

Academic Health Center Strategic Positioning:

A Report to the Board of Regents

June 2006

The Academic Health Center is home to the University of Minnesota's six health sciences schools: Medical School, School of Dentistry, School of Nursing, College of Pharmacy, School of Public Health, and College of Veterinary Medicine. The AHC educates the next generation of health professionals with nearly two-thirds practicing or working in Minnesota. AHC scientists and researchers deepen both understanding and prevention of disease, promote health, develop better methods of care, and discover connections between animal and human health. Their work accounts for more than half of the federally funded research dollars that come into the University. AHC faculty also perform crucial outreach and service, which includes providing clinical care to patients.

Policy questions:

1. How do we sustain the AHC as Minnesota's major supplier of practicing health professionals?
2. How do we define, nurture and support the growth necessary in research? What areas of research will we be known in?
3. How do we manage the quality and risks of expanded community partnerships?
4. How do we utilize new approaches to resourcing the education and research mission?
5. How dependent should we become on clinical revenue?
6. How closely should we align with a single health system in the health marketplace?

I. Introduction

The University of Minnesota's Academic Health Center has emerged from a decade of transformation positioned to be competitive in the highly focused, driven disciplines of the health sciences. To prepare for the future, it's critical to learn from the past, and the past of the University's AHC is highly instructive as we look at supporting the University's efforts to achieve top-tier status.

The University's Medical School was among the first created after the University was founded in 1851. As disciplinary and professional practices evolved during the

20th century, the other health sciences schools and colleges emerged and were established. By the 1950s, Minnesota was world renowned for its expertise in cardiovascular breakthroughs and remarkable surgical feats, attracting brilliant faculty and students to the state. World leaders in nursing, dentistry, public health, and other professions were drawn to the state's public research university, to an environment that cultivated visionary efforts.

Yet what's true in many institutions and industries also is true in academia: Great achievement and recognition can lead to an inward focus and a tendency to rest on the legacy of success. Of course, insularity in academia, commonly referred to as living in an ivory tower, has been noted since the mid-1800s. Unfortunately, the mid-20th century was a period of upheaval in the health-care marketplace, where much of the revenue supporting health professional schools was generated. Resting on past successes and ignoring the impact of the external environment proved particularly damaging for the health professional schools.

In the 1970s, the University brought together the health sciences schools and programs under the single umbrella of the Academic Health Center. Since then, the AHC has undergone major change. By the 1990s, the external environment and health-care marketplace competition created a serious challenge to the sustainability of the state's public medical school, as well as the dental, pharmacy, nursing, veterinary medicine, and public health schools. Faculty morale was low – in fact, a substantial number departed during that time. The AHC faced challenges in its clinical enterprise, in the organization and performance of its academic education and research programs, in the turnover of its leadership, and in its financial performance.

In the midst of this decline, decisions were made that changed the path of the AHC. New leadership took charge, major changes in grants administration and the performance of research were implemented, University of Minnesota Hospitals and Clinics were sold to Fairview Health Services, the 18 separate practice plans within the Medical School were reorganized into a single, multispecialty group practice, and, importantly, a process was established to heal the AHC community, reset its compass, and restore its productivity.

In 1999, a strategic planning process was begun, led by a senior, respected faculty leader, supported by University and AHC administration and governed by a subcommittee of the Board of Regents. This process engaged the faculty and staff of AHC schools and programs, constituent communities, and public and private health agencies. The result was the AHC Strategic Plan, the implementation of which began in the fall 2000. Seven goals were defined that remain operational today:

Goals of the AHC Strategic Plan

Goal 1: Create and prepare the new health professionals for Minnesota who are evidence-based and use best practices, are team trained, system oriented, patient centered, and civically engaged.

Goal 2: Sustain the vitality and excellence of Minnesota's health research.

Goal 3: Expedite the dissemination and application of new knowledge into the promotion of health and delivery of health care in Minnesota.

Goal 4: Develop and provide new models of health promotion and care for Minnesota.

Goal 5: Reduce health disparities in Minnesota and address the needs of the state's diverse populations.

Goal 6: Use information technology to transform how we educate, conduct research, and provide service to individuals and communities in Minnesota.

Goal 7: Build a culture of service and accountability to Minnesota.

A strategic work plan was created for these strategic goals. For each goal, tactics were defined and the process of implementation begun. Resources were aligned with these tactics and goals via the compact process, a process that was extended beyond schools and colleges and into departments. The progress in accomplishing the elements of the work plan was measured on a semiannual basis for two years, and then on an annual basis. With each review, a refreshed plan was developed and reviewed with the AHC Faculty Consultative Committee, AHC deans, and within each AHC school. The progress was also part of the yearly performance review of the Senior Vice President with the president of the University.

Major accomplishments include:

1. A partnership with Fairview Health Services that has met its primary objectives, is acknowledged as a national model for a relationship that supports a major academic health center, and is moving on to become a more effective partnership.
2. University of Minnesota Physicians, a successful, competitive care provider in the Minnesota health marketplace that supports the mission of the Medical School.
3. Focused investments in areas of research strength that have achieved major recognition, such as our National Cancer Institute-Designated Comprehensive Cancer Center, Stem Cell Institute, Center for Magnetic Resonance Research, Center for Biomedical Genomics and Proteomics, Center for Spirituality and Healing, Center for Bioethics, Diabetes Institute for Immunology and Transplantation, Academy for Excellence in Health Research, and cognitive and systems neuroscience.

4. A near doubling of sponsored project awards over the last five years, with major awards in interdisciplinary, interscholastic, and interinstitutional research.
5. Innovative responses to health workforce shortages in Minnesota with the College of Pharmacy expansion in Duluth; School of Nursing expansion in Rochester as well as its post-baccalaureate program; tripling the student enrollment in public health programs; increasing class size in veterinary medicine and dentistry; and initiating the Center for the Allied Health Programs.
6. Creating community partnerships for education via statewide Area Health Education Centers that include schools in the MnSCU System.
7. Implementing programs that incorporate learning technology, patient-centered care, and the interdisciplinary nature of health sciences as an approach to new models of education and care delivery, such as the Hibbing Community College Dental Clinic, Walker Transitional Care Unit, Learning Commons, Health Careers Center, Interprofessional Education and Research Center, and interdisciplinary practice clinics.
8. Redefining the next generation of health professionals as competent and capable with information systems and knowledge management and basing their patient-centered, team-delivered care on evidence, on best practices, and in civic engagement.
9. Enhanced national recognition for the accomplishments of the faculty, such as memberships in the National Academy of Sciences, the Institute of Medicine, American Academy of Nursing, membership in study sections of the National Institutes of Health, national recognition awards, and local and national leadership positions.

AHC Strategic Imperatives

This continued implementation of the strategic goals has served to identify five ongoing strategic imperatives:

1. To educate and prepare the current and next generation of health professionals in a way that is transformative to the care delivery system and meets the workforce needs of the State of Minnesota;
2. To discover new knowledge that prevents or treats disease and is quickly disseminated into the care delivery system;
3. To improve the health of the State of Minnesota through directly contributing to prevention, by supporting quality improvement in care delivery, and in being cost-effective in fulfilling the mission;
4. To support the biomedical sciences economy of the State of Minnesota; and,
5. To achieve a financial framework that supports sustainable growth in health professional programs.

Successful achievement of these imperatives requires continued integration and more productive relationships with other parts of the University. The expertise of the Institute of Technology, the College of Biological Sciences, College of Food, Agriculture, and Natural Sciences, Schools of Law and Business, and the other disciplines present in the

University are essential partnerships that must be more fully developed and leveraged. Likewise, for the biosciences efforts of the State of Minnesota to be successful, the University's AHC needs to have more effective partnerships with the private sector, the health industry, the K-12 education system, and the economic development communities of the State of Minnesota.

The focus on achieving this next level of development occurred when the University initiated its Strategic Repositioning Initiative. Within that effort, four task forces were charged with a primary focus on the AHC: Knowledge Management Technology, Clinical Sciences Enterprise, Health Professional Workforce, and AHC Precinct Plan. These task forces addressed four key areas for the future success of the AHC. Other University task forces addressed a number of critical areas, including Faculty Culture, Research Infrastructure, Collaborative Research, and Administrative Restructuring. With this knowledge in hand, this report to the Board of Regents will present a summary of what the AHC is today, where the AHC needs to be in five years, and how we will get there.

II. The Academic Health Center Today

The Academic Health Center (AHC) consists of six schools and related programs that have these common characteristics:

1. Educating and training the next generation of health professionals
2. Competitively practicing in the health marketplace to fulfill their mission
3. Performing health research that is principally funded by the National Institutes of Health
4. Existing in partnership with communities it serves, including the health industry, and as an integral component of the University of Minnesota.

The schools and colleges of the AHC are the Medical School, College of Pharmacy, School of Nursing, School of Public Health, College of Veterinary Medicine, School of Dentistry, and associated programs in the Allied Health professions, including Mortuary Science, Medical Technology, Occupational Therapy, Physical Therapy, and Dental Hygiene. These schools, colleges, and programs offer 62 accredited professional degrees with more than 150 accreditation site visits, educate 6,400 students, and supply the majority of these providers for the State of Minnesota. Faculty of the schools and departments of the AHC also serve as faculty of the disciplinary programs of the Graduate School.

There are a number of programs and centers in the AHC. An AHC-designated program or center interfaces with all the AHC schools, is created after an approval process of the AHC Council of Deans, and provides venues for interdisciplinary activities across AHC schools and with the greater University. These programs and centers fall into three types: Research Centers, Support Programs, and Special Support Needs.

Centers and Programs of the Academic Health Center

Research Centers:	NCI Comprehensive Cancer Center Center for Drug Design Health Informatics Wellstone Center for Muscular Dystrophy
Support Programs	
For Research:	Biomedical Genomics Center Center for Biomedical Research Informatics Center for Proteomics Molecular and Cellular Therapeutics Program National Center for Food Protection and Defense
For Education:	Interprofessional Education and Research Center Learning Commons Simulation Center Area Health Education Centers Center for Interprofessional Programs
For Clinical Trials:	Research Services Organization Investigational New Drug Assistance Program Institute for Clinical and Translational Research
Special Support Needs:	Health Careers Center Center for Bioethics Center for Spirituality and Healing Center for Health Interprofessional Programs (students) Office of Emergency Preparedness

There also are a large number of centers with AHC schools that connect faculty and staff with the rest of the University by promoting interdisciplinary activity, primarily research. For example, the Medical School's Stem Cell Institute has research collaborations with more than 400 faculty outside the AHC; the Center of Magnetic Resonance Research is a central resource for many schools outside the AHC, and disciplines in neuroscience research also connect with those outside the AHC.

In addition, the National Center for Food Defense and Protection involves three schools and 12 other universities, while the USDA-funded research centers on Porcine Reproductive and Respiratory Syndrome (PRRS) virus, and Johne's disease in cattle involve top faculty in the College of Veterinary Medicine partnered with more than two dozen other Universities.

