

# **Premedical Education at the University of Delaware**

**A Review of the Medical Scholars Program, the Medical Humanities Minor, and  
the Health Science Advisory and Evaluation Committee**

**Submitted to Mark Huddleston, Dean**

**College of Arts and Sciences**

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### **Charge to the Committee**

On February 21, 2003, Dean Mark Huddleston along with Associate Dean George Watson charged the committee with the task of evaluating the premedical programs at the University of Delaware. Among the elements for review were:

#### **Medical Scholars Program:**

1. Review of the original rationale for and structure of the Medical Scholars Program. Has the vision been realized? Have the needs changed?
2. Revisions in the Medical Scholar's curriculum as a track through the Bachelor of Arts in Liberal Studies. Have these revisions resulted in decreased effectiveness of the program?
3. Interaction of the Medical Scholars Program and DIMER (Delaware Institute of Medical Education and Research).

#### **HSAEC**

4. Review of the effectiveness of HSAEC (Health Sciences Advisory and Evaluation Committee). What is the success rate of our students in being accepted to medical schools? Is the structure of the committee and the appointment of its members appropriate? What are the demographics of our premed students?
5. Models of integration of premed advisement activities. Should this be a university-wide activity and not centered in biology?

#### **Medical Humanities Minor**

6. Review of the Medical Humanities minor. Is this a third track to medical school?

### **Committee Membership and Activities**

The following people were members of the premedical programs review committee:

Harold B. White, Ph.D. (Chair), Prof. of Chemistry & Biochemistry, University of Delaware  
Paul Durbin, Ph.D. Prof. of Philosophy, University of Delaware  
Larry Griffith, Former Assistant Dean, College of Arts and Science, University of Delaware  
Florence Schmiege, Ph.D. Asst. Prof. of Biology, University of Delaware  
David Usher, Ph.D. Assoc. Chair and Assoc. Professor of Biology, University of Delaware  
Helen Easterling Williams, Ed.D. Assistant Dean, College of Arts and Science, University of Delaware  
Virginia Collier, MD, Vice Chair and Residency Program Director, Department of Medicine, Christiana Care Health System  
Patricia Curtin, MD, Chief of Geriatrics, Christiana Care  
Grace Hershman, M.Ed. Director of Admissions, Jefferson Medical College  
Peter Chodoff, MD, Prof. of Anesthesia, Department of Health Policy and Clinical Outcomes, Jefferson Medical College

The review committee was composed of people with a wide range of perspectives and relevant experience. They included the current (Schmiege) and a former (Durbin) director of the Medical Scholars Program, members of three of the four task forces involved in formulating the Medical Scholars Program (Chodoff, Durbin, and White), the director of the clinical practicums in the Medical Scholars Program (Collier), a member of the DIMER Board (Collier), the Director of Admissions at Jefferson Medical College (Hershman), the current chair (Schmiege) and several former members (Usher and White) of the Health Science Advisory and Evaluation Committee, representatives of the College of Arts and Science administration (Griffith and Williams), representatives of Christiana Care (Collier and Curtin) and parents of recent University of Delaware premedical (Usher) and Jefferson Medical College (Schmiege) students. Larry Griffith was initially appointed to the committee and was replaced by Helen Williams in July when Larry left the University of Delaware for a new position.

With the exception of December 2003, the committee held monthly meetings starting in February 2003 and ending in February 2004. Sherman Townsend, Chair of the DIMER Board and member of the University of Delaware's Board of Trustees, was a guest at the May meeting. Others who have been useful resources to the committee include Professor Heyward Brock, Lee Mullet, Judy Byerly, Ramona Wilson, and Deanna Smith.

## **Premedical Education at the University of Delaware**

To fully understand the current status of premedical education at the University of Delaware, it is necessary to review the history and evolution of three important organizations/programs that participate in the process, DIMER, HSAEC, and the Medical Scholars Program, as well as the Medical Humanities Minor, an important minor undertaken by many premedical students. Finally, a complete discussion of the current status of each of these must include problems as perceived by the Committee.

### **Delaware Institute for Medical Education and Research (DIMER)**

#### **History and Current Status**

Delaware is one of 5 states without a medical school. In the early 1970's, plans were laid for a medical school, and the University of Delaware began hiring basic science faculty for it. However, the plans were dropped when it was determined that the population base of the state was insufficient to support a medical school, particularly given the presence of several medical schools in nearby Philadelphia and Baltimore.

Rather than educate physicians in-state, in 1970 the state of Delaware contracted with Jefferson Medical College of Thomas Jefferson University in Philadelphia to guarantee the admission each year of at least 20 qualified students who were Delaware residents, although not necessarily graduates of the University of Delaware. This was initially and continues to be part of the DIMER (Delaware Institute for Medical Education and Research) program. In return, the state, through DIMER, agreed to pay Jefferson an annual sum of \$1.6M (reduced to \$1.0M around 1980), as well as providing smaller sums to the Medical Center of Delaware (now known as Christiana Care) and to the University of Delaware. Only a small part (\$50K) of the current ~\$1.9M DIMER budget comes to the University of Delaware. Although initially a portion of that was allocated to premedical education, currently none of the money which the University of Delaware receives from DIMER goes to the premedical programs under review. Rather, most of these funds go to the College of Health and Nursing Sciences. Since 1970, 641 Delaware residents have attended Jefferson Medical College through the DIMER program. Of those, 395 have been graduates of the University of Delaware. In 2000, the DIMER program secured at least five additional admission slots per year for Delaware residents at Philadelphia College of Osteopathic Medicine

### **Health Science Advisory and Evaluation Committee (HSAEC)**

#### **History**

The Health Science Advisory and Evaluation Committee (HSAEC) has existed for as long as committee members can remember. It certainly existed in the 1960's and thus predates DIMER. As its name implies, the purpose of the HSAEC is to advise premedical students with respect to prerequisite courses and suggested extracurricular work prior to applying to medical

school. Another important role of the committee is to evaluate students and send summary recommendations to medical schools upon the request of the student.

Traditionally, the majority of students who apply to medical school are biology majors. Thus, HSAEC has always been based in the Department of Biological Sciences, and the faculty members on the committee come primarily from that department. However, representatives from Chemistry and Biochemistry, Anthropology, Physical Therapy, Chemical Engineering, Agriculture, the medical profession, and other relevant disciplines have been and are HSAEC members.

