



Medical Education Program Funding Model Must Address Institutional Variations and Data Limitations

at a glance

Florida's recent expansion of medical education programs occurred without the benefit of a consistent model for determining the funding needed to support these programs. Determining medical school funding need is complicated by limitations in state-level financial data and variations among the medical schools in their mission, instructional programs, funding history, and local revenues. To address these limitations, we developed a funding model that reconciles institutional differences and provides a reasonable method for the Legislature to compare funding among the medical education programs.

Scope

As directed by the Legislature, this is the second of two reports examining medical school funding. This report provides a methodology for comparing current and planned funding levels among the state's public medical schools and funding levels from national studies. Our prior report examined medical education costs, funding trends, and funding models used by other states.¹

Background

Florida is in the process of expanding its public medical education programs and schools. The state currently has six public universities with medical education programs. This includes five public medical schools and one public/private partnership. Prior to 2000, only two of Florida's public universities operated medical schools.²

As shown in Exhibit 1, the University of Florida operates the oldest public medical school in the state, and was authorized by the Legislature in 1949 with the first students admitted in 1956. The University of South Florida medical school was authorized in 1965 with the first students admitted in 1971. Over the past 10 years, the Legislature has authorized four additional state universities to open medical schools. Two of these schools, at Florida International University and the University of Central Florida, will admit their first students in 2009.

² In addition, three private medical schools receive state funds. The University of Miami operates a medical school, and Nova Southeastern University and Lake Erie College of Osteopathic Medicine operate osteopathic medical schools. Since 1951, the Legislature has provided financial support to the University of Miami, which was the first accredited medical school in Florida. Nova Southeastern University also receives annual support from the Legislature. In addition, Lake Erie College of Osteopathic Medicine receives support for medical and pharmacy students at its Bradenton campus.

¹ *Medical Education Funding Is Complex; Better Expenditure Data Is Needed*, OPPAGA Report No. 08-36, June 2008

In addition, since 1998 Florida Atlantic University has partnered with the University of Miami to provide medical education. Through this partnership, University of Miami medical students received their first two years of instruction at Florida Atlantic University. In 2004, the Board of Governors approved expanding this initiative to a four-year regional medical campus of the University of Miami’s School of Medicine at Florida Atlantic University.

**Exhibit 1
Florida Has Established Medical Schools at Six Public Universities**

College of Medicine	Year Authorized by Legislature	First Class of Medical Students
University of Florida	1949	1956
University of South Florida	1965	1971
University of Miami at Florida Atlantic University	1998	2004
Florida State University	2000	2001
Florida International University	2006	2009
University of Central Florida	2006	2009

Source: OPPAGA review of information provided by the Board of Governors and the colleges of medicine.

Medical schools include two major programs— instruction in areas leading to the doctor of medicine degree (referred to as undergraduate medical education); and graduate medical education that involves instruction, research, and practice in one or more clinical settings through a residency program. Graduate residency programs are accredited by the Accreditation Council for Graduate Medical Education. The state provides funding for undergraduate medical education through appropriations to the state university system.

Florida’s expansion of medical education programs occurred without the benefit of a consistent model for determining the funding needed to support these programs. Rather, each university has established its own methodology to identify funding needs. During the 2007

legislative session, the University of Florida and the University of South Florida raised the issue of the level of state support provided for medical education at their institutions.

Findings

Assessing the funding provided to Florida’s public medical schools is complicated by several factors, including variations in the mission, instructional programs, history, and local revenues available to the schools as well as limitations in state data and accounting systems. To address these factors, we developed a funding model that provides a reasonable method for comparing funding among the colleges of medicine.

Florida’s public medical schools have substantial variations in mission, history, and local revenues

Florida’s colleges of medicine have significant differences that affect their operating costs and the revenues available to support their medical education programs.

Medical schools support varying types of instructional programs. In addition to the doctor of medicine (M.D.) degree program, the colleges of medicine support a different array of instructional programs. (See Exhibit 2.) For example, the University of South Florida’s College of Medicine offers degrees in medicine, biomedical science, physical therapy, and athletic training, and is planning to implement a physician assistant program. In contrast, Florida International University’s College of Medicine will only offer a degree in medicine when it begins classes in 2009. Some of the colleges of medicine also provide instruction for other departments and colleges such as teaching undergraduate biology courses.