Research collaborations also extend to external partnerships with a variety of public and private institutions, such as the Minnesota Partnership for Biotechnology and Medical Genomics (the U-Mayo Partnership), BioBusiness Alliance, LifeScience Alley, health

systems, public agencies, and with private industry, including Medtronic, 3M, St. Jude Medical, and others. On a professional level, the faculty and staff are connected regionally, nationally, and internationally.

Today, there are 1,400 regular and contract faculty and 3,000 professional staff in the AHC. In addition, there are more than 3,000 adjunct, community-based faculty who participate in the experiential education of health professionals. Between 1997 and 1999, 84 regular and contract faculty, primarily in the clinical departments of the Medical School, left the institution. Exit interviews indicate that the primary reason for leaving was that, with an increased emphasis on producing clinical revenue to support the education and research programs of the Medical School, faculty had little time remaining for education and research activities, leading them to believe they might just as well be in private practice.

Since this exodus, faculty leaders have defined areas of growth and investment and a thoughtful recruiting process has begun. Areas of focused growth in the clinical sciences include: cancer, neuroscience, cardiac disease, and transplantation including the care of children. In basic science, areas of focused growth include: genomics, immunology, proteomics, bioinformatics, stem cell research, and regenerative medicine. Since 2000, there has been a net gain of 29 faculty summarized as follows:

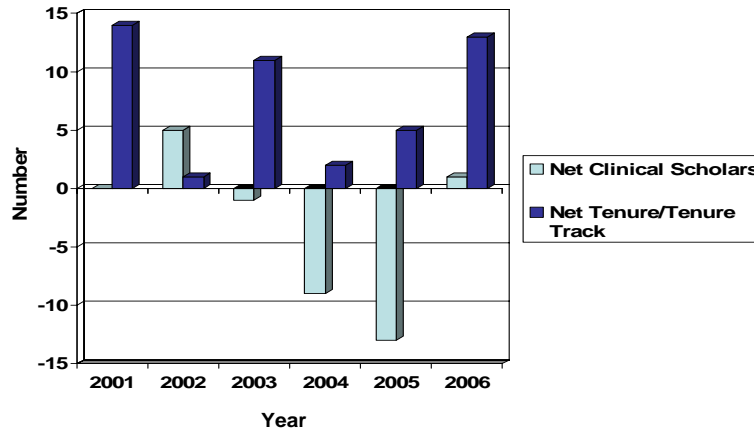
**Faculty Hires: Tenure/Tenure Track/Clinical Scholars
July 2000 through November 2005**

Tenure Hires	48
Tenure Track Hires	104
Clinical Scholar Hires	69
Total Hires	221
Tenure/Tenure Track Left	106
Clinical Scholars Left	86
Total Left	192
Net Hires Tenure/Tenure Track	46
Net Hires Clinical Scholars	-17
Net Faculty Hires	29

The relative gains and losses of faculty change over time, as Figure 1 illustrates. The loss of clinical scholars is believed to reflect the lack of emphasis on the clinical sciences as a core professional discipline. This emphasis began to change in 2003, with a major focus on clinical sciences leading to the establishment of an Assistant Vice President for Clinical Science in the SVPHS Office, issuance of a major task force report on Clinical Research, and the initiation of a focused program to develop clinical scholars. Additional support systems for clinical research also were initiated.

Figure 1

Net Faculty Hires



Research Emphasis of Faculty Hires

The areas of research interest of the faculty recruited reflect the areas of investment emphasis. Over the period 2000-2005, the faculty hires are summarized as follows.

Data on 153 Faculty: 58 hires left, 10 without sufficient data to determine

Category	Percent	Examples of Area of Interest
Neuroscience	13.7	Brain function, cognition, eye, mental health
Cancer	11.1	Prostate, colon, gyn, epidemiology, pediatric, genetics
Pediatrics/Perinatology	9.2	
New Biology	8.5	Genomics, proteomics, cell and molecular biology
Microbiology/Infectious Disease	7.2	Virology, AIDS, zoonotic disease, epidemiology
Community Health	5.9	Rural, minority, disparities
Cardiac disease	4.5	
Stem Cell	3.9	Human, regenerative biology
Immunology	3.9	
Biostatistics	3.9	
Health research/policy	3.9	
Ethics	2.6	Nursing, critical care, medicine
Health Informatics	2.0	
Biomedical Devices	1.3	
Other Clinical Sciences	13.1	Surgery, pulmonary, anesthesia, dermatology, eye, urology, PM&R
Basic Sciences	37.7	
Clinical Sciences	62.3	

Reasons for Faculty Departure

One hundred nine tenure/tenure track faculty have left the AHC since 2000. Their reasons for leaving are summarized:

Category	Number	Percent
Move to another academic institution	37	35.6
Death	18	17.3
Termination of appointment	17	16.3
Practice in private sector	15	14.2
Personal reason/unknown	14	13.5
Took job in government	5	4.8
Retirement	3	2.9

A. Functions of the Academic Health Center

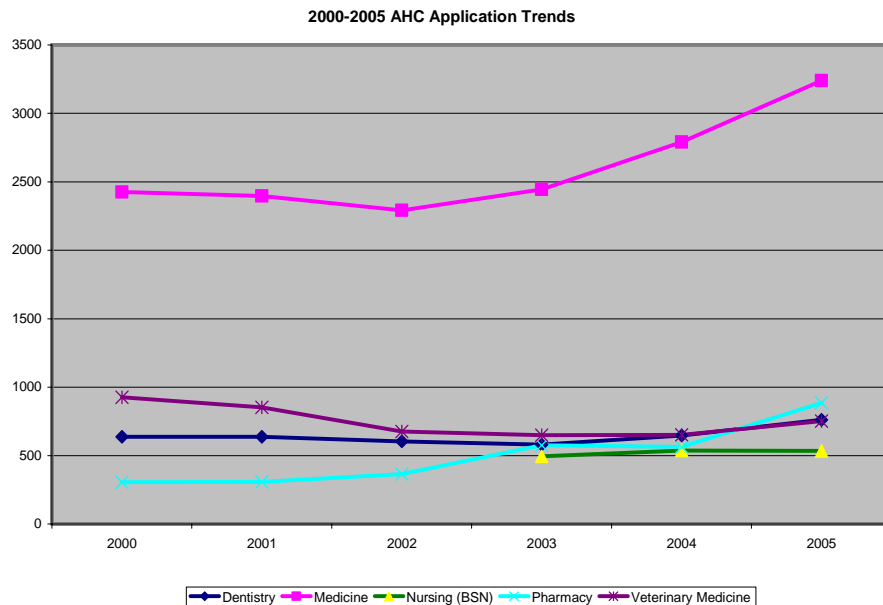
The faculty and staff of the AHC perform and support three principal functions: education, research, and activities in the clinical sciences.

1. Education

The AHC educates and prepares two-thirds of the practicing health professionals for the State of Minnesota: physicians, pharmacists, dentists, public health practitioners, veterinarians, and most of the nurse practitioners and all the Ph.D. nurses. Dentistry and the College of Veterinary Medicine are regional schools. In allied health, we are the only site for Mortuary Science, and we produce most of the clinical lab scientists as well as being a principal site for educating occupational therapists, physical therapists, and dental hygienists.

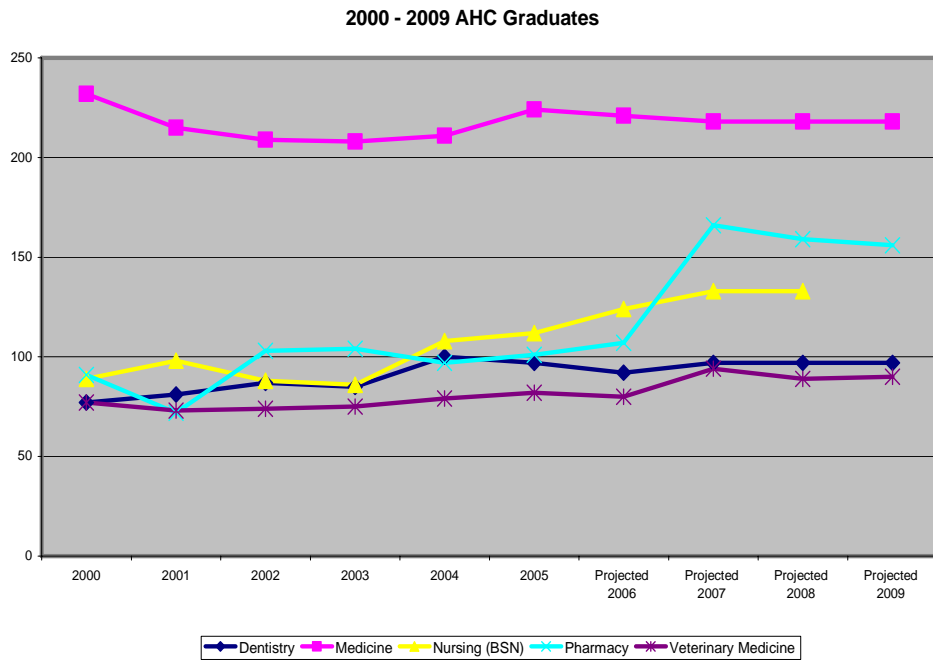
Our applicant pools are very competitive on a national level and have a large number of applicants per matriculate; the ratio is 15:1 in the Medical School. The applicant pools do change over time, summarized in the Figure 2.

Figure 2



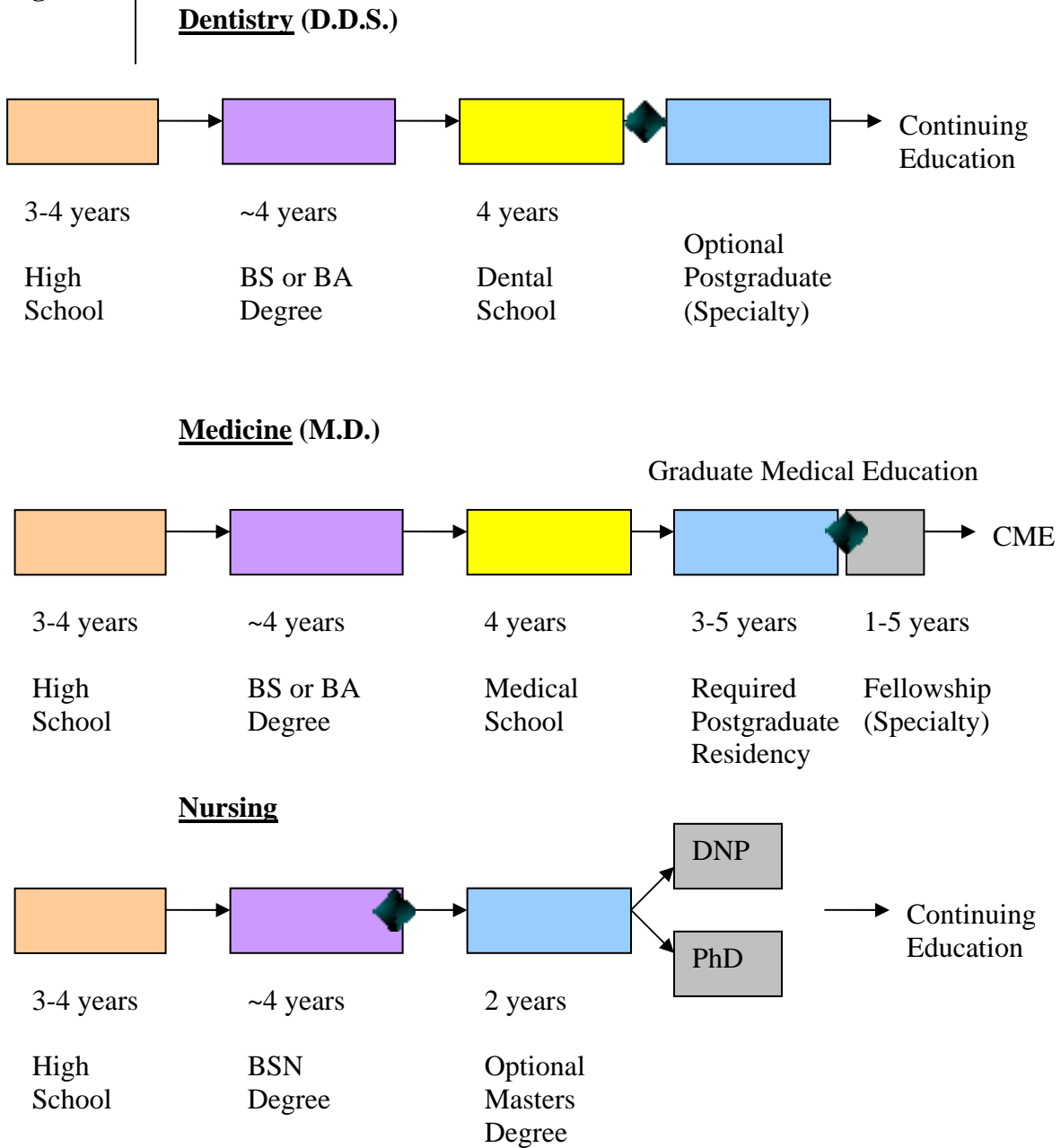
There have been some changes in enrollment, with increases in class size in nursing, pharmacy, dentistry, veterinary medicine, as well as a significant increase in public health, which is not reflected in the charts. Figure 3 illustrates class size changes.

Figure 3



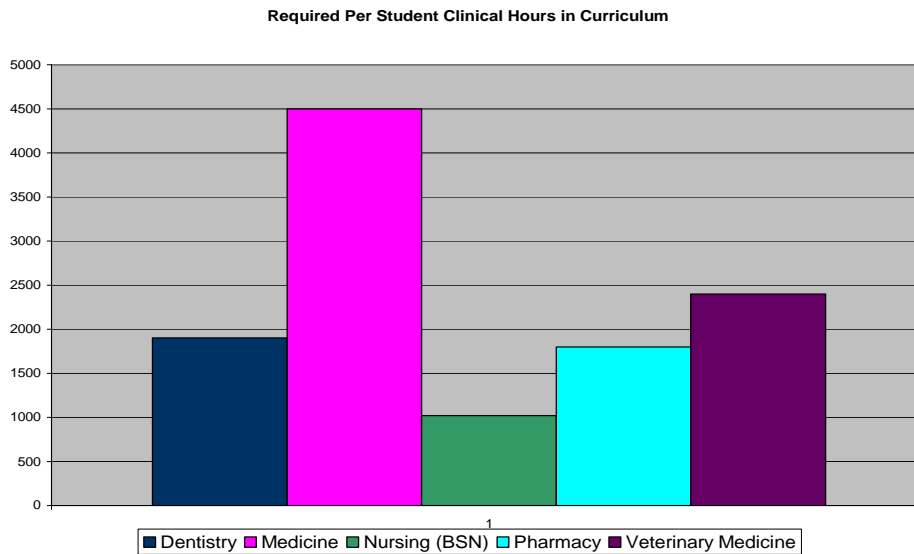
Enrollment trends reflect the workforce demand in the state and the region. Among the contributors to increased demand for health professionals are Minnesota’s expanding and aging population, increase in chronic disease, increase in demand for medications, and practitioners deciding to retire at younger ages. In addition, much of Minnesota outside of the Twin Cities area remains federally designated underserved areas for the services of physicians, dentists, and pharmacists. Moreover, meeting these workforce demands immediately is not feasible, given the cost of increasing enrollment and the length of education and training for health professionals. Three examples of this education and training paradigm are summarized in Figure 4.

Figure 4



A great deal of this training is experiential, which requires very low student-to-faculty ratios. The experiential training takes place throughout the State of Minnesota in 1,792 training affiliation sites, each with clinical adjunct faculty. The curricular hours required for this experiential education are summarized in Figure 5.

Figure 5



This community-based education is provided despite a lack of sufficient direct funding for time and effort. The following table summarizes this effect.

The AHC school-based costs also are substantial, with varying sources of revenue. In turn, each school has high tuition, which results in students graduating with increasing amounts of debt. For 2005, this data is summarized in the following table.

Table I: HIGH LEVEL SUMMARY OF REVENUES AND COST TO COMMUNITIES OF EDUCATION FOR UNIVERSITY OF MINNESOTA HEALTH PROFESSIONAL STUDENTS / RESIDENTS

Student/Faculty Ratio	1/1 Ratio	2/1 Ratio	3/1 Ratio
Funding to Community Sites:			
DME (Estimated)	\$ 9,900,000	\$ 9,900,000	\$ 9,900,000
IME (Estimated)	\$ 31,500,000	\$ 31,500,000	\$ 31,500,000
MERC	\$ 22,400,000	\$ 22,400,000	\$ 22,400,000
Total Revenues	\$ 63,800,000	\$ 63,800,000	\$ 63,800,000
Costs to Community Sites:			
Preceptor Time	\$ 92,000,000	\$ 46,000,000	\$ 31,000,000
Indirect Costs	\$ 29,000,000	\$ 15,000,000	\$ 10,000,000
Resident Contracts	\$ 40,000,000	\$ 40,000,000	\$ 40,000,000
Total Costs	\$ 161,000,000	\$ 101,000,000	\$ 81,000,000
Estimated Unfunded Community Costs	\$ (97,200,000)	\$ (37,200,000)	\$ (17,200,000)

School/College	Tuition: Resident 4 Year Total	Cost per Credit Hour	Cost per Degree	Average Student Debt at Graduation	Range of Starting Salary
Medical School (MD)	\$91,216	\$1611	\$348,276	\$132,988	\$141,000 to 258,000
Nursing (BSN)	33,112	968	97,342	20,554	52,000 to 54,000
Dentistry (DDS)	79,400	1062	272,239	138,114	85,000 to 90,000
Pharmacy (Pharm D)	60,032	946	129,344	92,697	98,000
Public Health (MPH)	22,185	1152	58,350	25,022	32,000 to 45,000
Veterinary Medicine (DVM)	69,560	1022	209,988	100,187	50,000

Examples of the variable sources of instructional funding are presented in figures 6, 7, and 8.

Figure 6

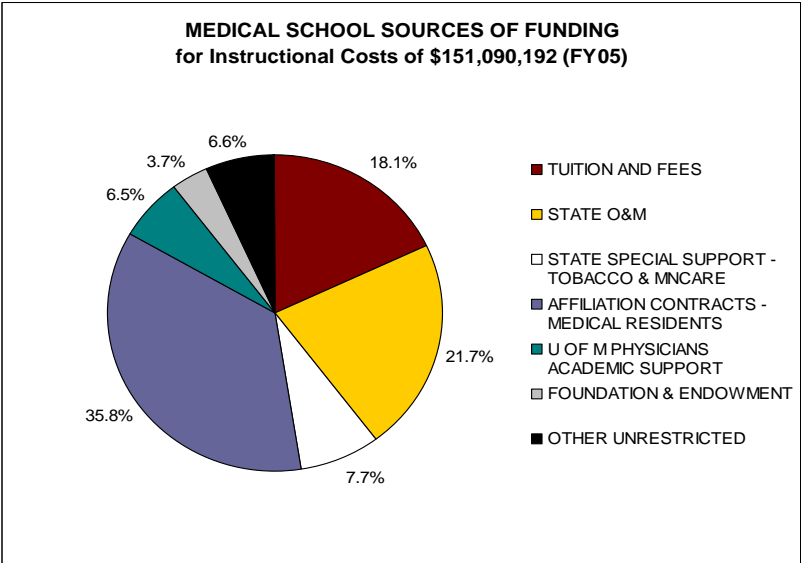


Figure 7

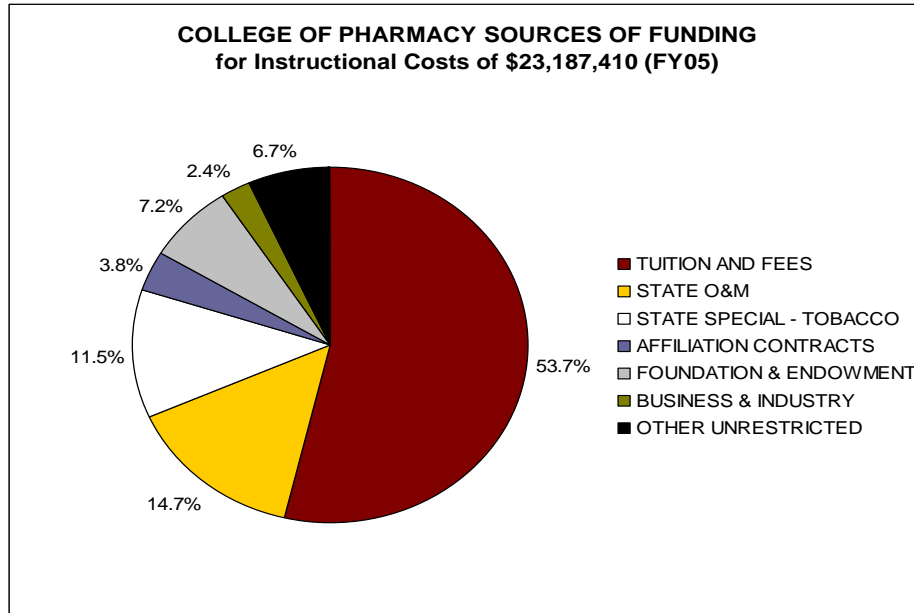
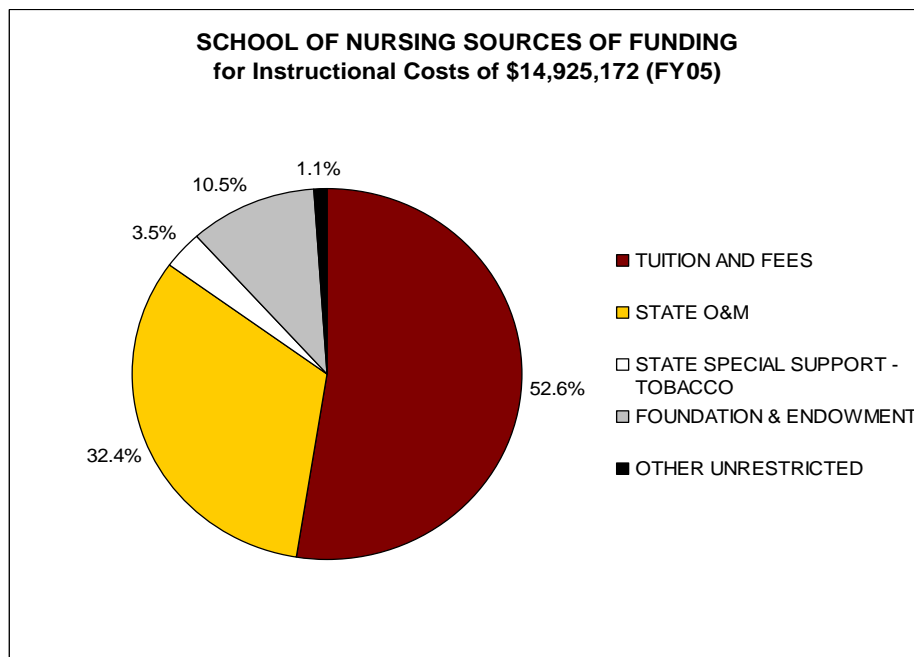


Figure 8



2. Research

Major investments have been made in many areas of health research, investments that encourage interprofessional, interdisciplinary, and interscholastic research within the AHC and between AHC faculty and other University and institutional partners. Examples of these research investments include: genomics, proteomics and bioinformatics; diabetes; the Stem Cell Institute; neurosciences; infectious diseases; immunology; and,

cancer. External funding was leveraged to develop the Minnesota Partnership in Biotechnology and Medical Genomics (U-Mayo Partnership) as well as the National Center for Food Protection and Defense. Many of these investments link basic and translational research. The result has been a steady growth in both National Institutes of Health (NIH) and other sponsored project awards, summarized in Figure 9.

This increase in awards has also resulted in the AHC producing a larger percentage of the University-sponsored project portfolio, as presented in Figure 10.

Figure 9

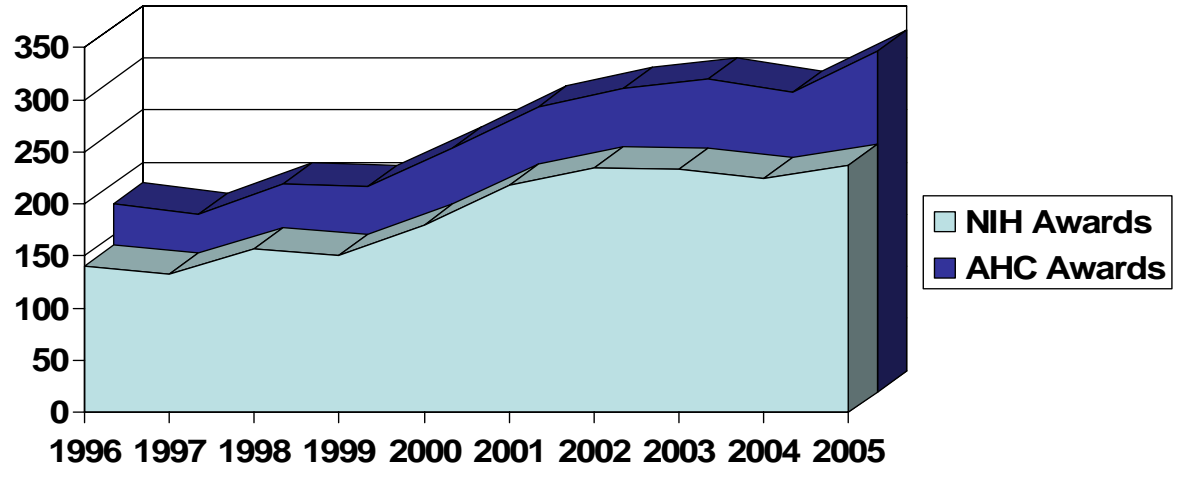
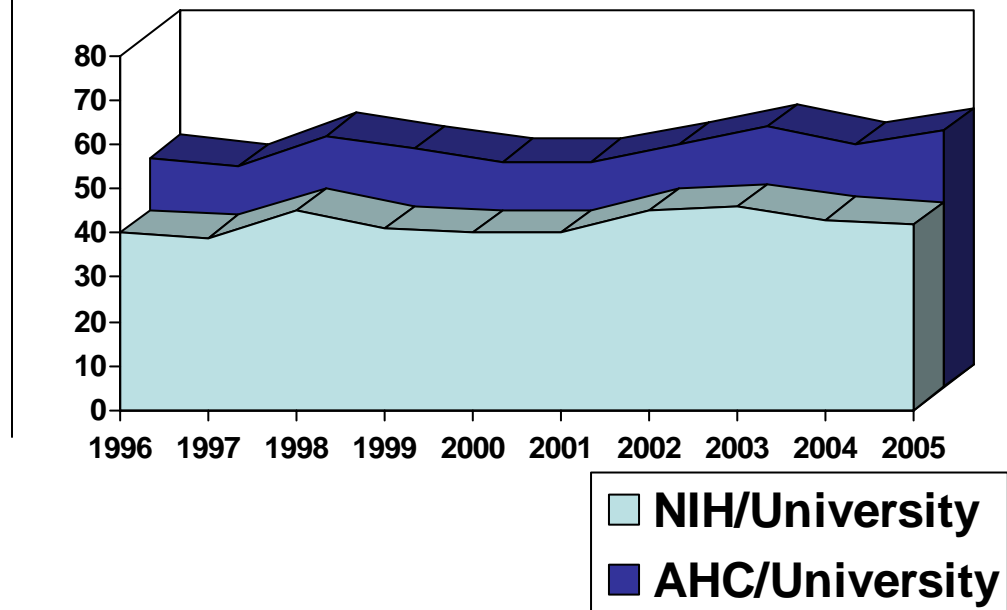


Figure 10



Another effect of this investment has been the AHC being ranked 21 in NIH funding and the NCI-designated Comprehensive Cancer Center moving from a rank of 39 to 31 in the last three years.

Research space has received attention yet still is not sufficient. The AHC has 869,321 assignable square feet (asf) of space programmed for research. According to the AHC 2000 Precinct Plan, however, many of the laboratories are as much as 50 years old and will not support the research necessary for the new biology and for retaining and recruiting faculty. According that plan, the AHC in 2000 already had a research space shortfall of 150,000 square feet, projected to increase to 300,000 square feet by 2005 because of projected growth in faculty and new NIH funding.

In the years since, a program to remodel and replace research facilities was undertaken, including remodeling Jackson Hall; demolishing Owre, Millard, and Lyons to build a new Molecular and Cellular Biology Building (shared with the College of Biological Sciences); and, constructing the McGuire Translational Research Facility. While this program replaced old research laboratories with modern facilities, there was a net loss of approximately 13,000 asf of AHC research space. This loss has been offset, in part, by the open lab design of the new facilities, which are 30 per cent more efficient and allow us to house more researchers in less space. These new facilities also are assigned by programmatic research areas rather than school or department to promote interdisciplinary collaboration and research.

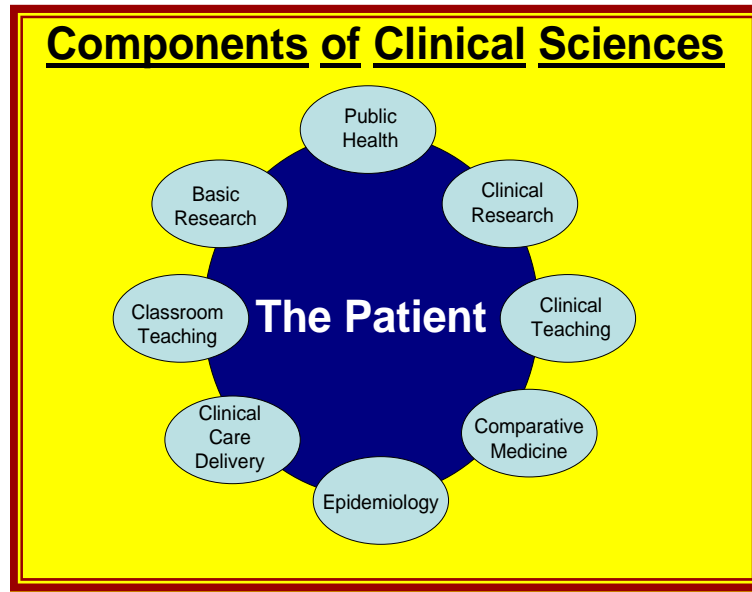
In addition, the State of Minnesota funded a new research facility on the Mayo Clinic campus in Rochester to support the Minnesota Partnership in Genomics and Biomedical Research (U-Mayo Partnership). This facility, approximately 100,000 asf, will open in fall 2006. **There, remains, however, a significant research space shortage in the AHC.**

3. Clinical Sciences

Clinical science is the core of what an academic health center is about. The Task Force on Clinical Sciences defined clinical science as comprising “the contributions of scientific disciplines to health promotion and the prevention, diagnosis, and treatment of disease through the development (research), communication (teaching), and application (clinical care delivery) of new knowledge.”

At the center of the Clinical Sciences is the patient, with all the other components focusing on the movement of knowledge from research to the bedside, i.e., research becoming reality in the development of new ways to prevent or treat disease and improve the health status of populations. Figure 11 from the task force report summarizes this concept.

Figure 11



This group of innovative faculty scholars from all the AHC schools transforms a student into a competent and capable practitioner who bases care on evidence, employs best practices, is trained to perform on a team, capable of managing information systems, civically engaged, and focused on patients or populations. These new practitioners carry the new knowledge with them as they populate communities throughout the State of Minnesota.

Clinical research, one of the components of Clinical Sciences, is the final step in proving the effectiveness of a new approach to prevent or treat disease. At any given time, the AHC has 150-200 active clinical trials taking new ideas through the testing necessary for FDA approval. This research is supported by several Clinical Trials Centers, a Research Services Organization, an Investigational New Drug (IND) service center, and the services of the University for the Protection of Research Subjects in Research. Clinical research must be preceded by animal-based research, supported by Research Animal Resources, which cares for a census of more than 45,000 animals necessary for the discovery and proof of concept for a new idea to reach the bedside or the community. The production of a test article for clinical testing also requires a Good Manufacturing Practices (GMP) facility. The AHC is one of the few places in the nation that has such a successfully functioning GMP facility.

The actual clinical practice of the faculty is conducted through practice plans. Each school, with the exception of the School of Public Health, has a practice plan formed under Regent's Policy. Any faculty who practice their profession must do so within a practice plan. The largest plan is the University of Minnesota Physicians. This integrated group practice is one of the region's largest and most successful group practices, principally for specialty and subspecialty care. This practice plan is essential to the success of the Medical School. It supports a core concept of clinical education – one must

do what one teaches. In addition, the practice plan allows the Medical School to pay competitive market salaries of the faculty and provides a source of revenue that supports education and research as well as being invested for recruitments, retentions, and new program development.

This faculty, however, practices in clinics that are 30 years old, which were designed for 150,000 patient visits a year. Today, nearly 450,000 visits occur a year.

Changes have taken place in the hospital as well. University Hospital and Clinics was sold to Fairview Health Services (FHS) in January 1997. This bold and pioneering partnership with Fairview accomplished its major goals in the first six years of its formation. Now called University of Minnesota Medical Center, Fairview, and University of Minnesota Children's Hospital, Fairview, it is in the black, supports the research and education mission, and invests in the future of the Medical School. This partnership is viewed nationally as a model for a private health system effectively supporting an academic health enterprise. UMMC/UMCH is the principal practice site for UMPhysicians. Unfortunately, the inpatient facilities are inefficient double occupancy rooms that do not well serve care delivery and need major upgrades. Combined with the condition of the clinics, the hospitals' facilities result in the next generation of health professionals being trained in yesterday's facilities.

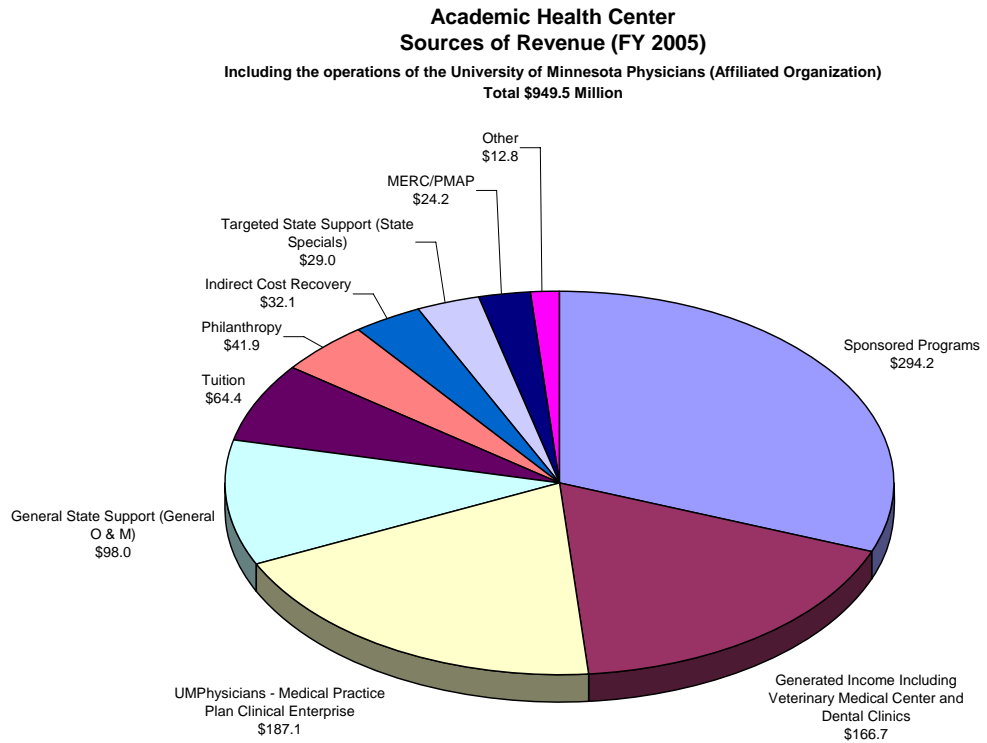
All the schools of the AHC are integrated into the community with relationships with public agencies, private companies, and health systems, as well as consulting relationships whose goal is to improve the health of communities and people. The outreach and service activities of the faculty are numerous, world-wide, and a major source of national and international recognition that enables recruiting and retaining great faculty and students to the University

B. AHC Financial Description

The sources of revenue for the AHC represent a blend of the revenues of each of the schools together with the SVPHS administrative offices and the interprofessional programs and services that are shared across the AHC. Approximately 7 percent of that revenue derives from tuition, less than 10 percent from the state, more than 31 percent from sponsored projects, about 33 percent from clinical practice, and an increasing amount of support from philanthropic gifts.

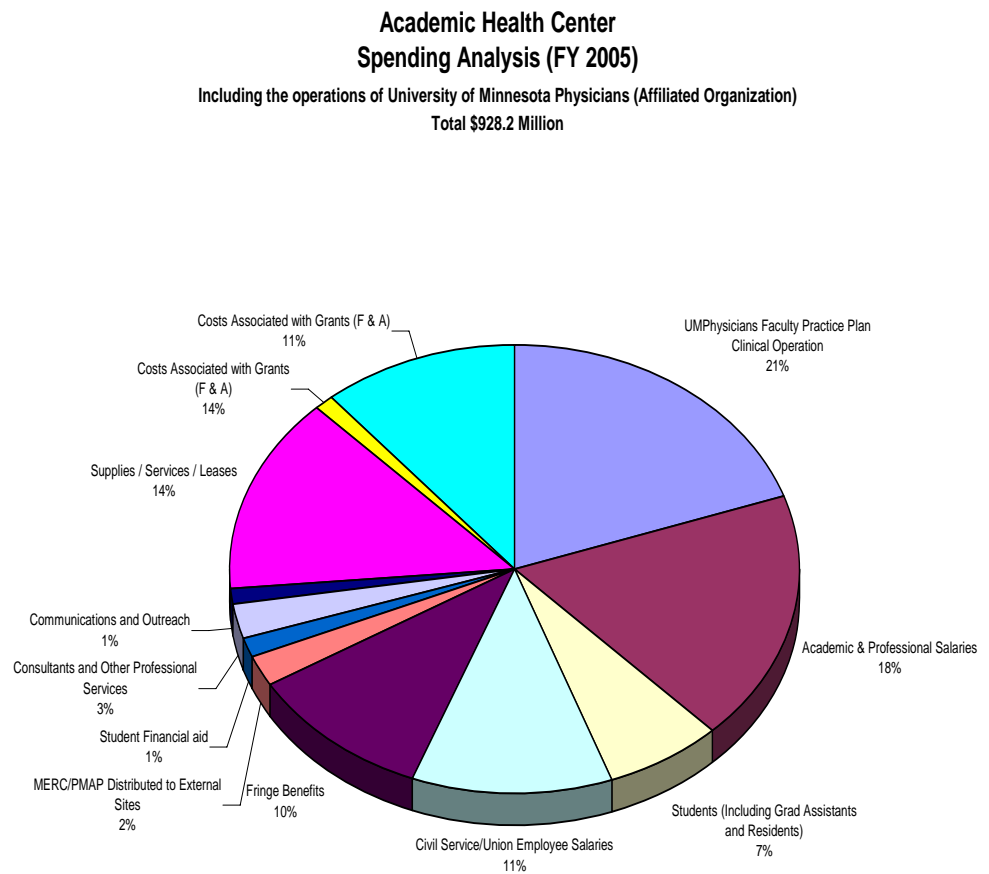
Figure 12 summarizes these revenue sources from 2005 data.

Figure 12



Overall AHC expenditures are summarized in Figure 13.

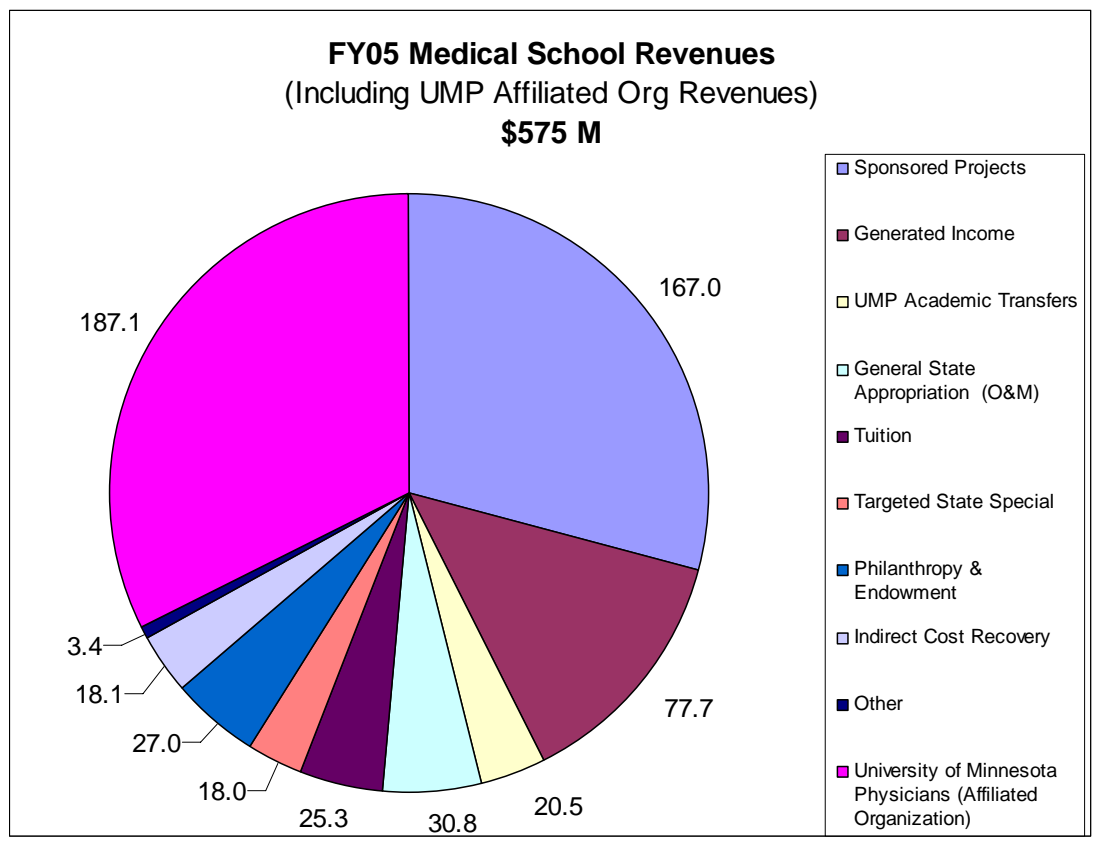
Figure 13



The Medical School is the largest school in the AHC and together with the College of Liberal Arts and the Institute of Technology makes up about 70 per cent of the University. A detailed look at its finances will aid understanding of the variable revenue sources that support the mission-based programs of the Medical School. Of note is the significant dependence of the financial model on the revenue generated by UMPhysicians. This revenue pays competitive market salaries and benefits and cross-subsidizes the education and research programs. The best estimates of the cross-subsidy needed for sponsored projects (research) is approximately 25-30 percent of the sponsored project awards, e.g., \$37.5 million for 2004. Tuition represents approximately 3 percent of the revenue base, and general state support 4 percent.