### **Current Status/Perceived Problems in the HSAEC program**

HSAEC continues to serve a pivotal role in the premedical advisement process at the University of Delaware, as it has for over 40 years. The majority of premedical students at the university receive advice and thoughtful evaluations from this multidisciplinary committee. In spite of this, responsibility for the administration of HSAEC falls on one department, Biological Sciences. Appointment of members from other departments to the committee is problematic. Since not all premed students are biology majors, and since all premedical students take prerequisite courses outside of the Department of Biological Sciences, it is important that the committee consist of representatives from a variety of both science and social science departments. However, no one is designated as having the authority to appoint and thus persuade non-biology department members to serve on the committee.

The workload for these volunteers is significant. At a minimum, a member interviews about eight students for one hour each, writes a report on each interview, attends a two day meeting to evaluate all of the candidates, and then drafts letters to medical schools for half of the students he or she has interviewed. In spite of this, there is a lack of recognition in their home departments (other than Biological Sciences) of the time commitment and the importance of the service HSAEC committee members provide.

Similarly, the uncompensated workload of the committee's chair is also a problem. Currently, the efforts simply count toward the committee chair's service activities. The significant administrative component associated with coordinating activities for and advisement of scores of students from across campus who aspire to become physicians is not recognized.

Finally, although HSAEC has college or even university-wide responsibility, the Department of Biological Sciences is not compensated in any way for providing the personnel and support staff to ensure the effectiveness of the committee. For example, a departmental secretary from Biological Sciences devotes about a third of her time to the committee's work.

Despite these issues of lack of compensation and recognition, HSAEC functions relatively well. It has a long tradition, and the members recognize how important their work is for the students who depend on them.

## **Medical Scholars Program**

### **History**

Beginning in December 1987 and independent of the DIMER program, 42 senior faculty members from the University of Delaware and Jefferson Medical College began laying the ground work for an innovative 11 year medical program that would integrate undergraduate education at Delaware with medical education at Jefferson and residency at Christiana Care. The taskforce's report in May 1989 (Appendix I) was authored by John D. Engel and Robert S. Blacklow from Jefferson Medical College and D. Heyward Brock and Helen Gouldner from the University of Delaware, all of whom were educators committed to the vision of educating physicians differently and in ways appropriate for contemporary medicine.

On May 24, 1990, a month after its approval by the College of Arts and Science Committee on Special Academic Programs at the University of Delaware, the professional Faculty of Jefferson Medical College approved the Medical Scholars Program. The program officially began in September 1990. A key element in the curriculum of the new program was the elimination of undergraduate and medical school course duplications, so that students could include other medically-related courses in the humanities, social sciences, and business in their curriculum. For example, at the inception of the program, Jefferson faculty members traveled to the University of Delaware on a regular basis to teach Biochemistry, Physiology, and Histology in conjunction with University of Delaware faculty. Upon matriculation at Jefferson Medical College, students in the Medical Scholars Program were not required to retake these courses, but rather they had a separate track of courses in their first two years of medical school (detailed in Appendix I). As originally conceived, Medical Scholars who matriculated at Jefferson Medical College were to become involved in specific projects dealing with "health policy and health economics as related to issues of health care delivery." ... In addition, after admission to the Medical Scholars Program, undergraduate University of Delaware students were to engage in two intensive practicums in health care settings, for example, assisting in autopsies with the state medical examiner or working with surgeons in the operating room. These experiences were well beyond those typically encountered by non Medical Scholars Program premedical students at the University of Delaware.

In order to provide breadth and flexibility and to avoid the constraints of specific majors, students in the Medical Scholars Program received a Bachelor of Arts in Liberal Studies.

Another element of the Medical Scholars Program was the emphasis on student-centered education in undergraduate courses, in particular, problem-based learning. It was the faculty development efforts associated with the Medical Scholars Program that initiated the University of Delaware's rise to national prominence in problem-based instruction.

As designed, students would become part of a Medical Scholars interest group in their first two years. During this time they would participate in a variety of extracurricular programs such as seminars, social programs, and field trips to prepare them for formal application to the Medical Scholars Program. A maximum of 20 students could be admitted at the beginning of

their junior year after interviewing with faculty from Jefferson Medical College. Admission to the Medical Scholars Program represented a commitment by the student to attend Jefferson Medical College and a conditional acceptance by Jefferson Medical College provided he or she maintained high academic achievement. The initial GPA requirement for admission to Jefferson Medical College from the Medical Scholars Program interest group was 3.25. Students were required to take the Medical College Admission Test (MCAT) and achieve a “satisfactory performance”, although the absolute requirement was not defined.

Finally, the initial concept was that after receiving their MD degrees, Medical Scholars Program students were to be given special preference for high quality internships in Delaware (at what is now Christiana Care), if they wished.

### **Financial and Administrative Support**

During the early 1990’s, there was considerable financial support for the Medical Scholars Program, starting in 1990 with \$15,000 from DIMER. Two years later, a three-year \$250,000 grant from the Longwood Foundation substantially strengthened the Program. During these years, the Program was allied to the Center for Science and Culture (see below) in a number of ways. Many of the distinctive courses were taught by faculty from the Center, and Paul Durbin, the Medical Scholars Program director from 1994-1998, was part of the Center. The grant from the Longwood Foundation provided half of the director’s salary, administrative assistance, and other program expenses. When the grant and its extension terminated in 1998, the College of Arts and Sciences assumed financial support at the level of about \$50,000 per year, approximately \$30,000 per year less than the maximum annual support during the Longwood grant period. This change in support coincided with the demise of the Center for Science and Culture and several changes in leadership of the College. Heyward Brock, Senior Associate Dean of the College and one of the original designers of the Medical Scholars Program, became director of the program from 1998-2000. Since that time, the directors have been members of the faculty in Biological Sciences, Roger Wagner (2000-2002) and Florence Schmieg (2002-present).

### **Current Status/Perceived Problems in the Medical Scholars Program**

Since the inception of the Medical Scholars Program, curricular, administrative, and budgetary changes have occurred both at the University of Delaware and at Jefferson Medical College, all of which, in the opinion of the Premedical Evaluation Committee, have considerably weakened the program and have undermined its original intent. These include the following:

#### ***Curricular:***

- 1) Jefferson faculty no longer come to the University of Delaware to teach undergraduate science courses, and the curricula of Medical Scholars Program students once at Jefferson is now identical in all respects to that of other Jefferson medical students. Thus, there is now redundancy at the undergraduate and medical school levels in the basic science courses, and Medical Scholars Program students no longer have slots when at Jefferson

Medical College to take courses in health care policy or other non-basic science courses. These changes came about as a result of financial pressures at Jefferson Medical College.

