

UNIVERSITY OF MINNESOTA MEDICAL SCHOOLS

Minnesota Care

Primary Care Physician Training Initiatives



*An Essential Program
for Access to Health Care*

University of Minnesota School of Medicine & University of Minnesota Duluth School of Medicine

1997 Annual Report
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UNIVERSITY OF MINNESOTA MEDICAL SCHOOL
MINNESOTACARE PRIMARY CARE PHYSICIAN TRAINING INITIATIVE
1997 ANNUAL REPORT
EXECUTIVE SUMMARY

BACKGROUND

- Patient **access** to health care is assured only with a sufficient number, mix and improved geographic distribution of primary care physicians throughout the state.
- **Quality** of health care is reflected by the training experiences of these primary care physicians.
- Medical education has shifted from hospitals to ambulatory community-based clinics. In Minnesota, 80% of family practice, 64% of pediatric, and 40% of internal medicine resident training presently occurs in outpatient settings.
- Ambulatory training is essential for primary care physicians to learn high-quality, cost-effective methods of patient care that are accountable to changing consumer needs.
- There are no federal funds for ambulatory training, and education costs can no longer be shifted to insurance companies.
- Medicare payments to teaching hospitals will be dramatically reduced in the next 2-3 years.

MINNESOTACARE RESPONSE

- Since 1992 MinnesotaCare has provided critical funding for the University of Minnesota Medical Schools' Primary Care Physician Training Initiative.
- The 1992 law requested the Medical Schools to increase the number of resident graduates who practice primary care by 20% over an 8-year period [year 2000], and encourage newly graduated primary care physicians to practice in medically underserved areas of rural and urban Minnesota.
- Increased funds of \$360,000 for the current biennium were appropriated, matched by the Medical School, and are being used to expand and initiate activities necessary to meet program goals.

PRIMARY CARE PHYSICIAN TRAINING INITIATIVE ACCOMPLISHMENTS SINCE 1992

- The Twin Cities and Duluth Medical Schools have responded to MinnesotaCare with significant primary care curriculum reform in the past 5 years.
- Reform focused on generalist training in rural and urban ambulatory clinic sites has increased the output of generalist physicians in Family Practice, Pediatrics, and Internal Medicine.
- Results of the Primary Care Physician Training Initiative include enhanced rural initiatives, a large increase in ambulatory training, and early student exposure to primary care role models.
- These activities are in addition to the medical student Rural Physician Associate Program (RPAP) and the Family Practice Residency Program, both of which receive separate state appropriations.

Rural Initiatives

- New Rural Family Practice Residency and expanding Duluth Family Practice Residency.
- Rural Pediatric, Internal Medicine, and Ob/Gyn resident rotations.
- Rural experiences for medical students.
- Continuing medical education in rural communities
- Adding a family support program
- E-mail and Internet access for residents on rural rotations.

Duluth Family Practice Residency

- Expanding from 27 to 36 residents, now at 30.
- 115 of the 173 graduates practice in Minnesota; 105 outside the Twin Cities and 55% in towns less than 25,000.

Rural Family Practice Residency

- Established in Waseca and Mankato in 1994.
- All 12 residents enrolled.
- 70 local physicians teach in the program.
- All 4 members of first graduating class (1997) located in rural practice, 3 in Minnesota.

Obstetrics/Gynecology Residency

- Rural Minnesota resident rotations.
- 3 graduates into rural Minnesota since 1993.
- Clinics emphasize adolescent care, especially in under-served areas.

General Internal Medicine Residency

- Established primary care clinics at St. Paul Ramsey, HealthPartners, CUHCC, VA Medical Center, and Fairview-University Medical Center.
- Rural rotations in Red Wing, Crosby, Willmar, Hibbing and Fergus Falls.
- Graduates entering primary care have increased from 42% in 1993 to 60% in 1997 with 5 graduates in rural settings.
- Implementation of Primary Care and Women's Health Pathways curriculum.
- CME broadcasts grand rounds to Waseca and Staples.

General Pediatrics Residency

- 400% increase in ambulatory training, which now represents 60% of all training time.
- 6 graduates into rural Minnesota since 1993.
- Since 1993 66% of graduates have entered primary care - up from 59% prior to MNCare support.
- Rural 1-month rotations in Red Wing, Virginia, Willmar, Cambridge, Alexandria, Fergus Falls, Hibbing, Mankato, Buffalo, and Brainerd.
- Urban underserved clinic rotations at Head Start, Homeless Assistance Project, and temporary foster care facility.
- New rotations in primary care fundamentals, developmental disabilities, adolescent health, domestic violence, managed care.

Medicine-Pediatrics Residency

- New 4-year combined residency provides students a 4th primary care career choice.
- 16 (59%) of 27 graduates since 1993 have entered primary care practices.
- Rural or underserved urban rotations.

Continuing Medical Education

- 26 of 53 CME courses in 1997 met the needs of primary care physicians.
- 4,100 physicians attended -- 45% from non-metro Minnesota.
- Rural physician CME on hormone replacement therapy, osteoporosis, heart disease, and the health care for the mature women.
- Computerized system links rural clinics and physicians.
- Monographs and on-line CME activities developed for physicians who practice in rural areas increased in 1997.

Medical Student Education

- Modifying curriculum to teach primary care competencies to all students.
- Outpatient teaching by primary care role models.
- Urban Community Ambulatory Medicine rotation added.
- Duluth Medical School placing students into small communities.
- Expanded Preventive Medicine curriculum.
- Third-year Ob/Gyn course focuses on primary health care of women.

Increased Appropriation Initiatives

The following program components, many of which integrate the primary care activities of the Departments of Family Practice, Medicine, Pediatrics, and Obstetrics and Gynecology, utilize the increased funds and are now being implemented.

- Rural education expansion
- Managed care curriculum expansion
- Medical School women's health initiative
- Adolescent interviewing initiative
- Primary Care Skills Preparation Laboratory for primary care residents in the area of Emergency Medicine

FY98 BUDGET**Rural Primary Care Expansion**

Waseca/Mankato Rural Family Practice Residency	\$449,365
Duluth Family Practice Residency	89,151
Other Primary Care Residency Rural Education	87,000

Primary Care Residency Programs

Interdepartmental Initiatives	690,805
General Internal Medicine	105,483
General Pediatrics	794,932
Combined Medicine / Pediatrics	92,519

Medical Student Programs

Twin Cities Campus	268,033
Duluth Campus	115,286

Administration

24,426

Total Budget**\$2,717,000****Legislative Appropriation****2,537,000****Medical School Match****180,000****Total Revenue****\$2,717,000**

I. BACKGROUND

A. MinnesotaCare Provides Funds to Train Primary Care Physicians

- 1992 legislation stated, the University of Minnesota Medical School is requested to:
 - * Increase the number of graduates of residency programs of the medical school who practice primary care by 20% over an 8-year period [year 2000].
 - * Encourage newly graduated primary care physicians to practice in medically underserved rural and urban Minnesota.
 - * Develop general medicine, pediatrics, and family practice resident rotations in primary care settings, including community clinics, health maintenance organizations, and rural communities.
 - * Establish a rural residency training program in family practice.
 - * Develop continuing medical education programs for primary care physicians that are comprehensive, community-based, and accessible to primary care physicians in all areas of the state.
 - * Provide medical students early exposure to primary care physicians and primary care practice with training experiences in medical clinics in rural Minnesota communities, community clinics and health maintenance organizations.
- The availability of primary care physicians throughout the state is an essential component of access to health care.
- Since 1992 MinnesotaCare has provided critical funding for the University of Minnesota Medical School's Primary Care Training Initiative.

B. Primary Care Defined

Primary care physicians are typically family physicians, general internists, general obstetricians and gynecologists, and general pediatricians. As defined by MinnesotaCare, ***"Primary care means a type of medical care delivery that assumes ongoing responsibility for the patient in both health maintenance and illness treatment. It is personal care involving a unique interaction and communication between the patient and the physician. It is comprehensive in scope, and includes the overall coordination of the care of the patient's health care problems including biological, behavioral, and social problems. The appropriate use of consultants and community resources is an important aspect of effective primary care."***

C. Primary Care Physician Training Program Mission

The mission of the Primary Care Physician Training Initiative is to enhance primary care undergraduate and graduate medical education, increase the supply of primary care physicians in Minnesota, and encourage graduated primary care physicians to establish practices in areas of rural and urban Minnesota that are medically underserved.

II. TRENDS THAT IMPACT MEDICAL EDUCATION

A. Training and Work Force Issues

- A lack of primary health care services has been implicated as a major factor contributing to the health care crisis.
- Most national governmental and medical education organizations have set a goal of a health care work force composed of 50% primary care physicians and have assigned responsibility and accountability for achieving that goal to medical schools.
- Medical education of medical students and residents has shifted from hospitals to ambulatory, community-based clinics. In Minnesota, 80% of family practice, 64% of pediatric, and 40% of internal medicine resident training presently occurs in outpatient settings.
- Changes in health care delivery will rely heavily on the managed care model; thus, the demand for primary care physicians will be even greater.
- Clinical faculty are essential for primary care medical student and resident education.

B. Financing the Primary Care Curriculum

- Major changes in medical student and resident education are occurring at a time when available funding for health professional education has become severely limited.
- No longer can educational costs be shifted to insurance companies through hospital and clinic "usual and customary" charges.
- Hospitals and clinics are no longer able to "write off" added costs of student and resident education.
- Medicare graduate medical education payments to teaching hospitals will be dramatically reduced in the next two to three years.
- Our competitive, cost conscious economy has yet to develop a method for paying for educating tomorrow's health care professional.
- No federal funds for ambulatory training.

C. Preventive Health Care

- Physician responsibilities in preventive health care will be a focus of future curriculum reforms.
- Health care needs of underserved populations including racial and ethnic minorities, inner city inhabitants, rural citizens, and the disabled will be met by enhanced medical student and primary care resident curricula.
- Medical students and residents will be taught how to help their patients modify high risk, unhealthy behaviors.
- Increased curriculum emphasis on epidemiology, biostatistics, medical decision making, medical information, medical ethics, normal and dysfunctional human behavior, family systems theory, health promotion/disease prevention, and health care team leadership will be sought. Multi-disciplinary faculty groups will be required to teach these topics and integrate them into the curriculum.

D. Other

- Specific initiatives are being implemented to teach continuous quality improvement strategies, more sophisticated approaches to resource allocation, medical ethics, and associated decision-making.

III. RESULTS OF MINNESOTACARE PRIMARY CARE PHYSICIAN TRAINING INITIATIVE

A. Rural Initiatives

- New Rural Family Practice Residency in Waseca/Mankato
- Expanding Duluth Family Practice Residency
- Rural Pediatric, Internal Medicine and Ob/Gyn resident rotations (Red Wing, Hibbing, Virginia, Crosby, Willmar, Alexandria, Fergus Falls, St. Cloud, Mankato, Brainerd)
- Rural experiences for medical students
- Continuing medical education in rural communities
- Computerized system links rural communities

B. Large increase in ambulatory training

C. Early medical student exposure to primary care role models

D. Primary care resident graduates have increased

- All 4 Rural Family Practice resident grads in 1997 entered rural practice
- Pediatrics - 59% before MinnesotaCare to 66% in 1997; 6 to rural Minnesota
- Internal Medicine - 42% before MinnesotaCare to 60% in 1997; 5 to rural Minnesota

E. Leveraging MinnesotaCare Support

- **Rural Family Practice Residency**

1996-97 Approximate Revenues

Teaching hospital's contribution	\$658,000
Patient revenues	277,478
MinnesotaCare	439,118
Family Practice Department contribution	<u>61,007</u>
Total	\$1,435,603

- **Duluth Family Practice Residency**

1996-97 Approximate Revenues

0100 funds from the University	\$744,000
Teaching hospital's contribution	947,000
Patient revenues	1,394,000
MinnesotaCare	62,500
Research Grants	191,500
Miscellaneous	<u>171,000</u>
Total	\$3,510,000

- **Donated Effort by Pediatric Clinical Faculty (1996-97) = \$465,000**

Teaching activity	Number of clinical faculty	Teaching hours * per year	Clinical faculty FTEs donated
Medical students	82	2,647	1.3
Residents	65	3,787	1.8

* By MERC calculations

IV. PRIMARY CARE RESIDENT EDUCATION ACCOMPLISHMENTS SINCE 1992

Significant curriculum reforms in the past 5 1/2 years, focused on generalist training in ambulatory clinic sites in rural and urban areas have begun to increase the output of generalist physicians in Family Practice, Pediatrics, Internal Medicine, and Obstetrics and Gynecology.

A. Rural Family Practice Residency

MinnesotaCare legislation stated *"The medical school is requested to establish a rural residency training program in family practice. The program shall provide an initial year of training in a metropolitan-based hospital and family practice clinic. The second and third years of the residency program shall be based in rural communities, utilizing local clinics and community hospitals, with specialty rotations in nearby regional medical centers."*

- The Rural Family Practice Residency was established in Waseca (rural community) and Mankato (regional medical center) in 1994.

- The overall goal of this program is to produce family physicians who will practice in rural Minnesota or elsewhere in rural Upper Midwest upon completion of training.
- Provisional accreditation was received in February 1995, and full accreditation is expected in 1998. All documentation has been submitted for full accreditation, and the required Residency Review Committee site visit occurred in December 1997.
- The program recruits four residents each year; it had its full complement of 12 residents in July 1997. By July 1999 the program will expand to six residents each year.
- First-year training sites are part of the department's Affiliated Community Hospitals Residency Training Program in the Twin Cities.
 - * The year consists of intensive experience in the basic disciplines of internal medicine, obstetrics, pediatrics (including neonatology), emergency medicine, surgery, gynecology, and neurology.
 - * During this year residents make several visits to the rural site in Waseca and the regional site in Mankato for orientation to the communities and an opportunity to begin establishing relationships with medical professionals in the area.
- The second and third years of training are spent in Waseca, a rural community of 8,000 people (14,500 in the primary care area) located 75 miles southwest of Minneapolis-St. Paul, and in Mankato, a community of approximately 42,000 which is the regional medical center serving south central Minnesota. Mankato is located 25 miles west of Waseca. The Mankato and Waseca facilities are now part of the Mayo Health System. Mayo executives are very supportive of this rural residency and view it as an important asset to the healthcare system in rural Minnesota. A new clinical facility planned for Waseca will be designed to meet the space and other requirements of this rural family practice residency program.
 - * In addition to the prescribed number of half-days in the family practice center while on other rotations, residents spend 2 months in the second year and 3 months in the third year full-time at Waseca Family Physicians.
 - * Integration into the community is most intense during this period. Practice management, community medicine, geriatrics and rural emergency medicine are taught during this period of time.
 - * Specialty rotations in orthopedics, surgery, obstetrics, internal medicine (with emphasis on critical care and gastroenterology), and ambulatory pediatrics occur at the regional site in Mankato.
 - * Approximately 70 physicians, generalists and specialists, from the Waseca-Mankato area are involved in this program as coordinators of clinical rotations and community-based preceptors.
- By July 1999 the first year of training will take place in Waseca and Mankato.
- All four June 1997 graduates of the first rural residency class located their practices in rural communities. Three practice in rural Minnesota, and one in rural Michigan.
- Medical student rotations are being developed within the Rural Residency Program.

B. Duluth Family Practice Residency Accomplishments

- The program is expanding from 27 to 36 residents and is now at 30.
- To date, 115 of the 173 Duluth Family Practice Residency graduates are practicing in Minnesota; 105 of these practicing outside the Twin Cities, and 55% in towns of less than 25,000.
- Remodeling of the Duluth Family Practice Residency clinic will begin shortly and allow for the expanded number of residents and increased patient visits.
- Demand for this program is great, with applications for the class beginning in 1998 already ahead of last years pace. There were 110 applicants applying for the 10 first year positions beginning in 1997.

- MinnesotaCare funds have been "leveraged" with additional support from the Blue Cross/Blue Shield Foundation, St. Mary's Medical Center, St. Luke's Hospital, and donations from community faculty and alumni.

C. General Internal Medicine Residency

- Primary care continuity clinics provide residents an opportunity to manage the health care of a panel of patients throughout the 3-year training program. Clinic sites have been expanded to include HealthPartners and the Community University Health Care Clinic, which complement existing clinics at Regions Medical Center, the VA Medical Center, and the Fairview-University Medical Center.
 - * Continuity clinics have been developed at HealthPartners for all residents in the primary care tract. The initial response to these clinics has been outstanding, and all residents look to expand their involvement in these continuity clinics in an attempt to improve those skills necessary for a primary care practice.
 - * Community University Health Care Clinic remains an integral component of the outpatient continuity clinics and provides care to an underserved metropolitan patient population.
 - * An integrated didactic lecture series has been continued for all continuity clinic attendees and will utilize faculty from each of the continuity clinic practice sites.
- HMO ambulatory clinic electives for Medicine residents have been developed at three managed care community sites: Aspen, Park Nicollet Medical Center, and HealthPartners. Curriculum includes cost-effective medical care, managed care principles, medical economics, bioethics, and continuous quality improvement processes are covered. An inpatient managed care service has been developed at Regions Hospital, and a PEW grant is applied for to support this effort.
- Rural ambulatory rotations continue to be extremely popular with residents in Red Wing, Crosby, Willmar, Fergus Falls, and Hibbing.
- Since 1993 the proportion of Medicine resident graduates entering primary care practice has steadily increased, from 42% in 1993 to 60% in 1997; 5 of these graduates located in rural settings.
- Computer-based resident evaluation programs have been developed, allowing direct feedback to improve primary care training. This has allowed more accurate evaluation of teaching efforts and a quality improvement effort is based on this system.
- An ambulatory skills rotation is now in place for all second year Medicine residents and a skills program through ER medicine, designed to give M.D.'s the skills needed in rural practice, has been elected by many residents
- All first year residents now complete an ambulatory block rotation including geriatrics and adolescent medicine.
- Internal grants have led to improved teaching of geriatrics in community settings, HIV primary care delivery, resident interviewing skills, smoking cessation programs, and women's health initiatives. An new set of proposals for primary care initiatives are now under review.
- Support of Academic General Medicine Fellowship activities has continued in order to educate future general medicine educators and researchers.
- A women's health initiative for primary care training has been developed utilizing established women's health clinics. This program includes experiences in critical issues of women's health including breast cancer screening, management of post-menopausal estrogen replacement, evaluation and management of osteoporosis and cardiovascular disease. Three residents have entered this pathway.
- Continuing Medical Education broadcasts Medical Grand Rounds to Waseca and Staples. The program is devoted to enhancing the primary care skills of practicing physicians in Minnesota.

- Residents are videotaped or observed interviewing patients in continuity clinic to enhance physical diagnosis skills and heighten awareness of psychosocial issues. Faculty development workshops on teaching in the ambulatory setting and on feedback have improved these efforts.
- The Medicine department has partnered with the State Health Department for a teaching/faculty development program for breast examination. A seminar/practicum will prepare faculty to teach this important exam to residents and students.
- A structured comprehensive clinical exam was given to all interns, providing valuable program evaluation data.

D. General Pediatrics Residency

- Pediatric residents now have a required 1-month rotation in a rural or underserved urban clinic. Rural pediatric experiences are available in Red Wing, Virginia, Willmar, Fergus Falls, Hibbing, Brainerd, Cambridge, Alexandria, Buffalo, and Mankato. Urban opportunities include community clinics, Head Start, a temporary foster care facility, and nine Hennepin County Homeless Assistance Project sites.
- Since 1993, 95 (66%) of the 144 pediatric resident graduates have entered primary care practices, up from 59% of 126 graduates during the 5 years prior to MinnesotaCare support. Six of the recent graduates have located in rural Minnesota.
- A Primary Care Clinic network including more than 40 Twin Cities pediatric practices has been established where pediatric residents now spend 1/2 day each week managing a panel of patients for 3 years.
- Required components of the new curriculum include rotations in emergency medicine, developmental disabilities, adolescent health, domestic violence, managed care, and others.
- Curriculum revisions implemented since July 1992 with MinnesotaCare support have increased resident outpatient clinic education time by 400%; today 60% of a pediatric resident's education occurs in ambulatory settings, with an emphasis on the acquisition of primary care skills.
- A new 2-month Primary Care Fundamentals course imparts residents with skills in detecting and treating child abuse and neglect, nutrition and lactation, developmental assessment, evidenced-based medicine, cost-effective pediatrics in a managed care environment, continuous quality improvement among other ambulatory skills.
- Expanded inpatient experiences at Minneapolis Children's Hospital, St. Paul Children's Hospital, and the Fairview-University Medical Center emphasize primary care pediatrics and teach residents how to integrate primary and subspecialty care. Most patients have illnesses pediatricians encounter often in practice.
- