetic study of congestive heart failure
- \$19M from the NIH to Neurology to coordinate a five-year international multi-center study for alternative treatments for acute stroke
- \$8M to Environmental Health from NIEHS to operate a hazardous waste worker training program through 2010
- \$7M from NIOSH to Environmental Health to operate its Education & Research Center (ERC) through 2010. UC is one of only 16 NIOSH-funded ERC programs in the U.S.
- \$2M to Ob/Gyn from NIH ORWH (Office of Research on Women's Health) which allows UC to establish a program called Building Interdisciplinary Careers in Women's Health (BIRCWH)

The University of Cincinnati also has been successful in obtaining philanthropic support for many of its activities. Major recent gifts include:

- \$30M from the Lindner family to build a behavioral health center in Mason, Ohio for research and treatment of mental illnesses
- \$12M from 2 donations to the Colleges of Pharmacy & Nursing to be used for education and research
- \$2M donation for pediatric ophthalmology education and research

College of Medicine faculty continue to be recognized for their achievements. Perhaps most notably, Elwood Jensen, Ph.D., was the recipient of the prestigious Lasker Award for his research in treatment of breast cancer.

Community Impact

The University of Cincinnati's College of Medicine is committed to improving the health of its community. Listed below are some unique examples of the commitment of the College of Medicine's faculty and students to the health and quality of life of the Greater Cincinnati community

- UC Med Mentors. Currently, the College of Medicine has 90 medical students who serve as mentors to students in the Cincinnati Public Schools. The mission of this program is to involve medical students in the improvement of elementary students' academic and intellectual growth and computer literacy, while enriching the lives of both the mentor and mentee. In addition, the program is building relationships between the community and the college.
- Urban Health Project. The Urban Health Project is another College of Medicine student-run organization that offers 8-week summer internships to medical students who have finished their first year of medical school. Students work with clinics, shelters and social service agencies in the Greater Cincinnati area,

providing health-related public service to the community and helping future physicians gain a better understanding of the socioeconomic and environmental factors that influence health.

- UC Cancer Center. Through research grants, the UC Cancer Center has several studies underway to provide early detection of cancer. The center currently provides free prostate cancer screening through its mobile screening program and as of September, over 400 men have been screened. As part of the National Breast and Cervical Cancer Project, whose nationwide goal is to provide free pap smears and mammograms to low income women, the UC Cancer program has provided 6,000 free pap screens since 2002.
- Seasonal Worker Clinic. Many of the hundreds of migrant groomers and stable hands employed at Cincinnati's River Downs racetrack are so desperate for medical care they ask track veterinarians for medical advice. Faculty in the Department of Family Medicine, through the Seasonal Worker Clinic, provides health care for these indigent and often homeless workers. Initially the clinic treated chronic and acute health problems, work-related injuries, and substance abuse, but it now includes preventive care, patient education, HIV screening, free medications, and referrals to specialists when needed. The physicians, assisted by a Spanish-language interpreter, also link their patients with community health care resources. The clinic provides a unique training opportunity for the UC medical students who work there.
- Mental Health Treatment for Homeless Teens. The College of Medicine provides mental health care to approximately 100 teenagers per year staying with their parents at Interfaith Hospitality Network, a local homeless family shelter. The program is unique in that it takes place on-site, in an environment to which the teens are accustomed, has no waiting list, provides free medication (when needed) for those not yet receiving medical benefits, and offers supportive therapy in addition to treatment of mental illness. The Andrew Jergens Foundation has granted \$20,000 to Cincinnati's Interfaith Hospitality Network and UC's Department of Family Medicine.
- Neuro-developmental Assessments and Referrals for Homeless Infants and Toddlers. In a pilot project, the College of Medicine found that 50% of children ages 0-3 living in Cincinnati homeless shelters had neuro-developmental delays or behavioral disorders. Without proper treatment, these children have short- and long-term difficulties in life. This program provides a full multidisciplinary developmental assessment of all infants ages 0-3 staying with their parents at a local family shelter, the Interfaith Hospitality Network (IHN). Those identified as having neuro-developmental delays or severe behavioral issues are referred to government programs that provide treatment at no cost to the family. Follow-up of these families after they leave the shelter is conducted to ensure that the parents continue with the treatment. Project staff also work with the parents of children ages 3-5 to facilitate their receipt of services provided by Head Start.

Homeland Defense and National Security

As a level one trauma center, the College of Medicine's Department of Emergency Medicine is the primary site for disaster training of first responders and health care workers. The department is involved in paramedic training and mass casualty drills with community EMT/rescue squads. Several members of the faculty are involved with the MMRS (Metropolitan Medical Response System), the Hamilton County Disaster Response Committee, the Hospital Council Disaster Response Committee, and in teaching medical students, residents, EMT's, paramedics and other first responders. Dr. Edward Otten is chief medical officer for the KY1 DMAT team, medical officer for Task Force 1 (the Ohio USAR response team) and past chairman of the NDMS medical committee.

The College of Medicine's Department of Environmental Health is also responsible for developing and evaluating training and education programs for hazardous waste workers and emergency responders in nine states: Ohio, Illinois, Indiana, Kentucky, Michigan, Tennessee, Wisconsin, Minnesota and North Dakota. The department also has a respirator-fitting program.

The UC Office of Geriatric Medicine has developed a specialized education program that medical students use to help older people prepare for an emergency. Thirteen medical students have received training in "Bioterrorism and Emergency Preparedness for Older Persons." These students hold presentations at Greater Cincinnati area senior centers. While there are numerous programs available to the general public, there is minimal focus on older persons who have special needs as the result of functional disability. They assist people to complete a personalized form that identifies contact information, community resources and neighborhood resources. The students give information on "How to Shelter in Place" and prepare a safe room until help arrives. Tips are given on how to assemble equipment that may be needed to support special needs. The students also give information on how to prepare for care of pets during an emergency. The students discuss the need to practice and maintain the disaster preparedness plan.

The College of Medicine's Department of Surgery provides training for military personnel who must remain skilled in the care of injured and critically ill patients. One of only five sites in the country, the Cincinnati C-STARS program has been identified as the training platform for all of the United States Air Force Critical Care Air Transport Teams. In the last year there has been a significant increase in C-STARS students, with 96 military medics attending one of the monthly programs. Many of these students have been deployed in support of Operation Iraqi Freedom or Operation Enduring Freedom.

The college's Center for Surgical Innovation has been awarded several federal grants from the Department of Defense to further study how telesurgery can aid the US Army in providing medical care on the battlefield. This will be a collaborative grant with the US Army's Telemedicine and Advanced Technology Research Center.

III.VI - Wright State University School of Medicine

WRIGHT STATE UNIVERSITY
School of Medicine

Wright State University Boonshoft School of Medicine

Mission Statement

Established in 1974, the Wright State University Boonshoft School of Medicine is an example of a cost-effective, community-based model of medical education. The Boonshoft School of Medicine partners with area hospitals, health care organizations, and government agencies to provide the highest quality of patient care, conduct research, and train tomorrow's physicians. Many of the school's programs have received national recognition, and the school has received the prestigious Outstanding Community Service Award from the Association of American Medical Colleges. Our official mission statement is "To educate culturally diverse students to become excellent physicians, by focusing on generalist training that is integrated, supported, and strengthened by specialists and researchers, all of whom value patient-focused care, community service, and research, and have passion for improving health in their communities."

School Demographics

For most of the school's history, each entering class consisted of 90 students. In 2005, our class size was increased to 100 students. The school also has dual-degree programs that combine the M.D. degree with an M.B.A., an M.P.H., or a Ph.D. In addition to our current count of 387 medical students, we have 346 resident physicians and fellows in 17 Wright State sponsored residency programs and five fellowship programs as well as 54 in three affiliated residency programs. Through collaborative affiliations, both students and residents rotate through community teaching hospitals, the Dayton VA Medical Center, and the Wright-Patterson Air Force Base (WPAFB) Medical Center. Advanced technology provides cost-effective oversight for Medicare reimbursement.