- 2) The number of undergraduate courses taught for Medical Scholars at the University of Delaware in problem-based formats has decreased considerably. This is secondary to the labor intensive nature of problem-based learning with resulting manpower and financial constraints. For example, Advanced Physiology, previously a two semester course for Medical Scholars taught in problem-based format, has now evolved into a one semester literature-based course for graduate students.
- 3) Although a strong linkage between Christiana Care and the Medical Scholars Program continues to exist; for example, with the clinical practicums, there is no linkage between being a Medical Scholar and doing a residency at a Christiana Care program. This is an aspect of the program that the students did not find necessary or attractive.
- 4) Jefferson Medical College has changed its admission criteria whereby conditionally accepted Medical Scholars Program students are granted spots in a given Jefferson class. The required minimum GPA is now 3.5 (the minimum GPA for non-Medical Scholars Program students has also increased concomitantly). In addition, in 1997 the Committee on Admissions at Jefferson Medical College established the minimum MCAT scores for Medical Scholars of 9-9-9, which could be obtained at more than one sitting.

As a result of a threatened law suit involving MCAT scores of medical scholars and admission policies at Jefferson Medical College, in 2001 the Admissions Committee began to firmly enforce the requirement of 9-9-9 *at one sitting*. This requirement is not, however, rigidly enforced for non-MSP students applying for Jefferson. Among the consequences of these events has been a significant increase in the number of Medical Scholars rejected for admission by Jefferson Medical College (see Analysis of Premedical Admission Data below). In addition, the number of students who dropped out of the Medical Scholars Program to seek admission to other medical schools or even to Jefferson Medical College increased significantly.

- 5) Medical Scholars Program students and some University of Delaware faculty members find the Bachelor of Arts in Liberal Studies to be problematic. When listed on a resume or transcript, it does not reflect adequately the courses which a student has taken in his or her undergraduate years and may be a hindrance to those who do not choose to go to medical school or who wish to undertake additional graduate level work.

#### ***Administrative***

- 1) After an initial period of stability in leadership from 1992 – 1998, there have been 3 different directors from 1998 – present. The last two, although excellent and highly respected educators, were not involved in the formation of the program and do not have humanities backgrounds.

- 2) Although the Admissions Office continues to spend a considerable amount of time working with the Medical Scholars Program and its director, the time dedicated to the Medical Scholars Program by other Jefferson Medical School faculty and administration has diminished.
- 3) The physical location of the Medical Scholars Program has been considerably downgraded. In the mid-1990's, the program had its own office space in the form of a house on Delaware Avenue. Since then, the location of the program has moved twice (from Delaware Avenue to temporary space on Amstel Avenue to a small, insufficient office in Willard Hall with communal space shared with other unrelated programs) often with little advance notice and no rhyme nor reason as to the location. The downgrading of space and removal from the heart of the campus has resulted in lack of visibility of the program and a perception on the part of Medical Scholars that the program is being devalued.

### ***Budgetary***

- 1) As mentioned above, there has been loss of external funding for the program and decrease in allocation from the University for the program (Appendix III)
- 2) The current director, who also is the uncompensated director of HSAEC, receives a \$4,000 annual salary supplement and one course per year reduction in a six course per year teaching load. This is felt by the Committee to be inadequate compensation for the extent of work necessary to direct the Medical Scholars Program.

The limitations in support, changing administration, lack of a stable, prominent home on campus and increasing inability of Medical Scholars Program students to meet the new Jefferson Medical College standards have reduced student morale. It is clear that the Program does not have the financial, personnel, or administrative support that it had in the mid to late 1990's.

## **Minor in Medical Humanities**

### **History**

The Medical Humanities Minor is an offshoot of the National Endowment for the Humanities funded Program in the Culture of Biomedicine, which began in the early 1970s. This program was designed to provide humanities and social science courses for medical students in the proposed Delaware medical school. A set of basic courses was developed including, Philosophy of Medicine, Ethics in Health Care, Sociology of Health Care, and Politics of Health Care. These were supplemented by Literature and Medicine, Literature and Science, and similar more specialized courses.

When the plans for a medical school aborted, the University restructured the original set of basic courses, and the Medical Humanities Minor was developed. With the creation of the

School of Life and Health Science, there was pressure to broaden the scope of the program (adding Engineering Ethics, for example) which resulted in the establishment of the Center for Science and Culture in the mid seventies. All of the faculty in the earlier program continued, all the original courses were maintained, and the CSCC course designation first appeared in the computer system and registration booklets. When the Center was disbanded around 1997, the course designation and most of the courses continued, even without a proper departmental home.

When the Medical Scholars Program was begun (1990-1992), the existing Medical Humanities Minor was treated as a quasi minor in relation to the Medical Scholars Program-Liberal Studies quasi-major, but the two programs were not administered together. All of the courses were continued, but a minor style template was created. The minor appeared for the first time in the University of Delaware catalog about 1991 (Appendix V). From the mid 1970's on, including the establishment of the minor, courses were open to students from throughout the University. Concretely, that meant that the Medical Humanities courses were available from the beginning to any and all students, (not just Medical Scholars). It quickly became popular with students hoping to enter medical school as well as other health professions, regardless of their majors. An average of 11 students per year have graduated with a Medical Humanities Minor since 1993 (Appendix III).

### **Current Status/Perceived Problems**

Currently, the majority of problems with the Medical Humanities minor are administrative. Administration of the Medical Humanities Minor has been as diverse as its home base (or lack thereof). It began in the Center for Science and Culture and was administered by a series of Center's directors. When the Center was disbanded, the minor was administered by the director of the Medical Scholars Program. When administration of the Medical Scholars Program was moved to the Arts & Science dean's office, the coordination of the minor moved there too. When the Medical Scholars Program then regained a non-dean director, coordination was left behind in the dean's office. Most recently, it was returned to the director of the Medical Scholars Program, who has no time, staff, or funding for this additional duty.

The original core faculty teaching Medical Humanities courses has gradually disappeared over the past decade, mostly due to retirements. Only 3 or 4 are still at the University. And currently, no one assumes the authority to ensure that key courses in the Medical Humanities Minor are actually offered. (For example, Literature in Medicine was previously a required course for the minor, traditionally taught by a member of the Department of English. However, no faculty could teach it because they needed to teach courses for majors, and no funds were available to cover S-contracts other than for required department courses. Thus, a proposal to drop it as a requirement is currently under consideration.)

In short, this on-paper highly useful premedical program has, almost from the beginning, been a sort of administrative stepchild: no budget, no home, no proper coordination—while remaining relatively popular with students. With proper coordination, the actual minor could easily be adjusted to fit courses still taught.

### **Analysis of Premedical Admission and Jefferson Medical College Performance Data of University of Delaware Students**

Well over half of the University of Delaware graduates who go to medical school go to Jefferson Medical College. This is due in large measure to the two overlapping preferred admission programs previously described, the Medical Scholars Program and the DIMER program. Since 1994 when University of Delaware graduated its first class of Medical Scholars, 100 medical scholars have matriculated at Jefferson Medical College (Appendix III). Over the same period, an additional 61 University of Delaware graduates who were not Medical Scholars have gone on to Jefferson Medical College. Thus, of the approximately 16 University of Delaware students who go to Jefferson Medical College each year, more than half are from the Medical Scholars Program. For comparison, between 1984 and 1988, before the Medical Scholars Program began, a total of 39 University of Delaware students, or about 8 per year matriculated at Jefferson Medical College. This suggests that the Medical Scholars Program has had a significant positive impact on the number of University of Delaware graduates who become physicians.

As Appendix III documents, the yield of matriculated (accepted) Jefferson students from conditionally accepted Medical Scholars was very successful for the first six years. However, the situation has changed dramatically, starting in 2001, when only 9 of 16 were accepted and dropping further to 2 of 17 in 2002 and 4 of 12 in 2003. This has been due almost entirely to the newly implemented strict policy on obtaining a minimum of 9 on each part of the MCAT in a single sitting (see above). Many of the rejected students were successful in matriculating at other schools, some allopathic and many osteopathic. Fifty-five of the 57 Medical Scholars entering Jefferson Medical College between 1994-1999 (graduating classes 1998-2003) graduated in four years, and there has been little attrition among those currently enrolled.

A comparison of Medical Scholars with other University of Delaware students who matriculated at Jefferson Medical College between 1994 and 2002 reveals some interesting differences (Appendix IV). Medical Scholars have had significantly higher grade point averages at Delaware, significantly lower scores on all three parts of the MCAT, insignificantly better performance in the basic science years at Jefferson, and similar performance on Steps 1 and 2 of the USLME Medical Licensing Examination. Clearly, the lower average MCAT scores by Medical Scholars combined with the strict MCAT standards now in place for admission to Jefferson Medical College is cause for concern and the cause of the high proportion of rejections recently.

### **Why is the Medical Scholars Program Important?**

For nearly a century, the Flexner model (Flexner, 1910) has dominated medical education in the United States. In this model, for the first two years (preclinical) students focus on the basic medical sciences such as physiology, microbiology, biochemistry, genetics, anatomy, and pharmacology that form the foundation of our understanding of health and disease. In the subsequent (and last) two years students learn the major clinical disciplines including surgery, internal medicine, pediatrics, psychiatry, and obstetrics and gynecology through in-hospital clinical rotations in which they have progressive responsibility in the care of patients. For most medical students, their previous college undergraduate education is independent of their medical education or their subsequent residencies.

As conceived, the Medical Scholars Program between the University of Delaware and Jefferson Medical College was an eleven-year integrated program (Blacklow & Engel, 1991, 1992). It sought to avoid course duplications and replace them with substantive and relevant courses that were not normally included in premedical or medical education. In addition, students in the program had two intense clinical experiences prior to entering medical school. Furthermore, the program emphasized small class sizes, problem-based pedagogy, and a variety of enrichment activities. The vision for this came in part from critiques of the Flexner model during the 1980s (Mueller, 1984) that noted disconnections between what modern doctors needed to know and their education in such areas as health policy, humanities, business, and the social sciences. Mueller's report also cautioned against the over emphasis on MCAT scores for admission to medical school.

In the 13 years since the Medical Scholars Program began, the need for such alternative visions for medical and premedical education has become even greater. Consider that, "in the space of a decade [1992-2002], the human genome was mapped, managed care fundamentally altered the delivery of care, and the information revolution fueled the empowerment of health care consumers as never before" (Commonwealth Fund Report, 2002). The Institute of Medicine (2003) recommends reform of health professions education to enhance patient care and safety by integrating a set of core competencies into health professions education. These include patient-centered care, interdisciplinary teams, evidence-based practice, quality improvement, and informatics. It is in the interest of future doctors and society that programs like the Medical Scholars Program emphasize these competencies.

A reengineered Medical Scholars Program will catapult the University of Delaware, Thomas Jefferson University and Christiana Care to national prominence. It will utilize the strengths of these three institutions to place us in the vanguard of 21<sup>st</sup> century medical education. In addition, a vital premedical curriculum with the Medical Scholars Program as a centerpiece will attract outstanding students to the University of Delaware and enrich the undergraduate program.

### **Why is the Medical Humanities Minor Important?**

For premedical students who do not choose or are not selected by the Medical Scholars Program, the Medical Humanities Minor provides an attractive option. Because the minor has fewer requirements (Appendix V) than the Medical Scholars Program (Appendix II), it permits students to pursue a traditional major such as Biology or Chemistry—an option difficult for many medical scholars and frequently preferred by students who wish to consider a range of medical schools other than Jefferson Medical College. Students who select this track demonstrate an overt commitment to the importance of humanities in their education and may thereby strengthen their credentials for admission to at least some medical schools, regardless of their major.

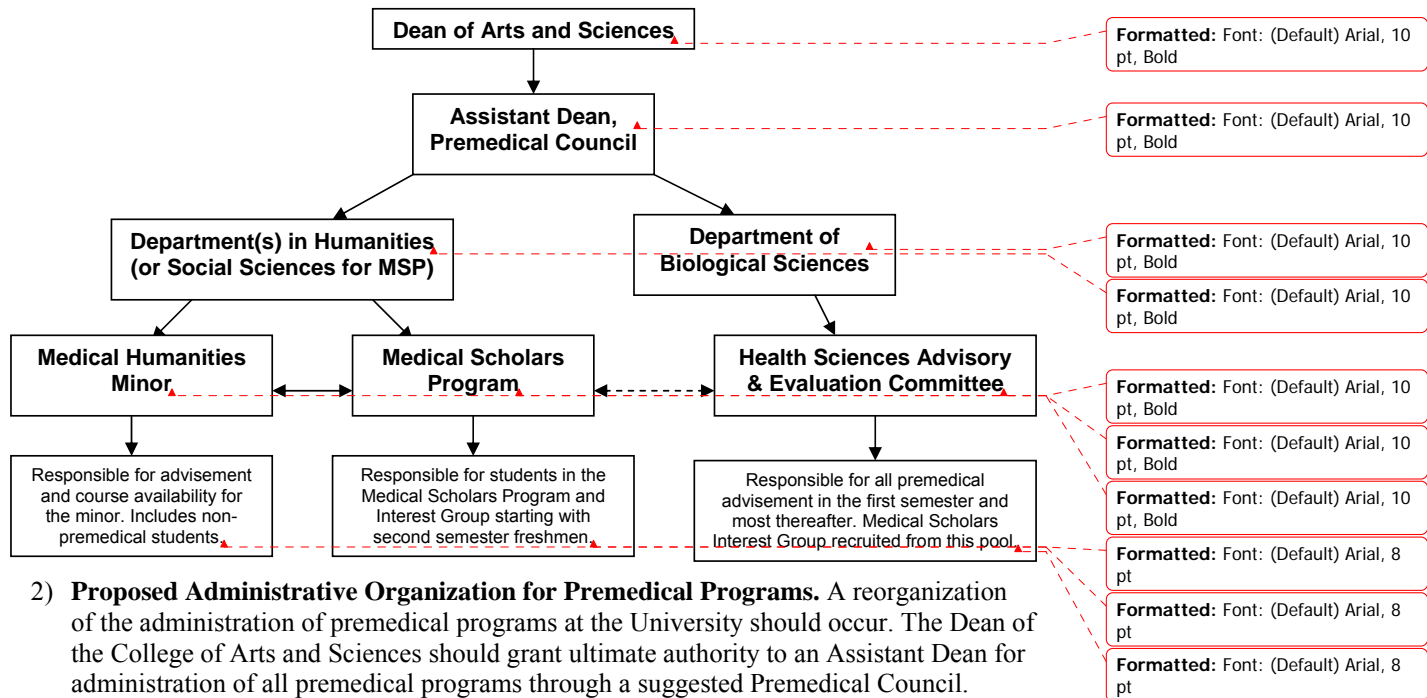
Furthermore, the Medical Humanities Minor and its constituent courses serve more than premedical students. Students in Nursing and related alternative Health Professions majors as well as students from other areas take these courses. For example, students interested in careers as dentists, pharmacists, physician's assistants, medical technologists, health care managers, and others benefit from the minor.