**Exhibit 2
Florida’s Medical Schools Provide a Variety of Instructional Programs**

College of Medicine	Instructional Programs
University of Florida	<ul style="list-style-type: none"> • M.D. • Biomedical science • Physician assistant • Undergraduate courses • Courses for dentistry program
University of South Florida	<ul style="list-style-type: none"> • M.D. • Biomedical science • Physical therapy • Athletic training • Physician assistant (planned)
Florida State University	<ul style="list-style-type: none"> • M.D. • Biomedical science • Undergraduate biology courses
University of Miami at Florida Atlantic University	<ul style="list-style-type: none"> • M.D. • Biomedical science • Integrative biology courses
Florida International University	<ul style="list-style-type: none"> • M.D.
University of Central Florida	<ul style="list-style-type: none"> • M.D. • Biomedical sciences • Biotechnology • Medical laboratory sciences • Molecular biology and microbiology

Source: OPPAGA survey of colleges of medicine and an analysis of college publications.

Since some instructional programs cost more to provide than others, each college of medicine’s operating cost is affected by the types of programs it offers and its corresponding student enrollments. The M.D. program has the highest instructional costs because many of its courses require one-on-one and small group instruction, and its faculty typically have higher salary requirements than other programs. In contrast, instructional costs for teaching undergraduate biology courses are relatively low as these classes are often large and do not require physician instructors. These differences in the instructional program costs must be taken into account when comparing institutional funding levels.

Three medical schools have unique missions that create additional operating costs. At various points in time, the Legislature has directed the University of Florida and University of South Florida to implement specific research and public service missions and responsibilities as part of their lump sum appropriation for medical education programs. For example, the Legislature directed the two universities to conduct brain and spinal cord injury research and provided a \$250,000 increase in the universities’ lump sum appropriation.

Similarly, the Legislature directed the Florida State University College of Medicine to educate and develop primary care physicians who are responsive to community needs (especially through service to elder, rural, minority, and underserved populations) and to recruit and train underrepresented populations of students.³ Based on this mission, the College of Medicine has established a distributive model to educate third- and fourth-year medical students in community settings where they work with practicing physicians across the state. The college operates six regional campuses to support the implementation of this model. Other programs or services established by the college as part of its mission include the Rural Medical Education Training program in Marianna, a clinic for underserved children in Immokalee, and the outreach program for middle and high schools in rural and inner city schools with predominant minority and underserved populations of students. The university incurs additional costs to operate these branch campuses and programs.

These variations in medical schools missions and programs affect their operating expenses and funding needs. Accordingly, these differences must be taken into account when comparing institutional funding levels.

³ We need statutory reference

Medical schools have varying sources and levels of local revenue available to support their programs. In addition to differences in instructional programs and missions, an assessment of funding for colleges of medicine also should account for each university’s ability to generate local revenue such as tuition to support the **programs**.

Tuition rates vary widely among the colleges of medicine. Unlike undergraduate tuition, local university boards of trustees have the authority to set tuition rates for medical and graduate education **programs within limits established in Florida Statutes and Board of Governor Rules**. In Fiscal Year 2008-09, annual medical student tuition ranged from **\$15,832** at Florida State University to \$29,298 at University of Miami at Florida Atlantic University (see Exhibit 3). These varying tuition rates produce different revenue levels per medical student.

**Exhibit 3
Tuition Rates for State Resident Medical Students Vary Widely Among the Colleges of Medicine**

College of Medicine	Medical Student Tuition for 2008-09
University of Miami at Florida Atlantic University	\$29,298
University of Florida	23,930
University of South Florida	20,139
Florida State University	15,832

Note: Florida International University and the University of Central Florida did not have medical students during 2008-09.
Source: University of Florida.

Colleges of medicine vary significantly in their faculty practice plan revenues. Patient care provided by medical schools, known as faculty practice plans, has historically helped to support **medical programs** across the nation. These revenues are typically derived from faculty activities that combine both patient care and teaching. While most of these revenues support the cost of providing care to patients, some are used to pay for a portion of faculty salaries and other medical school costs.

Currently, two state medical schools—the University of Florida and the University of South Florida—rely heavily on practice plan revenues to fund their operations. For example, the University of Florida reported \$371 million in gross practice plan revenues for Fiscal Year 2006-07, with approximately \$14 million used to support faculty **salaries**. The University of Central Florida and Florida International University are both intending to **develop** faculty practice **plans**.

In contrast, the Florida State University College of Medicine **generates minimal practice** plan revenues. To accommodate its mission to train general practitioners, the university designed its medical education program so that student clinical rotation is taught by community physicians in general practice rather than full-time faculty who serve patients in hospitals. As a result, the college’s practice plan revenue in Fiscal Year 2006-07 was approximately \$5 million, almost all of which paid for patient **care**.

As noted in our 2008 report on medical education finances, changes in the healthcare industry may reduce future faculty practice plan revenues.⁴

Current state-level data for universities lack sufficient detail to accurately determine the cost of medical schools

Comparisons of college of medicine funding levels need to take into account both the level of state funding provided to the institutions and their operating costs. However, state data and accounting systems do not readily identify these totals.

State funding for M.D. programs cannot be identified for most of Florida’s medical schools. A key step in assessing funding for Florida’s medical schools is to identify the amount of state funds each college of medicine receives for its instructional programs—in particular, funding received for the M.D. programs which have the highest costs. However, state appropriations for instructional programs offered by the University

⁴ *Medical Education Funding Is Complex; Better Expenditure Data Is Needed*, OPPAGA [Report No. 08-36](#), June 2008.

of Florida, the University of South Florida, Florida Atlantic University partnership, and Florida State University colleges of medicine are contained within lump sum appropriations for the colleges. As a result, the amount of state funding these colleges receive for individual programs such as M.D. and biomedical science cannot be readily determined. In contrast, the appropriations provided to the University of Central Florida and Florida International University medical schools only include funding for the M.D. program. These universities' other instructional programs will be funded through the general funding (enrollment growth) process for State University System programs and services.

These variations in funding processes make it difficult to identify and compare the amount of state funding that each college has received for individual instructional programs, most notably the M.D. program. Accordingly, a funding model for medical schools must include a method to address these differences for specific programs.

Key state-level financial data for medical schools is inconsistent and incomplete. Another crucial step in assessing medical school funding is to identify the costs of programs supported by the colleges of medicine. However, the official financial data collected by the State University System information systems is subject to several limitations that preclude its use for identifying and analyzing college of medicine costs.

The State University System Expenditure Analysis data is based on the time faculty report spending on instruction, research, and public service (including patient care). The expenditure analysis procedure is to summarize each faculty member's time on these activities, by discipline. This allocation of faculty time is then used as the basis for distributing departmental expenditures. Other university indirect costs are then allocated based on variables such as the faculty time on various academic tasks and the number of students served.⁵

⁵ Some indirect costs, such as student services are allocated only to instruction and are based on other data such as student credit hours, while other costs such as central administration are assigned to all final cost objectives.

However, this reporting process does not provide consistent data on colleges of medicine activities for several reasons. For most universities, costs of programs other than medical education are combined into large categories with other health professions and biological sciences and thus cannot be readily identified. In addition, the reporting process does not identify all medical education costs, particularly during student's last two years of medical school when they typically are interacting with clinical physicians as they see patients. It is difficult to determine instructional costs in clinic settings as this cost represents the difference between the time it takes faculty to serve patients by themselves and the time it takes them to serve patients while also teaching medical students. The expenditure reporting process does not address this issue in a systematic manner, but instead relies on individual faculty to make this judgment when filling out activity reports—typically at some time during the following term—producing unreliable results.

A funding model based on weighted program enrollments provides a reasonable basis for comparing and assessing medical school funding

To address the limitations in Florida's current method for assessing medical college funding levels, we developed a weighted enrollment based funding model that reflects cost differences among the colleges' instructional programs. The model provides a framework for reconciling institutional differences and addressing shortcomings in current state-level financial data. The major components of the model are

- determining appropriate cost weights for the various instructional programs offered by colleges of medicine;
- using the program cost weights to calculate weighted student enrollments;
- determining the total revenue or funding that each college has available to support its medical education program;
- calculating the level of funding per weighted student enrollment; and

- adjusting each college’s total funding to reflect unique responsibilities or missions assigned by the Legislature.