Figure 14 summarizes this revenue picture.

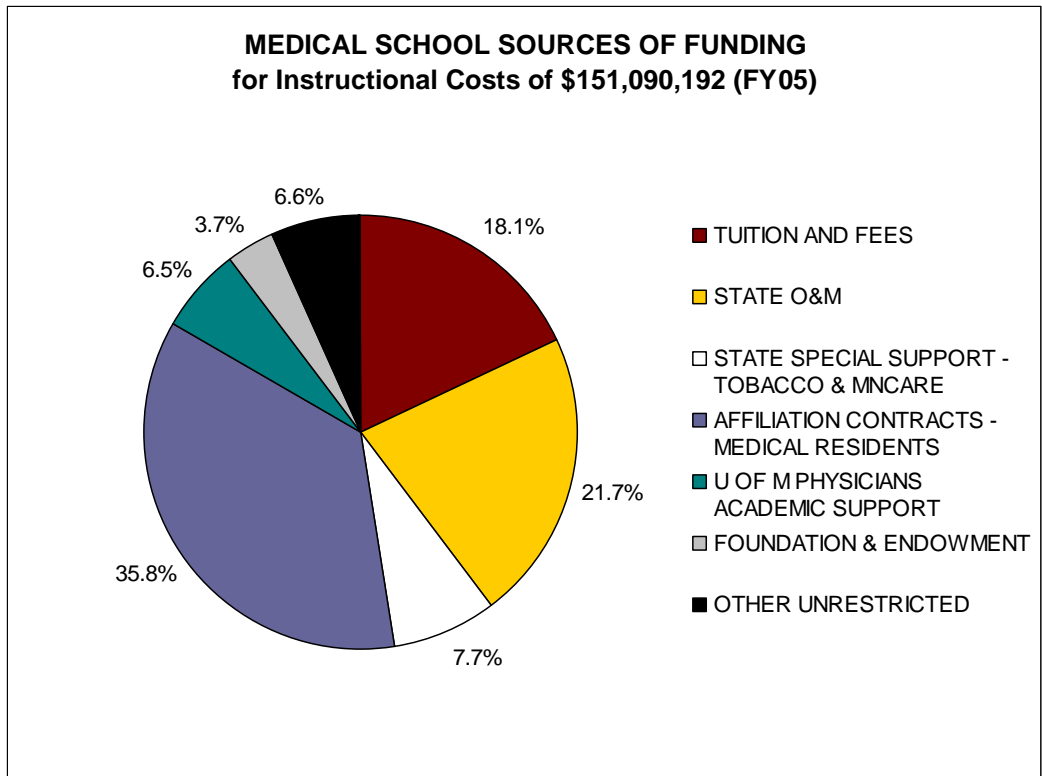
Figure 14



The Medical School also depends on affiliated sites where experiential education takes place. These are the clinics, hospitals, and community locations that house and educate our students. Without these affiliates, program accreditation would not be possible. The affiliates contribute substantially to the revenue base that supports student and resident education and training programs.

This dependence is illustrated in Figures 15, 16, and 17. Figure 15 reflects instructional costs within the walls of the Medical School.

Figure 15



Figures 16 and 17 summarize the cost incurred by the educational affiliates in Minnesota and the reimbursement that is currently available.

Figure 16

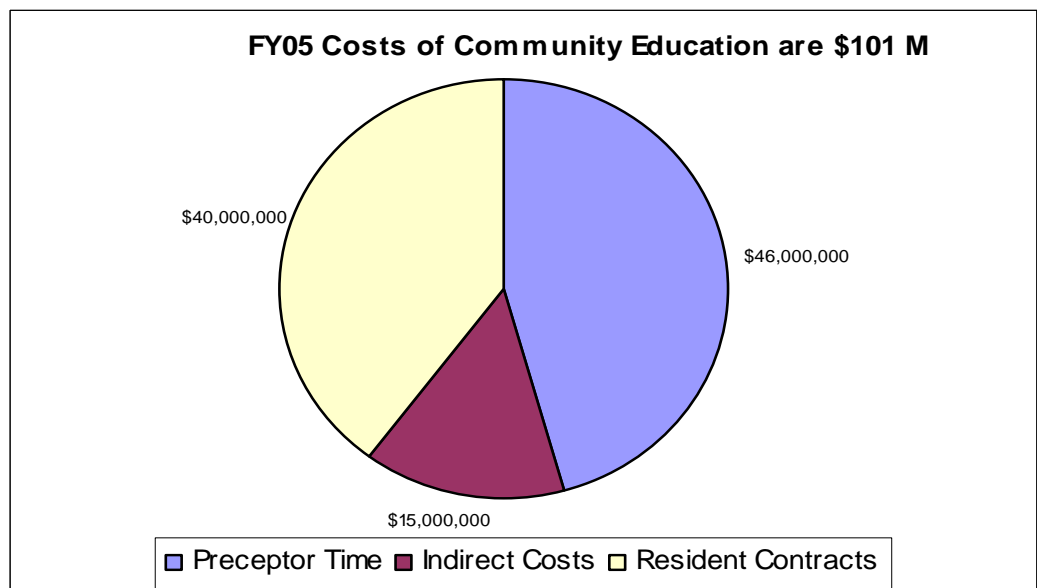
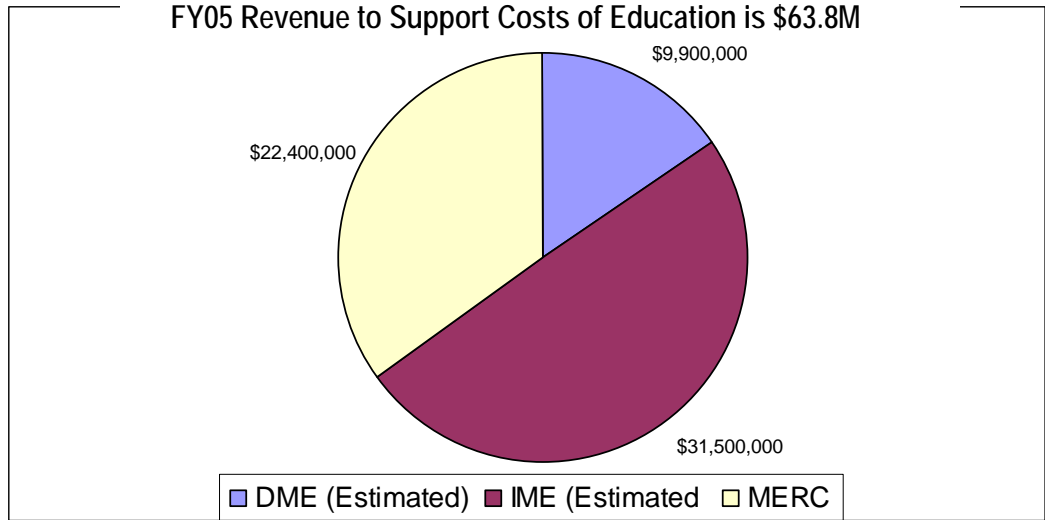


Figure 17



The DME and IME represent the Direct and Indirect Medical Expense reimbursement that Medicare provides to the teaching hospitals. This education subsidy has decreased and is expected to continue to decrease by more than 50 percent within the next 5 years. MERC is the State of Minnesota Medical Education and Research fund that is a combination of state and federal dollars. These dollars follow the students to the site of educational performance. The University administers the funds for its programs.

Comparing costs of education to revenue indicates a net loss of \$37 million at the affiliate sites, representing the pro bono contribution of the community to the student and resident programs of the Medical School. This critical community contribution is important to acknowledge.

C. AHC Task Force Reports

As part of the University’s strategic repositioning effort, there were four task forces in the AHC: Health Professional Workforce, Knowledge Management, Clinical Sciences, and Precinct Plan. This section provides a summary of the essence of each of these task force reports; the executive summary of each of the reports is in Appendix I.

Health Professional Workforce

Educating the next generation of health professionals for the state requires new systems in the Academic Health Center for understanding workforce needs and for setting class enrollments. This new era calls for more nuanced models to address the following variables that affect health professional education: increasing costs of education, decreasing public investment, the shift to community-based partnerships, new approaches to care delivery and education, shifts in the marketplace, demographic change, and fluid federal and state policy environments.

In addition to presenting baseline data on current practices, the spectrum of programs in the AHC, current funding models, and data on the national and state environment for key professions, the task force makes the following key points:

- Working with stakeholders and partners is vital, because health professional education relies on a complex web of partnerships and funding sources. The task force recommends convening stakeholder groups to monitor workforce, to discuss the future of health care and health professional education, and to build and ensure strong partnerships.
- The AHC needs to develop rewards and recognition for faculty who participate in community partnerships.
- The significant promise of interprofessional education requires the AHC to transform its culture and systems to assure exemplary interprofessional education.
- The funding structure for health professional education is very fragile. It relies on a complex set of sources, is very sensitive to shifting public policy priorities, and, places great financial burdens on students in the form of loans. The AHC should: implement ongoing mechanisms for tracking and measuring education expenditures and revenues; explore scholarship and financial aid options for health professional students; and, develop a plan to address contingencies arising from a fragile funding structure.

Knowledge Management Technology

Health professional education and practice are undergoing profound transformations driven by the explosion of new information and demand for up-to-date knowledge. Concurrently, educational models are becoming more learner-focused; students, faculty and staff are becoming more diverse in background and experience; and, technology innovations are creating entirely new environments and opportunities for learning. The task force envisions an AHC-wide system to manage this knowledge explosion while leveraging emerging opportunities and innovations. This system will ensure that students, faculty, and staff are capable, continuous, and collaborative learners. This knowledge management system is grounded in the following key concepts:

- Knowledge management is creating, identifying, and capturing knowledge; distributing the right knowledge to the right people at the right time and in the right form; and putting that information into action in ways that improve individual and community health.
- The knowledge management system will be supported by technology, integrated with learner-centered curricula, and driven by the capabilities that learners need to have in order to function as health professionals and leaders.
- The system will maximize learning by supporting and advancing the following activities: collect, store, organize, and provide access to data and information; design, develop, and distribute information; collaborate, communicate, and engage in interprofessional activities.
- To create and support this system, the AHC needs to tap the expertise of colleagues from a wide range of University academic and technology units. The

task force anticipates that developing key knowledge management system technology tools and systems, as well as systems to support access and connectivity, will benefit the University at large and the community.

Clinical Sciences Enterprise

The clinical sciences constitute the cornerstone of the educational and research missions of the Academic Health Center. Clinical sciences are defined by the task force as comprising the contributions of scientific disciplines to health promotion and to the prevention, diagnosis, and treatment of disease through the development (research), communication (teaching), and application (clinical care delivery) of new knowledge. The clinical sciences are patient-centered and engage a community of scholars across the AHC and University. Outstanding clinical sciences are essential to educating the next generation of health professionals in an environment that brings new knowledge to the prevention and treatment of disease.