If the Medical Humanities Minor had an administrative departmental home and involved a cadre of interested faculty who offered a broad selection of relevant courses, students would become more aware of the minor and make it part of their education. The growing importance of the health care professions beyond medicine, make the Medical Humanities Minor an important component of the University of Delaware's offerings.

## Recommendations of the Committee

- 1) **Formation of a Premedical Council.** After a thorough review of HSAEC, the Medical Scholars Program and the Medical Humanities Minor, the Committee recommends a reorganization of these programs as follows: The new Premedical Council should be established. It should ensure that both the Medical Scholars Program and the Medical Humanities Minor have “homes” in a humanities department (or social science for Medical Scholars Program). The Council should be funded. The budgets for HSAEC, the Medical Scholars Program, and the Medical Humanities Minor, to include a salary supplement for the director(s) and any administrative and/or secretarial expenses, should be developed and administered by this Council (see below).

### Proposed Administrative Structure of Premedical Programs



- 2) **Proposed Administrative Organization for Premedical Programs.** A reorganization of the administration of premedical programs at the University should occur. The Dean of the College of Arts and Sciences should grant ultimate authority to an Assistant Dean for administration of all premedical programs through a suggested Premedical Council.

The Council should advise the chair and reflect the premedical programs under supervision: Its membership should include at least the following

- Assistant Dean (Chair, nonvoting)
- Director, Medical Scholars Program
- Chair, HSAEC
- Coordinator, Medical Humanities Minor
- One representative each from Thomas Jefferson University and Christiana Care

3) **Functions of the Premedical Council.** The Assistant Dean and Premedical Council should have the authority to:

- Appoint the HSAEC chair and committee members
  - Provide written communication to the Department Chairs defining the percent effort of the HSAEC faculty members
- Appoint Medical Scholars Program director and review assigned duties.
- Appoint Medical Humanities Minor coordinator.
- Coordinate all premedical student advisement.
- Evaluate annually the Medical Humanities Minor and Medical Scholars Program curricula, courses and faculty with appropriate Department Chairs and/or Jefferson Medical College faculty
- Monitor outcomes of all premedical programs at the University of Delaware.
  - Applications of students interested in medicine to University of Delaware.
  - Applications to and acceptance at medical schools.
  - Applications to Medical Scholars Program and conditional acceptance at Jefferson Medical College. Matriculation of Medical Scholars Program students at Jefferson Medical College.
  - Comparison of the performance at Jefferson Medical College of Medical Scholars Program students to other University of Delaware students and to other cohorts.
- Comparison of choice of residency programs of Medical Scholars Program and other University of Delaware graduates.
  - Numbers of University of Delaware graduates ultimately practicing medicine in Delaware.
- Manage budgets for all premedical programs.
  - Assign resources to participating departments to fulfill requirements of the program, including S- contracts
- Prepare an annual report for the Dean of the College of Arts and Sciences to include the above curricular evaluation and outcomes.
- Work together to ensure that non-biology department members are appointed to HSAEC and that their contributions are recognized appropriately by their departments and the university. They will have the authority to ensure that appropriate courses are offered in the Medical Humanities Minor.

4) **HSAEC Premedical Advisement:** *All* premed students should go through HSAEC their first semester. At that time, both the Medical Scholars Program and the Medical Humanities Minor will be explained as well as HSAEC's advisory and evaluative role for premedical students not in the Medical Scholars Program. Students wishing to join the Medical Scholars Program Interest Group will do so in the second semester of the first year. They will remain in the Interest Group through spring semester of sophomore year. Selection for the Medical Scholars Program will take place from this group at that time.

5) **Medical Scholars Program:**

- **Renewed commitment from both the University of Delaware and Jefferson Medical College.** There needs to be a renewed commitment from the University of Delaware and Jefferson Medical College to the Medical Scholars Program. This should be in the form of increased financial, administrative, and marketing support. Although the Committee has done so, such a reaffirmation must come from the Dean and the College Senate of the University of Delaware as well as from the administration of Jefferson Medical College.
- **Director of the Medical Scholars Program.** Because the program is predicated upon the importance of humanities and social sciences to premedical training, the director should ideally be from either a humanities or social science department.
- **Review of curriculum.** It is also appropriate that at this juncture the Medical Scholars Program curriculum be critically reexamined, preferably by a joint committee from Jefferson and the University of Delaware. In particular, both organizations should once more review the original intent of the Medical Scholars Program, reaffirm the validity of the ideas upon which it was founded and make changes to the current curriculum to ensure that the program sustains a commitment to its goals. In addition, curriculum review should be undertaken in light of the current health care environment and currently recommended "best practices" in medical education. Although recommendations about changes in the Medical Scholars Program curriculum are outside the scope of this Committee's charge, we strongly advise that the report and suggestions submitted by Peter Chodoff, MD (Appendix VI) be a starting point for this review.
- **Admission criteria to the Medical Scholars Program.** While the committee does not recommend ignoring the MCATs, it recognizes that the goals and curriculum of the Medical Scholars Program may put participants at disadvantage. Furthermore, Medical Scholars, who are conditionally accepted at Jefferson Medical College at the beginning of their junior year at Delaware, may not take preparation for the MCAT as seriously as students who confront the uncertainty of admission through their senior year. The Committee recommends that Medical Scholars Program students should be counseled early in the course of their time at the University of the importance of MCAT's, the appropriate time to take them, how to study for them, etc. In addition, consideration should be given to using SAT scores as one (but not the only) criterion for acceptance into the Medical

Scholars Program. At a minimum, students wishing to enter the Medical Scholars Program who have low SAT scores should be advised that they are at risk of not achieving MCAT scores high enough to ensure acceptance to Jefferson.

