

Florida International University
Miami's Public Research University

Health and Medical Education Initiative



Draft March 25, 2004

Florida Board of Governors

REQUEST TO OFFER A NEW PROFESSIONAL DEGREE PROGRAM

University Submitting Proposal

Proposed Implementation Date

Name of College or School

Name of Department(s)

Academic Specialty or Field

**Complete Name of Degree
 (Include Proposed CIP Code)**

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial commitment and the criteria for establishing new programs have been met prior to the initiation of the program.

College or School Dean

Date

Graduate Dean

Date

**Provost and Executive Vice President
 Academic Affairs**

Date

President

Date

Chair, FIU Board of Trustees

Date

Indicate the dollar amounts appearing as totals for the first and the fifth years of implementation as shown in the appropriate summary columns in Table Three. Provide headcount and FTE estimates of majors for years one through five. Headcount and FTE estimates should be identical to those in Table Three.

	Total Estimated Costs	Projected Students			FTE
		Full-Time Headcount	Part-Time Headcount	Total Headcount	
First Year of Implementation	\$13,278,750	36	-	36	33.75
Second Year of Implementation		82	-	82	89.63
Third Year of Implementation		138	-	138	158.63
Fourth Year of Implementation		223	-	223	258.94
Fifth Year of Implementation	\$28,698,550	277	-	277	329.81

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Executive Summary

Building upon a strong foundation of basic sciences, health professions programs, and biomedical engineering, Florida International University (FIU) proposes a new program in Allopathic Medicine leading to a doctorate in medicine (MD) degree. This degree is part of the University's Health and Medical Education Initiative. The Initiative also entails enhanced coordination of related health programs, the introduction of new health degrees, and deepened partnerships with hospitals, clinics and physicians in the community. The MD degree will lead to the creation of a new academic health center in South Florida.

FIU's proposed medical education degree takes as its basic premise a 21st century approach to health care: It will utilize existing community-based resources to avoid wasteful duplication and address critical community health needs. The four largest community-based hospitals in Miami and leading community health care organizations will collaborate with FIU to focus teaching and research on issues fundamental to a large, multicultural urban community.

FIU is undertaking this initiative and proposing this degree program because a health care crisis exists in the South Florida urban region. Population growth and rapid changes in demographics have outpaced educational development and institutional ability to keep pace with the health care and medical needs of our community. Out of necessity, the region imports a large majority of its doctors. Many of them are uncertified.

It is now widely accepted that a national shortage of physicians exists and will rapidly grow unless new and timely strategies are developed. This is will be especially true in the case of minority physicians whose numbers have never been representative of the proportion of minority populations.

Using traditional indicators of physician manpower (e.g., ratio of physicians to population) Florida ranks 11th nationally in total physicians per 100,000 population. This ratio masks true differences among physicians, particularly in productivity and qualifications, which have implications in terms of access and quality of care. To be useful for planning, the ratio has to be adjusted by individual physician characteristics (like age, specialty certification, and sex). For example, Florida has the oldest physician workforce in the country and South Florida physicians have a very low level

of specialty certification. This age structure of the physician population is mainly due to the fact that many physicians move to Florida to retire and maintain valid licenses, although they may not practice or do so in a limited way. The low specialty certification rates are also related to age, but even more to a very high proportion of foreign trained physicians in South Florida. The growing proportion of female physicians is a factor related to productivity, since many female doctors assign a high priority to having available time for family needs.

The answer to the problems of physician workforce will necessarily vary from region to region, and local characteristics should determine the best strategy.

In the past, increasing the size of medical schools, increasing the number of residents, developing new medical schools, or developing incentives for the practice of medicine and importing doctors, have all been proposed as solutions to physicians shortages. (See appendix.) FIU believes that a combination of strategies is the best formula, and that in the case of South Florida, a new public medical school should be the catalyst for such solutions.

The State of Florida's future is strongly tied to the quality of the educational programs and health care services provided to its citizens. High quality health and medical care is not only important for the quality of life of our citizens it is also essential, if the state and South Florida region are to maintain their economic development.

FIU proposes to develop and implement a comprehensive initiative that addresses the South Florida health care crisis and establishes an adequate foundation for high quality health care in the South Florida region. Florida International University's Health and Medical Education Initiative will provide a much-needed enhancement of the quality and accessibility of the health care services provided to the residents of South Florida. The development of a new medical school and the creation of more residency positions in South Florida will be important parts of this effort.

The proposed MD degree will improve the quality of health care in Florida by:

- Increasing the number of culturally sensitive and under-represented minority (URM) physicians serving South Florida;
- Creating an affordable, accessible medical school in South Florida that directly partners with community hospitals and health care clinics throughout the region; and
- Advancing biomedical and scientific knowledge through research, scholarship, and direct application to the health care needs and industrial opportunities of South Florida, the State, the nation, and the wider region served by FIU.

Implementation of the FIU Health and Medical Education Initiative involves restructuring the health and medical science education programs, implementing the proposed allopathic medical degree program, enhancing partnerships with a full spectrum of health service providers in Greater Miami, and creating a multidisciplinary research consortium, all of which will address the health care crisis in the region.

The Initiative is a top priority for the University and is a major action component of the Millennium Plan approved by the Board of Trustees in December 2002. The Initiative responds to urgent concerns in the community about citizen access to health care and the shortage of qualified medical doctors in the State. Emerging national trends and essential recommendations for enhancing health and medical education and health care delivery for the people of the United States in the 21st century prompt the formulation of this initiative.

The proposed FIU program would be the only public educational MD program in South Florida and only the fifth allopathic medical degree program in the State. The others are at the University of Florida, the University of South Florida, Florida State University and the University of Miami. Nova Southeastern University offers an osteopathic medical degree program.

Florida International University is ready to undertake this initiative and the proposed MD program. FIU is already educating many health professionals. The colleges and schools throughout the institution currently offer 49 of the 55 academic degree programs contributing to the proposed Health and Medical Education Initiative. Of the remaining six-degree programs, the Medical Doctorate (MD) is the only program that is not on the State University System master plan.

The development of a new Medical School and the proposed innovations in medical education bring a unique opportunity to integrate as much as possible the curriculum and the learning practices of all the health professionals. The education of health professionals, particularly of physicians, nurses, and allied health personnel, has always been concerned with the need to increase integration between the different health professions. Because the basic sciences are necessary for all of the health and medical education programs, they offer some opportunity for common educational experiences. Even more integration is possible in the areas of cultural sensitivity, bioethics, and communication with patients, essential components of programs designed to prepare health care practitioners for the 21st century.

In the context of a health professional education program provided in an integrated health care education, research, and delivery system, the FIU medical degree program will increase the number of qualified under-represented minority professionals entering the health care delivery network. It will also increase the medical science research and health care resource dollars coming into the region. By creating partnerships among the public medical school and local health care providers and advocacy organizations, and by contributing to the numbers and the education of health professionals, the quality of health care available to the citizens of the region will also be improved.

A new medical school will facilitate the creation of new residency (graduate medical education) positions in South Florida, one of the most important strategies to solve the problem of physician shortages. The number of residents approved by the graduate medical education accreditation body (ACGME) is based upon the adequacy of resources for resident education, such as the quality and volume of patients and related clinical material, the faculty-residents ratio, and the quality of faculty lecturing.

There is, therefore, a direct and mutually beneficial relationship between medical schools and residency programs. Although a freestanding hospital may have sufficient patients and resources, affiliation with a medical school is instrumental in solving some of the most important requirements, the number and quality of the faculty and faculty development, and in obtaining accreditation by ACGME. Although teaching hospitals make up just 6 per cent of all hospitals in the U.S., they account for 72 % of all U.S.

residents/fellows. FIU's proposed medical school would be a focal point for the development of new residency programs and the increase in the number of residents.

In medicine, there is a natural chain of events that determines a career pattern. Many students attend their local educational institutions. Once in college, and if feasible, students tend to continue and study medicine in the same university. These same medical students do rotations in the University affiliated hospitals and, once graduated, they tend to do their residency training in the same place where they did their rotations. And once they have completed their training, physicians tend to stay in the communities where they were residents.

Given such a career chain, and the fact that eighty-five percent of FIU alumni remain in the state and eighty per cent remain in South Florida, it is very reasonable to expect that the majority of graduates from the FIU Medical School and health professional programs will remain in the region. For example, more than sixty-five percent of the physicians practicing in the Greater Detroit, Michigan region were graduates of the Wayne State Medical School or residents who completed their training in the region. The FIU Medical School will achieve similar results for South Florida.

The location of a public medical school in Miami-Dade County would also provide a needed boost to the local pharmaceutical and medical device industries. For the past decade, Miami-Dade has held a high rank among American counties for employment in these industries. Miami-Dade County is ranked 13th among American counties for employment in the pharmaceutical industry and 10th for employment in the medical device industry. A 2002 Brookings Institution Study identified the Miami-Ft. Lauderdale metropolitan area as one of two in Florida with a median level of biotech research and commercialization. The other was the Tampa-St. Petersburg-Clearwater metropolitan area. A medical school with its associated biomedical and bioengineering research and training programs would provide the additional mass needed to boost employment in these industries beyond current levels and provide conditions for industrial expansion.

INTRODUCTION

I. Program Description

Describe the degree program under consideration, including its level, emphases (including tracks), and total number of credit hours.

This proposal is for a professional program in allopathic medicine leading to a medical doctorate (MD). The four-year program leading to the MD will be 156 hours in length. The students who enter the proposed program will be representative of the race and gender profile of South Florida. These students will possess the following traits: 1) a strong background in the basic medical sciences, 2) an understanding of health care issues, and 3) dedication to working in an urban environment serving underserved populations.

Prospective students for this program will come from the ranks of graduates of FIU, other SUS universities, non-SUS institutions, and health professionals of other disciplines, especially from South Florida. A vast majority of those admitted will be Florida residents.

The proposed MD program is an essential part of a more comprehensive Health and Medical Education Initiative. The Initiative will integrate numerous educational programs throughout the University including the health sciences. The Initiative will involve restructuring the FIU health and medical science education programs and enhancing partnerships with a full spectrum of health service providers in Greater Miami.

The FIU Health and Medical Education Initiative also involves creating a multidisciplinary biomedical education and research consortium to address the health care challenges in the region and provide leadership in health care reform to meet the health care needs of our community in the 21st century. As part of the consortium's activities, the University will assist its hospital partners in developing new graduate residency programs. The Health and Medical Education Initiative is a top priority for the University and our community and it is responsive to specific, urgent needs of the taxpayers of South Florida.

Medical education in the past has been focused on the hospital and on the diagnosis and treatment of pathological conditions. New models of

education have been developed in recent years in which the educational focus is on the community (where the most important issues are the prevention of illness and access to medical care) and on the patients, not just in hospital but also in ambulatory care settings, including doctors' offices. This approach is generally called a community health and patient-based model.

FIU's proposed medical school takes as its basic premise a 21st century approach to health: The school will utilize existing community-based resources to avoid wasteful duplication and relieve critical community health needs. Four of the five largest community hospitals in Miami and leading community health organizations will collaborate with FIU to focus teaching and research on primary care issues—fundamental to a large, multicultural urban community that has uneven access to health care.

As the Institute of Medicine's National Committee on the Role of Academic Health Centers reported in 2003, "Health care practitioners will not be prepared for practice in the 21st century without fundamental changes in the approaches, methods, and settings used for all levels of clinical education. Current training of health professionals emphasizes primarily the biological basis of disease and treatment of symptoms, with insufficient attention to the social, behavioral, and other factors that contribute to healing and are part of creating healthy populations." (Institute of Medicine, National Committee on the Role of Academic Health Centers, 2003).

This innovative initiative will integrate the full spectrum of medical education and conducting interdisciplinary/multidisciplinary research between and among the colleges of Florida International University. Cultural sensitivity, patient communication skills and competence, combined with appropriate diversity of the faculty and student body, will be fundamental dimensions of the initiative.

A significant component of the integrated community-based approach to health care is the emphasis on community and population-based medical practice and medical research. These endeavors will address disparities of health and disease in our communities and the effectiveness of health services provided in the region.

The new MD degree will improve the quality of health care in Florida by:

- Increasing the number of culturally sensitive and under-represented minority (Hispanic and African-American) physicians practicing medicine in South Florida;
- Creating an affordable, accessible medical school in South Florida that directly partners with community hospitals and health clinics throughout the region;
- Advancing biomedical and scientific knowledge through research, scholarship, and direct application to the health care and industrial needs of South Florida, the state, the nation, and the wider region served by FIU.

The University envisions an integrated health care professional education whose foundation is built on evidence-based medicine and the delivery of health services. FIU intends to break the mold of traditional programs in which the education of health professionals—particularly of physicians, nurses, public health and allied health personnel—consists of self-contained programs, independent from each other, with an exclusive curriculum focused on each specialty and independent clinical training. The traditional approach led to the creation of separate programs within academic institutions, medical schools, nursing schools, public health schools, and related disciplines. FIU will enact vertical and horizontal integration of all of the health and medical education program curricula into a single comprehensive program focused on community-based health services.

The primary goal of an integrated educational structure is to advance the quality and efficiency of practicing health care professionals. All of these professions share a common responsibility—the care of patients. Patients will be the central focus of the new integrated education. Educational methodologies, whenever possible, will be based on the following principles:

- Inter-professional curriculum committees among the different units to plan and coordinate the integration.
- Centralized management and administration of the health professional's curriculum.
- Education centered on the patient.
- Students training focused on very early contact with patients.
- Problem-based education of groups of students of different professions.

- Culturally sensitive education, culturally sensitive and competent graduates.
- Practice-based curriculum, emphasizing clinical practice.
- Learning programs planned around outcomes with shared responsibilities among the different professions and integrated clinical training.
- Research, innovation and evaluation in health services.
- Intense emphasis on evidence-based medicine and services.
- Education supported by shared information technology.
- Education in doctor's offices and in health centers.

To facilitate these objectives, a Faculty Curriculum Integration Committee will be appointed. Its mandate will be to identify opportunities for interdisciplinary courses and plan integrated curriculum content while respecting the individualities and needs of each professional program.

To deal with the student pipeline issue, the charge of the Committee will extend to the undergraduate program to ensure that there is a seamless transition between undergraduate and graduate curricula. The Committee will be expected to restructure the upper division programs to maximize common educational experiences and continuing involvement in the health priorities of the local community. It will also advise the Honors College on the development of a pre-medical track in the Honors Program.

The Committee will also develop a standard health professional program at the lower division level. This lower division program will include courses in the basic sciences, psychology and other social sciences, and mathematics. The program will also incorporate a variety of local, community-based experiences in the health professions and provide a firm basis for progression to the health profession degree a student may choose to pursue at the bachelor's level or beyond, be it in nursing, medicine, public health, physical or occupational therapy, dietetics and nutrition, bioengineering. Students would share community experiences and courses in such subjects as ethics, individual and public communication, and community relations. They would also be mentored and trained in professionalism and leadership by a variety of faculty members. Students would be expected to achieve competency in Spanish and Haitian Creole.

II. Institutional Mission and Strength

A. Is the proposed program listed in the current FIU New Academic Programs 5-Year Plan? Is the proposed program listed in the State Universities System Strategic Plan? How do the goals of the proposed program align with the University's mission, goals, themes, and strategic plan?

The proposed program in allopathic medicine leading to a medical doctorate (MD) is in the FIU New Academic Programs Five-Year Plan, and would accord with FS 187.201 the State's Comprehensive Plan. The State's Comprehensive Plan sets a goal of "health care services which are of high quality, reasonably accessible, and adequate to meet the need of the public" and lays out policies whereby "the public shall have access to affordable health care" and "the state shall promote the availability of needed health care professionals and services in medically underserved areas." The proposed MD program is not, however, listed in the State Universities System Strategic Plan.

The Health and Medical Education Initiative is the top programmatic priority for the University. The Initiative is a major action component of the University Millennium Strategic Plan approved by FIU's Board of Trustees in December 2002. Following the successful SACS reaffirmation process in 2000, the University embarked on updating its ten-year strategic plan. As part of the Millennium Strategic Plan, the University Board of Trustees (BOT) adopted the following mission statement:

"Florida International University is an urban, multi-campus, research university serving South Florida, the state, the nation, and the international community. It fulfills its mission by imparting knowledge through excellent teaching, promoting public service, discovering new knowledge, solving problems through research, and fostering creativity."

As South Florida's public research university, Florida International University has an obligation to the State, the community, and its global constituency to offer academic programs, conduct research, and create partnerships that will provide solutions to those problems that confront our local and extended community.

The University's Millennium Strategic Plan identified six strategic themes or foci that will be at the forefront during the first decade of this millennium. They are the following: Health; Environment; Florida and Local Economic Development; International; Arts, Culture, and Diversity; and Learning Opportunities.

In this context, the University is prepared to address the critical and comprehensive health care needs of the South Florida region. The Health and Medical Education Initiative was identified during the Millennium Planning process by our community leaders, University administration, and the faculty scholars as the area in which the University must focus its intellectual efforts and invest its resources to develop comprehensive health care solutions for the greater benefit of our regional community.

The University's new Health and Medical Education Initiative is based on an integrated health care professional education model that is community-based and patient-centered. The University expects to provide important new leadership in developing partnerships with other community institutions in addressing the regional health care crisis and expects to provide education, research, and services in health care for the community throughout the 21st century.

The FIU Health and Medical Education Initiative is a community-centric model. It responds to specific and urgent needs in our South Florida community and while doing that also addresses national concerns for an essential restructuring of health education and health care. It addresses the community's concerns about citizen access to health care and, in line with the University's strategic emphasis on diversity, the shortage of qualified under-represented minority medical doctors in the South Florida region and around the State.

In developing this initiative, FIU also addresses a third strategic theme, local and South Florida economic development. Additional state investment in the form of a medical school at FIU would build on a relatively high and stable local base and would have the likelihood of spurring additional growth in the biomedical and biotechnological industries. Among the counties in the U.S.A., Miami-Dade County ranks 13th and 10th, respectively, in pharmaceutical and biotech employment. Its ranking has been relatively stable over the past decade or more. A Brookings Institution Study by Joseph Cortright and Heike Meyer published in 2002, "Signs of Life: The

Growth of Biotechnology Centers in the U.S.,” noted that the Miami-Fort Lauderdale metropolitan area was one of only two in Florida that had reached a median level of biotechnology research and commercialization; the other was Tampa-St. Petersburg-Clearwater.

Nationally, medical schools have been powerful magnets for federal research funding. The main source of their federal funding has been the National Institutes of Health. NIH funding more than doubled during the 1990s from \$6.5 billion in 1991 to over \$13 billion in 2000. It has continued to grow in the new century. As a rule of thumb, medical school research funding will be half or more of a university’s contract and grant revenues.

Medical school investigations in biomedical science and bioengineering can involve multiple disciplines and thereby contribute to many fields and specialties, thus having a multiplier effect on the economic development of the region. The ideas generated in the course of biomedical and bioengineering research are the basis of new products, while the students trained through the research process become the highly skilled workforce needed for industrial development. A recent study prepared for the Association of American Medical Colleges found that “for every dollar spent by a medical school or teaching hospital, an additional \$1.30 is indirectly generated for a total impact of \$2.30.” (AAMC Reporter 13:4, February 2004).

The University’s bioengineering program already is very close to the local biotechnology industry for which it has developed technology and a highly trained workforce. The endowment of the program by the Wallace H. Coulter Foundation is testimony to the closeness of this relationship. Establishment of a medical school at FIU will broaden the base for collaboration between the University and the local biomedical and biotechnological industry.

B. How does the proposed program specifically relate to existing institutional strengths such as programs of emphasis, other academic programs, or institutes and centers?

During the implementation phase of the Millennium Strategic Plan, the Cross Functional Action Planning Teams and the University community identified ten priorities of focus and investment. Two of the top ten priorities

were establishing a school of medicine and selective investment in the medical and biomedical sciences

The proposed program builds on two of the salient strengths of Florida International University, its closeness to the local community and its ability to successfully train Hispanics and African Americans in math, science, and engineering. Over eighty percent of FIU's student body comes from the surrounding four-county area and eighty percent of its alumni remain in South Florida. Fifty-one percent of its student body is Hispanic and thirteen and a half percent African American. FIU leads the nation in the production of Hispanic engineers and its production of minority scientists increases from year to year as a result of strong local interest, expanding outreach programs to the local public school system, and retention programs aimed at undergraduates.

While Hispanics and African Americans are considered Under Represented Minorities (URM) in mathematics, science, medicine, and engineering in the nation as a whole, demographics and University initiatives make it otherwise at FIU. A medical program at FIU would draw successfully on the expanding pool of minority students at FIU who would have the requisite math, science, and language skills to succeed in medical school and who will be inclined to settle and successfully practice their profession in South Florida.

The proposed program also builds on the strong foundation of basic sciences, allied health programs, biomedical research, and center and institute initiatives of the University. The strategic initiative will be anchored by the basic medical science education and health science education offered through the doctoral level by the College of Arts and Sciences and the College of Health and Urban Affairs.

The proposed MD degree program, coupled with enhanced coordination of related health programs, the introduction of new health degrees, and deepened partnerships with hospitals and clinics in the community will produce health professionals who understand the value of collaboration in the care of individuals and the improvement of the health of the community. The wide variety of relevant academic degree programs offered by the University is evident in Chart 1 below.

Institutional Strengths:

At the highest level of institutional strengths are the graduate programs in the relevant basic sciences of Micro-, Molecular, and Human Biology, Chemistry and Biochemistry, Physics, as well as Computer Science, Dietetics and Nutrition, Psychology, and Biomedical Engineering. A recent survey revealed great strength and substantial infrastructure in these programs.

In the Department of Biological Sciences 37 regular faculty members utilize 10 teaching labs, 40 research labs, and 4 core facilities—cell culture, DNA sequencing, immunology, and microscopy (confocal, fluorescence, SEM, TEM). In FY2003, biological sciences department members brought in \$4.67 million in contract and grant funds, enrolled 659 undergraduate and 115 graduate majors, and graduated 8 Master's and 3 Ph.D. students.

In chemistry and biochemistry, 19 regular faculty members utilize 8 teaching labs and 19 research labs. The Department of Chemistry is well equipped with analytical facilities including NMR and Mass Spectrometry research spectroscopy facilities. In FY2003, department members brought in \$923,000 in contract and grant support, enrolled 176 undergraduate and 41 graduate majors, and graduated nine students with the Master's degree and 1 with the Ph. D.

The 22 members of the Physics Department taught 29 graduate and 22 undergraduate majors, graduated 2 Master's degree students, and brought in \$1.33 million in contract and grant support during FY2003. The Department has 6 research and three teaching labs.

The School of Computer Science has 19 faculty members who teach 115 graduate and 661 undergraduate majors and brought in \$1.3 million in FY 2003. The School has 20 research and 5 instructional labs. In FY2003, the School graduated 34 Master's and 1 Ph.D. degree student. The School has been developing its strength in bioinformatics and data base management, two areas of keen interest to the health care industry.

In Dietetics and Nutrition, 13 faculty members teach 63 graduate and 130 undergraduate majors and brought in \$1.21 million in contract and grant funds during FY2003 to support their work. They graduated 14 students

with the Master's degree and 1 student with the Ph.D. The Department has 5 research labs and 2 teaching labs.

In 2003, the 26 members of the Department of Psychology faculty taught 127 graduate and 1028 undergraduate majors and brought in \$1.78 million in contract and grant dollars to support their research. They graduated 10 students with the Master's degree and 11 students with the Ph.D. degree. The Department has 11 research labs.

The Biomedical Engineering Program has 8 faculty members, 34 graduate and 25 undergraduate majors and brought in \$1.26 million in FY2003. It has 12 research labs and one instructional lab.

Each of these doctoral programs has special features that lend strong support to the proposed program. These special features are often organized in centers and institutes. The Department of Biological Sciences, for example, has a strong program in Gross Anatomy staffed by two anatomists who serve not only the pre-medical students but also the allied health and nursing students. It hosts the Center for Ethnobotany and Natural Products. The Center investigates the use of natural products in both traditional and modern health systems. Moreover, the Center investigates plants used in medicine but does not limit itself to therapeutic products. Researchers also study the role of natural products in nature, their importance in traditional communities, their biological activity, active constituents, and sustainable use.

The Chemistry Department's International Forensic Research Institute conducts original research in forensic science and provides advanced training to practicing scientists. The Physics Department has strength in biophysics, particularly in the physics of the eye and protein folding. The School of Computer Science has strength in bioinformatics and is especially strong in the management of comprehensive data base systems.

The Psychology Department's great strength in developmental psychology is focused through two centers, the Infant Development Research Center and the Child and Family Psychosocial Research Center. The former studies perceptual, cognitive, social and emotional development in infancy and early childhood; the latter, children's phobias and anxiety. The National Institute of Mental Health funds the Child and Family Psychosocial Research Center's Child Anxiety and Phobia Program. The Program provides

comprehensive diagnostic assessment and state-of-the-art treatments for children and adolescents (7-16 years old) who are experiencing excessive fear and anxiety related problems.

The University through its College of Health and Urban Affairs offers a number of relevant academic programs that support the proposed MD program. The College's Department of Dietetics and Nutrition, for example, offers bachelors, masters, and doctoral degree programs in a field of study widely perceived as neglected in medical education programs. The Department is host to the National Policy and Resource Center on Nutrition and Aging. This center is funded in part by a grant from the Administration on Aging of the Department of Health and Human Services to provide information for nutrition, aging network, and long-term care professionals. It has earned national prominence in its important field and is a powerful adjunct to the doctoral program in Dietetics and Nutrition.

Another focus of strength in the gerontological area is the College's Center on Aging. The Center focuses its research and training efforts on three areas: healthy aging and new retirement paradigms; elders, crime, and the justice system; and services and long-term care. It offers undergraduate and graduate gerontology certificate programs, professional continuing education, and specialized professional training. Center faculty contribute to the University, Miami-Dade County, the State of Florida, and Latin American and Caribbean communities by serving on planning boards and councils, providing data, and making presentations to various governmental organizations with responsibilities for serving older persons. Miami-Dade County now leads the state in the number of elders with over 400,000. That number is projected to grow to 660,000 by 2020, portending a huge increase in the demand for health and medical services, as elders are the group in greatest need of such services.

Relevant strength is also evident in the College of Health and Urban Affairs' School of Nursing. Recently reaccredited, the School works in close partnership with local hospitals to relieve the dire shortage of nursing personnel. Its M.D. to R.N. program for foreign-trained doctors is the first of its kind in the country and has just graduated its first class. The School of Nursing is especially strong in training nursing personnel to provide culturally competent care, a critical consideration in an international city such as Miami. The School of Nursing research has distinct foci in the areas

of minority health issues of elders, women and children, and those with HIV/AIDS.