The task force identified the following success factors for developing the clinical sciences:

- Support for a culture of demonstrated excellence in innovative clinical care delivery, including patient-centered care with an emphasis on interprofessional teams, application of evidence based decision-making, and outcomes measurement and reporting.
- Faculty who collectively demonstrate innovation and leadership of all aspects of the clinical sciences.
- Development of a unifying model for faculty advancement across the Academic Health Center that equally values the three chief components of the clinical sciences (research, education, and care delivery).
- Development of educational programs that prepare students for a career of innovative health care delivery, including interprofessional, team-based experiences, and that attract the most outstanding and imaginative students.
- Vibrant clinical research that advances knowledge and its application in all parts of the clinical science continuum from lab bench to the bedside.
- Facilities that support state-of-the-art care delivery, research, and education; access to cutting-edge technology; and access to integrated information systems that connect all areas of the clinical sciences to facilitate clinical research, education and care delivery where outcomes are always measured.

AHC Precinct Plan

While more than \$158 million has been invested in AHC facilities since 2000, other states have been making even greater investments in their health sciences. Minnesota is falling behind its peers, and the facility challenge facing the Academic Health Center is significant. To recruit the best faculty and students and attract patients, the AHC must make significant investments in its aging facilities.

- The AHC’s educational facilities need to be renewed, renovated, or rebuilt to support a modern curriculum.
- The AHC must dramatically expand and modernize its research space in order to hire the faculty needed to achieve the University’s goal of becoming a top three research institution.
- The AHC and its clinical partners must renew and rebuild clinical facilities to remain competitive in the intense Twin Cities health-care marketplace.

The task force has set the stage for a comprehensive new precinct plan by identifying and defining key strategic facility issues, planning principles, design concepts, and building needs. This planning process recognizes that the AHC precinct extends beyond the four-square block Minneapolis area of earlier studies to include the Riverside campus, the St. Paul campus, the growing research area near the proposed stadium, the area north and east of the student housing superblock, as well as areas in Duluth and Rochester. The task force identified the key next steps towards a new AHC Precinct Plan:

- Verify and refine the space projections for AHC programs over the next five to 15 years.
- Incorporate the principles, findings and conclusions of this report into a new precinct plan — one that encompasses the entire physical span of the AHC; its multiple missions (education, research, patient care, and service) and its key partners; and includes potential sites, cost estimates, and sequencing of major projects.
- Incorporate the AHC precinct planning effort into the University-wide initiative to update the Minneapolis campus master plan.
- Update the University six-year capital plan to reflect projects currently underway and identify the next development priorities for the AHC.

III. The Academic Health Center In 2011

The essence of an academic health center is the application of new knowledge in the prevention and treatment of disease to achieve improved health status and patient-centered clinical care in an environment of continuous learning and improvement. The tools of achieving this vision are research, education, outreach and clinical care and scholarship (critical thinking and the acquisition of knowledge that informs the next decision). While each of these tools appears to be a distinct entity, they really all blend to create an environment of continuous learning, achievement, and excellence.

A. Education Future

Education of the new health professional is the mark of distinction for the AHC. We are recognized as the destination of choice for health professionals who are patient centered, evidence- and best-practice based, team-trained, systems-oriented, civically engaged, and information-system capable. Students and faculty recognize us as the destination of choice for scholarship in the clinical sciences, where excellence in care delivery itself is

valued as an educational goal. We are recognized for using interprofessional models for education and care delivery, within an environment of learning and continuous improvement, and in facilities supportive of continuous learning.

We engage in rich community-based partnerships that create awareness of careers in health sciences, that provide experiential education, and that work with communities to help improve their health care and health status. We have enrollments that meet the health-care delivery needs of the State of Minnesota for physicians, nurse practitioners, pharmacists, veterinarians, dentists, and public health practitioners. We have a coordinated approach to the allied health professions with MnSCU and the private colleges that better meets the needs of the State of Minnesota. A State School of the Allied Health Professions has been established with the University as a founding partner.

B. Research Future

The AHC is recognized as the talent magnet for health research by students, faculty, corporations, and policymakers. There are well-developed corridors of interdisciplinary research within the AHC and across the University that connect discovery with application to care delivery and improvement of health status in focused, recognized areas of excellence. There is a vibrant environment of innovation. New intellectual property achieved in partnership with the cluster of health businesses, results in new preventive technologies and therapeutics and supports new business development. Imagine the following examples:

1. A basic scientist in the Cancer Center discovers a receptor on a cell that stops the growth of a cancer; a medicinal chemist then discovers a compound that can activate that receptor and designs and makes the drug; the clinical trials unit proves the drug's efficacy; the technology is licensed into a new company to produce and market the drug.
2. A scientist in the Center for Drug Design discovers an agent that can destroy a metastatic cancer; an engineer develops a delivery system of nanoparticles that can deliver the drug with great precision, potentially avoiding side effects of the drug; the new drug on the nanoparticles is subjected to clinical trials that demonstrate efficacy; the new approach is licensed to a drug company to produce and market.
3. A stem cell researcher discovers a way to cultivate stem cells to become heart muscle cells; an engineer designs and builds a device to deliver these cells to a portion of damaged heart muscle; clinical trials are conducted to prove efficacy; the new product is produced and marketed by a new company.
4. A new model of helping people with a chronic disease manage their disease is developed by a team of nurses, pharmacists, and physicians; the model is implemented in the clinics using electronic health platforms in a study design that will demonstrate effectiveness based on health, efficiency, and business outcomes; this proves successful and is implemented in the community.

The Minnesota Partnership in Biotechnology and Medical Genomics (U-Mayo Partnership) continues to serve as a successful platform for University and Mayo faculty to perform research in areas of synergy and with commercial potential. New grants have been obtained, intellectual property identified, and new start-up companies formed.

Through this partnership, the AHC has achieved an incremental \$200 million in new sponsored health project revenue and performs more than 500 clinical trials on any given day in a large, community integrated clinical trials network.

C. Clinical Future

The Clinical enterprise is recognized as the destination of choice for the development of clinical scholars and the production of scholarly work in the clinical sciences that informs policy and practice in both the prevention and treatment of disease. Both evidenced-based care and best practices are being developed with the community.

University of Minnesota Physicians is an integrated group practice that encompasses medicine, pharmacy, nursing, and dentistry, and that incorporates wellness, disease prevention, and chronic care management into an efficient, electronically supported evidence- and best-practice-based system of care delivery. The Health Informatics program, together with the integrated clinical practice, has achieved interoperability in the new health record in a way that consumers and practitioners can use to have the most up-to-date information at the right time and in the right place to make the best decisions. This technology is being brought to the community for wider use.

An effective partnership among academic, private, and employed providers in a relationship with Fairview Health Services has been implemented that supports the education and research mission of the Academic Health Center and competes effectively in the health marketplace. This model of care delivery is recognized as the place to go for leading-edge, patient-centered care that is consistently delivered wherever the point of entry and has the breakthrough knowledge for preventing and treating disease.

D. Facilities Future

The Minnesota Biomedical Sciences Research Facilities Authority has been successfully implemented. The first research building, the Medical Biosciences Building, is completed and filled with researchers performing cutting-edge research in cancer, infectious disease and immunology. A second biomedical research facility is under construction. It will house interdisciplinary activities in neuroscience, nanomedical science, and other programs that jointly engage the Institute of Technology and the Academic Health Center.

E. Financial Future

Philanthropic campaigns for endowments for long-term support of faculty and programs and for short-term support for faculty recruitments, research infrastructure, and new research and product development are successfully underway.

Partnerships with industry that generate gifts, research contracts, and development of new intellectual property have been developed and appropriately managed. There is enhanced revenue generation for mission support from the direct delivery of clinical care via the practice plans and an effective relationship with Fairview Health Services in the marketplace.

The learning platform also resulted in a financially successful model of external sales for online education and consultation; certificate and degree programs in new areas, such as food safety, emergency response, and homeland security; continuing education; and, access to online degree programs in the allied health professions, public health, and other health sciences fields.

The State of Minnesota, recognizing the productivity of the University and its return to the state, continues to invest in program development via the biennial University-Legislative partnership. It also is recognized that the AHC is effectively managing risk through efficient and effective business practices.

IV. How The Academic Health Center Will Get There

A. Research

Increase of capacity and productivity

We need to increase our research capacity and productivity. This will require an investment in faculty and facilities to compete for and perform the research. To assess those needs, we first assumed the following conditions:

1. Consider only NIH awards, with 85 percent of those in the AHC.
2. Project the range of historical growth: 4 percent to 11 percent for current number 3 public research university; 4 percent to 9 percent for U of M
3. Faculty NIH awards at \$300,000 per year per faculty
4. Faculty recruitment packages at 1,000 asf space and \$500,000

When we calculated the gains needed to arrive at a number 3 ranking we produced a low and high range of grant funding needed, as summarized below.

Range	Number 3 University	University of Minnesota	Gap to Fill
Low	\$441 million	\$281 million	\$160 million
High	\$599 million	\$348 million	\$251 million

A similar analysis, also providing for an increase in faculty productivity, demonstrates a gap of between \$160 and \$250 million; summarized as follows.

Productivity	Gap \$160 million	Gap \$250 million
Current	533 new faculty	836 new faculty
Increase number of faculty with awards 8-9%	504 new faculty	806 faculty
Increase amount of awards per faculty by \$50,000	503	805
Increase both number of faculty with awards and amount per award	473	775

New faculty require start-up funds to equip laboratories for performance of research and to pay for work until the grants are written and awarded, as summarized below for varying numbers of new faculty.

Number of Faculty	Cost for Start-up
600	\$300 million
800	\$400 million
1000	\$500 million

New faculty require space to do their work. Most of this space would be in new facilities constructed under the auspices of the Biomedical Facilities Authority; some would be in existing facilities that have been renovated. The estimated space needs are summarized as follows:

Scenario	1000 asf per faculty	\$400 per gross sf
600 new faculty today	600,000	\$370 million
600 new faculty with 16% increase in productivity	525,000	\$325 million

In addition, increasing productivity and recruiting and retaining faculty will require new forms of recognition, rewards, and incentives. We will need to go beyond the traditional RO1 individual investigator award to also recognize and reward team efforts and faculty who perform supporting roles.

Create Research Linkages

We need to create corridors linking new knowledge to therapeutics that prevent or treat disease. This will require investing in focused areas that link basic science with translational and clinical science and innovation. We will need to build an effective “translational pipeline” that provides services to faculty. By minimizing faculty time spent on such logistics as research education and training, approvals, financial management, technology prospecting and processing, test article production, clinical testing and technology commercialization, we will move knowledge from the laboratory

to the bedside in an efficient and effective way. We will need to build a community network for the performance of clinical trials. The partnership with Mayo also would be an effective piece of this network.

Leverage Research Strengths

We must leverage our strengths with partners inside and outside the University. Interdisciplinary, interprofessional, interinstitutional collaborative research that combines the expertise of engineering, materials science, chemistry, and physics is essential to our success. We are launching a process to facilitate these interactions in areas of faculty interest and development, such as nanomedical technology, tissue engineering, biomedical engineering, virology, and food safety.

We must also more effectively partner with industry. The new Center for Device Design is one example of this interaction; other opportunities exist in imaging, applications of virtual reality and simulation, and drug development.

We also must partner with the public and private bioscience community: BioBusiness Alliance, Department of Employee and Economic Development, LifeScience Alley, and other enterprises. Together, we can develop and implement a plan for the future of biosciences in Minnesota.

Make Smart Research Investments

Making smart investments is essential, and at least four processes are necessary:

1. Identifying and leveraging areas of strength such as neuroimaging, systems neuroscience, stem cells, diabetes
2. Focusing resources for growth in areas such as genomics, proteomics, stem cells, clinical applications, bioinformatics
3. Building, maintaining, and integrating with the University an efficient and effective research infrastructure that includes computational capacity, information systems, space management, human resources management, communications, laboratory and equipment management.
4. Moving out in front to set the research agenda to develop the next science rather than responding to leadership of others.

Set Research Expectations

We must set expectations in a number of areas:

1. To manage resources for their highest and best use;
2. To provide effective support systems, including bridge funding, investment resources, education and training, translational platforms; and,
3. To establish benchmarks, outcome metrics, and timelines.

B. Education

The Academic Health Center will reach its goals by continuing to develop and employ contemporary education models with the central focus of health and wellness promotion, clinical sciences, and health-care delivery transformation. These include:

1. Redesigning the health professions to transform the health system through innovative models of leadership such as the clinical nurse leader developed in the Master of Nursing and Doctor of Nursing Practice program, and leadership education and training for physicians, pharmacists, and veterinarians.
2. Developing a system to integrate and capture interprofessional education and care models in new and innovative ways into the standard school educational programs. Examples include the student-led Phillips Neighborhood Clinic for the homeless; University of Minnesota Physicians chronic disease models (oncology, primary care, diabetes, heart failure) as teaching sites; and the CLARION national patient safety case competition.
3. Partnering with community providers and health systems to implement a continuous improvement process for evidenced-based best practices, patient safety, emergency preparedness, and chronic disease management.
4. Leveraging our health policy, health outcomes, and health administration expertise to integrate concepts into clinical and community practice education, while simultaneously evaluating the results.
5. Developing a world class interprofessional simulations center for training and development.

In the area of health workforce needs, the Academic Health Center will strengthen community-campus partnerships to promote planning, manage enrollment, and influence the distribution of health professionals to areas of need by:

1. Partnering with MnSCU to develop learner-centered, seamless educational programs in such areas as allied health professions and life sciences;
2. Developing and refining methods for workforce planning; and,
3. Partnering with health systems, delivery systems, and state agencies.

The Academic Health Center will build upon the successful statewide community-campus partnerships to support education and service to underserved populations through:

1. The Minnesota Area Health Education Center
2. Partnerships with the Minnesota Extension Service
3. Northside Initiatives
4. LifeScience Alley
5. Connecting with other University regions, MnSCU, private colleges and universities, and regional economic development agencies and programs
6. Health Careers Center partnerships for increasing career awareness in K-12
7. Resource base for students to progress from K-12 to professional schools

The Academic Health Center will capture the value of learning technology and information systems by:

1. Building comprehensive learner-centered education and business platforms that support life-long learning and progress toward competencies and capabilities
2. Innovating in virtual reality and game technology for technical training to achieve competency, decision-making teaching and assessment for capabilities, and for continuing education
3. Developing real-time evidence and best practices for decision-making
4. Becoming a national leader in health informatics
5. Increasing career awareness in K-12 through Health Careers Center partnerships
6. Becoming a resource base for students to progress from K-12 to professional schools

C. Clinical Sciences

Clinical faculty scholars are critical investments; they are the people who move knowledge along the bench-to-bedside corridors. We need to more effectively define and focus our investment in areas such as cognitive and motor disorders, imaging, diabetes, transplantation, and cardiac services. We need to provide recognition, incentives, and rewards for clinical scholars, including promotion, tenure, and peer recognition, as well as support that includes protected time, mentoring, and opportunities for education and training. We need to provide leadership and incentives for interdisciplinary, interprofessional clinical research and care delivery, and to better leverage our knowledge of health outcomes, health administration and policy, and public health outreach.

Achieving these goals will require the following.

1. Substantially increasing the efficiency and effectiveness of clinical research, through:
 - a. Coordinated clinical trials platforms
 - b. RSO, IND and GMP services
 - c. Partnerships with Mayo, Fairview, and other clinical performance sites in a clinical trials network
2. Developing and implementing new prevention and care delivery models that transform care delivery and leverage provider strengths through and in:
 - a. Provider teams
 - b. Provider systems for chronic care
 - c. Pharmaceutical care
 - d. Care of the aging and at end-of-life
 - e. University of Minnesota Physicians as a multiple provider contracting and delivery organization
3. Bringing knowledge management technology into health care through:
 - a. Health informatics
 - b. Competencies and capabilities education and training

- c. Interoperable systems linking and supporting providers and consumers
 - d. Real time information and evidence for decision-making
4. New facilities to support the new care delivery and to compete effectively in the marketplace. The current inpatient and outpatient facilities were designed for another era of care delivery and now are supporting more than three times the patient visits they were designed to accommodate. They will not support growth, are challenging to visit, and limit customer satisfaction. Also, our current inpatient facilities for children are embedded inside an adult hospital. A new outpatient clinic with support services, a new replacement facility that supports children's services, and an upgrade of the adult inpatient facilities at University of Minnesota Medical Center, Fairview, are critical to our success. All these projects are moving forward in planning and development.

We must redesign and realign our relationship with Fairview Health Services. A leadership group from AHC, Fairview, and UMPhysicians has worked for several months on a new model, and has created a new vision for this partnership:

- Collaboratively create a health care delivery system with new care models that are:
 - Patient-centered
 - Outcomes-based
 - Chronic disease-oriented
 - Systematized across Fairview
- Utilize the delivery system as the clinical platform for new clinical education models
- Use the delivery system as the clinical research foundation for the AHC research enterprise
- Optimize UMPhysicians' presence across the Fairview System and link more effectively with community physician practices
- Generate the resources to support a) Fairview's financial requirements; b) faculty retention and recruitment; and, c) academic program development at the AHC.

Fairview Health Services has also developed a new vision for itself: "In partnership with the University of Minnesota, our passion for excellence for our patients drives us to be the best health care system in America."

When complete, these efforts will result in a new strategic relationship plan and in changes to the University-Fairview Affiliation agreements that will require Regental review and approval.

D. Financial/Administrative

Several financial and administrative actions are required to provide the investment resources needed to accomplish our goals for 2011.

1. Capturing “market share” to increase federal research grants, requiring:
 - a. A competitive effort to increase awards in an inflationary environment in which NIH funding also is decreasing 1 percent each year;
 - b. Establishing a Minnesota Biomedical Sciences Research Facilities Authority;
 - c. Focused program investments in faculty; and,
 - d. Improved partnerships with industry and other institutions

2. Refocusing and reorganizing the clinical enterprise to support growth in mission fulfillment, requiring:
 - a. UMP to be a competitive, interprofessional provider and contracting agent
 - b. Partnerships with health systems to support student and resident education
 - c. Community partnerships to support education and research
 - d. Closer alignment with Fairview Health Services
 - e. Partnerships for children’s health services
 - f. External sales of educational services
 - g. Learning platforms for certificates and degrees
 - h. Partnerships with MnSCU System
 - i. Partnerships with industry and health systems
 - j. Life-long learning through continuing professional education

3. Achieving internal efficiency and effectiveness in resource use in the AHC, by:
 - a. Developing and implementing new models for delivery of administrative and financial services, including human resources, facilities, communications, information technology, research administration, and regulatory oversight.
 - b. Developing an effective management information system to plan, manage, and evaluate academic and administrative programs.
 - c. Allocating research and educational space based on performance.

4. More effective fundraising and gift activity through Minnesota Medical Foundation and University of Minnesota Foundation
 - a. Strategic program plan for major gifts
 - b. Campaign

5. Coordinating and planning as integral part of the University, through:
 - a. Technology mining, evaluation and commercialization
 - b. Interdisciplinary program development
 - c. Incentivizing, rewarding and recognizing faculty development and productivity
 - d. Creating an environment of innovation
 - e. Capital project development and financing
 - f. Programmatic requests to State of Minnesota
 - g. University-wide administrative efficiencies and reallocations

F. Summary and Conclusions

This report summarizes the transformation of the Academic Health Center over the past decade. Today's AHC is operating from a stronger position, with faculty and staff in the institution clearly focused on future opportunities and expanded internal and external relationships. Academic isolation is no longer encouraged or practiced. The University of Minnesota's reputation in health sciences is leading to larger federal grants, greater drive for appropriately managed complex partnerships, and deeper community collaborations.

The plan laid out in this report is bold and based on resolute faculty and administrative leadership. The skilled and experienced team in place within the AHC provides the ability to plan for the changes needed for the future success of the health professions, as well as the ability to lead that change on behalf of the state.

Changes required for success in the academic arena will mean adding competencies and expanded skill sets to a remarkably rigorous professional curriculum, and will mean flexibility and negotiation with disciplinary accreditation and licensing boards. To be successful, we will need support from the Regents as we pursue stronger relationships.

A successful future within the increasingly competitive field of health sciences research will require investments in facilities, funding for top faculty recruitments and retentions, and a secure regulatory environment for the pursuit of new knowledge. Competitive environments also will require a rather non-Minnesotan willingness to promote our research achievements. To be successful, we will need support from the Regents to pursue the funding for success.

The clinical sciences enterprise remains critical to the success of the research and education of health professionals. Faculty must practice their disciplines in order to teach the next generation, or to engage in the translation of new knowledge to patient care. In addition, clinical work takes place within the competitive marketplace of health care, meaning University health professionals both collaborate and compete with community colleagues. To be successful, we will need support from the Regents to navigate the competitive collaboration of modern health care.

Finally, academic health centers are remarkably difficult, complex, and expensive components of a university. There are no top three public universities, however, without a successful academic health center. An academic health center provides the core of a world class university that is devoted to human and animal health, as well as to the breakthroughs that promote health and treat and cure disease. To be successful, we will need the support and understanding of the Regents to continue managing through the complexities of the health professions.

The transformation of the AHC is the result of teams of competent and capable faculty, staff and administration working together, with the support of the Board of Regents, to achieve a common vision with a common set of goals, in the fulfillment of a common

mission. This progress must continue. This progress, however, has reached the stage where it can no longer happen just within the AHC and its relationships. The Strategic Repositioning of the University provides the opportunity for the whole University to partner around a common mission, vision and set of goals, a phenomenon that is now beginning to happen. Combining the strengths of this institution will provide the foundation for the University to advance to its aspirational goal of becoming top three among public research universities, and will allow the AHC to advance to its next level of development.