- **Bachelors of Arts in Liberal Studies.** As mentioned, Medical Scholars Program students and some University of Delaware faculty members find this degree to be problematic. The Committee recommends that the degree which Medical Scholars are granted be reviewed and possibly changed to better reflect the studies these scholars undertake.
- **Problem-based learning in core courses.** The committee agrees that a problem-based learning format is appropriate for core courses in the Medical Scholars Program. We strongly encourage that preference be given to new instructors in required courses for the Medical Scholars Program who will use problem-based learning or have a strong “active-learning” teaching philosophy. We also feel that a problem-based learning emphasis is one that the University of Delaware is in a position to implement. Furthermore, such an emphasis would provide a distinctive element to our program in comparison with similar programs at other schools.

**6) Medical Humanities Minor:**

- a. The coordinator should be from a humanities department.
- b. The Medical Humanities Minor should be treated like other minors at the University of Delaware: subject to departmental oversight, but with the added dimension that it would be related in one direction, to a revitalized Medical Scholars Program quasi-major and in the other direction, to our proposed oversight council chaired by an Art and Sciences assistant dean.

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## **Summary of Recommendations.**

### **1. ADMINISTRATIVE:**

- There should be a Premedical Council which integrates all premedical programs (Medical Scholars Program, HSAEC, Medical Humanities Minor).
  - The Council should be directed by an Assistant Dean
  - The Council should consist of the director(s) of the Medical Scholars Program and the Medical Humanities Minor (a member(s) of a humanities department such as Philosophy), the director of HSAEC (a member of the Biology Department), and members from Thomas Jefferson University and Christiana Care.
  - The Council should administer all premedical programs and should have direct budgetary authority for these programs.

### **2. HSAEC:**

- The Director of HSAEC should receive appropriate compensation and recognition from the University.
- The Premedical Council and Assistant Dean should have the authority to ensure that non-biology department members are appointed to HSAEC and that their contributions are recognized by their departments and the University.
- *All* premedical students should go through HSAEC their first semester.

### **3. MEDICAL SCHOLARS PROGRAM:**

- The Committee strongly endorses the vision of the Medical Scholars Program as originally conceived, and in fact, recognizes that the need for such a program is more compelling than ever.
- There should be a renewed commitment to the Medical Scholars Program from both the University of Delaware and Jefferson Medical College.
  - The University of Delaware should ensure stable, adequate, and highly visible space for the Medical Scholars Program offices.
  - Jefferson Medical College should appoint a representative to act as a liaison between Jefferson and the Medical Scholars Program and to oversee Medical Scholars Program students when at Jefferson Medical College.
  - The director of the Medical Scholars Program should receive adequate compensation and recognition from the University of Delaware.

- There should be a thorough curriculum review of the Medical Scholars Program by a joint committee from Jefferson Medical College, Christiana Care, and the University of Delaware to ensure that the program not only sustains a commitment true to its original goals but also adapts to the significant changes occurring in the current health care environment.
  - The report and suggestions by Peter Chodoff in Appendix VI should be a starting point for this review.
  - Problem based learning should continue to be emphasized in the Medical Scholars Program curriculum.
- SAT scores should be one (but not the only) consideration for acceptance into the Medical Scholars Program.
  - At a minimum, students wishing to enter the Medical Scholars Program who have low SAT scores should be advised that they are at risk of not achieving MCAT scores high enough to ensure acceptance to Jefferson Medical College
  - Medical Scholars Program students should be counseled early in the course of their time at Delaware as to the importance of MCAT scores, ways to study for them, etc.
- The current degree which Medical Scholars Program students receive (the Bachelors of Arts in Liberal Studies) should be reconsidered.

#### **4. MEDICAL HUMANITIES MINOR**

- The director of the Medical Humanities Minor should be a humanities faculty member.
- The Medical Humanities Minor should be funded, with the budget administered by the Premedical Council.
- The Premedical Council should have the authority to ensure that courses necessary for fulfillment of the Medical Humanities Minor are offered.

**Appendix I. Reconfiguring Liberal and Professional Education: A Commitment to Educating Physicians for Academic Leadership and Practice in the 21<sup>st</sup> Century. Task Force Report, May 1989.**

## Appendix II.

### MEDICAL STUDIES CURRICULUM FOR THE BACHELOR OF ARTS IN LIBERAL STUDIES DEGREE BALS – MEDICAL SCHOLARS PROGRAM PROGRAM REQUIREMENTS – 124 CREDITS (60 CREDITS AT 300 LEVEL)

**NOTE: A B C D notations after medical scholars program courses, coincide with Arts & Science breadth requirements.  
4 courses (12 credits) from each category (A B C D) required**  
**Courses highlighted in red are minimal prerequisite math and science courses for medical school admission**

#### UNIVERSITY/ARTS & SCIENCES REQUIREMENTS

48 Arts & Science Breadth Requirements (A,B,C,D) – 12 credits in each category (4 courses)

ENGL110 Critical Reading and Writing

MATH221 Calculus I

Foreign Language Proficiency (3 semesters of a language)

Multicultural Requirement

Second Writing Requirement

#### MSP PROGRAM REQUIREMENTS

##### I. LIFE AND PHYSICAL SCIENCES (The following are required)

BISC207 Introductory Biology I (D)

BISC208 Introductory Biology II (D)

BISC306 General Physiology OR

BISC276 Human Physiology

BISC408 Mammalian Histology

BISC605 Advanced Mammalian Physiology

BISC300+ level Suggested:

MEDT404 Hematology \* OR

BISC498 Topics in Biology\* (satisfies 2<sup>nd</sup> Writing Req.)

CHEM103 General Chemistry (D)

CHEM104 General Chemistry (D)

CHEM321 Organic Chemistry & Lab

CHEM322 Organic Chemistry & Lab

CHEM527 Introductory Biochemistry

PHYS201 General Physics (D)

PHYS202 General Physics (D)

##### II. HUMANITIES AND SOCIAL SCIENCE (15 cr.; ≥ 6 of these credits from the groups listed below are to be at the 300 level or higher)

Any Honors Colloquium or Interdisciplinary Honors Seminar

###### A. HISTORY

HIST/CSCC382 History of Western Medicine (B)

Any HIST course in Arts & Science Group B

Any ENGL course in Arts & Science Group A or B

CSCC/SOCI311 Sociology of Health Care, (C)

CSCC/ENGL369 Literature & Medicine (A)

###### B. PHILOSOPHY

PHIL202 Contemporary Moral Problems (A)

PHIL203 Ethics

PHIL204 World Religions(A)

PHIL/CSCC241 Ethical Issues in Health Care (A)

PHIL/CSCC246 Philosophical Perspectives of Medicine

PHIL301 Ancient Philosophy (B)

PHIL303 Modern Philosophy (B)

PHIL317 American Philosophy

PHIL/CSCC444 Medical Ethics (A)

IFST201 Life Span Development

IFST221 Child Development

IFST270 Families and Development Disabilities

IFST329 Adolescent Development

IFST401 Foundations of Human Sexuality

IFST403 Concepts in Gerontology

IFST410 The Hospitalized Child

PSYC201 General Psychology (C)

PSYC301 Personality (C)

PSYC325 Child Psychology (C)

PSYC416 Psychological Perspectives on the Black American

PSYC418 Human Emotions

PSYC424 Applied Social Psychology

###### C. SOCIO-CULTURAL STUDIES

Any ANTH course in Arts & Science Group A or B

Any COMM course in Arts & Science Group C

Any SOCI course in Arts & Science Group C

##### III. PUBLIC POLICY, ECONOMICS & INFORMATION SCIENCES (15 cr.; ≥ 6 of these credits from the groups listed below are to be ≥ 300 level)

Any Honors Colloquium or Interdisciplinary Honors Seminar

CSCC/CISC355 Computer Ethics & Society

ECON151 Introduction to Microeconomics (C)

ECON152 Introduction to Macroeconomics (C)

ECON 367 Economics of Health Care

HIST411 Seminar in American History

POSC220 Introduction to Public Policy (C)

POSC270 Comparative Politics (C)

POSC285 Currents in Political Theory (A)

POSC303 Public Administration (A)

POSC311 Politics of Developing Nations (B)

POSC313 American Foreign Policy

POSC333 Communism, Fascism and Democracy

POSC343 Society, Politics and Health Care

POSC350 Politics & the Environment

POSC355 Urban Politics

POSC387 American Political Thought (B)

POSC411 Politics & Poverty

POSC420 Introduction to Political Economy

POSC436 Politics & Literature

POSC445 Human Rights and World Politics

POSC467 Health Care Economics & Public Policy

POSC/WOMS323 Introduction to Women & Politics

[Course substitutions in Parts II and III may be petitioned, with permission of dr. They must be relevant to the BALS medical studies focus.]

##### IV. MEDICAL SCHOLARS PRACTICUM (minimum of 7 credit hours)

Students take two 3-credit practicums from the list below, and take the 1 credit lecture series

CSCC480-482-010 Clinical Practicum at Christiana Care, Al Dupont, and other selected locations

\*CSCC481-011 Issues in Public Health Lecture Series (1 credit) (\* Note: this is a Requirement)

**Appendix III. Summary of Data on Students Associated with the Medical Scholars Program, Delaware Institute of Medical Education and Research, the Health Science Advisory and Evaluation Committee and the Medical Humanities Minor (1993-2003)**

University of Delaware	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>HSAEC Statistics</b>											
UD students reviewed (total-all categories)					46	52	48	47	56	47	47
UD students reviewed by HSAEC* /applied				38	24	36	28	30	31	23	
High Recommend Total				11	4	11	9	12	9	7	11
High Recommend Accepted				7	2	11	7	8	8	5	—
Recommend with Enthusiasm Total				12	12	18	12	12	11	10	17
Recommend with Enthusiasm Accepted				1	6	15	8	7	6	5	—
Recommend Total				11	6	6	7	5	7	4	13
Recommend Accepted				3	2	1	3	2	2	0	—
Not Recommended Total				4	2	1	0	1	4	2	3
Not Recommended Accepted				1	0	0	0	0	0	0	—
<b>Medical Scholars Program</b>											
Interest Group (Freshmen and Sophomores)		25	37	51	68	64	82	69		40+	42
Accepted to Medical Scholars Program at UD		5	11	17	18	14	12	17	16	17	12
Rejected by JMC from UD Medical Scholars Program after interview		0	0	0	3	2	2	0	0	---	---
Withdraw after acceptance		0	1	1	3	1	0	3	6	---	1
Other		3	0	0	4	1	0				
UD Medical Scholars to JMC	-	6	10	17	11	13	16	12	9	2	4
<b>UD Graduates with Med Humanities Minor</b>											
	6	10	13	13	5	9	12	7	10	13	26
<b>Medical School Admissions</b>											
UD Matriculated at JMC	7	12	17	23	17	21	24	18	16	12	14
UD Medical Scholars to JMC	-	6	10	17	11	13	16	12	9	2	4
UD to JMC - DIMER	6	8	10	7	13	11	14	15	8	7	11
UD Hahnemann/MCP					2	4		2	1		
UD Admitted to all Medical Schools					36	28	44		34		
UD Medical Scholars Program students among JMC receiving MDs	-	-	-	-	-	5	10	17	11	11	12
DIMER-Jefferson	15	19	22	22	26	21	29	24	16	12	23
DIMER-PCOM	-	-	-	-	-	-	-	6	4	7	
Delaware residents admitted nationally		35	42	37	41	40	38	49	31	31	
Mean MCAT total for entering class JMC	28.2	28.4	29.0	29.4	29.5	29.6	29.7	29.7	29.6	29.7	
Mean GPA for entering class JMC	3.47	3.48	3.52	3.54	3.56	3.57	3.59	3.60	3.60	3.61	
<b>A&amp;S Medical Scholars Budget \$K</b>					3	3	37.8	52.5	52.3	43.1	

\*Not all students reviewed by HSAEC apply to medical school

**Appendix IV. Comparison of Medical Scholars Program Students to Other University of Delaware Students Who Attended Jefferson Medical College 1992-2002.**

COMPARISON GROUPS

Variables	MSP (n=96) A	U. Del (n=61) B	Others (n=1,876) C	Group Differences*
<b>UNDERGRADUATE GRADE POINT AVERAGES</b>				
Science Courses	3.58	3.38	3.38*	(A>B=C)
Non-Science Courses	3.69	3.44	3.52*	(A>B, A>C, B<C)
<b>MEDICAL COLLEGE ADMISSION TEST</b>				
Biological Sciences	9.29	9.86	9.90*	(A<B=C)
Physical Sciences	9.26	9.72	9.72*	(A<B=C)
Verbal Reasoning	8.93	9.71	9.58*	(A<B=C)
<b>PERFORMANCE IN MEDICAL SCHOOL<sup>2</sup></b>				
1 <sup>st</sup> Year GPA	85.07	83.87	84.12	(Non-significant)
2 <sup>nd</sup> Year GPA	85.04	84.35	84.50	(Non-significant)
3 <sup>rd</sup> Year Examinations	85.29	85.17	85.22	(Non-significant)
<b>MEDICAL LICENSING EXAMINATIONS<sup>3</sup></b>				
Step 1 (USMLE)	215	215	212	(Non-significant)
Step 2 (USMLE)	208	212	211	(Non-significant)

<sup>1</sup> Number of observations for different variables varies due to unavailability of complete data.