The Legislature and the Board of Governors could use this model to compare funding among the colleges of medicine and to allocate state funds. See Appendix A for more detailed information on the funding model.

The University of Florida Mission-Based Budgeting System can provide a framework for a statewide medical education funding model. As noted earlier, current state-level financial data have several limitations that preclude its ready use in identifying medical school costs. To address these limitations, we developed an alternative model based on data from the University of Florida Mission-Based Budgeting System developed by the University of Florida’s College of Medicine to allocate state instructional funds and improve its ability to manage college resources. (See Appendix B for more information on this system.) This system includes a systematic method for estimating the cost difference between classroom instruction and non-classroom clinical instruction, and it recognizes differences in faculty salaries in different academic departments. The system thus provides a formal basis for comparing the costs of different courses and instructional programs.

Using data that supports the mission-based budgeting system, we determined faculty salary cost for different College of Medicine programs relative to the cost of the college’s M.D. program. This enabled us to create a weight for each program that equated enrollment to the faculty salary cost of the M.D. program (see Exhibit 4). For example, based on this model, biomedical science graduate programs have a weight of 0.66, indicating that the College of Medicine’s instructional faculty salary costs for these programs are two-thirds the cost of M.D. instruction. Exhibit 4 shows the program weights derived from our analysis of mission-based budgeting data and provides an example of how these weights could be used to calculate weighted enrollments for three hypothetical colleges of medicine.

**Exhibit 4
Weighting Program Enrollments Provide a Method to Reconcile Cost Differences Among Instructional Programs**

Instructional Programs	College A	College B	College C
Unweighted Enrollment			
Medical Students	540	480	480
Biomedical Science Graduate (PhD and MS) Students	200	150	
Physician Assistant Students	150	--	
Undergraduate Biomedical Science Students	150	150	
Total Unweighted Enrollment	1,040	780	480
Weighted Enrollment			
	Weights		
Medical Students	1.00	540	480
Biomedical Science Graduate (PhD and MS) Students	0.66	131	99
Physician Assistant Students	0.42	64	-
Biomedical Science Undergraduate Students	0.05	7	7
Total Weighted Enrollment	742	586	480

Source: OPPAGA analysis of University of Florida data.

Since the University of Florida College of Medicine does not offer some of the degree programs provided by other colleges of medicine, we could not develop program weights for every instructional program. However, the Board of Governors could work with each of the colleges of medicine to determine the cost-based weights for programs not currently included in our analysis.

The process for calculating **tuition revenues** varies depending on the purpose of the model. Once program funding weights are determined, the next key step is to determine each college’s total available resources for medical education, including state funds **and tuition** revenues used to support instruction. This total is then used to calculate each college’s funding per weighted student enrollment, which can be used to make funding comparisons. (See Exhibit 5 for example of this calculation for three hypothetical colleges of medicine.)

The treatment of tuition revenues in the funding model would depend on how the model is being used. If the purpose is to compare total funding among the colleges of medicine, then the colleges' actual tuition revenues should be used in the calculation. However, if the model is being used to allocate state funds, including actual tuition revenues could create a disincentive for colleges to maximize these revenues. This could be addressed in the model by applying standard tuition rate for all colleges.

**Exhibit 5
The Amount of Funding Per Weighted Student Enrollment Should Be Used to Make Funding Comparisons**

	College A	College B	College C
Weighted Enrollment	742	585	480
State Funds	\$ 31,000,000	\$ 38,000,000	\$ 26,000,000
Tuition	13,850,000	11,250,000	9,600,000
Total Funding	\$ 44,850,000	\$ 49,330,586	\$ 35,840,480
State Funds per Weighted Enrollment	\$ 41,779	\$ 64,486	\$ 54,167
Tuition Funds per Weighted Enrollment	18,666	19,198	20,000
Total Funds per Weighted Enrollment	\$ 60,445	\$ 83,684	\$ 74,167

Budget adjustments could be made to reconcile institutional differences in missions assigned by the Legislature. The funding model could address institutional mission differences by subtracting legislative assignments or earmarks for research or unique educational/ public service missions from each college of medicine's total medical education funding. This would provide a standard means of comparing funding for the instructional programs provided by the colleges. However, some legislative directives may not have been accompanied by a specific appropriation and the costs of these mission assignments would need to be estimated.