Tuition and Indebtedness

In the last five years, the indebtedness of Wright State's medical students has risen in response to tuition increases.

Graduation Year	Average Debt
2001	\$113,420
2002	\$108,380
2003	\$122,339
2004	\$123,307
2005	\$122,652

Fiscal Year	Tuition and Fees
FY 2001-02	\$12,747
FY 2002-03	\$15,132
FY 2003-04	\$17,532
FY 2004-05	\$19,794
FY 2005-06	\$22,170

Education

Medical education at the Boonshoft School of Medicine is an interdisciplinary, systems-based curriculum with integration of the basic and clinical sciences all four years. The school recently incorporated team-based learning, a non-competitive and cooperative

educational strategy, through a grant from the Fund for the Improvement of Postsecondary Education (FIPSE). The school has piloted team-based learning for medical education and recently sponsored a national conference for educators. Team-based learning is an educational approach that enhances student problem-solving skills, ensures that students are prepared and on time when they come to class, and promotes learning to work as a team. Technology advances include web-based and computer-based learning, and faculty have received federal grant support to develop educational software programs used nationally. The curriculum emphasizes early clinical skill development starting the first week of classes. A large program using standardized patients helps students hone clinical and communication skills, better preparing them for compassionate patient care. There are 342 fully affiliated faculty members at the school. Also, more than 1,200 community physicians serve as mentors and preceptors in a voluntary capacity for our students.

Clinical Care

The faculty practice plan, Wright State Physicians, is the largest multi-specialty group in the Greater Dayton area. Faculty physicians in a wide range of medical specialties provide resident supervision in teaching hospitals throughout the region, including two premier federal institutions and a children's hospital. As in many communities, our resident physicians under faculty supervision provide the safety net for uninsured and underinsured individuals. These physicians provide the vast majority of care to this vulnerable population. The Greater Dayton Area Hospital Association has estimated uncompensated care at \$100 M annually in Montgomery County alone.

Research

Wright State houses several nationally recognized research centers of excellence and employs 282 research faculty and staff. In FY 2005, the medical school garnered 151 external grants and contracts, and its Department of Community Health ranks 17th in the NIH ranking for funding in the area of Public Health and Preventive Medicine.

Highlights of the school's key facilities include: a Biosafety Level 3 Facility, a Chemical Surety Facility (XCSM), a Genomics Core Facility with advanced gene array systems, a Proteomics Analysis Laboratory and Confocal Imaging Core Facility, and a Nuclear Magnetic Resonance Laboratory. More than 52,000 net assignable sq. feet are devoted to the research enterprise, and another 20,000 sq. ft. are under construction.

Examples of our prominent, NIH-funded centers of excellence include:

The Lifespan Health Research Center contains the Fels Longitudinal Study, the world's largest and longest study of human growth and development. Data from this research project, which began in 1929, is used in the WHO pediatric growth charts and fuels several research efforts. The center's major emphases are in growth, maturation and aging, body composition, and risk factors for cardiovascular disease.

The Center for Interventions, Treatment and Addictions Research (CITAR) advances the production, dissemination and utilization of scientific knowledge and professional technology regarding the epidemiology, consequences, prevention and

treatment of substance abuse. It conducts research in HIV and drug use, crack cocaine, disabilities and substance abuse treatment and assessment, club drug use and sex risk behavior, reducing barriers to drug abuse treatments, and rural stimulant use.

Wright State's **Center for Genomics Research (CGR)** provides state-of-the-art technical assistance and facilities for both basic and clinical science projects. CGR is an integral part of a southwest Ohio consortium, Genome Research Infrastructure Partnership, which brings together commercial research centers and academic institutions in an effort to expedite our understanding of the genetic basis of human disease. Other partners include the University of Cincinnati, the Children's Hospital Research Foundation (Cincinnati), Procter & Gamble Pharmaceuticals, Acero Inc., and the Air Force Research Laboratory at Wright-Patterson AFB.

The **Center for Brain Research** promotes interdisciplinary research designed to improve our understanding of neural communication mechanisms in health and disease. The center houses a neuro-imaging suite and extensive resources for image analysis and tissue processing. Collaboration among scientists and clinicians at Wallace-Kettering Neuroscience Institute (WKNI) **Boonshoft Schizophrenia Center** and the medical school are using advanced PET, MRI, and DTI imaging techniques to study the brain circuitry of schizophrenia.

The school of medicine has a long history of working collaboratively with WPAFB. Most recently, a joint research program established the Cell Dynamics Laboratory with the Air Force Research Laboratory to develop engineering and systems control technologies. Another prominent project involves a consortium that studies the basis of toxicity from environmental and chemical interactions for both military and civilian populations, begun after a \$7.2 M DoD research grant to study Gulf War Syndrome. Partners include Wright State scientists and clinicians, the Tri-Services Toxicology Unit at WPAFB, and the Dayton VA Medical Center.

Community Impact

The Boonshoft School of Medicine is deeply integrated into its community. Students work in service learning placements, and the curriculum engages faculty and students in active community projects, such as the annual free school physicals for kindergartners. Examples of our prominent programs include:

Reach Out of Montgomery County is a collaboration founded with community partners, the Montgomery County Medical Society and the Combined Health District. The program uses volunteer physicians, medical students, and other professionals to provide free health care throughout the community.

The **Horizons in Medicine Program** is designed to give underrepresented Dayton-area students a sense of the career possibilities in health care and to show them the kind of serious preparation needed to enter such careers. Ninety-five percent of the teens who attend enter college, and 14 percent have entered or completed medical school.

The Center for Healthy Communities is actively involved in spearheading regional public health initiatives, addressing community concerns in the areas of kinship care, coordination of social services, and community health advocacy. Through this center, Community Health Advocates are trained to help their neighbors gain access to health care, social services, and support and the advocates help identify community needs and gaps in services.

Substance Abuse Resources and Disabilities Issues (SARDI) Program improves the quality of life for persons with disabilities, including those who are concurrently affected by substance abuse. The program is a national Rehabilitation Research and Training Center and partners with the community in several ways, including addressing employment issues and a mobile van. Other projects include monitoring teen drug use for the local community and drug trends throughout the state, as well as a national model that collaborates with the criminal justice system. This model, the **Weekend Intervention Program**, has had more than 40,000 participants since its inception 25 years ago.

Student to Student is an innovative health education program for K-12 students run by medical students. They have designed age appropriate presentations on human anatomy, the dangers of smoking and substance abuse, and other topics, which they present, in classroom across the Great Dayton area.

Homeland Defense and National Security

Wright State's Department of Emergency Medicine leads a coalition of partners that include WPAFB and the Dayton VA Medical Center in homeland security efforts and training. Also, physicians from the department collaborate with the base in FEMA deployment and serve as medical directors and trainers for Ohio Task Force One. The department is also a certified regional trainer for Basic and Advanced Disaster Life Support courses. The Homeland Emergency Learning and Preparedness (HELP) Center in the Department of Emergency Medicine offers disaster preparedness training to emergency responders, including law enforcement agencies, fire departments, hazardous materials technicians, bomb squads, public health services, emergency medical service personnel, or other emergency management personnel. Research is also underway to develop rapid and highly selective molecular tests to support early detection and diagnosis of certain viruses that may be used as weapons. This work will be conducted in our Biosafety Level 3 Facility. Disaster preparedness has also been incorporated into our curriculum, and a track on emergency preparedness is now offered for the Master in Public Health degree program.

**Appendix IV - Charge to New Consultation to Study
Physician Supply and Demand**

Charge
to
Consultation to Study Physician Supply and Demand
September 6, 2006

Problem: In recent months, several reports have predicted that there will be a physician shortage in the United States in the next 10 – 15 years. The reasons for the shortage include the retirement of baby boom physicians, an aging population, rising practice expenses, and an increase in the number of women physicians who want a more flexible schedule to meet the demands of family life. Estimates of the shortage range between 85,000 and 200,000 doctors by the year 2020 with the number of new doctors needing to be trained each year ranging from 3,000 to 10,000.

To what extent is the physician shortage issue an issue for Ohio?

If a shortage will occur in Ohio, what should Ohio do to respond?

These and related issues were raised in the Higher Education Funding Study Council in FY 2006, and the Council recommended that a study be conducted to better assess these issues and make recommendations. An extract of the Study Council's recommendations is attached to this document.

Physician Supply and Demand Consultation: The Board of Regents proposes to convene a group of policymakers, medical school educators, hospital administrators, physicians and other interested parties to study the issue of an impending physician shortage. The group would meet from August until December, 2006 to consider the following issues:

1. Are enough physicians of the right type being trained in Ohio?
2. Are enough physicians of the right type staying in Ohio?
3. Are enough physicians of the right type practicing in underserved areas of the state?
4. Are enough physicians being trained to care for Ohio's aging population?
5. What can be done to train and retain the "right" number of doctors in Ohio?
6. What can be done to improve the health and healthcare of all Ohioans and their communities?
7. To what extent can other health professionals help alleviate an impending shortage of physicians?
8. How does the physician shortage tie into the nursing shortage and how can parallel strategies be developed to address both needs?
9. How can these needs be met in the most cost-effective manner to medical students and the state?

Membership: Membership of the Physician Supply and Demand Consultation would consist of the following members:

- Policymakers (members of the Ohio House of Representatives, Ohio Senate, and county commissioners) – 6 members
- Ohio's public medical schools – 6 members
- Ohio's private medical school – 1 member
- Ohio Department of Health – 1 member
- State Medical Board – 1 member
- State Medical Association – 1 member
- Ohio Osteopathic Association – 1 member
- Ohio Hospital Association – 1 member
- State Nursing Board – 1 member
- Ohio Board of Regents – 2 members

Proposed Action Plan: The Physician Supply and Demand Consultation would meet approximately every six weeks beginning in October. The purpose of the meetings is:

- to define the questions about physician supply and demand that policymakers and interested parties should be asking;
- to examine data;
- to listen to experts and interested parties; and
- to develop recommendations.

The recommendations would be submitted to the Board of Regents, the next Governor-elect, and members of the General Assembly as they shape budget recommendations for the 2008-09 biennium.

EXTRACT FROM THE FINAL RECOMMENDATIONS OF THE HIGHER
EDUCATION FUNDING STUDY COUNCIL

HEALTHCARE PROFESSIONAL EDUCATION

The Higher Education Funding Council (HEFSC) recognizes that there is an impending shortage of medical services in Ohio and the nation. Medical, postgraduate medical, nursing, pharmacy, and other related educational programs are critical components contributing to the economic development of the state. An adequate supply of physicians, nurses, pharmacists and allied medical personnel is necessary to supply medical care, create medically related employment, attract businesses to Ohio and provide access to high quality medical care to Ohio's citizens.

Additionally, these programs leverage the state's investment to attract external research funding and create biotechnology businesses that support economic development in Ohio, thus showing an exceptional return on that investment.

Due in part to reductions in the level of state funding over the past 10 years and increases in the cost of medical tuition, student debt is increasing dramatically and is becoming prohibitive for the average student. Medical students are reaching the limits of federally subsidized loan programs and have no other way to finance their medical education. This excess debt is driving students towards higher paying specialties and away from primary care medicine and underserved Ohio communities. Funding in other health-related areas has not been sufficient to maintain an adequate supply of nurses and other allied health care personnel. An increased number of clinical training sites is necessary to educate medical, nursing, pharmacy, and allied health care students. Due to increased private sector competition, faculty nearing retirement and attrition, nurses prepared in programs that emphasize professional education will be needed to augment nursing school faculty.

Recommendation: To ensure an adequate number of health care professionals, the Higher Education Funding Study Council recommends that an assessment of the aforementioned problem be conducted and appropriate funding be made available to meet projected needs and provide appropriate levels of support.