<sup>2</sup> Medical school grade point averages are based on 100-point examination grades with 70 as the minimum passing.

<sup>3</sup> Medical licensing examinations are based on a scale with a mean of 200 and a standard deviation of 20.

\*  $p < .05$ .

*Jefferson Medical College  
Center for Research in Medical Education and Health Care  
August, 2003*

## Appendix V. Required Courses for the Medical Humanities Minor

The undergraduate minor in medical humanities is an organized curriculum of study with an emphasis on the relationship between various humanistic inquiries and the practice of medicine.

### REQUIREMENTS FOR A MINOR IN MEDICAL HUMANITIES (Taken from the University 2002-2003 Undergraduate Catalog)\*

CSCC/PHIL 246	Philosophical Perspectives of Medicine	3 credits
CSCC/ENGL 369	Literature and Medicine	3 credits
CSCC/HIST 382	History of Western Medicine	3 credits
CSCC 366	Independent Study in Medical Humanities	1 credit

Two courses from the following 6 credits

- CSCC/WOMS 233 Women, Biology and Medicine
- CSCC/PHIL 241 Ethical & Moral Dimensions of Health Care
- CSCC/SOCI 311 Sociology of Health Care
- CSCC/ENGL 368 Literature and Science
- CSCC/PHIL 444 Medical Ethics

Students wishing to complete a minor in Medical Humanities are encouraged to enroll as soon as possible.

\* Several changes to this program have been approved this year including:

- Sociology of Health Care, formerly an option, is now required.
- Literature and Science has been dropped from the required list.
- CSCC course designations have been removed.

## **Appendix VI. Recommendations from Peter Chodoff about Curricular Changes in the Medical Scholars Program**

Peter Chodoff, MD, MPH  
December 8, 2003

### **Background:**

In 1999, the Association of Academic Health Centers published a book titled, "Catalysts in Interdisciplinary Education," under the auspices of "The Center for Interdisciplinary Community Based Learning," a joint project of the Association of Academic Health Centers and the Health Resources and Service Administration of the U.S. Department of Health and Human Services. The book described seven institutional case studies where interdisciplinary education models were developed.

To begin to meet the demands of these recommended changes, the Committee on the Quality of Health Care in America's first report in 1999, "To Err is Human," focused on a specific quality concern – patient safety. An interdisciplinary system approach is necessary for dealing with the issues raised in this report.

In March 2001, the IOM released their second report, "Crossing the Quality Chasm," which stated that "between the care we have and the care we could have lays not just a gap but a chasm." Recommendation 12 of the report stated that "a multidisciplinary summit of leaders within the health professions should be held to discuss and develop strategies for 1) restructuring clinical education to be consistent with the principles of the 21<sup>st</sup> Century health system throughout the continuum of undergraduate, graduate and continuing education for medical, nursing, and other professional training programs."

In June 2002, the IOM convened such a meeting where the overarching objective of the meeting was, "How do we educate health professionals to provide safe, evidence-based, patient-centered care delivered by interdisciplinary teams using quality improvement and informatics as the foundation?" The chairman of the Committee on Quality Health Care in America, William C. Richardson, PhD, President and CEO, W.K. Kellogg Foundation, stated in his keynote speech that education of health professionals to function in an interdisciplinary team structure is the most important issue for improving the quality of health care in the U.S.

In April 2003, the IOM released their third report, "Health Professionals' Education Must be Overhauled to Ensure Safety, Quality of Care," which stated that all programs that educate and train health professionals should adopt five core competencies: the abilities to deliver patient-centered care, work as a member of an interdisciplinary team, engage in evidence-based practice, apply quality improvement approaches, and use information technology.

### **Introduction:**

“The committee strongly endorses the revision of the Medical Scholars Program as originally conceived. It was an idea years ahead of its time; however, the current curriculum for medical scholars is identical to that of the other students with the exception of the practicum program and the required undergraduate humanities courses.”

The University of Delaware, Jefferson Medical College and Christiana Care, by combining resources, have the capability to create a comprehensive program that will meet the goals described below for educating the 21<sup>st</sup> Century physician.

The U.S. health care system has undergone a series of changes over the past decade including the emergence of managed care organizations, disease management, clinical practice guidelines, continuous quality improvement, performance report cards, and evidence-based practice. All of these changes require interdisciplinary team practice to function efficiently. The health professions must educate students to function in the new health care delivery system.

### **Resources:**

#### Thomas Jefferson University

- **Jefferson Medical College** The Medical Scholars Program should be housed in the newly created Department of Health Policy (formerly the Office of Health Policy and Clinical Outcomes) – a survey course covering managed care organizations, disease management, clinical practice guidelines, continuous quality improvement, performance report cards, evidence-based medicine and interdisciplinary team practice can be developed by the Department.
- **College of Health Professions, Department of Nursing**, Thomas Jefferson University – The Health Care Organizations and Ethics Course for master’s level nursing students can be used to introduce premedical students to interdisciplinary practice.

#### University of Delaware

- **College of Health and Nursing Science** – To introduce premedical students to nursing as a vital medical profession. Problem-based learning would be an excellent format for this activity.
- **College of Business and Economics** – To introduce premedical students to appropriate business principles.

### Christiana Care

- **Practicum Program** – Expand present offerings to include practicums which teach risk management, performance improvement, information systems, local and national health policy issues, and which allow interaction with alternative health care providers and nursing.

### **Organization:**

#### Premedical Council

The Premedical Council is the most important group in ensuring the success of the revised Medical Scholars Program curriculum.

It needs members who come from multidisciplinary backgrounds to oversee the development of the variety of educational offerings mentioned above. This should include representatives from the Dean's Office at Jefferson Medical College and from Christiana Care. To accomplish its task, the Council needs to have its own budget to pay for the development and teaching of the new course offerings.

#### Faculty

To cement the inter-institutional effort required, joint appointments to Jefferson Medical College and the University of Delaware should be offered to appropriate faculty.