Recommendations

To assist in developing a funding model for Florida's colleges of medicine, the Board of Governors should modify its statewide information systems and reporting processes to provide more complete and consistent information on medical education programs.⁶ Specifically, we recommend that the board

- clearly identify and report all academic departments and programs provided by a college of medicine;
- clearly identify any external departments that provide instruction to medical students or to students in other programs offered by a college of medicine;
- identify and report all revenues used to support the activities of a college of medicine including faculty practice plans;
- Develop a system-wide policy that assigns contact hour equivalents for non-classroom instruction such as student advisement and patient care associated with colleges of medicine; this policy should be based on the Mission Based Budgeting System of the University of Florida College of Medicine;
- require a consistent set of account codes, generally at the department level, be used for all databases to ensure that spending can be linked to all reported activities;
- require that legislative earmarks be expended and reported through separate account codes so that they can be clearly identified in financial calculations; and
- develop a policy that provides for a consistent method of identifying and reporting on all college of medicine revenues.

⁶ Specific databases and files that should be modified include: Instruction and Research, Instructional Activity, the Operating Budget, and the Expenditure Analysis.

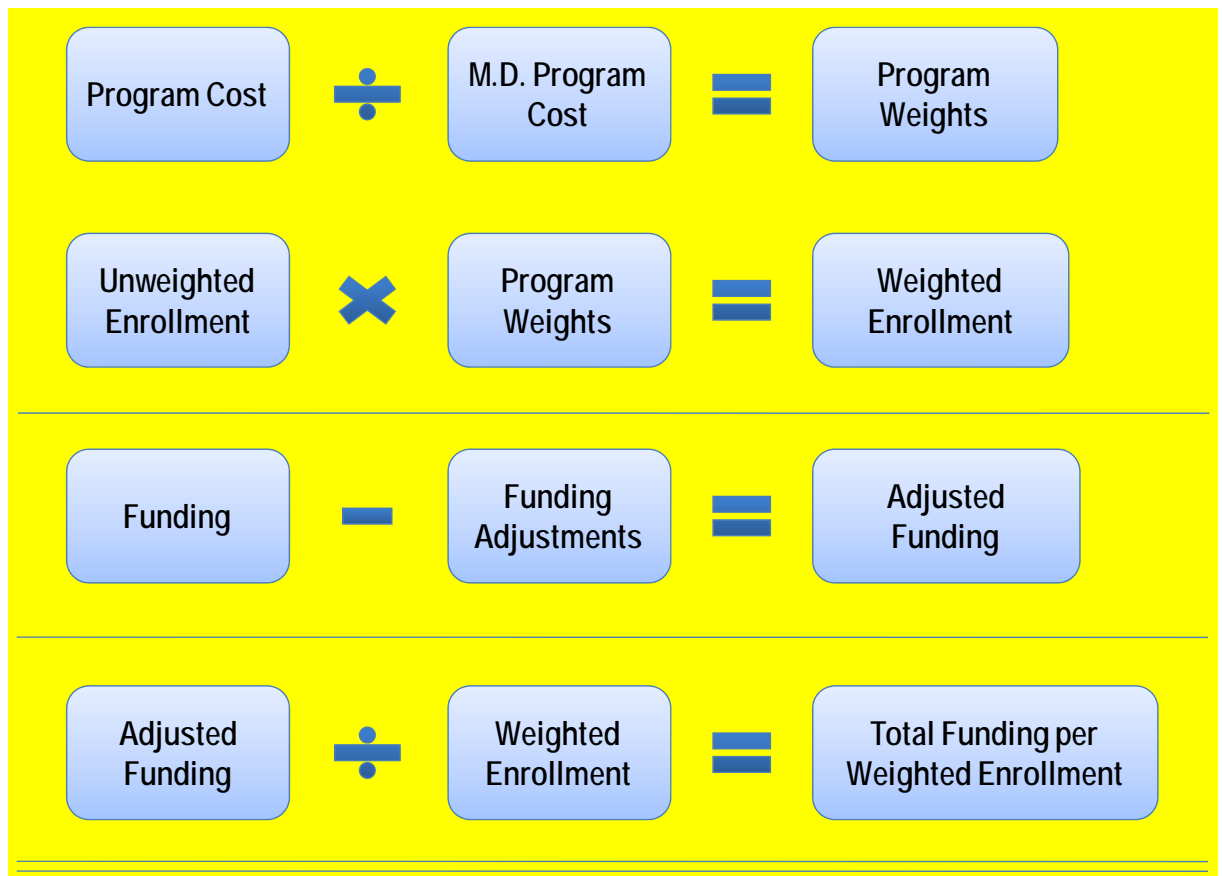
Agency Response—————

In accordance with the provisions of s. 11.51(5), *Florida Statutes*, a draft of our report was submitted to the Board of Governors of the State University System to review and respond.

Appendix A

Funding Model for Medical Education Programs

Developing a funding model for medical schools is complicated by limitations in state-level financial data and institutional variations in mission, instructional programs, state funding histories, and local revenue sources. To address these limitations, we developed a model based on weighted enrollments that reconciles institutional differences and addresses shortcomings in current data. The steps involved in calculating this model are described below.



Appendix B

Mission-Based Budgeting at the University of Florida

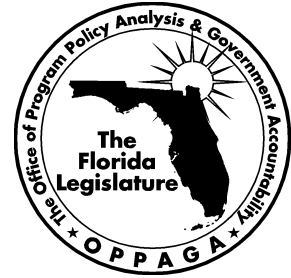
The University of Florida's College of Medicine developed mission-based budgeting during the 1990s to more effectively manage the college's resources. This approach provides a systematic way to link money and faculty effort to the college's three traditional missions of education, research, and clinical care. Decisions regarding departmental support by the dean are made based on standard rates of funding for the activities assigned to faculty in a department rather than on incremental budget allocations. Because mission-based budgeting resolves a number of problems that are encountered in analyzing university and college of medicine data, it has become a national model for financial management of medical centers and is now promoted by the Association of American Medical Colleges. The process also provides information that allows policy makers an opportunity to understand how colleges of medicine operate.

University of Florida College of Medicine officials stated that mission-based budgeting is based on the concept of linking instructional costs to the time budgeted for individual faculty to participate in specific teaching assignments. Faculty time is calculated at two hours of preparation time for each contact hour of classroom teaching (the standard established in the state's 12-hour law).⁷ Clinical work involving teaching and supervision of residents and M.D. students on clinical rotation (third and fourth year of the M.D. program) while treating patients is reported as 70% clinical and 30% instructional time. As a result, clinical teaching (teaching conducted while treating patients) is calculated at two hours per day. The time devoted to instruction is then used by the dean as the basis for distributing funds to the departments.

Under mission-based budgeting, the reimbursement of state revenues to a University of Florida medical department for teaching is the same for all faculty, \$82 per hour in Fiscal Year 2005-06, whether physician faculty or scientist and regardless of the actual salary of the faculty member. This fixed financial structure for state support facilitates the analysis of other revenues which make up the deficit between \$82 per hour and actual faculty salaries. The university reports that the average cost per hour of faculty who taught was \$88 for basic science faculty and \$144 for clinical science (physician) faculty. As a result, 7% of basic science instruction and 43% of clinical instruction salary costs were supported by other sources than state funds and tuition. Thus, when faculty are assigned to teaching, non-teaching (non-state) sources of revenue must supplement the teaching revenue provided by the dean in order to maintain their actual hourly rate of pay. This gap is primarily filled by profits from faculty practice plans.

⁷ Section 1012.945, F.S.

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Project supervised by Tim Elwell (850/487-9228)
 Project conducted by Bob Cox (850/487-8708), Pat Dallet, and Emily Sikes
 Jane Fletcher, Education Policy Area Staff Director, OPPAGA
 Gary R. VanLandingham, Ph.D., OPPAGA Director