Another of the College's strong academic programs focused on the special needs of South Florida is the endowed Stempel School of Public Health. In addition to its intense involvement with the local community on important issues such as pediatric lead poisoning, it has made a name for itself internationally as a center of research into the behavioral aspects of the AIDS epidemic. It also has strength in the area of health care disparities, a critical national, state, and local issue.

Specializing in culturally competent professional service to the communities of South Florida is the College of Health and Urban Affairs' School of Social Work. Its Professional Development Center annually provides highest-quality, competency-based training for hundreds of Family Safety staff within the Department of Children and Families in the area from Vero Beach to Key West. Additionally, the Institute on Children and Families at Risk serves as the School's research and development arm focused on culturally responsive services and supports for at-risk children, families and communities.

The University has relevant educational and research strength in the business of health. The College's Health Services Administration Program is a nationally accredited program providing professional education for management careers in health service organizations. It utilizes a variety of local hospitals, mental health programs, emergency medical systems, HMOs, community health centers, and related public health and private agencies to give students supervised field experiences. These same venues function as "practical laboratories" for operational research in health services administration.

Two strong programs in the College of Engineering are relevant to the proposed MD program. As mentioned above, the Department of Biomedical Engineering, with a five million dollar endowment from the Wallace H. Coulter Foundation, soon to be matched by the state, has numerous close ties to all the major biomedical device companies, many smaller biomedical and biotechnological firms, and health care providers. In addition to its degree programs, the Department offers certificate programs in Medical Device Engineering and Medical Instrumentation. This is one of a very few programs in bioengineering that offers both its faculty members and students

clinical rotations during which they experience directly real life situations associated with the use of medical devices and instruments in clinical medicine.

The Biomedical Engineering Program has five primary areas of focus - mechanics, materials, and devices; instrumentation and image/signal processing; drug delivery/tissue engineering; medical physics/nuclear medicine; and cytomics. Both students and faculty will also participate in industrial practice partnerships. The partnerships will result in product development and commercialization of the products and techniques that offer alternative solutions to address the South Florida health care needs.

Also in the College of Engineering, the Center for Advanced Technology and Education has developed new technology for the functional mapping of the brain and the study of key brain disorders and neurorehabilitation. Funded by the National Science Foundation the Center pursues new insights into key physiological aspects of neurosciences to improve the interface between the human brain and computers. The Center works very closely with and shares equipment with brain researchers at Miami Children's Hospital, an affiliate of the proposed MD program. Center researchers have already developed a new, tissue-sparing technique for the surgical treatment of epileptic children.

The development of a new Medical School and the opportunity to innovate in medical education bring a unique opportunity to integrate as much as possible the curriculum, learning practices, and research of all of the health professionals and develop individuals trained in collaborative health care appropriate to the needs of the South Florida area. The current degree program offerings and research activities of the colleges of Arts and Sciences, Health and Urban Affairs, and Engineering as well as the centers and institutes will not, by themselves, enable the University to meet its obligation of adequately responding to the critical need for very well trained health professionals in the South Florida region. This can only be achieved if the University implements an allopathic medical program and is thus able to train the full complement of the health services team in a collaborative way and in a way appropriate to the region.

The new medical school will also provide a great economic benefit to the region. Nationally, allopathic medical programs are catalysts for health-related research and health care quality enhancement both in universities and

in the surrounding communities. National Institutes of Health funding, the most dynamic area of federal support and the most promising for the future, has doubled over the last decade while focusing on medical schools and affiliated programs.

At FIU, the research conducted by the School of Nursing and the allied health sciences involves health promotion, human responses to diseases, and responses to treatment modalities as well as testing new health care equipment and technology for its effectiveness and acceptability. There is a natural link among the allied health sciences and other academic departments such as social work, physical therapy, dietetics and nutrition, communication sciences and disorders, public health, education, and health services administration. A medical school would provide them with a broader, more stable funding base.

Research support from NIH is expected to double again over the next decade following a brief period of consolidation and re-orientation. Health and medical research programs that have the flexibility to innovate such as that proposed here can expect to benefit disproportionately from this growth in federal support. This development in turn will increase the resources and opportunities to improve health care for the citizens of the community.

The implementation of the allopathic medical program will have a significant positive impact on the research programs in biochemistry, biophysics, molecular biology, clinical psychology, and bio-informatics. It will spur research in genomics (creating a new understanding of how, when, why, and to what extent gene products are generated in both healthy and diseased tissue); proteomics (the study of the function and structure of the proteome - the pathobiology of disease due to variations of mutations that affect the function, interactions, and structure of proteins); bio-informatics (an area of study that affords enormous opportunity for biomedicine to interact with and enhance other disciplines in the life sciences - in oncology it would be useful to catalog the molecular changes that cells undergo during their passage from normal to neoplastic to metastasis); and biomarkers (the changes at the biochemical or molecular level that provide information about how a particular cancer will behave. The early detection of cancer biomarkers could provide information on how to treat a cancer and how a particular cancer responds to treatment). These are only a few of the interdisciplinary and multidisciplinary opportunities the addition of the

allopathic medical program will provide the community and the University's partners.

Chart 1
Florida International University
Health and Medical Education Initiative
Academic Programs

Program	Bachelors	Masters	Ph D/MD
Medical and Nursing Sciences			
Medicine (MD)			Proposed
Nursing	X	X	X
Health Sciences			
Dietetics & Nutrition	X	X	X
Physical Therapy		X	
Occupational Therapy	X	X	
Speech Pathology & Audiology		X	
Basic Medical Sciences			
Biology-Micro, Molecular, Human	X	X	X
Chemistry, Biochemistry	X	X	X
Health Sciences	X	X	
Physics, Biophysics	X	X	X
Public and Health Service Administration			
Health Services Administration	X	X	
Public Administration	X	X	X
Public Health		X	Proposed*
Engineering and Medical Technology			
Biomedical Engineering	X	X	X
Health Information Management	X		
Informatics	To be proposed*	To be proposed*	To be proposed*
Computer Science/MIS	X	X	X

Program	Bachelors	Masters	Ph D/MD
Social Medical Sciences			
Exercise Science/Physiology/ Sports Medicine	X	X	
Health/Clinical Psychology			To be developed as a track in existing doctoral program*
Philosophy – Bioethics	X		
Psychology	X	X	X
Religious Studies – Bioethics	X	X	To be proposed*
School Psychology			S
Social Work	X	X	X
Sociology	X	X	X
Special Education		X	X

*** These programs will be implemented from current college resources and enrollment growth funding resources.**

Note: A program that is currently offered is designated with an ‘X’

C. Describe the planning process leading up to submission of this proposal. Include a chronology of activities, listing the university personnel directly involved and any external individuals who participated in planning. Provide a timetable of events for the implementation of the proposed program.

Planning for a medical school at FIU began in earnest in 1995 after high quality health care was identified as a community need and a medical school was identified as a possible component of programming in the area of health and a solution to the challenge. In the course of the University’s early 1990s strategic planning process, the University community had identified health as an area of emphasis. The medical school planning initiative had a ten-year horizon. From the beginning of the planning process, the University sought to forge a partnership with local community-based hospitals that would provide the necessary clinical training.

Vice Provost, later Vice President for Research and Graduate Studies, Dr. Thomas A. Breslin, led the planning effort. In the fall of 1995, he began inviting community-based hospital representatives to join a team exploring the feasibility of an M.D. program offered in conjunction with local private hospitals. In April 1996, he brought together the Medical School Concept Committee composed of local hospital representatives and FIU faculty and staff, to explore the need for and the feasibility of a medical school at FIU, and to present a report to the University President in early fall 1996, or as soon as possible thereafter.

Whether or not the concept of a medical school at FIU was found to be feasible, the Committee was asked to realize five outcomes of the planning process: refinement of the FIU health mission; better identification of FIU health program clientele; identification of programs and degrees required to meet local needs; identification of FIU's comparative advantages; and prioritization of future work in the health area.

After a lengthy period of study and consultation, the Committee developed a White Paper that was circulated in 1997. A copy was made available to the Board of Regents. The consensus of the Committee was that there was a strong need for an additional allopathic medical school in Dade County that would have special strengths in community-based primary care, geriatric medicine, and tropical medicine. It was agreed that FIU was an ideal setting for such a medical school and that underrepresented minority students would be expected to have a strong presence in the student body of an FIU medical school.

There was a consensus that a medical school was feasible if the University would not operate a teaching hospital but relied instead on affiliated community-based hospitals and clinics to provide clinical training. There was also a consensus that a medical school was feasible only if the University strengthened its overall programming in the health and biomedical science areas, and emphasized an interdisciplinary approach to health care provision.

Committee membership was composed of representatives of relevant units from across the University:

- David Bergwall, D.B.A., Director, School of Policy and Management, College of Urban and Public Affairs; Past Chair, Department of Health Services
- Charles Bigger, Ph.D., Department of Biological Sciences, College of Arts & Sciences; Director, Minority Biomedical Research Support Program
- Judith Blucker, Ph.D., Acting Dean, College of Health; Vice Provost, Academic Budget and Personnel
- Thomas A. Breslin, Ph.D., Acting Vice President, Research & Graduate Studies; Chair of the Committee
- F. Chen, Ph.D., Pre-Medical Adviser, Department of Biological Sciences
- Robert Dollinger, M.D., Medical Director, Health and Wellness Center
- Domitila Fox, M.S., Department of Mathematics, College of Arts & Sciences
- Robert George, Ph.D., Anatomist, Department of Biological Sciences
- Jeffrey Horstmyer, M.D., Mercy Hospital
- William Keppler, Ph.D., Department of Public Health; Past Dean, College of Health
- Virginia McCoy, Ph.D., Chair, Department of Public Health, College of Health
- Zaida Morales, M.S., Department of Chemistry, College of Arts & Sciences
- Max Rothman, J.D., Director, South Florida Center on Aging
- Linda Simunek, ARNP, Ph.D., J.D., Dean, School of Nursing
- Karen Sowers Hoag, Ph.D., A.C.S.W., Director, School of Social Work
- Dennis Wiedman, Ph.D., Asst. to the Provost, and Coordinator, University Strategic Planning.

Program Consultants:

- Dr. Ramon Rodriguez Torres, M.D., Immediate Past Chief of Staff, Miami Children's Hospital
- Dr. Eugene Schneller, Ph.D., Counselor to the President for Health Professions Education, Arizona State University; Member of the Commission on the Future of Medical Education of the University of California; Past Chair, Association of University Programs in Health

Administration; and Past Chair, Western Network for Education in Health Administration

- Prof. Valerie J. Smith, Ph.D., Gatty Marine Laboratory, School of Biological and Medical Sciences, University of St. Andrews, St. Andrews, FIFE, KY 16 8LB.

In the summer of 1997, then Chancellor Reed summoned Provost James Mau and Acting Vice President Breslin to meet with him and the presidents of the University of Miami and Florida Atlantic University. He announced that he had encouraged FAU to undertake a Program in Medical Science (PIMS) with UM. When asked by Provost Mau, Dean Clarkson of the University of Miami medical school said there was no room for FIU students in the FAU-UM PIMS program. Chancellor Reed suggested a PIMS between FIU and Nova/Southern University School of Osteopathic Medicine. Provost Mau said that for many years, there had been an agreement for a 7-year combined program between FIU and NSU and, to his knowledge, no FIU student had ever enrolled in it.

President Maidique very soon thereafter reached an agreement with President Lombardi of the University of Florida to enter into a PIMS with FIU, subject to the condition that FIU students train at the UF hospital in Jacksonville because the training facilities at Gainesville were full.

Under the new Chancellor, Adam Herbert, BOR staff and various state universities developed a more expansive approach to public medical education that clashed with FSU's plans to develop a medical school to replace its PIMS. At the March 1999 BOR meeting, the Board of Regents accepted the Chancellor's plan to expand the capacity of the state's four medical schools by 30% (about 150 additional students), start the FAU-UM PIMS, and to direct FSU, FAU, FIU, FAMU, and UCF to submit plans and budgets for PIMS.

At that meeting, MGT of America, Inc., consultants to FSU, presented a report, "An Assessment of the Adequacy and Capacity of Florida's Medical Education System." It noted that Florida needed to import over 2000 physicians per year and by 2020 the need would exceed 3000 per year. It also forecast a probable national shortage of physicians by 2009, leading to a failure by Florida to import enough physicians to satisfy its needs. The report suggested an interim goal of training at least 300 more new physicians per year.

House Speaker John Thrasher championed the FSU plan. Subsequently, in FY 2001, UF and USF received funding for 10 and 16 more medical students respectively, and, in FY 2002, for 30 and 8 more respectively. FAU also received funding for its PIMS program to begin with an inaugural class of 32 students in August 2003.

The next stage of planning for a medical school at FIU began again after the University completed its re-accreditation in 2000 and launched the Millennium Strategic Planning process, its next ten-year strategic planning effort, in 2000-2001. Health was again identified as a strategic University theme as a means of addressing the unmet health care needs of the South Florida region. The allopathic medical program was identified as a major component for the solution to the quality health care concerns of the South Florida region.

The University formed a new Medical School Planning Task Force, a joint effort with the senior staff of local hospitals and engaged Dr Carlos Martini who as a former Vice-President for Medical Education of the American Medical Association for more than eleven years had staff responsibilities over the bodies accrediting medical schools (LCME), residency training (ACGME) and continuing medical education (AACME), to do new feasibility studies and the initial planning of the proposed initiative.

The new Medical School Planning Task Force included:

- Ronald Berkman, Ph.D., Dean, College of Health and Urban Affairs, FIU
- Thomas A. Breslin, Ph.D., Vice President for Research, FIU
- Kelsey Downum, Ph.D., Associate Dean for Research, College of Arts & Sciences; Past Chair, Department of Biological Sciences, College of Arts & Sciences, FIU
- Kenneth Furton, Ph.D., Associate Dean for Budget and Facilities, College of Arts & Sciences; Past Chair, Department of Chemistry, FIU
- Henry Glick, M.D., Chief of Staff, Baptist Health System of South Florida
- Jeffrey Horstmyer, M.D., Chief of Neurology, Mercy Hospital
- Paul Katz, M.D., Vice President for Medical Education, Mt. Sinai Hospital
- Howard Lipman, Vice President for Advancement, FIU
- Christian Patrick, M.D., Ph.D., Chief of Staff, Miami Children's Hospital

- Carlos Martini, M.D., Former Vice-President for Medical Education
American Medical Association, Consultant
- Danielle Hollar, Ph.D., Staff.

Meetings about a possible new medical school at FIU were also held with:

- Manuel Anton, Senior Vice President, Medical Director, Mercy Hospital
- James J. James, Director, Miami-Dade Public Health Department
- John Matuska, President and CEO, Mercy Hospital
- Fred Messing, Executive Vice President and CEO, Baptist Health of
South Florida
- Thomas Rozek, President and CEO, Miami Children’s Hospital
- Steven D. Sonenreich, President and CEO, Mount Sinai Hospital
- Barbara Barzansky, Liaison Committee on Medical Education
- Frank A Simon, Secretary, Liaison Committee on Medical Education

The Task Force issued a two volume feasibility and implementation report prepared by Drs. Carlos Martini and Danielle Hollar. It issued Volume 1, Feasibility Study, in May 2002. It issued an updated edition in January 2003 along with Volume II: Implementation.

In 2002-2003, discussions continued with the four hospitals proposed to be affiliated clinical training sites. Discussions took place with the administration of the medical school at the University of South Florida. Vice President Breslin and Dr. Martini continued to refine the planning documents and involved two additional consultants, Daniel Coleman, Ph.D., past Vice Provost for Academic Affairs and Planning and Institutional Effectiveness and Vice Chair of the Millennium Strategic Planning committee, FIU, and George Dambach, Ph.D., formerly Associate Dean for Research, School of Medicine, and formerly Vice President for Research, Wayne State University. They submitted to the Provost and President a draft document, “Health and Medical Education Initiative.” After consultation with the University community and Eleni Sfakianaki, Medical Executive Director, of the Miami-Dade County Health Department, it was presented to the FIU Board of Trustees and formally accepted in November 2003.

Thereafter, work on refining a program proposal to the Florida Board of Governors took place under the direction of Vice Provost Dr. Thomas A. Breslin, in consultation with the Faculty Senate Task Force, affiliated hospital representatives, health care providers.

III. FIU MEDICAL SCHOOL TIMELINE

RESERVED FOR TIMELINE

IV. Program Quality – Reviews and Accreditation

If there have been program reviews, accreditation visits, or internal reviews in the discipline pertinent to the proposed program, or related disciplines, provide all the recommendations and summarize the University's progress in implementing the recommendations.

The University has specialized accreditation in nursing, physical therapy, occupational therapy, speech pathology and audiology, health service administration, public health, health information management, dietetics & nutrition, social work, school psychology, special education, and exercise sciences/physiology/sports medicine. In addition, the University has completed academic program reviews of all of the life science, physical science, and health science programs during the last three years. The reviews involved comparison with benchmark programs at other universities, the use of outside consultants who are well respected in the relevant field, and public scrutiny of review findings in special public forums. Based on these reviews and the University's strategic planning priorities, investments will be made in the natural sciences, biomedical engineering, and the health sciences in accordance with the institution's strategic directions and the availability of enrollment growth funding.

Program	Recommendation	Response
Health Information Mgt.	Develop a plan to boost enrollment	Double enrollments next 2 years, then grow 10%/year.
	Review certification options	In process
	Improve rate of success on certification exam	Alumni (1990-2003) and employers surveyed annually; course syllabi reviewed and revised to meet needs disclosed in survey. Adjusting program goals as appropriate.
	Address accreditation concerns about curriculum and assessment.	Knowledge content assessment form employed to assure that all knowledge content areas, domains, sub-domains and tasks are covered. SUS Student Assessment of Instruction employed as well.

Program	Recommendation	Response
	Improve Retention	Retention rate to be calculated each year; aim to retain at least 76% of students.
	Develop recruitment and marketing plan	In process
Occupational Therapy	Develop a plan to recruit master's level students	New recruitment materials developed
	Plan to graduate students who will meet or exceed national accreditation rates	Modified testing format to more closely resemble accreditation exam; introduced regular tutoring sessions in key areas; entering students must have 3.0 undergraduate GPA and 1000 on GRE.
	Develop an integrated 5-year MS program	Program is now in university curriculum review and approval process
	Develop a non-thesis option for MS program	Done
	Develop continuing graduate education programs	Have developed with the Center on Aging a certificate program in gerontology for post baccalaureate students, all on-line.
Biomedical Engineering	Assess readiness for doctoral program	Developed Ph.D. Program
	Increase partnerships with FIU departments and industrial concerns	Partnership Program includes all major medical technology firms in area; smaller firms may access labs and equipment.
	Increase federal and private C&G support	C&G income increased to \$1.27 million in FY2003
	Position the Department to participate in the development of medical education at FIU	Department Chair is a Medical School Task Force member
Nursing	Benchmark the program against peer institutions	Done as part of the regular program review
	Increase federal funding	Received \$1.15 from NIH for

Program	Recommendation	Response
		Nurse Anesthetist Program in July 2003; also received \$768,000 from Health Resources and Services Administration, the largest grant in Florida
	Plan to increase student pass rates on the NCLEX Exam	Data analysis conducted annually in October
	Identify doctoral degree and faculty development options, program locations, family practice partnership options, and facilities needs and costs.	Have identified seventeen current faculty members ready to participate in Ph.D. program. Financial and logistical matters under study.
Biological Sciences	Develop a strategic plan that emphasizes graduate enrollment growth and Ph.D. production plan for enhanced multidisciplinary research initiatives in bioinformatics, biomedical, and environmental areas.	Department has emphasized hiring new faculty in biomedical areas, particularly faculty with established track records; Department has re-oriented graduate program to emphasize Ph.D. students with a 6-year target of 90% of funded students being Ph.D. students. Have entered into planning meetings with the Southeast Environmental Research Center to develop a multidisciplinary interdepartmental Ph.D. program in the environmental sciences.
	Address concerns about graduate workloads, C&G research assistantships, and undergraduate advisement	Department has instituted policy that graduate TAs should teach no more than 2 lab courses per semester, as at peer institutions. Department has increased C&G support for graduate students to cover 50% of graduate students. Department has dedicated a full time secretary and a full time

Program	Recommendation	Response
		<p>faculty member to advise undergraduate students at University Park campus. Department has hired an instructor with responsibility for advising undergraduates at Biscayne Bay Campus.</p>
	<p>Expand federal support for shared research equipment, NIH funds, NSF dissertation improvement</p>	<p>Department hiring new faculty with NIH R-01 experience. NIH Minority Biomedical Research Support Program supports biomedical research. Department is putting together a major instrumentation proposal to NIH to develop a biomedical imaging center. Department has acquired EPA dissertation improvement funding at the same level as NSF support and will pursue additional funds from NSF.</p>
Chemistry	<p>Develop a strategic plan that emphasizes graduate enrollment growth and Ph.D. production</p>	<p>New plan calls for 80% Ph.D. students among graduate students, and ratio of RAs has increased to 1-1. Graduate enrollment has more than doubled.</p>
	<p>Plan for enhanced multidisciplinary research initiatives in biomedical, environmental, forensic, and materials sciences including Nanomaterials</p>	<p>Department has focused on environmental chemistry with the Southeast Environmental Research Center. Forensic chemistry group has been formed and is applying for a Ph.D. in that area. A biomedical group has also been formed. In process of hiring a physical chemist to address the materials sciences with an interest in nanotechnology.</p>
	<p>Revise the tenure and promotion guidelines to match C&G and</p>	<p>Guidelines revised in May 2003 to match goals for increased standards for</p>

Program	Recommendation	Response
	refereed publication goals.	publications and increased C&G standards
Physics	Develop a strategic plan that emphasizes enrollment growth and Ph.D. production	Department has switched graduate enrollment strategy to enroll almost exclusively Ph.D. students. Additional undergraduate courses have been developed and offered to draw more students and increase number of majors by offering a B.A. in physics and tracks in business and physics and education and physics.
	Identify and plan for increased interdisciplinary research initiatives in areas such as nanotech, quantum computing, and biophysics	Department has hired another nanotech specialist and is proceeding with the hiring of a fifth, a total of 4 experimentalists and 1 theoretician; will work with Arts & Sciences and Engineering to apply for a state-funded Research Center of Excellence. Department is hiring 2 biophysicists to strengthen the biophysics groups and is already participating with the chemists in various biotech projects.
	Increase C&G support for Research Assistants	Brought in more contract and grant revenues and support more students with these funds.
	Develop ties with ORNL similar to those with TJNL so that each research active faculty member produces a Ph.D. each year.	Have established direct contact with ORNL program officials. Recalibrating to establish a target appropriate to a small department with a limited number of assistantships and fellowships.

V. *Curriculum*

- A. *For all programs provide a sequenced course of study and list the expected specific learning outcomes and the total number of credit hours for the degree. Degree programs in the science and technology disciplines must discuss how industry-driven competencies were identified and incorporated into the curriculum, as required in FS 1001.02 (6). Also, indicate the number of credit hours for the required core courses, other courses, dissertation hours and the total hours for the degree.*

The planning of the curriculum of an MD program is the responsibility of the medical school faculty. The first task of the founding faculty will be the definition of the expected learning outcomes, the final design of the curriculum, and the preparation of the sequenced course of study. The FIU new medical school curriculum will follow the general requirements specified by the Liaison Committee on Medical Education (LCME) and described below:

- In 1999-2000, there was an average of 37 required weeks of instruction during the first year curriculum in American medical schools, 36 weeks for the second year, 46 weeks for the third, and 35 weeks for the fourth year.
- Medical students in the third and fourth years devote all their time to required clinical clerkships and electives in selective experiences in clinical institutions. Clinical education has become dispersed geographically, being provided in a variety of settings, including teaching hospitals, community-based clinics, health departments, physician offices, etc. The average number of weeks for clerkships in clinical disciplines is 5.7 weeks for family practice; 11.6 for internal medicine; 3.7 for neurology; 6.8 for obstetrics and gynecology; 7.9 for pediatrics; 6.5 for psychiatry; 8.4 for surgery 8.4, and 5.3 weeks for surgical specialties.
- Part of the clerkship time is spent in ambulatory care settings. At the present time, these activities are growing in importance in the medical curriculum of most medical schools.
- A standard core curriculum in U.S. medical education programs includes courses, with an average number of weeks of teaching per subject:
 - Cell Biology/Histology/Micro Anatomy—14 weeks

- CNS/Neuroanatomy/Neuroscience—12 weeks
- Biostatistics/Epidemiology/Public Health—11 weeks
- Anatomy/Gross Anatomy/Embryology—18 weeks
- Pharmacology—22 weeks
- Pathophysiology—22 weeks
- Pathology—16 weeks
- Immunology/Microbiology—16 weeks
- Genetics—6 weeks
- Introduction to Clinical Medicine/Clinical Skills—18 weeks
- Ambulatory Care—18 weeks
- Family/Community Medicine—18 weeks
- Internal Medicine—13 weeks
- Obstetrics-Gynecology—18 weeks
- Pediatrics—10 weeks
- Primary Care—4 weeks
- Psychiatry—10 weeks
- Surgery—11 weeks
- Radiology—5 weeks
- Emergency Medicine—5 weeks
- Geriatrics—13 weeks

Program Elective Offerings will be selected from a variety of health care, health care improvement, communication, social science, and contemporary medical sciences courses.

B. Describe the admission standards and graduation requirements for the program

Academic Requirements for Admission to the Medical School

A Medical School Admission Committee will be responsible for setting the admissions standards and selecting the student candidates.

The FIU Medical School will require a Bachelor's Degree or its equivalent, from an accredited institution of Higher Education.

In general, successful applicants will have completed at least one year each of college-level biology, physics, English, and chemistry (requirements vary by discipline, in some cases more than 1 year may be required) with a science GPA of 3.5 or higher.

Applicants will be required to take the Medical College Admission Test (MCAT). Although some medical schools have other alternative routes of admission that do not include this requirement, any such policy decision would be made by the Medical School Admissions Committee.

Over the years, there has been considerable discussion about the fairness of standardized tests like the MCAT. However, when used in combination with the other academic and non-academic sources of information mentioned earlier, the MCAT is a good predictor of course grades and the likelihood of graduation without academic delay.

Non-Academic Requirements for Admission to Medical School

In addition to the academic requirements listed above, the FIU Medical School will expect that candidates for the MD degree be able to perform all the essential functions expected of a medical care practitioner. As such, they should be able to develop skills that require the abilities of observation, communication, coordination of both gross and fine muscular movements, functional use of the senses of touch and vision and the ability to synthesize and apply complex information. Furthermore, a number of social and behavioral attributes also are expected, such as compassion, integrity, and interpersonal skills. Interviews conducted by admission committees and experienced faculty members are used to assess prospective students on these non-academic dimensions.

Other sources of information used by the admission committee may include:

- Breadth and difficulty of undergraduate coursework.
- Letters of evaluation from undergraduate advisors or others.
- Involvement in extracurricular activities such as student government and community service.
- Involvement in and quality of health-related work and research.
- State or county legal residence.

Graduation Requirements

The degree of Doctor in Medicine (M.D.) will be granted only to candidates who have reached the age of 21 years and are of good moral character, as

required by law. They must also possess a good moral reputation. They must have been enrolled at least four academic years as full-time medical students and have satisfactorily completed the required work and passed the prescribed examinations. They must have taken and submitted acceptable scores from the United States Medical Licensing Examination. Step I must have been taken between the second and third year; Step II, anytime during the fourth year prior to graduation. During their senior year, candidates must have taken and passed an OSCE, Objective Structured Clinical Examination. They must also have acquired certification in Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS). They must also have presented a satisfactory record of all procedures performed during their Junior and Senior years. Finally, candidates for the MD degree must have discharged all financial obligations to the School and satisfied all requirements of the Student Health Service.

Students who have complied with all these regulations are recommended to the Florida International University Board of Trustees for the degree of Doctor of Medicine. Attendance at the Annual Commencement Exercises is required for all degree candidates. Degrees may be conferred in absentia only upon prior approval obtained from the Office of the Dean.

Honors

Prior to graduation, a faculty committee reviews the academic performance of all students to ascertain which students, if any, merit the receipt of the Degree of Doctor of medicine with Honors. Honors are classified as Cum Laude, Magna Cum Laude, and Summa Cum Laude. Uniformly high levels of academic performance, completion of creditable research, and other academic and personal characteristics are considered in extending these honors.

Distinction in Research

The degree of Doctor of Medicine with Distinction in Research may be awarded to selected students who satisfy the rigorous requirements established for this degree. Information concerning this honor is available from the Graduate Studies Office.

Licensing Examinations

A graduate of Florida International School of Medicine who wishes to obtain a license to practice medicine must take the United States Medical Licensing Examinations. Graduates of the School will be admitted unconditionally to these examinations.

Residency and Fellowship Programs

Upon completion of medical school and participation in the national Resident matching Program, a student enters the world of Graduate Medical Education (GME) in one of the clinical specialties that provide three to seven years of advanced clinical training leading to eligibility for certification by the various specialty boards. Fellowships for additional clinical or research training in the subspecialty disciplines will also be available at the affiliated hospitals of the Florida International University Medical School for those residents who plan to pursue an academic, research, or subspecialty-oriented career.

C. List the accreditation agencies and learned societies that would be concerned with corresponding bachelor or master's programs associated with the proposed program. Are the programs accredited? If not, why?

There are no corresponding bachelor or master's programs associated with the proposed MD program. There are, however, distinct health programs that have their own separate accrediting agencies. Below, we first discuss accreditation of MD programs in the U.S. and their professional governance. We then end this discussion with a list of FIU's numerous, accredited health programs as a testimony to its decades of experience in dealing with health-related accreditation issues.

Accreditation

The Liaison Council on Medical Education accredits medical school programs. Residency training is accredited by the Accreditation Council for Graduate Medical Education and professional/continuing education by the Accreditation Council for Continuing Medical Education. The LCME requires that a program leading to the MD degree in the United States meet the standards of accreditation set by its organization, so that its graduates

will be prepared to enter and complete graduate medical education, to qualify for licensure, to provide for competent medical care, and to have the educational background necessary for continued learning.¹ Accreditation is granted on the basis of judgment that there is an appropriate balance between the size of the enrollment in each class and the total resources of the program, including the faculty, physical facilities, and the budget.

The Education of Medical Professionals

General description

Medical education in the United States is regulated by a voluntary system of accreditation and peer review first developed by the medical profession and medical educators in the 1920's. This system of accreditation, adopted by medical schools in the United States, is considered the best system of quality assessment for medical education in existence and hence has been copied by many other countries. The accreditation principles and processes of medical schools have become a model for most of the higher education systems in this country and abroad.

Accreditation allows considerable variation between medical education programs, resulting in a very welcome diversity among the schools as far as how, what, and where medical students are taught. The broad variation in medical education programming provides great opportunity for a new medical school at Florida International University (FIU).

Allopathic Medical Education and Licensing in the United States

From the early 20th century, medical education in the United States has occurred in two phases. These two phases are part of a complicated system of accreditation, licensing, and certification that have been developed, through the decades, to guarantee high quality medical practice.

The first phase begins after college. Students must take a standardized test, the Medical College Admission Test (MCAT) and go through a rigorous screening process. Once admitted to a medical school, the student begins a four-year program referred as “undergraduate medical education.”

¹ Liaison Committee on Medical Education, (2001, September 12).

The second phase of medical education takes place after graduation from medical school. The new graduate has to complete a period of “graduate medical education,” referred to as the “residency,” that will vary, according to the medical specialty selected, from three to seven years. For some specialties, additional years of training, called the “fellowship,” are required in order to enter a subspecialty.

Finally, licensing is granted when the student graduates and completes a minimum of three years, in most states, of graduate medical education.

Medical education is provided in 125 accredited medical schools and more than 400 major teaching hospitals and health systems throughout the United States. Seventy-four of these schools are public and 51 are private.

102,446 full-time faculty, 17,082 part-time faculty, and 142,119 volunteer-faculty members teach medical students. Overall, more than a quarter-million individuals participate in the education of medical students. The number of faculty members has increased constantly over the years, especially clinical faculty (five percent increase from 1998 to 1999). From 1985 to 1999, there was a 72 percent increase in the number of clinical faculty, and only a 24 percent increase in the number of basic sciences faculty. This increase is testimony to the growing importance that the medical community attaches to the education of new doctors and portends strong support from the local medical community in Miami for the proposed program.

Governance of Medical Education

Allopathic medical education and the practice of medicine in the United States are governed by a series of boards and partnerships that include representatives from the academic and practitioner communities. Many boards have members-at-large as well as public and government representatives. The most important boards for allopathic medical education include:

- The Liaison Committee on Medical Education (LCME)
- The Accreditation Council for Graduate Medical Education (ACGME)
- The Accreditation Council for Continuing Medical Education (ACCME)
- The National Board of Medical Examiners (NBME)

- The National Residency Matching Program (NRMP).
- The American Board of Medical Specialties (ABMS)
- The Education Council for Foreign Medical Graduates (ECFMG)

Two professional associations, responsible for policies and programs in medical education, are also involved in the governance of medical education. In fact, these two organizations, listed below, co-sponsor and co-staff the seven previously mentioned boards.

- The Association of American Medical Colleges (AAMC)
- The American Medical Association (AMA)

Other important organizations, within this extensive network of partnerships are the following:

- The American Hospital Association (AHA)
- The Joint Commission of Health Care Organizations (JCHCO)
- The Federation of State Medical Boards (FSMB)
- The Council of Specialists Medical Societies (CSMC)
- The fifty four licensing jurisdictions of the United States

The education of students and physicians is linked to more than 90 additional academic and professional societies.

FIU is accredited by a number of health-related organizations that are of great importance when operating a medical school. The following agencies have accredited health professionals programs at the University:

- Accrediting Commission on Education for Health Services Administration
- American Dietetics Association
- American Medical Association
- American Health Information Management Association
- American Occupational Therapy Association
- American Physical Therapy Association
- American Society of Clinical Pathologists
- Commission for the Accreditation of Allied Health Education
- Council for Education for Public Health
- Florida State Board of Nursing

- National Association of Colleges of Nursing
- National League of Nursing Education

D. Provide a one or two sentence description of each required or elective course.

A complete, detailed curriculum will be designed by the new faculty to be appointed in the medical school. Therefore, it is premature to describe each course. In Section IV, Curriculum, we have described the subjects that, according to accreditation criteria, are considered the minimum required educational content of a medical school program.

E. Describe briefly the anticipated delivery system for the proposed program as it may relate to resources, e.g., traditional delivery on main campus; traditional delivery at branches or centers; or nontraditional instruction such as instructional technology (distance learning), self-paced instruction, and external degrees. Include an assessment of the potential for delivery of the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to the feasibility of shared courses utilizing distance learning technologies, and joint-use facilities for research or internships.

Medical schools are very complex organizations that offer not only education but also provide services to the community and perform important research activities. All the different factors that affect the United States health care system also affect medical schools. The high cost of providing care, the need for efficiency and accountability, the competition between professionals and health systems, the rapid growth of technology, the demands from an ever more informed population, and the development of new forms of managed care are factors to be considered with respect to the development and success of a new medical school.

The FIU Medical School will follow a growing trend in medical education in the USA, to integrate the teaching of basic and clinical sciences. From the first year of their medical education, students will be in contact with patients in different settings, ambulatory, hospitalized, in long-term care or in the community.

Most of the teaching will be provided in small groups and all the clinical teaching will take place in either doctor's offices or in health centers in the community or in the four affiliated hospitals and the health centers that comprise the consortium to be described in subsequent pages. The basic sciences subjects will be taught in the current and new facilities and laboratories being completed at the University.

Organizing the teaching of the last two years of the medical curriculum, usually called the clinical years, is probably the most challenging aspect of developing a new medical school. Students at this stage of their medical education receive instruction in hospitals and clinics, caring for a large number of diverse patients. Many medical specialists participate in the clinical teaching that has to be provided in a real working environment, with all the pressures of delivering different types of patient care.

The exact models for providing clinical training vary among medical schools in the United States. In one model, medical schools build and use their own university hospitals to teach their medical students. Although the construction and management of university teaching hospitals is a daunting operation, because of the cost and the complexity, approximately 53 medical schools use this model

The model that includes the development of a university hospital is not considered a viable option with respect to the creation of a new medical school at FIU. The cost, the complexity of the health care market, and the certain opposition of the local health care organizations, demand other solutions to the problem of clinical care teaching.

The model for the proposed new medical school adopted by FIU is consistent with the FIU's strategic plan, which calls for greater engagement with the community. The model is a fairly common partnership model, appropriate for the South Florida context. For the clinical training phase, this model relies on affiliations among the medical school and local health organizations that are owned and operated by different types of agencies.

The affiliation model is particularly applicable for Miami-Dade County because the region is blessed with a plethora of very high quality, technically sophisticated institutions that are interested in participating in the development of the new medical school. Hence, FIU has the opportunity to develop a medical degree program with clinical training provided through a

network of hospitals and other community-based training sites in Miami-Dade County.

Local health care organizations are eager to participate in clinical training with FIU because affiliation with a public university presents several advantages for a health care organization. Local health care organizations that are part of the Hospital Consortium (“Consortium,” described below) recognize advantages to partnering with medical schools. Some advantages include:

- Medical education in a hospital or a health center contributes to the improvement of the quality of patient care.
- A university-affiliated hospital has competitive advantages in attracting patients.
- Affiliation with a medical school facilitates the recruitment of professional staff for the hospital, particularly staff members who value the opportunities for professional promotion.
- Affiliation with a medical school facilitates the development and accreditation of residency programs.
- Many doctors are interested in education and research. Affiliation with a medical school provides the possibility of such activities to the hospital staff.
- The ability to practice near a teaching hospital also attracts high quality community physicians and provides a strong incentive to remain in their local practices.
- Affiliation with a public university can facilitate access to public funds available for residency and fellowship education, patient care and research.

The state of Florida has six designated statutory teaching hospitals. They are hospitals designated to serve the needs of medically indigent patients. These hospitals are:

- Jackson Memorial Hospital, Miami
- Orlando Regional Health Care System
- Tampa General Hospital
- Mount Sinai Medical Center, Miami
- Shands Health Center, Gainesville
- University Medical Center, Jacksonville

FIU has consulted with the largest health care groups in the Miami-Dade County and has developed a Hospital Consortium including four institutions. These institutions have been actively meeting with FIU to work on a feasibility plan for the new medical school.

The Consortium consists of the following institutions:

- Mount Sinai Medical Center
- Miami Children's Hospital
- Mercy Hospital
- Baptist Health South Florida

This Consortium has agreed to support the development of and to actively participate in the proposed operation of the new medical school. This represents a most important achievement, and it certifies the recognition that FIU as a public university can and should play a broader role in providing for the health and well-being of the people of South Florida.

FIU has also initiated discussion to add a fifth member to the Consortium, the Health Choice Network. The Network is community-based, not for profit, 501 (c)(3) organization representing a group of community health centers, providers and organizations committed to primary and preventive health care for underserved populations.

Health Choice Network includes ten community health centers and one mental health center serving more than 200,000 patients annually, more than 100,000 of them residents of the South Florida region. The Network's population in Florida--the network also includes centers in two other states--is 44 % Hispanic and 30 % African American. Over 68 % of its clients are below the Federal Poverty Level.

Health Choice Network constitutes an ideal environment for medical education in the community and the development of primary care programs. Our proposed partnership with the Network involves staffing of the centers by FIU faculty, collaboration on the development of medical information systems, training sites for medical students in ambulatory and preventive care, and collaborative population medicine research.

The role of the Consortium is both educational and institutional. It will advise in all matters relating to medical education and will provide institutional support to the new school. The specific objectives of the consortium are:

- Hospitals and selected staff of the consortium, as explained below, will be responsible for the clinical education of FIU medical students and will host the clinical departments of the medical school.
- Hospitals will participate in the recruitment and appointment of clinical faculty.
- The Consortium will also provide hospital privileges to FIU appointed faculty, in accordance with their own internal credentialing rules and policies.

The Consortium, with its many hospitals and institutes, consists of a total of 3,349 beds, 5,660 medical doctors, and at least 11 Health Centers in South Florida. (Some of the hospitals, like Mercy, also have hospital-owned ambulatory facilities.) The formal mechanism of affiliation of these institutions to FIU will be developed once a decision is adopted concerning the new medical school. The members of the Consortium are described briefly below.

Mount Sinai Medical Center and Miami Heart Institute

Mount Sinai Medical Center will be the primary affiliated hospital for the proposed new medical school at FIU. The Medical Center has four campuses – the north and south campuses in Miami Beach, and two others in Aventura and Miami. With assets of \$100 million dollars, it is one of the six designated statutory teaching hospitals in the state of Florida.

Mount Sinai Medical Center is the largest, independent, not for profit teaching hospital in South Florida, and includes 1,130 licensed acute and long-term beds and 1,116 physicians. It admits more than 20,000 patients a year and performs 16,700 surgeries annually. The Joint Commission on Accreditation of Healthcare Organizations, the Graduate Council for Graduate Medical Education, and the Accreditation Council for Continuing Medical Education accredit Mount Sinai.

Mount Sinai Medical Center already participates in medical education. Through its Department of Medical Education and the Behrman Center for

Medical Education, Mount Sinai offers medical student electives for the University of Miami in General Surgery, Internal Medicine Anesthesiology, Cardiology, Emergency Medicine, Gastroenterology, Infectious Diseases, Nuclear Medicine Ultrasound, Pathology and Laboratory Medicine, Pulmonary Diseases, Radiology, and Thoracic and Cardiovascular Surgery. It also runs accredited residency programs in Internal Medicine, Surgery, Cardiology, Pathology and Laboratory Medicine.

Miami Children's Hospital

Miami Children's Hospital, located just outside of Coral Gables, was established in 1950. The Hospital gained early prominence as an international center for people suffering from poliomyelitis. Today, the hospital treats more than 175,000 patients each year in 268 pediatric and neonatal beds and in its clinics.

More than 650 physicians provide services at what are called "Centers of Excellence" in cardiology, hematology/oncology, neuroscience, pulmonology, preventive medicine, and intensive care – in all more than 40 pediatric specialties and subspecialties. The neonatology division admits more than 375 newborns each year.

Miami Children's Hospital currently trains 60 residents, in specialty areas including critical care, anesthesia, emergency medicine, neurology, and pediatric surgery. Miami Children's also operates an extensive international tele-education program that reaches more than 70 sites in Latin American and Caribbean countries. Miami Children's Hospital is the site of collaborative research work in pediatric neurosurgery between the MCH Brain Institute and the FIU Center for Advanced Technology in Education.

Miami Children's has the only freestanding pediatric cardiac intensive care unit and the only freestanding pediatric trauma center in the state of Florida. Miami Children's Hospital will assume responsibility for the teaching of pediatrics to the FIU medical students.

Mercy Hospital

Mercy Hospital is a comprehensive health care system with 512 beds, 900 physicians, and 28 medical specialties. It is a member of Catholic East, a network that has 33 acute care hospitals and 42 free standing and hospital

based skilled nursing facilities from Maine to Florida. Mercy Hospital also includes a 120-bed Nursing Center, and centers in Rehabilitation, Oncology, and Cardiology.

Mercy Hospital opened its doors in 1950, and it is considered one of the most culturally sensitive health organizations in the area, serving the majority of the Hispanic population of the area. Mercy Hospital also is an important health care provider for international patients, mainly from Latin America and the Caribbean. Responding to a growing demand, Mercy is initiating construction of a four-story, 90,000 square feet building for an ambulatory care center and other outpatient programs.

Baptist Health South Florida

Baptist Health South Florida operates a total of 1,439 licensed beds. Prior to the acquisition of Doctors Hospital in October 2003, Baptist Health South Florida hospitals admitted more than 61,000 patients and provided more than 301,000 days of patient care. The system also generated 9,000 deliveries and 41,000 surgical cases.

Baptist Health South Florida facilities provide services ranging from primary to tertiary care, including rehabilitation. These services are provided by nearly 2,000 physicians at multiple hospitals, some of which are located close to the University Park campus of FIU. The facilities include:

- Baptist Hospital of Miami
 - Baptist Children's of Miami
 - Miami Cardiac and Vascular Institute
- Doctors Hospital
- Homestead Hospital
- Mariners Hospital
- South Miami Hospital

In addition to inpatient services, Baptist health South Florida also provides outpatient diagnostic and urgent care services via eight different sites throughout southern Miami-Dade County.

Baptist Health South Florida does not participate in the education of medical students at the present time, but is building a new facility (West Kendall Baptist Hospital) in the vicinity of the FIU campus, which will be the

educational institution to be associated as University Hospital to the FIU Medical School.

The Health Choice Network of Community Health Centers has been described above.

The delivery system and educational methodologies of FIU Medical School will enforce the following concepts:

- An emphasis on the primacy of the patient interest over all other considerations
- Use of standardized patients
- A concern for assuring a racially and ethnically diverse physician population to meet the needs of the medically underserved
- Cultural diversity teaching incorporated as part of the curriculum
- The use of learning objectives in curricula design
- Practice-based curricula, emphasizing clinical practice
- Learning programs, planned around outcomes to make them more relevant
- The use of educational outcomes as a component of the reimbursement mechanism of faculty
- Curricula committees with new responsibilities in student evaluation
- Medical education based on multi-site locations, supported by information technology
- The migration of clinical teaching to ambulatory settings
- The use of community physicians as teachers
- The use of clinics and physicians' offices for teaching
- Increased student exposure to managed care settings, nursing homes, hospices, homeless shelters, schools, free clinics, and any place where patient care is provided
- Increased integration of, and more coordination between, disciplines associated with health
- Curricula that reflect effective, multi-professional learning
- Interdisciplinary subjects integrated into the clinical curriculum
- Centralized management and integrated institutional responsibility for the design and management of the curricula
- A shift from faculty-centered instruction to student-centered learning and self-directed learning

- The requirement that students take both Step 1 and Step 2 of the US Medical Licensing Examinations
- The utilization of a final comprehensive clinical examination
- Students having early contact with patients
- An emphasis on good communication skills training
- The application of computer technology to education
- The use of distance learning
- The use of OSCEs (objective structured clinical examinations)

VI. Assessment of Current and Anticipated Faculty

- A. Use Table VI-I to provide information about each existing faculty member who is expected to participate in the proposed program by the fifth year. Append to the table the number of master's theses directed, number of doctoral dissertations directed, and the number and type of professional publications for each faculty member.***

There are a number of faculty members in different colleges of FIU who have taught in a medical education program. A number of current FIU faculty have already expressed their interest in teaching in the new medical school. Many of them will probably have joint appointments to their present colleges and the new medical school.

The medical school dean provides leadership for the medical school and must have enough autonomy and authority to be fully responsible for all educational, research-related, and patient-care activities of his/her faculty. This level of responsibility is a precondition for receiving accreditation from the LCME. All faculty members of the new schools will be chosen through a search and screen process. Accreditation standards are very specific about the supervision and control of medical school faculty by the school authorities. These principles will be respected. Accordingly, the selection, appointment and supervision of all faculty members will be the responsibility of the medical school chairpersons, the associate deans and ultimately, the medical school dean.

Successful candidates will present credentials and experience appropriate to the rank and discipline to which they are appointed.

B. Also use Table VI-I to indicate whether additional faculty will be needed to initiate the program, their faculty code (i.e., A, B, C, D, or E as detailed in the lower portion of Table VI-I), their areas of specialization, their proposed ranks, and when they would be hired. Provide in the narrative the rationale for this plan; if there is no need for additional faculty, explain.

During its first academic year, the FIU Medical School should have (pending funding) a dean, an associate dean, two assistant deans, nine chairpersons, and sixteen support positions. In its fifth year, when the School has its full complement of administrators, faculty, and staff, there will be 8 central administrators, 116 faculty members, and 56 support positions. Table VI-I below provides a timetable for hiring as the program builds.

**Table VI-I
FACULTY PARTICIPATION IN PROPOSED DEGREE PROGRAM BY FIFTH YEAR**

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/ Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (portion of Person-year)
				Contract Status (Tenure status or equivalent)	Highest Degree Earned		
C	New Hire - Dean	Medical Education	Professor		MD	2004	1.00
C	New Hire - Associate Dean	Medical Education	Professor		MD/Ph D	2004	1.00
C	New Hire - Assistant Dean	Medical Education	Associate		MD/Ph D	2004	1.00
C	New Hire - Faculty	Anatomy	Professor		MD/Ph D	2004	1.00
C	New Hire - Faculty	Physiology	Professor		MD/Ph D	2004	1.00
C	New Hire - Faculty	Biochemistry	Professor		MD/Ph D	2004	1.00
C	New Hire - Faculty	Behavioral Sciences	Professor		MD/Ph D	2004	1.00
C	New Hire - Faculty	Pathology	Professor		MD/Ph D	2004	1.00
C	New Hire - Faculty	Internal Medicine	Professor		MD/Ph D	2004	1.00
C	New Hire - Faculty	Family Medicine	Professor		MD/Ph D	2004	1.00
C	New Hire - Faculty	Pediatrics	Professor		MD/Ph D	2004	1.00
C	New Hire - Faculty	Med Ed	Professor		MD/Ph D	2004	1.00

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/ Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (portion of Person-year)
				Contract Status (Tenure status or equivalent)	Highest Degree Earned		
C	New Hire - Faculty	Preventive Medicine	Professor		MD/Ph D	2005	1.00
C	New Hire - Faculty	Languages	Professor		MD/Ph D	2005	1.00
C	New Hire - Faculty	Informatics	Professor		MD/Ph D	2005	1.00
C	New Hire - Faculty	Micro-Immuno	Professor		MD/Ph D	2005	1.00
C	New Hire - Faculty	Pharmacology	Professor		MD/Ph D	2005	1.00
C	New Hire - Faculty	Psychiatry	Professor		MD/Ph D	2005	1.00
C	New Hire - Faculty	Ob & Gyn	Professor		MD/Ph D	2005	1.00
C	New Hire - Faculty	Surgery	Professor		MD/Ph D	2005	1.00
C	New Hire - Associate Dean	Medical Education	Associate		MD/Ph D	2006	1.00
C	New Hire - Assistant Dean	Medical Education	Associate		MD/Ph D	2006	1.00
C	New Hire - Faculty	Anatomy	Associate		MD/Ph D	2006	1.00
C	New Hire - Faculty	Anatomy	Associate		MD/Ph D	2006	1.00
C	New Hire - Faculty	Physiology	Associate		MD/Ph D	2006	1.00
C	New Hire - Faculty	Physiology	Associate		MD/Ph D	2006	1.00
C	New Hire - Faculty	Biochemistry	Associate		MD/Ph D	2006	1.00

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/ Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (portion of Person-year)
				Contract Status (Tenure status or equivalent)	Highest Degree Earned		
C	New Hire - Associate Dean	Medical Education	Associate		MD/Ph D	2007	1.00
C	New Hire - Assistant Dean	Medical Education	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Biochemistry	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Preventive Medicine	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Preventive Medicine	Assistant		MD/Ph D	2007	1.00
C	New Hire - Faculty	Informatics	Assistant		MD/Ph D	2007	1.00
C	New Hire - Faculty	Informatics	Professor		MD/Ph D	2007	1.00
C	New Hire - Faculty	Lang	Assistant		MD/Ph D	2007	1.00
C	New Hire - Faculty	Informatics	Assistant		MD/Ph D	2007	1.00
C	New Hire - Faculty	Behavioral Sciences	Assistant		MD/Ph D	2007	1.00
C	New Hire - Faculty	Behavioral Sciences	Assistant		MD/Ph D	2007	1.00
C	New Hire - Faculty	Micro-Immunology	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Micro-Immunology	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Pathology	Associate		MD/Ph D	2007	1.00

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/ Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (portion of Person-year)
				Contract Status (Tenure status or equivalent)	Highest Degree Earned		
C	New Hire - Faculty	Pharmacology	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Pathology	Assistant		MD/Ph D	2007	1.00
C	New Hire - Faculty	Anatomy	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Family Medicine	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Pediatrics	Associate		MD/Ph D	2007	1.00
C	New Hire - Faculty	Ob &Gyn	Professor		MD/Ph D	2007	1.00
C	New Hire - Faculty	Physiology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Pharmacology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Pharmacology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Anatomy	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Anatomy	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Physiology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Physiology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Biochemistry	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Biochemistry	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Biochemistry	Assistant		MD/Ph D	2008	1.00

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/ Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (portion of Person-year)
				Contract Status (Tenure status or equivalent)	Highest Degree Earned		
C	New Hire - Faculty	Prev Medicine	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Micro-Immunology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Micro-Immunology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Pathology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Pathology	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Internal Medicine	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Internal Medicine	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Internal Medicine	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Internal Medicine	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Family Medicine	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Family Medicine	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Psychiatry	Associate		MD/Ph D	2008	1.00
C	New Hire - Faculty	Surgery	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Surgery	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Surgery	Assistant		MD/Ph D	2008	1.00
C	New Hire - Faculty	Surgery	Assistant		MD/Ph D	2008	1.00

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/ Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (portion of Person-year)
				Contract Status (Tenure status or equivalent)	Highest Degree Earned		
C	New Hire - Faculty	Surgery	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Surgery	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Micro-Immunology	Associate		MD/Ph D	2009	1.00
C	New Hire - Faculty	Pathology	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Pharmacology	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Pharmacology	Associate		MD/Ph D	2009	1.00
C	New Hire - Faculty	Behavioral Sciences	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Languages	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Psychiatry	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Psychiatry	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Pediatrics	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Informatics	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Ob & Gyn	Assistant		MD/Ph D	2009	1.00
C	New Hire - Faculty	Internal Medicine	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Internal Medicine	Associate		MD/Ph D	2010	1.00

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/ Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (portion of Person-year)
				Contract Status (Tenure status or equivalent)	Highest Degree Earned		
C	New Hire - Faculty	Fam Medicine	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Fam Medicine	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Pediatrics	Associate		MD/Ph D	2010	1.00
C	New Hire - Faculty	Ob &Gyn	Associate		MD/Ph D	2010	1.00
C	New Hire - Faculty	Ob &Gyn	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Psychiatry	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Psychiatry	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	General Surgery	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	General Surgery	Associate		MD/Ph D	2010	1.00
C	New Hire - Faculty	General Surgery	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	General Surgery	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Medical Education	Associate		MD/Ph D	2010	1.00
C	New Hire -Assistant Dean	Medical Education	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Fam Medicine	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Pediatrics	Assistant		MD/Ph D	2010	1.00
C	New Hire - Faculty	Internal Medicine	Assistant		MD/Ph D	2010	1.00

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/ Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (portion of Person-year)
				Contract Status (Tenure status or equivalent)	Highest Degree Earned		
C	New Hire - Faculty	Internal Medicine	Associate		MD/Ph D	2010	1.00
C	New Hire - Faculty	Informatics	Associate		MD/Ph D	2010	1.00
C	New Hire - Faculty	Internal Medicine	Assistant		MD/Ph D	2011	1.00
C	New Hire - Faculty	Internal Medicine	Assistant		MD/Ph D	2011	1.00
C	New Hire - Faculty	Fam Medicine	Assistant		MD/Ph D	2011	1.00
C	New Hire - Faculty	Fam Medicine	Assistant		MD/Ph D	2011	1.00
C	New Hire - Faculty	Pediatrics	Assistant		MD/Ph D	2011	1.00
C	New Hire - Faculty	Pediatrics	Assistant		MD/Ph D	2011	1.00
C	New Hire - Faculty	Ob & Gyn	Assistant		MD/Ph D	2011	1.00
C	New Hire - Faculty	Ob & Gyn	Assistant		MD/Ph D	2011	1.00
C	New Hire - Faculty	General Surgery	Associate		MD/Ph D	2011	1.00
C	New Hire - Faculty	General Surgery	Assistant		MD/Ph D	2011	1.00

Faculty CODE	Corresponding Faculty Position Category in TABLE 3 for the Fifth Year	Proposed Source of Funding for Faculty	TOTAL 5th Year Workload by Budget Classification
A	Current General Revenue	Existing Faculty -- Regular Line	0.00
B	Current General Revenue	New Faculty -- To Be Hired on Existing Vacant Line	0.00
C	New General Revenue	New Faculty -- To Be Hired on a New Line	60.00
D	Contracts & Grants	Existing Faculty -- Funded on Contracts & Grants	56.00
E	Contracts & Grants	New Faculty -- To Be Hired on Contracts & Grants	0.00
Overall Total for 5th Year			116.00

- C. Use Table VI-I to estimate each existing and additional faculty member's workload (in percent person-years) that would be devoted to the proposed program by the fifth year of implementation, assuming that the program is approved. (Note: this total will carry over to the summary of faculty positions on Table Four.) Discuss Table VI-I.**

It is anticipated that the time of the faculty members will be distributed as follows: 40% E&G, 40% clinical practice, and 20% C&G.

- D. In the case of Ph.D. programs, use Table Two to compare the number of faculty, research productivity and projected number of students to at least three peer programs outside Florida. For those disciplines that are included in the National Research Council (NRC) Research-Doctorate Programs in the United States and the National Science Foundation (NSF), please utilize the data from these two sources. NRC data is available on CD ROM and NSF data is available on-line at www.nsf.gov/sbe/srs/profiles/. For disciplines that are not included in these two sources, please utilize alternate sources to provide comparable data. Universities may choose to provide additional peer data comparisons that are not available from NRC or NSF, such as percent of graduate students supported by contracts and grants, and total contracts and grants for the most recent year.**

This section is not applicable, since a Ph.D. program is not proposed.

VII. Assessment of Current and Anticipated Resources

- A. In narrative form, assess current facilities and resources available for the proposed program in the following categories:**
- 1. Library capacity—Provide a copy of the official Assessment of Library Collection for this discipline and related fields (See appendix).**

Space for the Medical School Library is available in the Green Library in the area now dedicated to the Law School Library. The appended report prepared by Mr. Tony Schwartz, Associate Director for Collection Management of the FIU Libraries, estimates in 2003 dollars that the “overall

library materials budget (journals and books) [for the Medical School Library] would be on the order of **\$766,000**, according to peer-institutional benchmarking, which is the only feasible method of such cost projections at this early stage of planning.” Therefore, he estimates, “the FIU library materials budget as it now stands would need supplemental funding on the order of **\$300,000** to (a) acquire a core collection and (b) augment the current journal collections in fields allied to medicine: biology, chemistry, biomedical engineering, nursing, and health.” (Emphasis in original.) From this we can conclude that approximately \$466,000 in current library resources is available for the medical school program.

2. Technology capacity—Provide a copy of the official Assessment of Technology Capacity (assessment to be requested from and prepared by University Technology Services). Include an assessment of FIU’s technological capabilities to deliver the program through distance learning as well as the potential to do so through collaboration with other universities.

Mission: The mission of the technology unit within the Medical School is to facilitate excellence in education, biomedical and clinical research, and patient care through the application of innovative and effective information resources and technology.

The Development Model: The model to support the mission is based upon support of the clinical, research and education initiatives associated with the Medical School as an extension of the currently successful organization of technology support for the University. The infrastructure support will include the provision of the FIU network, systems, security, data center and planning expertise. It is acknowledged within the framework of this model that information technology, knowledge management, and informatics will require additional resources.

Major Strategic Technology Themes for the Medical School

- Ubiquitous access to information
- Data privacy and security
- The library as a knowledge management center
- The internet as a communications medium

- Technology as an innovative force in the Health and Medical Education Initiative
- Translational informatics including bioinformatics and clinical informatics
- Enablement of the research mission

Organizational Design: Ubiquitous access to technology in a secure environment is fundamentally important to all members of the University. The varied technology requirements of each individual program within the health and medical education initiative will require extensive evaluation. A separate unit, the Information and Communication Technology unit (ICT), would be located within the Medical School. It would be dedicated to the functions of the School and directed by an associate vice president who would jointly report to the Medical Dean and the Vice President of Information Technology and CIO.

Services: The services would be divided into those associated with the academic and research requirements of the allied health units, the School of Nursing, and the Medical School and those functions related to business and student administration managed by UTS. The health and nursing units and ICT will be partners in a computing facility known as Academic Computing Health Sciences (ACHS). ACHS will provide computing support for biomedical research and the educational technology requirements of the health and medical education units. As noted previously, this function is educational and it would not provide support for patient care or administrative functions. ACHS will provide a blend of hardware, software, services, and personnel to provide support for the academic and research computing needs of the health sciences community.

ACHS would provide support for research by providing specialized expertise in health informatics, biostatistics, data visualization, molecular modeling, molecular biology, and image processing. Support for general needs (networking, word processing, and spreadsheets) would be provided through the ICT help desk. The Health Sciences Library would provide support for computer access to MEDLINE.

Four specific computing laboratories would be located within ACHS: Health Informatics, Multimedia, Data Acquisition, and Data Visualization. The Health Informatics lab will provide access to molecular biology, health care, and clinical practice databases and links to other health informatics

databases throughout the world. The Multimedia lab will provide microcomputer based hardware and software for capturing and editing figures, film, and video images. The Data Acquisition laboratory will provides hardware and software for acquiring, displaying, and analyzing basic science image data (autoradiograms, X-ray films, and microscope images). The Data Visualization laboratory will provide high-performance workstations and software for molecular modeling and data visualization.

The Medical School will encourage the integration of appropriate computing skills into the medical curriculum. The University has standardized on Microsoft Office and Lotus Notes. Support will be provided to help faculty develop their own educational software packages or integrate electronic communications into courses using WebCT as the course management tool for on-line courses. The Computers in Medicine Education committee will support innovative uses of educational computing through a competitive seed grant program. Faculty can then receive awards of computing equipment or funds to purchase software or professional services needed to produce new educational products.

Computing for the Health and Medical Education Initiative will incorporate both wireless and wire line capabilities into its infrastructure. The University has just completed the implementation of a gigabit Ethernet network for all of the campus locations. This would be extended as the backbone to support voice, video, data, and IP telephony. Medical students will be required to apply the technology components for use with their PDA's and notebook or tablet computers.

Administrative computing services for all staff would be provided through the ICT with the exception (as noted previously) of the health services information system components and the administrative components. UTS would provide support and maintenance of these systems and the academic information system of the Health and Medical Education Initiative. The academic information system of the University is the PeopleSoft Student Administration (SA) module. The SA module will support all of the functions associated with the process of admissions, registration and advisement.

E-classroom and conferencing facilities: The Health and Medical Education complex, including the proposed Health and Life Science III Building that would house the Medical School, would have multimedia classrooms that

are capable of supporting video, media, and broadcasting (inbound and outbound) streams to selected sites within the university or to the regional clinics and hospitals participating in the program. These may be in the form of lectures, conferences, or demonstrations, i.e., surgical procedures from participating hospitals.

3. Describe classroom, teaching laboratory, research laboratory, office, and any other type of space that is necessary and currently available for the proposed program.

Some of the facilities useful to the proposed medical school are recently finished or currently under construction. In June 2002, FIU completed Phase I of a \$35,000,000 Health and Life Sciences facility. It houses some of the academic units involved in health sciences activities such as the Departments of Dietetics and Nutrition, Physical Therapy, Occupational Therapy, and Communication Sciences and Disorders, as well as public health and biological science laboratories. This facility has biomedical research laboratories, faculty offices, conference rooms, and teaching laboratories.

Construction of Phase II of the Health and Life Sciences facility has begun. Phase II is expected to be finished in 2004. It will house the Stempel School of Public Health, the School of Nursing, and some of the research and training activities of the Department of Biological Sciences.

A Health and Medical Science Education Building, planned as "Health and Life Sciences Phase III/Molecular Sciences Building," will house a large general-purpose classroom/auditorium, class and seminar rooms, a library, a vivarium, laboratories, student academic support areas, and offices. The planned facilities will support classes of 100 to 110 students per year. The building is to have 151,496 gross square feet and 94,685 net available square feet. Total estimated cost of the building is estimated to be \$39 million of which \$18,000,000 will come from PECO, \$2 million from the federal government, \$9.5 million from private donations, and \$9.5 million in state matching funds.

Subsequently, as the program develops and private funds are raised, a Health and Medical Sciences Research Building, Phase I, would be developed at a cost of \$12.5 million in PECO, \$10 million in donations, \$10 million in

state matching funds and \$4 million in federal grants. A similarly sized Phase II would follow as externally supported research warranted.

In addition, the inauguration of FIU's new Law School Building will facilitate the transfer of the law library, now housed within the central University library, to the new law school building. This will free considerable space in the central library that can be used for the medical school's collections. The University library is proximate to the new Health and Life Sciences building complex.

The following table illustrates chronologically PECO support of projected buildings.

PECO Support for Proposed Buildings

Project	2004-05	2005-06	2007	2008	2009	2009-10	2010-11	2011-12
HLSIII	\$15.4M	\$2.6M						
HMS Research Phase I						\$2.25M	\$7.5M	\$2.25M

4. Equipment, focusing primarily on instructional and research requirements

Equipment appropriate to the discipline will be purchased from the start-up funds budgeted for new faculty members upon recommendation of the faculty member and approval of the dean. The University has budgeted five hundred thousand dollars in start-up money for each basic science faculty member in the proposed Medical School. In addition, it has budgeted 5.9 million dollars in equipment and furnishings for the Health and Life Sciences III Building that will house the Medical School. Additional funding will be sought from federal sources through grant mechanisms.

5. Fellowships, scholarships, graduate assistantships, and tuition waivers (List the number and amount allocated to the academic unit in question for the past year.)

Not applicable.

6. Internship sites, if appropriate. Discuss clinical affiliation plan.

The clinical affiliation plan was presented in section E. Internships will be in health centers, ambulatory facilities and hospitals. The emphasis in the

medical education program will be on very early contact by students with patients in the community.

B. Describe additional facilities and resources required for the initiation of the proposed program (e.g., library volumes, serials, space, assistantships, specialized equipment, other expenses, OPS time, etc.). If a new capital expenditure for instructional or research space is required, indicate where this item appears on the University's capital outlay priority list. The provision of new resources will need to be reflected in the budget table (Table Four), and the source of funding indicated. Table Four includes only I&R costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form. It is expected that high enrollment programs, in particular, would necessitate increased costs in non-I&R activities.

As indicated in the appended library resource report referenced above, to initiate the program there is a need for approximately \$300,000 in supplemental funding for the library collection. Two hundred thousand dollars of the supplemental collection funding of approximately \$300,000 would be directed to the core collection and \$100,000 to periodical literature. The report advises that the cost of periodical acquisitions will have to be refined further once the curriculum is established. An additional seven hundred thousand dollars per year is dedicated to library infrastructure, including electronic data systems connectivity to clinical training sites.

To initiate the program, the University proposes to utilize eighteen million dollars in PECO funding, the estimated cost of the Molecular Biology Building approved in concept by a Department of Education/BOR Educational Survey Team, for the medical school, plus 9.5 million dollars in privately donated funds, 9.5 million dollars in state matching funds, and two million federal dollars to fund a building for the medical school.

The building is highest on the University's currently approved but unfunded list of PECO projects. The building would be sized in accord with benchmark medical schools and would house a 500-seat general-purpose classroom/auditorium, 3 classrooms of 100 seats each, and a fourth classroom with 70 seats. It would also contain seven teaching

laboratories, an anatomy laboratory, 30 research laboratories, vivarium, administrative and faculty office, study and academic support spaces. Total cost of the building will be \$39 million.

ACCOUNTABILITY

VIII. Assessment of Need and Demand

- A. What national, state, or local data support the need for more people to be prepared in this program at this level. (This may include national, state, or local plans or reports that support the need for this program; demand for the proposed program which has emanated from a perceived need by agencies or industries in your service area; and summaries of prospective student inquiries.) Indicate potential employment options for graduates of the program. If similar programs (either private or public) exist in the state, provide data that support the need for an additional program. Summarize the outcome of communication with such programs.***

Physician Workforce Issues in the USA

Recently, all major organizations involved in medical education abandoned the belief that there was a surplus of physicians in the United States of America. They now are seriously concerned about severe shortages in the near future. Even now, a shortage is evident in a number of medical specialties. In February, 2004, Jordan J. Cohen, M.D., President of the American Association of Medical Colleges, warned that, “[T]he consequences for the public’s health of a shortfall in physicians are obviously much more serious than those of an oversupply. Access to equitable health care is already tenuous for many of our countrymen; a paucity of physicians would compound this problem enormously.” (AAMC Reporter, 13:4 (Feb. 2004), p. 2) This sudden shift in the physician supply and its consequences bode ill for the people of Florida, a state dependent for eighty-five percent of its physicians on out-of-state medical schools, and thus especially sensitive to the condition of the nation’s physician workforce.

The major medical organization in this country representing more than 850,000 doctors, the American Medical Association, discussed this issue in

December 2003 at their interim annual meeting. The American Medical Association had adopted for many years the following policies:

- “There currently is, or soon will be a surplus of physicians in many regions and specialties “ (H200-971)
- “The number of funded entry-level first year graduate medical education (GME) positions should be decreased to no more than 120 % of the total number of graduates of US-.MD-and DO granting schools in 1997. (H200.961)”

After careful analysis and responding to the concerns of many medical specialty societies, the Council on Medical Education of the AMA, in December 2003 submitted to AMA House of Delegates a request to abandon these policies and to adopt the following:

- “In order to enhance the access to care, our AMA should collaborate with public and private sectors to ensure an adequate supply of physicians in all specialties and to develop strategies to mitigate the current geographic maldistribution of physicians”

The Council explained that for the past 15 years, AMA policy warned of an imminent oversupply of physicians and the need to “increase the proportion of physicians practicing in primary care (generalist) positions. However,” it continued:

“A number of recent studies on the physician workforce illustrate that this oversupply has not appeared. In at least two states (New York and California), the great majority of resident physicians completing training in specialties during 2001 did not have problems finding employment. In contrast, there have been a number of recent studies of specialty groups (for example intensivists/ pulmonologists) and state medical societies (for example Massachusetts) that concluded that there are imminent shortages in some specialties. Concerns also have been raised about declines in the number of medical students choosing family medicine and generalist’s disciplines. Richard Cooper, Executive Director, Medical College of Wisconsin, Milwaukee, using a new set of planning assumptions has predicted an impending shortage of physicians, including specialists.”

A report being developed by the Council on Graduate Medical Education], (discussed at its September 2003 meeting) is consistent with

the above conclusions. Preliminary recommendations include increasing the output of US medical schools and the number of funded graduate medical education positions; conducting specialty-specific studies to determine appropriate specialty mix; and tracking supply, demand and need. (AMA-Chicago, Council on Medical Education Report 2-I-03, December 2003).”

Confirming these recommendations, a seminal paper by Cooper et al. (Journal of the American Medical Association, 290 (22) 2002), reported the perceptions of medical school deans and state medical society executives about the adequacy of physician supply. The objective of the survey by Cooper and his colleagues was to determine the perceived impact of any shortages on medical schools and to assess the capacity of medical schools to expand their output capacity. The findings are worth presenting here.

Cooper and colleagues surveyed 58% of the medical school deans in the United States and Puerto Rico and 86% of state medical society executives. They found that 85% of both deans and medical society respondents perceived shortages of physicians, usually in multiple specialties, while 10% perceived surpluses, usually coexisting with shortages. Among deans reporting shortages, 83% described a negative impact on their schools. Recent or planned increases in class size were reported by 27% of deans and expansion capacity by another 34%, but 7% noted recent decreases in class size. Applied generally, these changes in class size could yield 7.6% additional matriculants annually.

On the basis of the survey, Cooper and colleagues determined that physician shortages are prevalent and they are negatively affecting medical schools. Little capacity exists to alleviate these shortages through class size expansion.

In light of these national conditions, states such as Florida that are heavily dependent on recruiting physicians from other states can expect the recruiting to become more challenging.

In the same report referenced above, the Council on Medical Education raised a second physician workforce issue of importance to the nation, physician workforce composition. “The racial/ethnic and gender composition of the physician workforce does not approach that of the population as a whole. This has implications for access to care,” observed

the Council. Only about 3.6% of the physician workforce were known to be African American, 4.9% Hispanic, and 25% female. Yet, the Council reported, “Studies have shown that minority and women physicians are more likely to serve minority, poor, and Medicaid populations.” So its recommendation was that, “There is a need to enhance underrepresented minority representation in medical schools and in the physician workforce, as a means to ultimately improve access to care for minority and underserved groups.” The AMA’s House of Delegates adopted this recommendation as a new policy.

Florida’s Need for More Physicians:

The state of Florida has a rich history of addressing health workforce issues. For example, a recent study commissioned by the legislature found a serious deficit of family physicians in rural areas. Another very detailed study, prepared in 1999, for the Florida Board of Regents by MGT of America Inc., which culminated in the recommendation for the creation of a new medical school in Northern Florida, made the following observations about the physician workforce in Florida:

- Florida needs 3,000 new physicians per year, over the next decade, to catch up with other states. Presently, Florida licenses only 2,500 doctors annually.
- A large part of Florida faces a major shortage of physician services at this moment.
- Florida must heavily depend upon international medical graduates to provide medical services for the state’s population.
- If the federal government follows existing recommendations to limit the number of Foreign Medical Graduates, Florida will be severely negatively affected.
- Florida’s annual number of medical school graduates falls far short of the state’s needs for new physicians each year.
- The cost of physician services is higher in Florida than in any other state within the United States.

Florida would need 400 additional first-year medical students to match comparison targets with other states. In addition, there is an under representation of minority physicians (only about 11%) and a very low proportion are females (17%).

Although it may look as if Florida has an appropriate number of physicians, the demographic characteristics of these doctors, changes in the immigration patterns, and projected future shortages, will threaten the availability of physician care in the state and the access to health services even more.

A closer look at the characteristics of Florida's population and its physician work force explains some of the factors playing into and exacerbating the shortage of physicians. The salient characteristic of Florida's population is the large percentage of elderly. The population over 65 years of age, 17.6%, is higher than the national average, 12.4%. The population over the age of 65 years uses physicians' services twice as much as the population 0-64 years of age. During 2000, two-thirds of hospital patients in Florida were 45 years of age or older.

The characteristics of the state's physician work force play a role in the shortage. Florida's physician work force is the nation's oldest. Twenty-five percent of Florida's doctors are over 65 years of age and sixty-four percent are over 55 years of age. National averages are seventeen percent and thirty-one percent respectively. Thirty-five percent of all physicians practicing in Florida graduated from foreign medical schools—the national average is twenty-four percent. Hispanic physicians are 8.8 percent of the whole physician work force. African-Americans are three percent of the physician work force. Only seventeen percent of the practicing physicians in Florida are women.

In summary, Florida has an unusually high need for doctors and is a net importer of doctors. As compared to the physician work force of the country as a whole, Florida has an older practicing physician population that also includes more males and more foreign medical graduates. The age of the practicing physicians in Florida suggests that much larger numbers of physicians will need to be licensed in the future in order to replace those who will be leaving active practice. A large majority of Florida's doctors trained in other states or foreign countries. The high dependency on foreign trained doctors could seriously affect access to care in the future since the number of foreign physicians is highly dependent on a continuous flow of foreign medical graduates, which is influenced by the availability of visas and medical residencies required for licensing. Finally, even though Florida is one of the states with a high percentage of minorities, the percentage of minority doctors is much below the percentages found in the general

population of Florida. This has the potential to aggravate problems in accessing medical care.

Florida's Current Capacity to Train Medical Doctors

In terms of medical education, the state of Florida has three fully accredited allopathic schools of medicine (University of Miami School of Medicine, University of Florida College of Medicine, University of South Florida College of Medicine) and a fourth that has applied for full accreditation (Florida State University College of Medicine). The state also has one osteopathic medical school (Nova Southeastern University College of Osteopathic Medicine) and it just have been announced that Lake Erie College of Osteopathic Medicine will open a branch in Bradenton, Florida.

Florida's Medical Students and Residents

The quality and characteristics of Florida medical students vary somewhat from national trends. Some facts about Florida medical students are presented below.

- Of the 1515 Florida residents who applied to medical schools in 2002, 39.8 per cent matriculated out of the state.
- Only 10.9 per cent of the students who matriculated in the state of Florida were Hispanic or African American while more than 30 % of the population are Hispanic or African American.
- Approximately 500 medical students graduate every year in the state medical schools.
- On a per capita basis, Florida graduated fewer new physicians per 100,000 population (3.2) than did the entire United States, and ranked 41st among the 46 states with medical schools.
- 97.7 percent of the students being admitted to Florida medical schools give a residence in the state of Florida.
- 24 percent of Florida graduates enter primary care specialties, which is below the national average of 27 percent.
- Florida has 2,700 allopathic physicians in training as residents.
- On a per capita basis, Florida ranks 43rd among states in the number of resident physicians, with 18.3/100,000 in Florida versus 35.9/100,000 for the country as a whole.

- Between 1989 and 1999, the number of resident physicians per capita declined by 3.8 percent compared to a national increase of 3.9 percent.

In a January 2004 presentation to the Subcommittee on Medical Education of the Strategic Planning/Educational Policy Committee of the Florida Board of Governors, Board staff presented the following information:

“Florida ranks 37th nationally in allopathic (M.D.) medical school enrollment per 100,000 state population, 12th nationally in osteopathic (D.O.) medical school, enrollment and 37th nationally in total (M.D. & D.O.) medical school enrollment per 100,000 population. Florida would need to add approximately 4,500 additional M.D. and D.O. students to meet the national ratio of medical students per 100,000 population.”

“Florida ranks 45th nationally in allopathic (M.D.) residency (GME) positions per 100,000 state population, 11th nationally in osteopathic (D.O.) residency (GME) positions per 100,000 state population and 46th nationally in total (M.D. & D.O) residency positions per 100,000 state population. Florida would need to add approximately 2,700 additional M.D. and D.O. residency positions to meet the national ratio of residency (GME) positions per 100,000 state population.”

In summary, the state of Florida admits and graduates fewer medical students, proportionally, as compared to other states. Fewer of them enter primary medical care, in comparison to the national figures. Furthermore, those who enter the professions do not reflect the demographic and ethnic characteristics of the state’s population. The shortages concerning graduate medical education in Florida are already very serious. They can be predicted to worsen due to the lack of residency positions and programs as well as a continued increase in the population of Florida, especially Hispanics and migrants.

Local Need for the Preparation of Doctors

There is a serious deficit of health care resources in South Florida, especially in the southern and western areas of Miami-Dade County. Local community and professional organizations are very interested and supportive of a new public medical school in South Florida. FIU can capitalize on these interests to create a high quality, community-based medical school that will serve the needs of South Floridians.

Health care delivery in South Florida operates within a complex context that includes a large, racially, and ethnically diverse population. South Florida, comprised of just four counties (Palm Beach, Broward, Miami-Dade, and Monroe), is the most populous region in Florida, accounting for 31.8 percent of the total population of Florida. During the past decade, the region has experienced a population explosion, resulting in three of the four counties (Palm Beach, Broward, and Miami-Dade) being named among the top twelve fastest-growing, large counties in the United States (ranking 3, 5, and 12 respectively).

The growing population of South Florida includes an increasing number of racially and ethnically diverse communities. This population diversity and growth offers unique challenges for the planning and delivery of high quality health care in South Florida. Some challenges emanate from factors such as:

- Over one half of the population of Miami-Dade County is Hispanic or Latino (57.3%), an increase of 111.2 percent in the last decade. Broward County also has a large percentage of Hispanic or Latino community members (16.7%).
- Broward, Miami-Dade, Monroe, and Palm Beach counties, together, account for slightly over one-quarter (26.8%) of the uninsured in Florida and the number of uninsured and underinsured persons in South Florida is expected to grow.
- “There is a paucity of community-based primary care centers/programs in the western portion of the county, especially in the areas west of the Florida Turnpike” as well as in the Southern section of the county. Geographically, those areas that lack community-based primary care centers also are the areas that include “large populations of new immigrants and lower-income persons.”²
- The population over 65 years of age is 66 percent higher than the national average. Almost one in every five people is over 65 years of age. The population over the age of 65 years use services twice as much as the population 0-64 years.

The health care delivery system in the South Florida region includes 67 hospitals. Hospitals with the highest number of beds in the South Florida region include Broward General Medical Center in Broward County,

² Health Council of South Florida, Inc., (2003a), Chapter 3, p. 35.

Jackson Memorial Hospital in Miami-Dade County, Lower Keys Medical Center – College Road in Monroe County, and Boca Raton Community Hospital in Palm Beach County.

Hospital utilization in the medical service areas of South Florida seems to have remained relatively unchanged in the recent past. South Florida hospitals have experienced only marginal increases, if any, in the number of patient days during the period between the second quarter of 1999 and the second quarter of 2000. For example, the area of Fort Lauderdale experienced an increase in patient days of 2.4 percent, West Palm Beach-Boca Raton experienced a 1.7 percent increase, and Miami saw a decline of 0.8 percent. In 2000, average lengths of stay, at the largest hospital in each of the four south Florida counties were 5.9 (Broward General Medical Center), 7.6 (Jackson Memorial Hospital), 4.3 (Lower Keys Medical Center – College Road), and 4.7 (Boca Raton Community Hospital) days.³

The inherent challenges of health care delivery in South Florida will continue to multiply as the population of the region becomes increasingly more diverse in the coming years. The large number of uninsured in the region, including many children, requires unique approaches to community health initiatives. The Miami-Dade County Mayor's Health Care Initiative, the Community Voices Miami project, and the work of many other community-based organizations addressing health care access and quality issues, provide important supports for the fragile and incomplete South Florida health care delivery system.

A significant problem is the proportion of doctors in South Florida without specialty certification of any kind. FIU's clinical partners have told us many times that it is very difficult for them to raise the proportion of certified medical staff to the levels expected of high quality tertiary care institutions (nationally, more than 80% of doctors are certified).

In addition, a serious shortage of medical residency positions in South Florida also contributes to the crisis in health care. Residents provide up-to-date patient care, and many of them stay where they receive their training. Residency training is conducted in academic health centers; however, there are too few opportunities for residency training in the Miami region.

³ 2000 Annual Utilization Reports for the four South Florida counties, prepared by the local Health Councils.

The high dependency on foreign medical graduates in our region is also an issue. Locally, it is even higher than in the rest of the state. For some time now, there have been discussions at the national level about limiting the number of foreign medical graduates who are admitted to residency training. When this happens, South Florida will encounter a serious physician shortage. This is even more likely given the growing restrictions on the movement of foreign-trained specialists as a result of heightened concerns for US national security.

The creation of a new medical school at Florida International University (FIU) would help relieve some of the health care access and quality issues described above. The focus of a new medical school at FIU must be *multicultural*, reflecting the very diverse South Florida region; *international*, reflecting the mission of the University and much of the economic activity of South Florida; and *public*, allowing access to medical education for persons typically not able to afford private medical education, and providing a hub for the delivery of community-based health care to the communities surrounding the University. This approach to medical education is reflective of the health care needs of South Floridians, described above, and responds to demands for an increase in the number of health care providers who deliver culturally appropriate medical care.

South Florida is rapidly becoming a region in itself. It has needs and characteristics that set the area apart of many other geographical areas. Business leaders and regional planners who warn that the main issues do not respect political boundaries are fueling regionalization. Responding to these concerns, the federal government culminated a decade long effort to redefine the region, by making a single metropolitan statistical area (SMSA) of Monroe, Miami-Dade, Broward and Palm Beach counties, exactly the area that we consider in our feasibility studies. Now known as the South Florida Region, the newly redefined SMSA has a total population of 5,328,377 inhabitants and is known as the South Florida Region.

The South Florida Region is now going to confront transportation needs, land development, and environmental issues, on a regional scale. For example, projects like the proposed Scripps Biomedical Research Institute will benefit and impact all in South Florida. The proposed medical school at FIU will generate similar benefits and impacts.

South Florida, with a population of more than 5.3 million people, has only one private allopathic medical school (University of Miami) and no public medical school. The serious shortage of medical residency positions in South Florida also contributes to the health care crisis. There has been no increase in MD training in the State for more than 25 years, and there will not be any until Florida State University graduates its first class of 30 medical doctors.

Summary of Workforce Issues

In order to meet the State's growing demands for high quality health care, Florida needs to license more physicians who are qualified to participate in the delivery of modern health care services, particularly in culturally diverse South Florida. The State currently licenses approximately 2,500 new physicians per year. However, Florida's medical schools only graduate about 500 doctors per year, some of whom leave the State. An even smaller cohort is trained to provide the type of care required by our region's culturally diverse population. There is evidence linking poor health status to gaps in cultural understanding among service providers.

Equity and access to medical education for Florida residents are issues. Every year more than 2,000 Floridians sit for the Medical College Admissions Test, but there are only about 500 seats available in Florida's medical schools. The ratio of Florida applicants to available space is 4.3:1; almost double the national average of 2.2:1. The State would need an additional 400 first-year students to match comparison targets with other states.

It is expected that the majority of graduates from the FIU Medical School and health professional programs will remain in the region. For example, more than 65% of the physicians practicing in the Greater Detroit, Michigan region were graduates of the Wayne State Medical School or residents who completed their training in the region. The FIU Medical School will achieve similar results for South Florida. Already 80% of FIU alumni reside in South Florida.

Florida International University is already educating many health professionals. The colleges and schools throughout the institution currently offer 49 of the 55 academic degree programs contributing to the proposed Health and Medical Education Initiative. Of the remaining six-degree

programs, the Medical Doctorate (MD) is the only program that is not on the State University System master plan. The development of a new Medical School and the proposed innovations in medical education bring a unique opportunity to integrate as much as possible the curriculum and the learning practices of all the health professionals.

Although the education of health professionals, particularly of physicians, nurses, and allied health personnel has been independent and with little integration, the basic sciences of medicine are necessary for all of the health and medical education programs and offer some opportunity for common educational experiences. Even more integration is possible in the areas of cultural sensitivity, bioethics, and communication with patients, essential components of programs designed to prepare health care practitioners for practice in the 21st century.

In the context of an academic health center providing an integrated health care education, research, and delivery system, the FIU medical degree program will increase the number of qualified under represented minority professionals entering the health care delivery network and increase the medical science research and health care resource dollars coming into the region. By creating partnerships among the public medical school and local health care providers and advocacy organizations, the quality of health care available to the citizens of the region will be improved through extended services, more health care practitioners, and additional state/federal resources for uninsured and indigent residents. These partnerships will facilitate securing grants from government agencies and philanthropic organizations to support health care initiatives in South Florida.

In addition to the formal degree programs, doctors require high quality professional continuing education. Licensing and certification are time-limited. A medical doctor needs many hours of continuing education to obtain and maintain certification. These opportunities are limited and could be provided by FIU through its current and proposed academic units. These curricular offerings will also provide a solution to a serious regional problem, namely, the low proportion of doctors in South Florida with specialty certification. The objective will be to raise the proportion of Board certified medical practitioners in South Florida to the levels expected of high quality tertiary care institutions (nationally, more than 80% of doctors are certified).

Benefits to the Community and the State

The proposed FIU medical school would contribute to:

- Increased educational opportunities for health professionals
- Increased diversity of health care professionals
- Medical graduates educated on the basis of the needs of the local communities.
- Medical graduates committed to provide services to the South Florida region.
- Improved access to medical education for Florida residents, in particular under represented minorities
- Enhanced support for community-based organizations that focus on health care
- Increased access for public funds for the medically indigent and underserved populations
- Enhanced growth in biomedical and biotechnical research
- Focused education and research on a seamless continuum of health care services including all professional specialists
- Expanded pool of qualified under represented minorities (URM) for professional medical education through intensive programs at the collegiate level at FIU (for study not only at FIU but also at other professional programs in the State).

Major changes in health care are anticipated on a national scale but are likely to be developed most effectively in State and regional markets. Deficiencies in our current systems include wide disparities in many areas; escalating costs which are multiples of general economic growth in many components of health care, inefficiencies in services including high administrative costs, large disparities in health indices in identifiable groups of our population. Services remain parochial, insular, and uncoordinated resulting in poorer outcomes and higher costs than our basic state of knowledge and technology could produce. Fundamental financial incentives are not aligned with the dual goals of quality care and cost effective services. Since the FIU Health and Medical Education Initiative is based on the community-centric model, this initiative will foster the quality of population-based and lab-based biomedical research with direct application to the health care industries in South Florida. The development of a new medical school with a number of

highly qualified researchers will contribute to the improvement of population based health care initiatives.

A public medical school will increase the medical science research and health care resource dollars coming into South Florida, particularly from the federal government. Research funding to medical schools and public health schools usually exceeds state base funding by 4-7 fold annually. By creating partnerships between the public medical school and local health care providers and advocacy organizations, more medical research and health care resources can be brought into the region. Development of such partnerships will facilitate securing grants from the federal, state, and local governments, foundations, and other philanthropic organizations to support health care initiatives in the region.

Graduate Medical Education in Florida:

In Florida, there is a deficit of residency programs. A report from the Graduate Medical Education Study Committee (1999), prepared in response to a legislative proviso in appropriation Item # 191 of the General Appropriations Act emphasized the need for GME/residency program development in Florida: "Although the state has traditionally depended on Physicians educated elsewhere to provide an adequate physician workforce, our rapidly growing population, the large number our citizens who are elderly, and the number of inner city and rural communities that are medically underserved, indicates that Florida must now take a more aggressive role in assuring the continued viability of its GME program." Florida is ranked 44th out of the 46 states with medical schools in the number of residency positions per 100,000 population.

Federal Medicare and Medicaid programs, state, and faculty practice funds are the primary sources of funding for the GME phase of medical education. Florida's medical schools spent approximately \$155 million in 1998-99 on GME with the annual allopathic medical school costs ranging from \$59,000 to \$89,000 per resident. Although residency programs are established in hospitals, some of which are not necessarily affiliated with a university or in university hospitals, the resources of a medical school enable hospitals to secure residency positions and gain accreditation.

Graduate medical education adds to the ability of the health professional workforce to serve the community. Graduate Medical Education (GME),

also called the residency phase, is not a requirement for the medical degree and takes place after the first four years of the medical curriculum. In the three to seven years of graduate medical education, medical graduates learn the art of medicine, assume increasing responsibilities in the care of patients, and start their specialty training. The University in conjunction with its affiliate hospitals will develop a longitudinal system of health professions education - from college through continuing medical education. The University already operates successful health professions programs, i.e., nursing, physical therapy, occupational therapy, health administration, etc. The addition of medical education, including Graduate Medical Education (GME), will augment these programs and add stature the University's Health and Medical Education Initiative as a whole.

The increase and distribution of residency positions in South Florida among several hospitals that presently do not have them will benefit the citizens of this community by improving patient care.

The number of residents approved by the GME accreditation body (ACGME) is based upon the adequacy of resources for resident education, such as the quality and volume of patients and related clinical material, the faculty-residents ratio and the quality of faculty lecturing.

Therefore, there is a direct and mutually beneficial relationship between medical schools and residency programs. Although a hospital may have sufficient patients and resources, (and residency programs can and are in many circumstances free-standing), the affiliation with a medical school is instrumental in solving one of the most important requirements of residency program; the number and quality of the faculty and faculty development.

In medicine, there is a natural chain of events that determines a career pattern. Many students attend their local educational institutions. Once in college students tend to study medicine in the same University, if there is an accessible program. The same medical students do rotations in the University affiliated hospitals, and once they graduate they tend to do their residency training in the same place where they did their rotations. And after they have completed their training, physicians tend to stay in the communities where they were residents.

One reason for the shortage of graduate medical education positions in Florida is that hospitals, although they may have enough patients for residency education, lack qualified faculty and educational experience. FIU will be a catalyst for the development of new residency programs and the increase in the number of residents in South Florida.

The development of new programs in hospitals that do not have one (like Mercy or West Kendall Baptist Hospital) or the increase of the number or residents in others that do have residency programs (Mount Sinai, Children's) will benefit the citizens of this community by improving the accessibility and quality of patient care.

Hospitals with residency programs benefit from the association with the Medical School since this improves continuing education and provides their attending physicians new professional opportunities like education for specialty certification. Affiliation also makes a hospital more attractive to other doctors, and improves its ability to attract the highest quality medical graduates.

Through its involvement in GME programs at the local hospital level, FIU will contribute positively to the ability of the affiliated hospitals to sustain accreditation.

Finally, but not least important, FIU will be instrumental in helping to increase the physician board certification rates of the hospitals and the community in general, by providing the academic environment that facilitates education for board certification.

Federal Medicare and Medicaid programs, state, and faculty practice funds are the primary sources of funding for the GME phase of medical education. Florida's medical schools spent approximately \$155 million in 1998-99 on GME with the annual allopathic medical school costs ranging from \$59,000 to \$89,000 per resident. Although residency programs are established in hospitals, some of which are not necessarily affiliated with a university or in university hospitals, the resources of a medical school enable hospitals to secure residency positions and gain accreditation.

As part of the efforts to increase the number of residency programs in Florida, it is proposed that the new medical school will fully support the

efforts of other educational institutions in Florida for improved financing of graduate medical education in the state.

As mentioned before, FIU will also cooperate in the development of new residency programs in the hospitals of the Hospital Consortium and in the health centers affiliated with the FIU Medical School. Chart 2 provides a projection of the number of new resident positions that, in discussion with our consortium, we will contribute to train in the South Florida region. It is anticipated that by 2012, 177 new residency positions will be added at the affiliates.

Chart 2: Anticipated Numbers of New Residency Positions by Affiliate Hospital and Year

Affiliate	Base	2006	2007	2008	2010	2010	2011	2012	2013
Baptist	0	10	20	30	30	33	36	39	39
Mercy	0	20	40	60	60	66	72	78	78
Children's	80	0	0	0	0	8	16	24	24
Mount Sinai	120	0	0	0	0	12	24	36	36
Total	200	30	60	90	90	119	148	177	177

The addition of residency positions at additional hospitals/systems will help meet the health care needs of South Florida and the greater Miami region. These residency programs will also contribute greatly to alleviate the problem of access to health care in South Florida. Medical Residents, under the supervision of faculty and senior staff (until they obtain their state license) provide patient care of high quality and are extremely productive. FIU will assign priority to primary care residency programs, to be able to provide community physicians in areas of underserved need. GME has a very strong impact on the availability of the physician workforce. Not only do medical residents contribute to health care provided by the hospitals during their residency, residents with ties to the community tend to practice in the region of the teaching hospital where they worked. On a global scale, about 50 to 65 percent of all physicians practice within a 75-mile radius of where they completed their graduate medical training

Medical residents offer another very important contribution to medical care in the community and to the fulfillment of the University's social responsibility to the community, because they often have very important

roles in the care of the medically indigent and uninsured, two large populations in the South Florida region.

Only one of the affiliated hospitals in the FIU Hospital Consortium, Mount Sinai Medical Center, currently is classified as a *statutory* teaching hospital, defined as a hospital affiliated with a medical school with more than 100 residents and more than 7 different programs. With more than 55 residents in pediatrics, Miami Children's Hospital is considered a teaching hospital. Another hospital in the Consortium, Mercy Hospital, has expressed interest in developing four residency programs, and would welcome assistance from the University. Consequently, it is proposed that the new medical school develop residency programs in at least the four primary care specialties, general internal medicine, pediatrics, obstetrics and gynecology, and family medicine, and actively support other residencies presently existing in institutions of the Consortium.

A new, public medical school with its full array of services, community outreach, educational programs and bio-technical investments, will have a positive influence on the supply of qualified health care professionals and will support the delivery of health services to our most needy residents.

Measuring Up 2002, the 50 State Report Card produced by the National Center for Public Policy and Higher Education, reported that the state of Florida's educational system, in its entirety, grade was below a "C" on the benefits to its constituencies. One of the measures addressed the health care service and health educational needs of the Florida region. The FIU public medical degree program will help alleviate this problem.

Other states have recognized the importance of educating medical doctors at their publicly supported urban universities. Examples include Chicago, Cincinnati, Detroit, Kansas City, Louisville, Los Angeles, Pittsburgh, Richmond, San Francisco, San Diego, and Philadelphia, the latter being exemplary because the publicly supported university medical school in Philadelphia joins three other accredited private university medical schools. Florida's only urban public medical school is located in Tampa.

Of the top twenty-five largest metropolitan areas in the United States, there are only three without a publicly supported university medical school. These three are Boston (ranked 7th in size) with three private university medical schools, Miami (ranked 12th in size) with one private university

medical school, and St. Louis (ranked 18th in size) with two private university medical schools. Kansas City, which just makes the top twenty-five metropolitan areas at 24th, has two publicly funded university medical schools. Clearly, other states have recognized the importance of using the resources of their publicly funded universities to produce medical doctors and to address the broad spectrum of health care issues in urban areas.

For more than a year, discussions have been underway between FIU administrators and administrators of Florida's only public urban medical school, the medical school at the University of South Florida. The discussions have covered the institutional experiences of USF and plans to prepare FIU undergraduates for admission to the USF medical school. Similar discussions have taken place with the University of Miami. There are, however, programmatic and physical constraints on the capacity of those programs to absorb significant numbers of FIU students. Discussions will be scheduled with UF and FSU medical school officials so that FIU might have the benefit of their experience.

B. Use Table Three to indicate the number of students (full-time and part-time headcount and FTE) you expect to be enrolled in the proposed program during each of the first five years of implementation, categorizing them according to their primary sources. In the narrative following Table Three, the rationale for enrollment projections should be provided and the estimated headcount to FTE ratio explained. If, initially, students within the institution are expected to change majors to enroll in the proposed program, describe the shifts from disciplines, which will likely occur.

TABLE THREE provides a summary of the headcount and FTE by year. All of the medical students will be full-time and will enroll each of the three terms commencing with the fall term. The students will complete approximately 15 hours in each of the academic terms and 12 hours during the summer. Therefore, they will generate approximately 1.05 FTE per student. The program will admit 36 students in the first class, 48 in the second, 60 in the third class, 90 in the fourth and fifth classes. Since retention is very high in quality medical schools, it is anticipated that at least 79 of the first two cohorts and 143 of the remaining cohorts will graduate in the four-year period.

TABLE THREE
Number of Anticipated Majors from Potential Sources*

PROFESSIONAL DEGREE PROGRAM										
NAME OF PROGRAM:	M.D. in Allopathic Medicine									
CIP CODE:	51. 1201									
ACADEMIC YEAR	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5	
	2006/2007		2007/2008		2008/2009		2009/2010		2010/2011	
Source of Students (Non-Duplicative Count)**	HC	FTE	HC	FTE	HC	FTE	HC	FTE	HC	FTE
Individuals drawn from agencies/ industries in your service area (e.g., older returning students)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Students who transfer from other graduate programs within the university	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Individuals who have recently graduated from preceding degree programs at this university	15	14.06	34	37.13	57	65.44	105	119.06	141	166.31
Individuals who graduated from preceding degree programs at other SUS universities	15	14.06	32	35.25	50	58.13	75	89.06	85	102.19
Individuals who graduated from preceding degree programs at non-SUS Florida colleges and universities	3	2.81	8	8.63	13	15.91	17	20.44	20	24.00
Additional in-state residents	2	1.88	6	6.38	11	12.56	16	19.32	19	23.06
Additional out-of-state residents	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Additional foreign residents	1	.94	2	2.25	7	7.31	10	11.25	12	14.25
Other (Explain)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL	36	33.75	82	89.63	138	158.63	223	258.94	277	329.81

* List projected yearly enrollments instead of admissions.
 ** Do not include individuals counted in any PRIOR category

C. Use Table V to indicate the number of students you expect to graduate from the program in years two through seven after implementation of the program.

**Table V
Number of Anticipated Graduates**

GRADUATE DEGREE PROGRAM						
NAME OF PROGRAM:	<u>MD in Allopathic Medicine</u>					
CIP CODE:	<u>52.1201</u>					
	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
NUMBER OF GRADUATES	0	0	36	43	57	86

D. For all programs, indicate what steps will be taken to achieve a diverse student body in this program. Please create a place for signature at the end of section VIII.D, and have your University’s Equal Opportunity officer read, sign, and date this section of the proposal.

Although there are a significant number of local students who already possess the desired academic credentials for a pre-medical program, the University will expand its science and engineering pre-collegiate programs to include the pre-medical sciences. It will also include a pre-medical track in its Honors Program. In addition, the University’s collegiate medical science initiatives will provide learning communities and other support services to increase the number of academically talented students who complete the premedical sciences curriculum and qualify for admission to a medical school. The presence of a public medical school in South Florida will increase the interest in medical science education in our junior and senior high schools and increase the number of our local, academically talented students who attend college in South Florida.

More than 66% of FIU’s students are under-represented minorities. During the past two years more than 530 members of the two freshman classes had SAT scores of 1200 or above a minimum requirement to be admitted to a pre-medical curriculum to qualify for admission to medical school.

The Association of American Medical Colleges recognized the deficit of minorities in medical education several years ago when it launched a new

initiative: "3000 by 2000." This initiative proposed to reach at least this number of minority students at the end of the century. Unfortunately, the goal was not achieved. The FIU Medical School will help address this issue by developing a program similar to the University of South Florida program that guarantees admission to academically-talented high school students upon entering the university, provided they complete the pre-medical curriculum with the desired GPA and achieve the desired MCAT score. Based on the number of academically talented Hispanic and African-American students entering FIU at the current time, we can be very confident that a substantial number of minority students will enroll in and complete such a program at FIU.

Some of this talent is ready because FIU has been taking steps to insure that there is a large and growing pool of under-represented minorities who have the necessary background in math and science to be admitted to this proposed medical school program. It has been making a two-pronged effort, one at the middle and high school level and one at the baccalaureate level.

At the middle and high school level, for several years the University has focused on working with entire feeder patterns in the Miami-Dade County Public School System to improve instruction in reading, math and science. The College of Engineering began this systematic effort with the Coral Park Senior High School feeder pattern, a successful program that is being replicated in Homestead. Over thirteen thousand students are supported directly or indirectly through these pre-engineering efforts supported by the National Science Foundation and the Kellogg Foundation. As a result of this program, the University graduates more Hispanic engineers than any other university in the continental United States.

In FY 2004, the Colleges of Education and Arts & Sciences, with support from University Technology Services extended and broadened this model to the Varela High School feeder pattern. This effort focuses on math and the physical sciences and discussion are under way to extend it to other feeder patterns. As part of this National Science Foundation-funded multi-year, multi-million dollar effort, math and science instruction will be combined both in the public schools and in the freshman and sophomore years at FIU following the highly successful Hestenes modeling approach developed at Arizona State University. The number of math and science majors among underrepresented minorities is expected to rise significantly as a result. At the Biscayne Bay Campus the first pilot summer program in marine and

environmental sciences was launched in Summer 2003. The program there is tied to the medical science magnet program at North Miami Beach High School and there is growing collaboration between that program and the FIU program.

To improve further the recruitment of minorities in medical education, FIU is also considering a new certificate and degree program at the baccalaureate level (articulated with local high schools and special minority programs noted above) to assist students who apply to health professional education programs. Recently, FIU has developed an Honors pre-med program jointly with the University of South Florida where students after a three-year program at FIU will transfer to USF to complete their undergraduate education and admission to the USF medical school.

FIU, with its very high number of minority students matriculated and the development of its special programs to aid students in their basic preparation, is in an ideal situation to lead the country in the recruitment of URM's for health professions education. In 2001-2002, the most recent year for which data are available, FIU was the twentieth largest source of baccalaureate degrees conferred on African-Americans and the largest source of baccalaureate degrees conferred on Hispanics. In the Health Sciences and Related Professions it was the fifth largest source of Master's degrees conferred on African Americans and tied as the largest source of Master's degrees conferred on Hispanics. (Black Issues in Higher Education, Vol. 20: 8, pp. 35, 39); Vol. 20:10, pp. 56-7.)

Florida International University awards more than twice as many degrees to all minorities as any other university in Florida. In 2003-2004, 52.96 % of FIU students were Hispanic, 13.56 % African American, and 3.65 % Asian American. According to the current FETPIP data, FIU health care graduates tend to remain in the region. Therefore, we anticipate that a majority of graduates from the FIU medical school will remain in the region. The development of a new medical school and the proposed innovations in medical education bring a unique opportunity to be innovative in the teaching of population medicine for the improvement of health care for all of our residents.

Equal Opportunity Impact Study

Summary and Endorsement Form

Date: January 22, 2004

University: Florida International University

College/School:

Department:

Name and level of degree program to which this EO Impact Study applies:

Doctor of Allopathic Medicine (M.D.)

For actions related to academic programs (establishment of new degree programs, modification/expansion or termination of degree programs):

Check type of action proposed:

New Program

Terminated Program

Modified Program

Summary of Equal Opportunity Impact Study:

The local population and the student body served by the University are predominantly composed of groups underrepresented in Florida’s physician work force. The University has developed extensive outreach programs in the local public schools to enlarge the pool of local students especially qualified in math and science and thus able to study for the engineering and scientific, including medical, professions. The University is also strengthening its pre-medical program so that more of its student body qualifies for entrance to medical school. The FIU undergraduate pre-medical program is expected to be a major source of students enrolled in this program. Consequently, the University expects that this program will draw heavily from and reflect Southeast Florida’s predominantly minority population and thus diversify Florida’s physician work force.

Prepared by:

Project Director

Date

Provost/Academic Vice President

Date

University EO Director

Date

IX. BUDGET

Commentary: FIU will not build or develop new clinical facilities. The different members of the FIU consortium are willing to share their existing facilities, technology and equipment for the education of medical students. Also, the teaching will not be distributed among different cities, but concentrated in a relatively small geographical area. This will facilitate a more efficient utilization of resources and avoid duplication. Fortunately, the very large numbers and varied case mix of patients at the associated health care institutions, concentrated in a very large urban area as Miami-Dade, offer plenty of opportunities for students' and residents' education. This situation is not found in many other large cities in Florida, forcing the distribution of teaching in localities sometimes quite distant from the medical school and duplicating some central administrative functions and other administrative costs.

The University already has many resources that will be shared with the new medical school. Examples of that are the already very rich medical sciences library collection at the Green Library (see attached appendix), diverse laboratories and educational spaces in the new health sciences buildings already being completed, and numerous well-qualified faculty members willing to participate in the new educational program.

Most medical schools in USA have developed Faculty Practice Plans (FPP) to increase revenues and generate incentives for their faculty. An FPP consists of a group of medical school faculty members, organized as a component of the University that provides patient medical care services to the community. Faculty Practice Plans account for 35 % of medical school revenues in the USA. In 1999, the median total net practice revenue for Medical Schools was \$94,332,370 a year. Eighty five per cent of this income came from direct patient care and the remaining from transfers from associated hospitals.

The FIU budget model also includes the development of an FPP. Within a relatively short period of time, it will become a very important source of funds, facilitating faculty buy-outs and reducing the demands on the E & G budget. (FPP revenues are listed as "clinical" in the proposed budget).

The FIU medical school budget also includes an important research component (listed under C & G). The estimates presented are conservative,

since it is assumed that will be a considerable lag time between the appointment of faculty and the attainment of full research productivity.

It is projected that by Year 6 of operation of the medical school, clinical income and grant and contracts will generate 24% of the revenues.

A. Assuming no special appropriation or new Academic Affairs/University allocation for initiation of the program, how would resources within the College/School be shifted to support the new program?

The medical school will only be developed if special appropriations or new allocations are made. There will not be any shifting of resources within the University at this present time.

B. Use Table Four Parts A and B to display dollar estimates of both current and new resources for the proposed program for the first five years of the program. In narrative form, identify the source of both current and any new resources to be devoted to the proposed program. If other programs will be negatively impacted by a reallocation of resources for the proposed program, identify the program and provide a justification. Transfer the budget totals for years one and five to the appropriate lines in the table on the cover page.

Table III-A Costs for Proposed Program								
Instruction & Research Position (FTE)	First Year				Fifth Year			
	General Revenue		Contracts & Grants	Summary	General Revenue		Contracts & Grants	Summary
	Current	New			Current	New		
Faculty	0.00	27.00	0.00	27.00	0.00	89.00	17.00	106.00
A&P	0.00	9.00	0.00	9.00	0.00	22.00	0.00	22.00
USPS	0.00	9.00	0.00	9.00	0.00	34.00	0.00	34.00
Total	0.00	45.00	0.00	45.00	0.00	145.00	17.00	162.00
Salary Rate								
Faculty	\$0	\$4,940,000	\$0	\$4,940,000	\$0	\$14,016,000	\$2,494,000	\$16,510,000
A&P	\$0	\$405,000	\$0	\$405,000	\$0	\$990,000	\$0	\$990,000
USPS	\$0	\$270,000	\$0	\$270,000	\$0	\$1,020,000	\$0	\$1,020,000
Total	\$0	\$5,615,000	\$0	\$5,615,000	\$0	\$16,026,000	\$2,494,000	\$18,520,000
I&R								
Salaries & Benefits	\$0	\$7,018,750	\$0	\$7,018,750	\$0	\$20,032,500	\$3,117,500	23,150,000
OPS Graduate Assistants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0
Other Personnel Services	\$0	\$550,000	\$0	\$550,000	\$0	\$742,000	\$0	742,000
Expenses	\$0	\$400,000	\$0	\$400,000	\$0	\$450,000	\$0	450,000
Graduate Assistant Waivers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0
Operating Capital Outlay	\$0	\$410,000	\$0	\$410,000	\$0	\$140,000	\$0	140,000
Electronic Data Processing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0
Library Resources	\$0	\$1,200,000	\$0	\$1,200,000	\$0	\$250,000	\$0	250,000
Special Categories	\$0	\$200,000	\$0	\$200,000	\$0	\$386,550	\$0	386,550
Total I & R	\$0	\$9,778,750	\$0	\$9,778,750	\$0	\$22,001,050	\$3,117,500	\$25,118,550

**Table III-B
Five-Year Budget Detail Projected Costs for Proposed Program
2 planning years and first 2 years**

M. D. Estimated Expenditures and Estimated Revenue by Category and Year

I & R Estimated Expenditures	Planning year 1	Planning year 2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Current E & G (I&R)	\$0	\$0	\$0	\$0	\$0	\$0		\$0
New E & G (I&R)	\$5,587,500	\$10,221,250	\$12,066,250	\$18,046,875	\$24,277,453	\$23,595,425	\$23,671,675	\$21,949,175
Total E & G	\$5,587,500	\$10,221,250	\$12,066,250	\$18,046,875	\$24,277,453	\$23,595,425	\$23,671,675	\$21,949,175
<i>Clinical</i>	\$0	\$0	\$750,000	\$750,000	\$1,087,500	\$2,325,000	\$3,112,500	\$5,025,000
C & G	\$0	\$0	\$462,500	\$696,875	\$1,262,500	\$1,778,125	\$1,984,375	\$2,084,375
Total Expenditure	\$5,587,500	\$10,221,250	\$13,278,750	\$19,493,750	\$26,627,453	\$27,698,550	\$28,768,550	\$29,058,550
Projected Enrollment								
Headcount	0	0	36	82	138	223	277	320
FTE	0	0	33.75	89.62	158.63	258.94	329.81	386.25
Estimated Revenue								
G. R. Special Appropriation	\$5,587,500	\$10,221,250	\$9,019,858	\$11,107,871	\$12,599,617	\$4,724,719	\$231,381	\$0
Headcount G. R. Appropriation*	\$0	\$0	\$2,520,000	\$5,740,000	\$9,660,000	\$15,610,000	\$19,390,000	\$22,400,000
Tuition	\$0	\$0	\$526,392	\$1,199,004	\$2,017,836	\$3,260,706	\$4,050,294	\$4,679,040
<i>Clinical</i>	\$0	\$0	\$1,092,000	\$1,092,000	\$2,028,000	\$2,904,000	\$3,768,000	\$6,084,000
C & G	\$0	\$0	\$725,000	\$1,455,000	\$1,905,000	\$2,407,500	\$3,867,000	\$5,698,500
Total revenue	\$5,587,500	\$10,221,250	\$13,883,250	\$20,593,875	\$28,210,453	\$28,906,925	\$31,306,675	\$38,861,540

* General Revenue Appropriation per headcount \$70,000
Annual Tuition \$14,622

Health and Medical Sciences Facilities Plan and Budget

Building	Gross Footage	Furniture	Equipment	Construction	Total cost
Health and Medical Science Education Bldg (Health & Life Science III/Biomolecular Sci)	151,496	\$1,900,000	\$4,000,000	\$33,100,000	\$39,000,000
Health and Medical Sciences Research Bldg Phase I	100,000	\$1,500,000	\$5,000,000	\$30,000,000	\$36,500,000
Health and Medical Sciences Research Bldg Phase II	100,000	\$1,500,000	\$5,000,000	\$30,000,000	\$36,500,000

Funding Sources

Building	PECO	Private	State Match	Federal grants	Total
Health and Medical Science Education Building	\$18,000,000	\$8,500,000	\$8,500,000	\$4,000,000	\$39,000,000
Health and Medical Sciences Research Bldg Phase I	\$12,500,000	\$10,000,000	\$10,000,000	\$4,000,000	\$36,500,000
Health and Medical Sciences Research Bldg Phase II	\$12,500,000	\$10,000,000	\$10,000,000	\$4,000,000	\$36,500,000
Academic Health Center		All Private			\$100 to 250 M

C. Describe what steps have been taken to obtain information regarding resources available outside the University (businesses, industrial organizations, governmental entities, etc.). Delineate the external resources that appear to be available to support the proposed program.

As noted above, the facilities for clinical training have been accessed through agreements with local hospitals and community-based clinics. The former Vice President for Research established through a visit to the National Institutes of Health, National Center for Research Resources, Division of Research Infrastructure that up to two million dollars in federal matching funds would be available to FIU for construction of a vivarium to support an expanded biomedical research program. Division officials reviewed and commented favorably on the University's preliminary plans for the facility. In FY 2004, funding for this Division's program is slightly more than \$1 billion.

In late October 2003, the University's Washington representatives conducted a search for available federal funding in the health and biomedical areas and found substantial opportunities. Of particular interest is the Centers of Excellence Program under the Health Resources and Services Administration (HRSA), which provides almost \$30 million to strengthen the national capacity to educate underrepresented minority (URM) students in the health professions by offering special support to those institutions which train a significant number of URM individuals, including African-Americans, Hispanics, and Native Americans. Funds are used for the recruitment and retention of students and faculty, information resources and curricula, faculty and student research, and the development of plans to achieve institutional improvements. Earmarks in the HRSA budget for colleges and universities are running between \$200 million and \$312 million. College and university earmarks range from \$100,000 to \$11,000,000.

The University's Washington representatives continue to monitor the federal budget for funding opportunities in the health and medical fields.

The diversity of the local population will facilitate the development of clinical trials, another source of both federal and pharmaceutical company support for medical schools.

- a. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced***

enrollment rates, greater use of adjunct faculty and teaching assistants) and explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting edge research, improved labs and library resources).

The business plan and staffing model adopted for the proposed MD program are designed to avoid a dilution of the related undergraduate programs. Staffing patterns call for the strengthening of the basic science programs. Linkages with local health care providers will increase supervised service learning activities available to undergraduate students in the health-related disciplines. Increased laboratory capacity and contract and grant revenues, which can be expected to at least double over a fifteen to twenty year time span, will allow a commensurate doubling of research opportunities for undergraduates.

The FIU Health and Medical Education Initiative and the implementation of the Allopathic Medicine program will have a positive impact on the health and medical programs currently being offered. In addition to implementing the M.D. program, the Initiative involves restructuring of health education programs, creating partnerships with a full spectrum of health service providers in greater Miami and creating a multidisciplinary and interdisciplinary research consortium. This Initiative is focused on community health and leadership in health care reform to meet the needs of the community for this 21st century. It is responsive to specific and urgent needs in our Southern Florida community and is informed by the emerging, essential restructuring of health education and health care nationally. The outcome of this Initiative will be a more efficient, effective health and medical education delivery system that addresses quality health care delivery for all segments of the community.

It is anticipated that the implementation of the M.D. program will foster the development of C&G research activity among the basic sciences, engineering, social sciences, health sciences and medical sciences. A good rule of thumb is that over time a medical school at least doubles the amount of federal support for a university's research programs, with special emphasis on cutting-edge lab equipment. In addition, the implementation of the medical school will increase the number of academically talented students who attend the university. Not all of them will be interested in a medical career; some may elect to pursue other programs offered at the University thus raising standards of excellence across the University spectrum.

b. Describe any other projected impacts on related programs, such as prerequisites, required courses in other departments, etc.

The MD program, in and of itself, will not require substantial changes in related programs. The Health and Medical Education Initiative, however, of which the MD program is a critical constituent, will entail development of an integrated lower division health professions education program, and upper division joint learning and community service activities as noted above. In addition, students will be expected to achieve competency in Spanish and Haitian Creole which are subjects taught in the Department of Modern Languages which has additional capacity available. The Initiative will also feature a strengthened pre-medical advisement program and a strengthened bio-ethics program. It is anticipated that there will be additional demand for undergraduate biology, chemistry, organic chemistry, biochemistry, and physics courses.

X. Productivity

Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student headcounts in major or service courses, degrees granted, and external funding attracted, as well as qualitative indicators of excellence.

Not applicable.

Appendices

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Physician Workforce Issues in the Nation and in Florida

Introduction:

From 1960 to 1985, in response to a shortage of doctors and innovations in medical education, forty-two new medical schools were created in the USA, the last one being Mercer University School of Medicine, which received full accreditation in 1985. During this period of 25 years, most of the newly created schools were public, community-based medical schools.

During the 1980s and 1990s, however, most professional medical organizations and workforce analysts predicted that the country would experience an oversupply of physicians in the future. For example, the Graduate Medical Education National Advisory Committee (GMENAC) in 1980 predicted “the country would have an excess of approximately 145,000 physicians by 2000.” Now that 2000 has passed, “no conclusive evidence has surfaced indicating that physician supply is exceeding demand” (American Association of Medical Colleges, The Reporter, 2/10/2002).

It is now accepted that many of these early reports had serious methodological flaws in their mathematical modeling methods. Because of these early assumptions of a surplus of doctors, however, no new medical schools were developed until Florida State University in the year 2000.

Projections of physicians workforce needs are notoriously unreliable. For example in the UK, surpluses of physicians were identified in 1957, 1978 and 1985, but shortages in 1944 and 1968. None of these projections were valid. The USA has a similar story. Projections are only as good as the assumptions upon which are based. Minor disagreements about assumptions can create large discrepancies in forecasting. Nobody, for example, predicted accurately the changes in technology or in physician productivity or the growth of other health professional careers that occurred on the last two decades.

New efforts are being made to correct previous estimates. The Milbank Foundation, the American Medical Association, the Association of American Medical Colleges, the Council on Graduate Medical Education and a number of researchers are all working on new projections and analyses of the physician workforce.

It is already evident that the pendulum is swinging back from a belief in a surplus of doctors, recently published studies already illustrate that the very much-announced oversupply of physicians has not appeared and that shortages are now present in many geographical areas and medical specialties. (*).

The market itself is sending strong signs of a shortage. Recruitment of doctors in many medical care institutions is becoming more difficult. Signing bonuses are now offered. Surveys of residents demonstrate that they have no problems in finding jobs. Starting salaries are increasing. There is a serious shortage of physicians in emergency rooms, one of the least preferred sites of practice.

The Association of American Medical Colleges' latest position statement on the physician workforce states that cogent arguments may be advanced "to justify some increase in the enrollment of medical schools and/or the establishment of new medical schools." Dr J. J. Cohen, AAMC President, stated, "The consequences for the public's health of a shortage of physicians are obviously much more significant than those of an oversupply. Access to equitable health care is already tenuous for many of our countrymen; a paucity of physicians would compound this problem enormously." (AAMC Reporter, February 2004).

This shortage may also be intensified by the increasing number of women who are entering into the practice of medicine. According to the AAMC, women are expected to form 33 per cent of the profession by the year 2010, up from 25 per cent today. While male doctors average 57 work hours of medical work a week, women average only 48 hours and a higher proportion of them than of men practice only part-time. (Journal of the American Medical Women's Association, 2002: 57:185-190).

It is also accepted that specific areas of the country may have needs and require solutions unique to them and, therefore, workforce planning should take this local characteristics under consideration.

It is unfortunate that workforce projections have proven to be so difficult. It takes a minimum of 7 years to train a licensed physician, and thus new efforts to educate more doctors will not have an impact until the crisis is well advanced. The new studies are very welcome and in the future they will provide a more detailed picture of manpower needs but, fortunately, enough evidence already exists to start considering new policies for the physician workforce.

At the national level, at least two new policies are proposed to expand the national pool of doctors:

- Increase the number of first year admissions to existing medical schools
- Establish new medical education programs.

Nationally, no voices have been yet raised proposing to increase the licensing of international medical graduates, theoretically a third possible approach.

At the state or regional level, physician workforce planners are advocating other possible actions, not directly related to medical education, to change the geographical distribution of health professionals. They consist mainly in practice and economic incentives to locate in specific areas. These actions will not improve significantly enough the total availability of doctors in the USA, but they may alleviate the problems of specific geographical areas or medical specialties.

In Florida, there are at least 4 possible approaches to deal with the shortage of doctors, particularly in the South Florida counties of Miami-Dade, Broward, Palm Beach, and Monroe.

1) Attract more physicians to the state by making the practice of medicine more attractive and creating positive financial incentives for location in the state.

Florida has 48,706 doctors. It is expected that nationally there may be a shortage of 200,000 doctors by the year 2020. (R Cooper, Florida Board of Governors presentation, March 17,2004) . The actual size of the shortage in Florida has not been quantified yet, but all experts agree that it will be considerable (BOG, Medical Education Subcommittee Meeting, Orlando, 3/17/04). It is also known that 3,7 million Floridians live in Health Profession Shortage Areas. For this designation to be removed, 600 new physicians should locate to and provide care in these areas. Perhaps the cheapest and fastest approach to solving the physician shortage problem is to attract to Florida already trained physicians practicing in other regions. There are two such possible pools of physicians: doctors who have completed US medical training and are licensed in other states, and international medical graduates licensed overseas.

Florida already imports 4/5 of all its doctors. Only 20 % of allopathic physicians working in Florida graduated from Florida medical schools (nationally 32 % of the

physicians practicing in a given state graduated from a medical school in the same state)

More than 2,000 new physicians are licensed every year. Thirty five per cent are international medical graduates. Florida is placed 3rd nationally in the number of physicians who graduated from foreign medical schools (in the US this figure is 24 %). In South Florida the proportion of foreign medical graduates is even greater, more than 50 %.

Among the US graduates, many are older doctors who move to Florida because they are attracted by its climate and quality of living. In Florida 26 % of all physicians are 65 years of age or older (16 % nationally) and only 9 % are under 35 (16 % nationally). Only about 75 % of Florida physicians are involved in direct patient care (nationally is more than 80%). It is also known that many physicians have valid licenses but do not practice or do it only part time.

These numbers show that Florida already is very attractive to many physicians. The challenge is to increase their numbers even more.

At least three different types of incentives are proposed to make the state more attractive for the practice of medicine.

The first type of incentive would be an education loan repayment/forgiveness program. At the moment, there are several successful federal and state programs that offer forgiveness. Perhaps the best known are the National Health Services Corps (NHSC) and the Indian Health Service (IHS). These two programs provide repayment of loans incurred for health professional education in exchange for a minimum of two years of service in a designated loan repayment priority site. These programs are highly valued by students, but many doctors move out of the shortage areas as soon the obligation is fulfilled.

The principle of these programs is the designation of “Health Profession Shortage Area” (HPSA) and “Medically Underserved Area or Population” (MUA/MUP). There are 3960 designated HPSA/MUA/MUPs across the USA. The three counties of Miami-Dade, Broward and Palm Beach have 61 HPSAs and MUAs. Monroe County, also included in the South Florida region, has no such designated areas.

Therefore, one possible approach could be to incorporate new areas, to change the minimum service requirements for doctors with extended contract periods, and to increase the maximum of \$25,000 that is paid in the form of loan repayment or forgiveness.

Any added incentives would require additional state financial support and the development of a specific state program, since it is improbable that the federal government would be interested in solving the shortage of a particular state at the risk of causing or worsening physician workforce shortages in other states. However, because doctors tend to locate in the area where they do their residency training, it is doubtful that these changes will significantly increase the number of physicians in a particular area unless more residency positions are also available.

A final limitation on this approach is that, if there is a real national shortage of doctors, many other states will look for similar solutions, competing with Florida.

A second incentive to draw doctors to Florida is “to facilitate the practice of medicine” by establishing tax exemption areas or granting tax relief for some of the patient care activities performed by doctors, by increasing reimbursement rates from Medicaid and Medicare, or by reducing the cost and/or changing the benefits of medical liability insurance. Any of these alternatives would of course also benefit all doctors already practicing in the state.

While changes in the tax status of doctors have been advocated in other countries such as Canada, nobody has yet proposed this approach in the United States. Therefore, we will exclude this alternative from our possible list.

Most experts agree that improvement of reimbursements and tort reform are necessary since both of them have an impact on the cost, access to, and quality of patient care. For many years, both issues, and particularly tort reform, have been the concern of most professional medical organizations. Florida has some of the highest insurance rates in the nation. In Florida at present, about 5 % of all doctors do not have malpractice insurance coverage, up from 4 % a year ago. In Miami-Dade County, nearly 20 % of the doctors are “bare” (or self-insured) due to the exorbitant costs of insurance. For general surgeons, in Miami- Dade county malpractice premiums increased 75 % between 1999-2002. In the same period in Minnesota the increase was only 2 %). In Florida the premium rates for these professionals are \$ 174,300 a year, versus \$10,140 in Minnesota. Within Miami-Dade County, rates are 50 % higher than outside the county .

In spite of the general agreement about the crisis medical reimbursements and medical malpractice, not much ground has been gained in changing either of them. The improvement of Medicaid and Medicare reimbursements would require large

increases in public funding for health services and there is little stomach for that in state government. There has been some progress, however, in the matter of tort reform.

In Florida, some changes in malpractice legislation were made recently. On August 13, 2003, the Florida House and Senate passed a compromise bill capping non-economic malpractice damages (such as pain and suffering). Although most legislators appeared to be satisfied with the compromise bill, many physicians believed that this was not nearly enough, and claim that the bill will not affect insurance premiums. Also, in the Florida legislature other proposals are being discussed concerning some relief for emergency room doctors at private hospitals and HMOs. However, “even with the introduced legislation, it appears that no significant reduction in medical practice insurance premiums is anticipated anytime in near the future”(Graduate Medical Education Committee, report submitted to the BOG Florida, January 2004, page 7).

The issue of liability costs is not much of a concern yet for medical residents, although once they start practice, residents become acutely aware of the problem. Therefore, the number of residency positions available will have a greater weight than tort reform in the re-allocation of practitioners.

The issue of malpractice is much less serious for doctors who are full time faculty of public medical schools in Florida (and therefore working for the government) since they have “sovereign immunity” that put limits on citizen’s lawsuits against their government. This important benefit will, for example, facilitate appointments tot the new medical school at FIU.

The situation of the faculty of private medical schools who are not included in such immunity is different. Recently, the University of Miami Medical School, seriously affected by the cost of insurance, asked the Florida legislature to grant protection to its medical faculty members at Jackson Memorial Hospital who treat patients who come into the hospital either through the emergency room or a Jackson clinic.

A third possible incentive to bring already trained physicians to Florida is to change licensing laws in Florida or immigration criteria affecting foreign medical graduates. The goal would be to increase the number of American and international medical graduates who presently do not qualify for a license in the state.

Medical licensing has been developed to guarantee the citizens a minimum of safety and quality in the practice of medicine. The licensure process insures that all practicing physicians have appropriate education and training.

Applicants must submit proof of a prior education and training and provide details about their work history. After physicians are licensed in a given state, they must re-register periodically to continue their active status and are required to demonstrate that they have maintained acceptable standards of ethics and medical practice. In many states, they must also show that they have participated in programs of accredited continuing medical education.

In the past, many licensing laws had grandfather clauses that exempted some existing physicians from the regulations. For example, such exemptions were made years ago, to facilitate the practice of some Cuban medical graduates in Florida.

These exemptions are not so frequent now, although there are some states that still are using licensing laws as an instrument to facilitate the migration of doctors to their territory. One of the exemptions might be in the number of years of Graduate Medical Education necessary for licensing. For example, Florida requires a minimum of only one year of residency training. Most other states require a minimum of three years.

Theoretically, Florida could reduce even more the requirements for licensing. For example, modifying requirement for graduate medical education or obtaining visa waivers. Further easing its licensing laws would undermine the quality of patient care in Florida. Other states already have more demanding medical practice acts, since there is a direct relationship between licensing laws and the protection of the public from improper and incompetent practices.

The importance of rigorous licensing laws is especially true in the case of international medical graduates. Approximately one-fourth of practicing doctors in the USA are an international medical graduate (IMG) in the USA. In 2001, the Educational Commission for Foreign Medical Graduates (ECFMG) certified 5,934 international medical graduates, an increase of 15 % over the previous year.

In the USA, a very sophisticated and valid system of accreditation of medical schools controls the quality of medical education. Very few other countries rely on a similar system, although its use is now growing in the world. The quality of medical

education differs tremendously between medical schools and countries. Hence the importance of rigorous competency assessments, verification of credentials and full requirements of similar graduate medical education for all IMGs who want to practice in the US cannot be overstressed. The requirement of residency training in ACGME approved programs is particularly important.

It has been proposed that the actual requirements for licensing international medical graduates should be increased, for example with a longer period of residency training and periodic competency assessment, as required in Canada. In fact, IMGs must not only pass English examinations and the same licensing examinations as US graduates, but also since 1988 a new examination that has been added as a further barrier. Now a new Clinical Skills Assessment Test requires that all IMGs who want to pass the United States Medical Licensing Examination must travel to Philadelphia to undertake a practical examination of their English skills as well as their skills in evaluation and management of patients. Then they must return to their home country, wait for the result of the exam, and then apply for a J1 visa with ECFMG sponsorship.

The need for the visa is another very important restriction, particularly since September 11, 2001. ECFMG is the sole sponsor of non-citizens IMGs for the Federal Exchange program. The J-1 visa used by most IMGs was designed for educational purposes, as a temporary non-immigrant visa that requires applicants to demonstrate their intent to return to their home countries. The J-1 visa verifies also the credentials of foreign physicians and requires that the foreign physicians be accepted for training by an accredited residency program affiliated to a medical school. Visitors on a J-1 visa must return to their home countries for at least two years before they are permitted to apply for re-entry into the US. Only with a waiver can J-1 exchange visitors remain in the country. This decision is made only by the U. S. Department of State after careful consideration.

Some IMGs try to use H-1B visas that provide a loophole, circumventing many of the restrictions of J-1 visas. H-1B visas are granted to temporary workers with exceptional abilities. In FY 2000-2001, the number of such visas had been capped at 195,000 but it was reduced to 65,000 in FY 2004 as part of the visa restrictions since the September 11, 2001, terrorist attacks. By February 18, 2004, the worker-visa program reached its maximum allocation and no more foreign workers would be accepted during the 2004 fiscal year.

Many feel that H-1B visas are an inappropriate method for foreign physicians to enter graduate medical education. On February 10, 2004, the Association of American Medical Colleges expressed its opposition to use of the H1-B visa by IMGs.

Given the need to provide Floridians with adequate access to good quality, ethical medical care, all doctors in the state, independent of the place of training, should fulfill the same educational criteria for licensing. Even with similar licensing requirements for both groups now, it is known that the rate of disciplinary licensing actions is much higher in International Medical Graduates than in American graduates and the rate of certification much lower. Therefore, relaxation of the licensing laws or immigration criteria to draw existing physicians to Florida is not a viable approach to solve the shortage of physicians in Florida.

2) Attract more physicians to the state by creating new residency programs and residency positions

Creating new residency programs and residency positions would not affect the total available pool of physicians in the country but could contribute greatly to the number of available doctors in the state and in South Florida, since residents and fellows tend to practice close to their place of graduate medical training.

The deficit of residents and fellows in Florida is very serious. As mentioned in the main document, Florida ranks 45th nationally in allopathic residency positions (GME) positions per 100,000 population and would need approximately 2,700 additional MD and DO residency positions to meet national ratios. It has been proposed that Florida needs 2,000 additional residency positions funded by the state over the next five years (GMEC, Florida, 2/190) but even with these new positions it will not meet the national average.

Practically all GME positions (with the exception of some very small sub-specialties) are filled. In the last match of 2/2004, only 11 of 500 positions were not filled and these 11 candidates received offers from Florida institutions within 5 minutes of finalizing the match!

South Florida with more than 5,200,000 inhabitants has only 1,032 GME positions, 80 per cent of them or 829 in a single hospital (Jackson Memorial Hospital/Jackson Memorial System). Most of the remaining positions are in two other hospitals, Mount Sinai with 91 and Miami Children's Hospital with 72 (ACGME data base,

2/2004). Both institutions will be associated with FIU new medical school. The present academic affiliations of Mount Sinai are with the University of Miami; Miami Children's are with UF, UM, Nova, Ohio State and SUNY. The Cleveland Clinic in Weston also has another 34 residency positions in South Florida.

At the present time, there are financial caps on the direct and indirect financing of residency positions. The total cost of residency training in Florida has been estimated at \$190,000 per resident (GME, Florida March 17 2004).

The limit on the number of residents that the federal government pays has nothing to do with the number of positions that a hospital has. A program can have as many residents as can be justified to the ACGME. In fact, many medical schools subsidize residency programs from Faculty Practice Funds. Also caps can be removed by regulation and any hospital that is willing to pay 100 % of the costs can create new positions. It is expected that due to the proposals to increase the number of medical students, caps will be removed in the near future. The AAMC has made this goal a priority of its legislative actions for 2004.

Without new medical schools or expansion of the existing ones, it will be very difficult to increase the number of residency positions. The proposed new medical school at FIU will subsidize the new residency positions that it is planning to develop at level equal to half of the direct cost per resident, (about \$60,000 annually) and will also pay the faculty costs associated with the teaching (\$32,000 annually).

A new medical school also may be in a preferred situation to obtain a waiver of the cap on the number of residency positions and in developing new programs for hospitals that do not have them. Medical schools directly sponsor almost half of all residency positions in the country. Some medical schools like the University of Washington also contribute to the cost of training residents, in some cases up to 25 % of the cost.

The relationship between medical schools and residency programs will become even stronger in the future. The new technology required for the teaching of medicine, like the development of virtual patients for the teaching of surgery, educational digital laboratories, and the use of standardized patients for evaluation, is much more frequently created and utilized in medical schools.

The single most important responsibility of any program of GME is to provide an organized educational program with guidance and supervision of the resident,

facilitating the resident's professional and personal development while ensuring safe and appropriate care of patients. The quality of this experience is directly related to the quality of patient care (Accreditation Council of Graduate Medical Education, Essentials, 2/18/2004).

Not many hospitals without university affiliation qualify for ACGME accreditation. More than 70 per cent of ACGME accredited hospitals in the USA are University or University-affiliated hospitals. This is the case of the South Florida programs.

A critical bottleneck for increasing the number of residency positions in Florida (and particularly in South Florida) is in the number of faculty available to teach the residents. Other considerations are the availability of patients or facilities. The size of some of the existing programs suggests that they may be already at the maximum capacity. Jackson Memorial for example, with 829 GME positions, has 52 per cent more positions than the second largest program in the state, which is at the University of Florida in Gainesville.

Other hospitals however, like, Mount Sinai and Miami Children's have room and interest in expanding their programs, if they can increase their teaching resources. Other hospitals in South Florida, for example, Baptist Health of South Florida as well as other health care organizations like the Health Choice Network have also expressed interest in developing new residency training programs in the future.

The three allopathic and one osteopathic medical schools in Florida have expressed their interest to either expand or establish new programs to provide for 349 new residents, if funds were available. (GME, March 17, 2004). But the need is for at least 2000 new positions.

FIU strongly believes in the need for more residency positions in South Florida. Its new medical school will supply the faculty and resources to increase the total number of GME positions by another 177 by the year 2013, in collaboration with the organizations mentioned previously.

These FIU new programs will also offer added training opportunities to the graduates of other Florida Medical Schools and therefore, FIU expects to contribute substantially to the total number of GME positions in the State.

3) Attract more physicians to the state by increasing the class size of existing medical schools

Increasing the size of entering classes of existing medical schools is a recommendation of the American Association of Medical Colleges for the country as a whole and certainly this is desirable for Florida.

American Medical Schools are not producing enough physicians to meet the country's needs. However they are limited in their ability to expand. Cooper et al. have recently surveyed 70 Deans of allopathic medical schools for a study published in the Journal of the American Medical Association (JAMA, Cooper et al, 290(22): 2992). Eighty-nine cited shortages of physicians in at least one specialty and commented on the potential for expanding class size. Expansions are already under way in 17 % of the schools, with an average of 8 % expansion of class size per school. However, 43 Deans had no plans for expansion and 23 Deans reported that their schools could not expand. Together with all the actual and planned expansions, aggregate class size could increase potentially only by 7.6 % over the next few years and generate a total of just 1200 new allopathic graduates a year. This is a drop in the bucket, given that more than 700,000 doctors are practicing in the US at the moment.

In Florida, the situation is similar. MGT of America in "Plan for a Four-Year Allopathic School of Medicine at Florida State University," Nov. 15 1999, stated on page 9 –2, "In preliminary discussions between UF and FSU medical education officials, concerns were expressed that little opportunity existed to handle additional students at either of the UF clinical sites in Gainesville or Jacksonville."

However, more recently, medical schools in Florida have expressed interest in expanding their class sizes with the caveat that this will not be feasible without new construction. For example, the Medical School of the University of Florida intends to admit 12 more students in the near future. (Dean Tisher, personal communication). The other three allopathic medical schools will probably follow the trend, USF has included 11 new students in the 2003-2004 legislative budget request; NOVA another 30 by 2005-2006. UM has not reported any future expansion.

Perhaps it may be possible to accept another 50 or 60 medical students at the existing medical schools in Florida a year (at twice the national rate of increase) without very large increases in capital construction.

A recent survey by the BOG staff requested from the 3 allopathic medical schools (UF, USF, UM), and one osteopathic medical school (Nova) the costs of increasing class size by 15 per cent over the present number of admissions. The cost of adding another 147 admissions a year by 2013-2014 will require \$ 121,420,000 of new funds between capital and operating costs. To make this feasible, facilities construction should begin in 2004-2005 and 2005-2006 with an initial investment of \$66,324,000 to cover capital construction costs.

Expansion of this scale would not be sufficient to meet the State's needs for more physicians. It is clear that any further expansion of the existing medical schools beyond those 50-60 possible new first year seats would require large capital investments in building laboratories for teaching the basic medical sciences.

While increasing the class size of the present Florida medical schools is an approach that should be developed, it will do little to solve Florida's and especially South Florida's needs.

In South Florida, with more than 14,800 licensed allopathic physicians, only 13 % have graduated from Florida medical schools. About 3% are from the public medical schools (UF 1.48 % and USF 1.35 %) and another 10 % are from the University of Miami Medical School. Therefore, in South Florida, using these, only an increase of only another 15 to 20 allopathic doctors a year could be expected from the efforts of expanding all the state's medical schools (assuming that the new medical school at FSU also adds another 2 % of its graduating class and that no new residency positions are created that attracts more Florida graduates from the north).

4) Attract more physicians to the state by establishing new medical schools

Because of growing concerns across the nation over the medical workforce, plans exist or are being developed to create new medical schools or to build partnerships between medical schools in close proximity.

Introducing a new medical school into areas that lack physicians has resonated well with some communities (AAMC Reporter, Vol. 13, number 4, Feb 2004). For example, Texas Tech-El Paso has already obtained state authorization for a new medical school that will open in by 2008. Texas already has 8 medical schools and this school had strong opposition in the early stages. Since in El Paso and along the border with Mexico there is a physician shortage, and the vision for the school

included an emphasis on diversity and a focus on Hispanic and border health issues, the Texas legislature finally funded the school.

The University of California is also considering opening a new medical school in Fresno, and Arizona State University is developing a partnership with the University of Arizona, to join efforts in creating a new medical education program.

The University of Washington with a different approach is planning to expand its very successful WWAMI program (that includes students from Washington, Wyoming, Alaska, Montana and Idaho) by developing regional facilities.

Finally in Florida, besides FIU, it is well known that the Trustees of the University of Central Florida voted last November to begin researching whether it should open a new medical school in the Orlando area.

Building a new medical school is a long and complicated process and requires careful feasibility studies and detailed planning, including consideration of the economic impact.

Medical schools can provide significant non-academic advantages to their communities. They are engines of significant growth and have great appeal to large universities, since they bring prestige and community support. During the year 2002, medical schools' and teaching hospitals' combined economic impact was more than \$326 billion. Although most schools and hospitals are not for profit, they also generate large amounts of tax revenue (\$14.7 billions in 2002), through income taxes paid by the faculty and staff, sales and corporate net income taxes, as well as capital stock and franchise taxes.

Medical schools in many cases are also magnets attracting vast amounts of biomedical research grants to universities. Fifty per cent of all NIH research funding in 2003, more than \$8 billion, was allocated to the 124 medical schools.

In Florida alone, the economic impact of the four allopathic medical schools is \$11 billion a year. Florida is the 9th state in the nation in medical education impact benefit (AAMC Reporter, Vol 13, number 4, February 2004).

It takes a long time, at least three to four years to plan and develop a new medical school worthy of accreditation, and more than seven years on the average to train a

physician. Therefore, some of the previously mentioned efforts may not have an impact in the overall physician workforce for at least 10 years.

The main deterrents to the development of new schools in the past have been concerns about obtaining accreditation, belief in a physician surplus, and the supposed high costs of developing new medical schools.

The situation has now dramatically changed with the publication on February 5, 2003, of the Liaison Committee of Medical Education's (LCME) "Accreditation Guidelines for New and Developing Medical Schools," demonstrating the Committee's interest in guiding the development of new schools; the emergence of a physician shortage; and the careful demonstration of the economic benefits of medical schools by Tripp Umbach Healthcare Consulting Inc. in September 2003 (www.tuhealthcare.com).

Given all the previously mentioned considerations, we would expect that several new medical schools would be created in the next ten years in the USA, including two or three in Florida.

Conclusions:

There are several different approaches to solve the upcoming severe shortage of physicians in Florida, and some should be used simultaneously, depending on their effectiveness and feasibility.

In South Florida, "making the practice of medicine more attractive" is certainly a possibility. The issue of tort reform must be solved independently of the shortage problem. However, debt relief programs and tax exemptions to the degree that they may be possible will not generate enough appeal to change the place of practice of doctors. Improving the reimbursement rates to a level that would attract more doctors to Florida is also not very likely in the near future.

Changing the state licensing laws, unless to make them more stringent, should not be considered. The required number of years of graduate medical education should be raised to the national average and no exemption to the licensing examinations should be allowed.

Increasing the class size of the present Florida medical schools is an effective and feasible approach that should be developed. The problem is that existing medical schools will not be able to generate enough graduates to fill the need (especially in South Florida) and not enough of these graduates will practice in the state, if current

trends continue. In South Florida, only about 13% of all the more than 14,800 MDs are from the state-supported medical schools, with three quarters from just one medical school, the University of Miami.

The creation of new graduate medical education positions, increasing the number of residents and fellows should be priorities. Caps must be removed on the number of residents and new financing provided. However, for this approach to be regionally successful, it is also necessary first to increase faculty resources and to provide affiliation of the new programs to medical schools.

Some of the previous options will necessarily be limited in scope, since the overall national pool of available doctors will be much reduced in the future, if the expected shortage of 200,000 physicians really happen.

That is one of the reasons why after a careful study of all the options in South Florida, FIU believes that increasing the pipeline that goes into medical education, by the development of new medical education programs combined with an increase in the number of GME positions is the best solution to physician workforce problems. FIU's proposed new medical school in South Florida will provide more and needed access to medical education for Florida residents, and will also create a large number of new residency positions to solve much of the regional and state shortage of doctors.

FIU is also supportive of increasing the class size of other medical schools in the state, will contribute to efforts (particularly tort reform) to make the practice of medicine more attractive, and will strongly support the increase in the total number of GME positions in Florida.

(* American Medical Association-Chicago, Council on Medical Education report 1-1-03, December 2003

Library Report

Budget Estimate of Library Materials for the Planned Medical School at Florida International University

Tony Schwartz
Associate Director for Collection Management

October 27, 2003

Executive Summary

This report is to gauge the size of a library materials budget for the planned medical school at Florida International University. It provides two main estimates (in 2003 dollars):

- The overall library materials budget (journals and books) would be on the order of \$766K, according to peer-institutional benchmarking, which is the only feasible method of such cost projection at this early stage of planning.
- The FIU library materials budget as it now stands would need supplemental funding on the order of \$300K to (a) acquire a core collection and (b) augment the current journal collections in fields allied to medicine: biology, chemistry, biomedical engineering, nursing, and health.

The two main categories of supplemental-funding expenditures—building the core collection and augmenting the journal collection—involve different methodologies. The core collection would be preliminarily based on the standard guide in the field, the *Brandon/Hill Selected List of Print Books and Journals for the Small Medical Library*. While that is an imprecise and incomplete guide, a **core-collection** cost projection for FIU of about **\$200,000** is probably on mark.

The other main category of expenditures—the **journal collections** in fields allied to medicine—requires the chief methodology of collection assessment in the sciences: citation-impact journal ranking analysis. That approach is not explicit in the *Brandon/Hill* scheme, which does include some journals.

Whether **\$100,000** (the balance of the proposed \$300,000 supplemental fund) would

cover the journal acquisitions deemed necessary by the medical-school faculty will be an open question until the school's curriculum is established. At that stage in the planning process, the library—working with the faculty—will be in a position to assess the science and allied health collections against the citation-ranked literatures of those fields relevant to the curriculum. (As an indicator of the overall size of the citation-ranked medical literature, it is spread over 32 fields comprising 1,864 titles.)

If such assessment were to show, in the estimation of the faculty, a substantial gap in the library's holdings of core titles based on the curriculum, the \$100,000 component of supplemental funding will have been an underestimation.

Main Report

Assessment of Core Materials

Five spreadsheets are appended:

- the first is a framework of estimates of core books and journals in three categories—small medical library, nursing, and allied fields—with the journals adjusted to current holdings;
- the second is a four-year projection of those aggregate cost estimates for inflation;
- the last three spreadsheets compare the core-list journals to current holdings.

The spreadsheets are based on the standard guide to core collections: the *Brandon/Hill Selected List of Print Books and Journals for the Small Medical Library* (<http://www.mssm.edu/library/brandon-hill/>). This source was recommended by consultant Judith Messerle on her visit to FIU April 21-23, 2003.

However, Ms. Messerle advised in her report (of June 26) two collection development principles that are not accounted for in *Brandon/Hill*: that “the collection should be as online as possible,” with “only a few basic high-impact journals excepted.” *Brandon/Hill* uses paper-format prices and does not attend to the principal collection development method in the sciences: the journal literature assessed on the basis of citation-impact ranked lists. Still another difficulty is that it exaggerates the size of a core collection for any but the largest libraries.¹ On those three counts, *Brandon/Hill* is a useful but imprecise and incomplete method for collection development and cost projection.

At any rate, FIU has a fair share of the journal literature for a core medical school collection. As shown in spreadsheets 3-5, FIU has **60%** of the overall journals in the *Brandon/Hill* lists: 55% of those in the small medical library category (77 of 141 titles), 72% of those in nursing (62 of 86 titles), and 58% of those in the allied fields (46 of 79 titles).

According to the *Brandon/Hill* method, FIU should consider acquiring certain journals and books that would have—with journals (not books) adjusted to current holdings—an aggregate cost in paper-format of **\$160,000**. This analysis is summarized in spreadsheet 1.

The books are not adjusted to holdings because nearly all of them would require updated editions at the time of medical-library collection development. Since books would be standing orders for new editions, they are subject to inflation factors, as are journals.

The \$160,000 figure of the *Brandon/Hill* method cannot be fixed at this stage of planning for two reasons: some of the listed books and journals will drop off once the medical-school curriculum is created; and constant change in the networked scholarly communication system would give print-to-online cost corrections this early in planning a short shelf life.

However, an essential consideration is that any budget figure in this report—for a collection that is years away—is subject to intervening inflationary pressures. Spreadsheet 2 shows how the \$160,000 figure (imprecise but suitable for illustrations) would grow to a range of \$179,000 to \$186,000 within three to four years—when actual acquisitions might commence.

Assessment of the Overall Materials Budget

Given the problems of the *Brandon/Hill* scheme and the prematurity of a journal collection assessment until the medical-school curriculum is established, the single feasible approach to budget estimation is to rely on peer-institutional benchmarking. Ms. Messerle's report suggests three peers: U. of New Mexico, U. of Kansas, and McMaster U. Certainly, this approach gives insight into online costs, interdisciplinarity, and the citation-ranked literatures.

¹As *Brandon/Hill* notes, “due to the diversity of the subjects covered, most people will probably not want to purchase all of the publications but instead will use the list selectively for subjects pertinent to their particular institutions.”

The following benchmark figures for medical-library budgets are adjusted to 2003 dollars.

	<u>U. New Mexico</u>	<u>U. Kansas</u>	<u>McMaster U.</u>	average	<u>FIU</u>
Journals	\$702,759	\$800,464	\$606,266	\$703,163	\$560,457 *
Books	<u>59,113</u>	<u>56,002</u>	<u>74,560</u>	<u>63,225</u>	<u>40,000</u> **
	\$761,872	\$856,466	\$680,826	\$766,388	\$600,457
* The FIU figure for journals is the aggregate cost in biology, chemistry, biomedical engineering, nursing, and health sciences.					
** The FIU figure for books is a project estimate, based on a recently revised approval plan profile that provides for coverage of university-press titles in most of the sciences.					

Assessment of the Current Science Journal Collections

The extent to which FIU's current journal collections in fields allied to medicine have a direct bearing on medical research is the main unknown factor.

The overall picture is that the cost of developing a core collection will be on the level of \$200,000 — leaving some \$100,000 (on supplemental funding of \$300,000) to augment the library's journal collections in fields allied to medicine. Whether \$100,000 would suffice will remain an open question until the medical school curriculum is established. At that point in the planning process, the library—working with the faculty—will be in a position to assess the journal collections against the citation-ranked literatures of those fields relevant to the curriculum. If that assessment, in the estimation of the faculty, were to show a substantial gap of core titles in the collections, the \$100,000 component of supplemental funding will have been an underestimation.

Over the past year, the library has assessed two of the collections allied to medicine against the citation-ranked literatures—with faculty review of the assessments for the library's long-range collection development plan. Although those reviews were done for present-day research needs rather than with medical-research in mind, a brief overview of the outcomes might be useful.

Chemistry. Its core journal literatures comprise 466 titles (in seven fields). The library has 181 (39%) of them. Of the 285 not in the collections, the Chemistry program recommended that 59 (one in five) be acquired. Thus, for FIU a “complete” Chemistry collection according to current research interests would be 51% of the total citation-ranked literature (240 of the 466 titles).

The recommended acquisitions were prioritized: 33 are high-priority, and would have a total annual cost about \$32,000; the other 26 would have a total annual cost of about \$24,300. The overall annual additional cost would be on the order of **\$56,000**.

Nursing. Its core journal literatures comprise 284 titles (in eight fields). The library has 173 (61%) of them. Of the 111 not in the collections, the Nursing program recommended that 25 (one in four) be acquired. Thus, for FIU a “complete” Nursing collection according to current research interests would be 70% of the total citation-ranked literature (198 of the 284 titles). The overall annual additional cost would be on the order of **\$8,000**.

The collection assessment of **Biology** is under way. Its core literatures comprise 1,343 titles (in 21 fields). The library has 619 (46%) of them. The library has not yet requested that the Biology program make recommendations of collection-development priorities.

Such assessment for the medical library will require careful grounding in the FIU curriculum: the core literatures of **Medicine** are spread over 32 fields, comprising 1,864 titles.

In a nutshell, the proposed supplemental funding should cover three broad goals (with as many methodologies):

- having a medical library materials budget on the order of \$766,000 (benchmarking);
- acquiring the core materials based on the curriculum (*Brandon/Hill* method);
- augmenting the allied science collections (citation-ranked literature method).

Overview of Green Library Collection Development for a New Medical School

Tony Schwartz, Associate Director for Collection Management, FIU Libraries

Based on the Brandon/Hill select list of print books and journals for the small medical library (<http://www.mssm.edu/library/brandon-hill/>)

Priority Acquisitions: **books** according to the list **journals** based on need (list adjusted to holdings)

<u>List</u>		<u>FIU Holdings</u>			<u>FIU Needs</u>			
<u>Titles</u>	<u>Cost</u>	<u>Titles</u>	<u>% of List</u>	<u>Cost</u>	<u>Titles</u>	<u>Cost</u>	<u>Titles</u>	<u>Cost</u>
List 1: Small Medical Library								
Books	672 \$ 88,833	not assessed (see note 1)			672 \$ 88,833	251 \$ 38,616	251	\$ 38,616
Journals	141 \$ 55,653	77	55%	\$ 32,597	64 \$ 22,956	24	\$ 9,602	
sums	\$ 144,486				\$ 111,789		\$ 48,218	
List 2: Nursing								
Books	370 \$ 18,334	not assessed			370 \$ 18,334	143 \$ 7,446	143	\$ 7,446
Journals	86 \$ 14,591	62	72%	\$ 11,443	24 \$ 3,148	6	\$ 685	
sums	\$ 32,925				\$ 21,482		\$ 8,131	
List 3: Allied health fields								
Books	434 \$ 22,718	not assessed			434 \$ 22,718	169 \$ 9,898	169	\$ 9,898
Journals	79 \$ 14,026	46	58%	\$ 9,291	33 \$ 4,734	9	\$ 902	
sums	\$ 36,744				\$ 27,452		\$ 10,800	
Totals								
Books	1,476 \$ 129,885				1,476 \$ 129,885	563 \$ 55,960	563	\$ 55,960
Journals	306 \$ 84,270	185	60%	\$ 53,432	121 \$ 30,838	39 \$ 11,189	39	\$ 11,189
	\$ 214,155				\$ 160,723 *		\$ 67,149 *	

* The Brandon/Hill methodology has pricing only for paper-format resources.

Overview of Green Library Collection Development for a New Medical School

Tony Schwartz, Associate Director for Collection Management, FIU Libraries

Based on the Brandon/Hill select list of print books and journals for the small medical library (<http://www.mssm.edu/library/brandon-hill/>)

Journal holdings summary:

Total of three lists' costs	\$ 84,270	
Total value of FIU journal holdings	\$ 53,331	63%

Total journals on three lists	306	
Total titles held by FIU	185	60%

NOTE 1: Why are book holdings not assessed?

Practically all of the books on the three lists would require updated editions for initial purchases, so current holdings are not relevant. Given the need for books to be placed as standing orders to receive new editions, they are subject to inflation factors as are journals.

NOTE 2: Cost estimates with inflation factors

The Brandon/Hill lists suggest rates on the order of 6% for books and 12% for journals. Inflation-adjusted cost estimates are provided on sheet 2 of this file.

Cost estimates with inflation factors

Set 1: Brandon/Hill methodology

The Brandon/Hill approach suggests inflation rates on the order of **6%** for books and **12%** for journals.

Since **books** are not revised every year, a working assumption is made that they are revised (with new editions) every three years; on that assumption, the annual inflation rate for the book collection as a whole is **adjusted to 2% per annum**.

	2003	2004	2005	2006	2007
Total resources to be acquired					
Books	\$ 129,885	\$ 132,483	\$ 135,132	\$ 137,835	\$ 140,592
Journals	\$ 30,838	\$ 33,922	\$ 37,314	\$ 41,045	\$ 45,150
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	\$ 160,723	\$ 166,405	\$ 172,446	\$ 178,880	\$ 185,742
Subset of priority acquisitions					
Books	\$ 55,960	\$ 57,079	\$ 58,221	\$ 59,385	\$ 60,573
Journals	\$ 11,189	\$ 12,308	\$ 13,539	\$ 14,893	\$ 16,382
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	\$ 67,149	\$ 69,387	\$ 71,759	\$ 74,278	\$ 76,955

SMALL MEDICAL LIBRARY JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
<i>Acquired Immunology Syndrome (AIDS)</i>		
AIDS (Philadelphia)	\$1,510.00	print
AIDS Patient Care and STDs	\$339.00	print
Journal of Acquired Immune Deficiency Syndromes: JAIDS	\$870.00	print
<i>Allergy</i>		
Annals of Allergy, Asthma, and Immunology	\$145.00	NO
Journal of Allergy and Clinical Immunology	\$414.00	print
<i>Alternative/Complementary Medicine</i>		
Journal of Alternative and Complementary Medicine	\$289.00	NO
<i>Anesthesiology</i>		
Anaesthesia	\$611.00	online
Anesthesiology	\$491.00	print
<i>Cardiovascular System</i>		
American Heart Journal	\$406.00	NO
American Journal of Cardiology	\$322.00	online
Angiology	\$385.00	NO
Circulation	\$548.00	print
Heart	\$514.00	NO
Journal of the American College of Cardiology	\$370.00	online
Progress in Cardiovascular Diseases	\$322.00	NO
<i>Critical Care</i>		
Critical Care Medicine	\$379.00	NO
Journal of Critical Care	\$303.00	NO
<i>Dentistry</i>		
Journal of the American Dental Association	\$149.00	NO
Journal of Oral and Maxillofacial Surgery	\$240.00	NO
Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics	\$358.00	NO
<i>Dermatology</i>		
Archives of Dermatology	\$400.00	NO
Cutis	\$180.00	NO
Journal of the American Academy of Dermatology	\$432.00	NO
<i>Emergency Medicine</i>		
American Journal of Emergency Medicine	\$283.00	NO
Annals of Emergency Medicine	\$260.00	print
Emergency Medicine Clinics of North America	\$228.00	NO
<i>Endocrinology and Metabolism</i>		
Diabetes	\$600.00	print
Endocrinology	\$768.00	NO
Journal of Clinical Endocrinology and Metabolism	\$585.00	NO

SMALL MEDICAL LIBRARY JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
<i>Evidence Based Medicine</i>		
ACP Journal Club. (American College of Physicians)	\$137.00	NO
<i>Family Medicine</i>		
American Family Physician	\$144.00	NO
Journal of Family Practice	\$299.00	NO
<i>Gastroenterology</i>		
Digestive Diseases and Sciences	\$989.00	online
Diseases of the Colon & Rectum	\$429.00	NO
Gastroenterology	\$605.00	online
Gut	\$514.00	NO
<i>Genetics and Heredity</i>		
American Journal of Human Genetics	\$805.00	print, online
<i>Geriatrics</i>		
Geriatrics	\$60.00	print
Journal of the American Geriatrics Society	\$445.00	print, online
Journals of Gerontology: Biological Sciences and Medical Sciences	\$550.00	print
Journals of Gerontology: Psychological Sciences and Social Sciences	\$238.00	print
<i>Gynecology and Obstetrics</i>		
American Journal of Obstetrics and Gynecology	\$420.00	print
BJOG: An International Journal of Obstetrics and Gynecology	\$387.00	NO
Clinical Obstetrics and Gynecology	\$443.00	NO
Fertility and Sterility	\$340.00	NO
Obstetrics and Gynecology	\$375.00	online
<i>Hematology</i>		
Blood	\$915.00	print
<i>Hospitals and Administration</i>		
Health Care Management Review	\$201.95	print
Hospital Topics	\$79.00	print
Hospitals & Health Networks	\$80.00	print
Journal of Healthcare Management	\$95.00	print
<i>Immunology</i>		
Journal of Immunology	\$620.00	print
<i>Indexes</i>		
Cumulated Index to Nursing and Allied Health Literature: CINAHL.	\$396.00	online
Index Medicus	\$630.00	print

SMALL MEDICAL LIBRARY JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
<i>Infectious Diseases</i>		
Journal of Infectious Diseases	\$535.00	print, online
<i>Internal Medicine</i>		
American Journal of the Medical Sciences	\$543.00	NO
American Journal of Medicine	\$270.00	online
Annals of Internal Medicine	\$297.00	print
Archives of Internal Medicine	\$340.00	print
BMJ: British Medical Journal	\$685.00	online
CMAJ/Canadian Medical Association Journal	\$220.00	online
Disease-a-Month	\$209.00	NO
JAMA: The Journal of the American Medical Association	\$365.00	print
Journal of Clinical Investigation	\$620.00	print, online
Lancet	\$635.00	print
Medical Clinics of North America	\$209.00	NO
Medicine	\$359.00	NO
New England Journal of Medicine	\$499.00	print
Postgraduate Medicine	\$70.00	NO
<i>Laboratory Methods</i>		
Clinics in Laboratory Medicine	\$209.00	print
Journal of Laboratory and Clinical Medicine	\$426.00	print
<i>Medical Informatics</i>		
Journal of the American Medical Informatics Association	\$295.00	online
<i>Neurology</i>		
Annals of Neurology	\$405.00	NO
Archives of Neurology	\$365.00	print
Journal of Neurosurgery	\$315.00	print
Neurology	\$659.00	NO
Neurosurgery	\$472.00	NO
<i>Nutrition</i>		
American Journal of Clinical Nutrition	\$245.00	print
Journal of the American Dietetic Association	\$270.00	print
Nutrition Reviews	\$215.00	print
<i>Oncology</i>		
Cancer	\$469.00	online
Journal of the National Cancer Institute	\$330.00	print, online
<i>Ophthalmology</i>		
American Journal of Ophthalmology	\$369.00	online
Archives of Ophthalmology	\$375.00	NO
<i>Orthopedics</i>		
Clinical Orthopaedics and Related Research	\$701.00	print
Journal of Bone and Joint Surgery. American volume	\$228.00	print
Orthopedic Clinics of North America	\$250.00	NO

SMALL MEDICAL LIBRARY JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
<i>Otorhinolaryngology</i>		
Archives of Otolaryngology—Head & Neck Surgery	\$395.00	NO
Journal of Laryngology and Otology	\$355.00	NO
Otolaryngologic Clinics of North America	\$301.00	NO
Otolaryngology—Head and Neck Surgery	\$384.00	NO
<i>Palliative Medicine</i>		
Journal of Palliative Medicine	\$389.00	NO
<i>Pathology</i>		
American Journal of Clinical Pathology	\$415.00	print
American Journal of Pathology	\$465.00	NO
Archives of Pathology & Laboratory Medicine	\$195.00	print
Journal of Clinical Pathology	\$724.00	print
<i>Pediatrics</i>		
Archives of Pediatrics & Adolescent Medicine	\$340.00	print
Clinical Pediatrics	\$297.00	NO
Journal of Pediatrics	\$406.00	print
Pediatric Clinics of North America	\$209.00	print
Pediatrics	\$305.00	NO
<i>Pharmacology and Therapeutics</i>		
Clinical Pharmacology and Therapeutics	\$422.00	NO
Journal of Pharmacology and Experimental Therapeutics	\$671.00	NO
Medical Letter on Drugs and Therapeutics	\$59.00	NO
Pharmacological Reviews	\$201.00	NO
<i>Physical Medicine and Rehabilitation</i>		
American Journal of Physical Medicine & Rehabilitation	\$309.00	print
Archives of Physical Medicine and Rehabilitation	\$324.00	print
Physical Medicine and Rehabilitation Clinics of North America	\$204.00	NO
Preventive Medicine and Public Health		
American Journal of Public Health	\$250.00	print
Archives of Environmental Health	\$350.00	print
Public Health Reports	\$96.00	print, online
Psychiatry		
American Journal of Psychiatry	\$399.00	print, online
Archives of General Psychiatry	\$365.00	print
Journal of Nervous and Mental Disease	\$398.00	print
Radiology and Imaging		
AJR, American Journal of Roentgenology	\$250.00	NO
British Journal of Radiology	\$720.00	NO
Radiologic Clinics of North America	\$284.00	NO
Radiology	\$450.00	NO

SMALL MEDICAL LIBRARY JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
Respiratory System		
American Journal of Respiratory and Critical Care Medicine	\$350.00	NO
Chest	\$186.00	NO
Rheumatology		
Arthritis and Rheumatism	\$699.00	print, online
Rheumatology	\$650.00	print, online
Sexually Transmitted Diseases		
Sexually Transmitted Diseases	\$436.00	print
Sports Medicine		
American Journal of Sports Medicine	\$160.00	print
Clinics in Sports Medicine	\$238.00	NO
Substance Abuse		
Journal of Studies on Alcohol	\$175.00	print
Journal of Substance Abuse Treatment	\$602.00	print, online
Surgery		
American Journal of Surgery	\$242.00	online
Annals of Surgery	\$475.00	NO
Annals of Thoracic Surgery	\$433.00	online
Archives of Surgery	\$340.00	NO
British Journal of Surgery	\$297.00	online
Journal of the American College of Surgeons	\$241.00	online
Journal of Thoracic and Cardiovascular Surgery	\$444.00	NO
Journal of Trauma, Injury, Infection, and Critical Care	\$391.00	print
Journal of Vascular Surgery	\$432.00	NO
Plastic and Reconstructive Surgery	\$551.00	NO
Surgery	\$402.00	NO
Surgical Clinics of North America	\$256.00	NO
Tropical Medicine		
American Journal of Tropical Medicine and Hygiene	\$450.00	print
Urology		
Journal of Urology	\$556.00	NO
Urologic Clinics of North America	\$263.00	NO

SMALL MEDICAL LIBRARY JOURNALS

Total cost of all journals for SMALL MEDICAL LIBRARY	\$55,552.95
Journals already held at FIU	\$32,596.95
Adjusted cost for journals to be acquired	\$22,956.00
Subset of INITIAL journals to be acquired	\$9,602.00
Total number of INITIAL journals to be acquired	24

Total number of Journals 141
Total number of journals held by FIU 77 (55%)

NURSING JOURNALS

Bolded titles are suggested for initial purchase

Title	Price	FIU
AANA Journal (American Association of Nurse Anesthetists)	\$36.00	print
AAOHN Journal (American Association of Occupational Health Nurses)	\$99.00	print
American Journal of Critical Care	\$125.00	NO
American Journal of Hospice and Palliative Care	\$203.00	print
American Journal of Infection Control: AJIC	\$202.00	NO
American Journal of Nursing	\$99.00	print
American Nurse	\$30.00	print, microform
ANS: Advances in Nursing Science	\$153.22	print
AORN Journal (Association of Operating Room Nurses)	\$97.00	print
Applied Nursing Research	\$152.00	print
Archives of Psychiatric Nursing	\$126.00	print
Canadian Nurse	\$35.00	print
Cancer Nursing	\$173.00	print
Clinical Nurse Specialist: CNS	\$159.95	print
Clinical Nursing Research	\$295.00	print, online
Computers in Nursing	\$215.00	print
Critical Care Nurse	\$65.00	print
Critical Care Nursing Clinics of North America	\$129.00	NO
Critical Care Nursing Quarterly	\$153.22	print
CINAHL	\$395.00	online
Dimensions of Critical Care Nursing: DCCN	\$129.00	NO
Evidence-Based Nursing	\$179.00	NO
Gastroenterology Nursing	\$169.00	NO
Geriatric Nursing	\$96.00	print
Heart & Lung: The Journal of Acute and Critical Care	\$198.00	print
Holistic Nursing Practice	\$153.22	print
Home Healthcare Nurse	\$181.95	NO
International Journal of Trauma Nursing	\$96.00	NO
International Nursing Review	\$94.00	print, online
JOGNN: Journal of Obstetric, Gynecologic, and Neonatal Nursing	\$390.00	print

NURSING JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
Journal of Advanced Nursing	\$1,102.00	print, online
Journal of the Association of Nurses in AIDS Care: JANAC	\$240.00	NO
Journal of Cardiovascular Nursing	\$153.22	print
Journal of Child and Adolescent Psychiatric Nursing	\$79.00	NO
Journal of Community Health Nursing	\$345.00	print
Journal of Continuing Education in Nursing	\$99.00	print
Journal of Emergency Nursing: JEN	\$218.00	print
Journal of Gerontological Nursing	\$74.00	print
Journal of Infusion Nursing	\$197.00	NO
Journal of Midwifery & Women's Health	\$265.00	print, online
Journal of Neuroscience Nursing	\$135.00	print
Journal for Nurses in Staff Development: JNSD	\$239.95	NO
Journal of Nursing Administration: JONA	\$299.00	print
Journal of Nursing Care Quality	\$171.67	print
Journal of Nursing Education	\$109.00	print
Journal of Nursing Scholarship	\$63.00	print
Journal of Nursing Management	\$348.00	online
Journal of Pediatric Health Care	\$148.00	print
Journal of Pediatric Oncology Nursing	\$193.00	print
Journal of PeriAnesthesia Nursing	\$174.00	print
Journal of Perinatal & Neonatal Nursing	\$153.22	NO
Journal of Practical Nursing	\$15.00	print
Journal of Professional Nursing	\$219.00	print
Journal of Psychosocial Nursing and Mental Health Services	\$74.00	print
Journal of the Society of Pediatric Nurses: JSPN	\$59.00	print
Journal of Vascular Nursing	\$105.00	NO
Journal of Wound, Ostomy and Continence Nursing: WOCN	\$202.00	NO
MCN: The American Journal of Maternal Child Nursing	\$89.95	print
Neonatal Network	\$66.00	print
Nephrology Nursing Journal	\$45.00	NO
Nurse Educator	\$189.95	print
Nurse Practitioner: The American Journal of Primary Health Care	\$129.00	print
Nursing Administration	\$171.67	print

NURSING JOURNALS

Bolded titles are suggested for initial purchase

Title	Price	FIU
Nursing Clinics of North America	\$147.00	NO
Nursing Diagnosis	\$81.00	NO
Nursing Economics	\$65.00	print
Nursing Education Perspectives	\$90.00	print
Nursing Management	\$129.00	print
Nursing Law's Regan Report	\$102.00	NO
Nursing Outlook	\$97.00	print
Nursing Research	\$169.95	print
Nursing Science Quarterly	\$230.00	print, online
Nursing Times	\$216.00	print
Nursing2002	\$99.00	NO
Oncology Nursing Forum	\$115.00	print
Orthopaedic Nursing	\$45.00	NO
Pain Management Nursing	\$97.00	NO
Pediatric Nursing	\$45.00	print
Plastic Surgical Nursing	\$45.00	NO
Public Health Nursing	\$275.00	print, online
Rehabilitation Nursing	\$135.00	print
Research in Nursing & Health	\$760.00	print, online
RN	\$39.00	print
Seminars in Oncology Nursing	\$164.00	print
Urologic Nursing	\$60.00	NO
Western Journal of Nursing	\$585.00	print

Total cost of all journals for NURSING	\$14,591.14
Journals already held at FIU	\$11,443.02
Adjusted cost for journals to be acquired	\$3,148.12
Subset of INITIAL journals to be acquired	\$684.95
Total number of INITIAL journals to be acquired	6

Total number of Journals 86
Total number held by FIU 62 (72%)

ALLIED HEALTH JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
<i>ALLIED HEALTH</i>		
American Journal of Health Promotion: AJHP	\$119.95	print
CINAHL	\$395.00	online
Journal of Allied Health	\$85.00	print
<i>ATHLETIC TRAINER</i>		
Journal of Athletic Training	\$32.00	print
<i>DENTAL HYGIENE AND DENTAL ASSISTING</i>		
Dental Assistant	\$20.00	NO
Journal of Dental Hygiene	\$45.00	NO
<i>DIAGNOSTIC MEDICAL SONOGRAPHY</i>		
Journal of the American Society of Echocardiography	\$231.00	NO
Journal of Diagnostic Medical Sonography	\$270.00	NO
Ultrasonic Imaging	\$290.00	online
<i>EEG TECHNOLOGY</i>		
American Journal of Electroneurodiagnostic Technology	\$80.00	NO
Clinical Electroencephalography	\$76.00	NO
<i>EMERGENCY MEDICAL TECHNOLOGY (INCLUDING PARAMEDIC)</i>		
Annals of Emergency Medicine	\$237.00	print
Emergency Medical Services	\$19.95	print
Emergency Medicine	\$106.00	print
JEMS: Journal of Emergency Medical Services	\$27.97	NO
Topics in Emergency Medicine	\$146.81	NO
<i>HEMATOLOGY</i>		
Transfusion	\$344.00	print, online
<i>MEDICAL ASSISTANT</i>		
PMA: Professional Medical Assistant	\$30.00	print
<i>MEDICAL RECORDS</i>		
J AHIMA. (American Health Information Management Association)	\$72.00	print
Topics in Health Information Management	\$187.05	print
<i>MEDICAL TECHNOLOGY</i>		
American Laboratory	\$235.00	NO
Biomedical Instrumentation and Technology	\$149.00	NO
Biotechnic & Histochemistry	\$220.00	print
Canadian Journal of Medical Laboratory Science	\$16.75	NO
Clinical Chemistry	\$673.00	print
Clinical Laboratory Science	\$60.00	print
Journal of Laboratory and Clinical Medicine	\$389.00	print

ALLIED HEALTH JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
Laboratory Medicine	\$60.00	print
MLO: Medical Laboratory Observer	\$75.00	print
<i>NUCLEAR MEDICAL TECHNOLOGY</i>		
See also Diagnostic Medical Sonography; Radiology Technology		
Journal of Nuclear Medicine Technology	\$100.00	NO
<i>NUTRITION</i>		
Canadian Journal of Dietetic Practice and Research	\$75.00	NO
Journal of the American Dietetic Association	\$270.00	print
Journal of Nutrition Education & Behaviour	\$234.00	print
Journal of Nutrition for the Elderly	\$500.00	print, online
<i>OCCUPATIONAL THERAPY</i>		
See Physical and Occupational Therapy		
<i>PERFUSION</i>		
Journal of Extra-Corporeal Technology	\$130.00	NO
Perfusion	\$710.00	NO
<i>PHYSICAL AND OCCUPATIONAL THERAPY</i>		
See also Rehabilitation		
American Journal of Occupational Therapy	\$130.00	print
American Journal of Physical Medicine and Rehabilitation	\$291.00	print
Archives of Physical Medicine and Rehabilitation	\$296.00	print
British Journal of Occupational Therapy	\$262.05	print
<i>Canadian Journal of Occupational Therapy</i>	\$58.00	print
Journal of Hand Therapy	\$98.00	print
Journal of Orthopaedic and Sports Physical Therapy	\$215.00	print
JPO: Journal of Prosthetics and Orthotics	\$99.00	NO
Occupational Ergonomics	\$242.00	NO
Occupational Therapy in Health Care	\$250.00	print, online
Occupational Therapy in Mental Health	\$365.00	print, online
Orthopaedic Physical Therapy Clinics of North America	\$136.00	NO
OT Practice. (American Occupational Therapy Association)	\$135.00	print
OTJR Occupational Participation and Health	\$74.00	print
Pediatric Physical Therapy	\$165.00	print
Physical Medicine and Rehabilitation Clinics of North America	\$186.00	NO
Physical and Occupational Therapy in Geriatrics	\$450.00	print, online
Physical and Occupational Therapy in Pediatrics	\$465.00	print, online
Physical Therapy	\$95.00	print, online
Physiotherapy. England	\$304.12	print
Physiotherapy Canada	\$48.84	print
PT: Magazine of Physical Therapy	\$85.00	print, online

ALLIED HEALTH JOURNALS**Bolded titles are suggested for initial purchase**

Title	Price	FIU
PHYSICIAN ASSISTANT		
<i>JAAPA/Journal of the American Academy of Physician Assistants</i>	\$50.00	NO
<i>Physician Assistant</i>	\$159.00	NO
RADIOLOGIC TECHNOLOGY		
See also Diagnostic Medical Sonography; Nuclear Medicine Technology		
Applied Radiology	\$95.00	NO
Canadian Journal of Medical Radiation Technology	\$29.30	NO
Radiologic Technology	\$49.00	NO
REHABILITATION		
See also Physical and Occupational Therapy		
Clinical Kinesiology: Journal of the American Kinesiotherapy Association	\$60.00	print
Journal of Burn Care & Rehabilitation	\$170.00	NO
Journal of Cardiopulmonary Rehabilitation	\$239.95	print
Journal of Head Trauma Rehabilitation	\$168.56	print
Journal of Rehabilitation	\$65.00	print
Topics in Geriatric Rehabilitation	\$146.81	print
RESPIRATORY THERAPY		
AARC Times. (American Association for Respiratory Care)	\$89.95	NO
Respiratory Care	\$89.95	NO
RRT: The Canadian Journal of Respiratory Therapy	\$39.00	NO
SPEECH PATHOLOGY/AUDIOLOGY		
American Journal of Audiology	\$110.00	NO
American Journal of Speech-Language Pathology	\$125.00	print
Dysphagia	\$393.00	NO
Ear & Hearing	\$178.00	NO
Journal of the American Academy of Audiology	\$271.00	NO
Journal of Speech, Language, and Hearing Research	\$300.00	print
SURGICAL TECHNOLOGY		
Surgical Technologist	\$36.00	NO

Total cost of all journals for ALLIED HEALTH	\$14,026.01
Journals already held at FIU	\$9,291.28
Adjusted cost for journals to be acquired	\$4,734.73
Subset of INITIAL journals to be acquired	\$901.92
Total number of INITIAL journals to be acquired	9

Total number of Journals 79
Total number of titles held by FIU 46 (58%)

Technology Report

Perspectives on Technology Support for a New Medical School at Florida International University

John McGowan

Vice President & CIO

Florida International University

Executive Summary

This concept paper originated following an extensive evaluation of the technology functions of the University that resulted in the development of the Comprehensive Technology Master Plan for Florida International University. The plan includes the self-evaluation by University Technology Services (UTS) and those of the Cross Functional Planning teams for the development of the Strategic Plan of the University (Appendix I).

While the requirements of an Academic Health Center (AHC) overlap with those of the academic community, consideration must be given to special technology requirements and those of security, i.e. HIPAA. Additionally, the service and support must be enhanced notably to support those involved in clinical practice and research. This has prompted technology organizations to embrace information gathering and dissemination from the perspective of high availability and redundancy, while concurrently providing comprehensive security of the data regardless of form. This report defines the information resources and technology concept for a health care organization based upon current best practice.

Mission: The mission of the technology unit within the AHC is to facilitate excellence in education, biomedical and clinical research, and patient care through the application of innovative and effective information resources and technology.

The Development Model: The model to support the mission is based upon support of the clinical, research and education initiatives associated with the Center as an extension of the currently successful organization of technology support for the University. The infrastructural support will include the provision of the FIU network, systems, security, data center and planning expertise to the definition of elements of the AHC model. It is acknowledged within the framework of this

model that information technology, knowledge management, and informatics will require additional resources.

Major Strategic Technology Themes for the AHC:

- Ubiquitous access to information
- Data privacy and security
- The library as a knowledge management center
- The internet as a communications medium
- Technology as an innovative force in AHC educational initiatives
- Translational informatics including bioinformatics and clinical informatics
- Enablement of the research mission.

Organizational design: The accrediting body for medical schools (Liaison Committee for Medical Education, see Appendix II) does not stipulate the locus for technology support. It is the Vice President and CIO's mandate to offer all technology related services to the University community. Ubiquitous access to technology in a secure environment is fundamentally important to all members of the University. The varied technology requirements of each individual program within the AHC will require extensive evaluation of the internal and external programs developed as components of FIU's model of health and medical education. A separate unit within UTS, the Information and Communication Technology unit (ICT), would be located within the AHC. It would be dedicated to the functions of the AHC, directed by an associate vice president who would jointly report to the medical director and the Vice President of Information Technology and CIO.

Community Served: The allied health and public health students and faculty; FIU basic science faculty; clinical faculty; residents who become the local "faculty" for students in the third and fourth year; medical students; and hospital staff, must be able to access information related to their functional areas. This includes general off-site access to electronic databases by non-faculty and staff and access to on-line course materials. This argues for granting quasi-faculty status to those working with the program in hospitals. Remote access to information services makes them accessible directly to doctors and students in cooperating hospitals.

Budget: The annual operating expense of today's ICT equivalent at other universities averages five million dollars. Budget details are not currently

available but will be forthcoming as the evaluation of the AHC's requirements for different functional areas is completed. This number may change significantly due to the requirements for a medical records system that would be necessary for newly established clinics and a laboratory system if deemed necessary. However, the model is based primarily on the use of existing clinics and hospitals throughout the community, and the definition of all student administration and business functions within the framework of the enterprise system currently being implemented for the University.

Services: The services are proposed to be divided into those associated with the academic and research requirements of the AHC and ICT. The administrative functions related to business and student administration will be associated with UTS. Both AHC and ICT would be partners in a computing facility known as Academic Computing Health Sciences (ACHS). ACHS will provide computing support for biomedical research and the educational technology requirements of the Center; as noted previously this function is educational and it would not provide support for patient care or administrative functions. ACHS would be jointly funded and directed by ICT and the Vice President and CIO of the University. ACHS will provide a blend of hardware, software, services, and personnel to provide support for the academic and research computing needs of the health sciences community.

ACHS will provide support for research by providing specialized expertise in health informatics, biostatistics, data visualization, molecular modeling, molecular biology, and image processing. The organization would house the Office of Medical Education that provides support in the area of curriculum instruction and advanced multimedia applications. Support for more general needs (networking, word processing, and spreadsheets) would be provided through the ICT help desk; support for the computer access to MEDLINE would be provided by the Health Sciences Library.

Four specific computing laboratories would be located within ACHS: Health Informatics, Multimedia, Data Acquisition, and Data Visualization. The Health Informatics lab will provide access to molecular biology, health care, and clinical practice databases and links to other health informatics databases throughout the world. The Multimedia lab will provide microcomputer based hardware and software for capturing and editing figures, film, and video images. The Data Acquisition laboratory will provide hardware and software for acquiring, displaying, and analyzing basic science image data (autoradiograms, X-ray films,

and microscope images). The Data Visualization laboratory will provide high-performance workstations and software for molecular modeling and data visualization.

The AHC will encourage the integration of appropriate computing skills into the medical curriculum. The Office of Medical Education within ACHS will provide consultation on selection and evaluation of commercially available software packages. The University has standardized on Microsoft Office and Lotus Notes. Support will be provided to help faculty develop their own educational software packages or integrate electronic communications into courses using WebCT as the course management tool for on-line courses. The Computers in Medicine Education committee will support innovative uses of educational computing through a competitive seed grant program. Faculty can then receive awards of computing equipment or funds to purchase software or professional services needed to produce new educational products.

AHC computing will incorporate both wireless and wireline capabilities into the infrastructure. The University has just completed the implementation of a gigabit Ethernet network for all of the campus locations. This would be extended as the backbone to support the AHC for voice, video, data, and IP telephony. Medical students will be required to apply the technology components for use with their PDA's and notebook or tablet computers.

Administrative computing services for all AHC staff will be provided through the ICT with the exception (as noted previously) of the health services information system components and the administrative components. UTS will provide support and maintenance of these systems and the academic information system of the AHC. The academic information system of the University is the PeopleSoft Student Administration (SA) module. The SA module will support all of the functions associated with the process of admissions, registration and advisement.

The e-classroom and conferencing facilities – The AHC would house multimedia classrooms that are capable of supporting video, media, and broadcasting (inbound and outbound) streams to selected sites within the university or to the regional clinics and hospitals participating in the program. These may be in the form of lectures, conferences, or demonstrations, i.e. surgical procedures from participating hospitals.

In addition, FIU currently supports the Florida GigaPop (AmPath) and is connected regionally to all of South America, the Caribbean, and Madrid, Spain. AmPath functions as the major peering point for the research and education networks in these countries. AHC can take advantage of this capability to collaborate with those medical institutions regarding educational and research initiatives related to telemedicine, etc.

Audio and Video Production Services: The Media and Technology Support Unit of ICT (MTS) will maintain a technical group to provide audio-visual support for clinical and academic applications. Services would be provided for academic programs and include the following: engineering services (system design, equipment specifications, project management); production services (video recording throughout AHC or remote locations in VHS and SVHS tape formats, dubbing services will be available in 3/4" and international tape formats); post-production services (tape duplication titling, tape format conversion, digital video and audio editing capability, and digital special effects (DVE)); conference support services (furnish and set-up equipment for conferences and meetings, equipment operators, projectionists, and videographers will be available); and audio-visual equipment repair and preventive maintenance.

Additionally, educational video production will be available through a collaborative effort of the division representing patient care services and the MTS unit of ICT. Services provided will include needs assessment, script writing, production, directing, videotaping, editing, and graphics production. High priority will be given to projects that supplement and enhance the educational mission as well as projects which serve the needs of patients, family members, staff, and the community at large.

Medical Photography: Medical Photography will be a comprehensive visual support service for the AHC and the University community. Various forms of display, publication, and projectuals will be produced to support patient care, teaching, and research. Medical Photography would act as an auxiliary unit and would recover cost on a fee for service basis. Cost estimates will be provided on each project as they currently are for the University.

Summary of Photography Services

- Copy Photography (originals: art, book illustrations, blue slides, physiologic tracings, slide duplications, radiologic films)

- Small Object Photography (electronic components, glass apparatus, surgical instruments, gross specimens, plates, gels and prosthetic devices)
- Photography through the Microscope (photomicroscopy/macroscope: bright field, dark field, phase contrast and reflected light)
- Studio Photography (patients, gross specimens, special set-ups, equipment, apparatus, portraiture, application pictures, and passport pictures)
- Location Photography (autopsy, surgery, patients, laboratory, publicity, group pictures, architecture, emergency room -- accidents, rape and domestic violence on call for E.R. and O.R. photography 24 hours a day).
- Laboratory Services (color ektachrome (E6) slide film processing four times per day and overnight, black and white negative film processing with contact proof sheets four times per day and overnight. Routine black and white prints for publication one day and overnight service. Custom prints from x-ray films, prints for grants, thesis, and exhibits. Prints enlarged up to 16 x 20 and transparencies for Tran illuminated exhibits. Turnaround time will be determined per project by director. Coordination of outside vendor services will be provided for color printing.)

Printing and Copying Services: University Printing and Copying Services (PCS) will provide offset printing and copying to the AHC through offices in the complex. Any type of printing, duplication or xerographic copying will be provided quickly and conveniently. In the new center, PCS offers the widest possible range of copying and duplicating services, including full-color copies, digital imaging systems, and on-demand publishing. The latest technology from Xerox and other vendors will be used to meet graphics needs.

The heart of the Center will be a digital duplicating system. This state of the art imaging system will be connected with the FIU network to provide Internet access, which will allow patrons to place orders and transmit documents over the net directly from their office PC's for direct-image duplicating. With this system, every copy would actually be a laser printer original. Operators in the center will provide assistance and instruction to facilitate use of the new technology.

PCS will also provide high-quality color copies using the latest color imaging technology. Medical illustrations, color photos, and drawings or just about any color image on a flat surface will be able to be duplicated in full color. Color overhead transparencies, color calendars will be possible.

The PCS printing facility will provide additional services for larger volume duplicating, as well as a full range of printed materials. Departmental brochures, posters, booklets, forms letterhead, envelopes, and business cards will be printed through this location. Professional graphic design and desktop publishing services will be available.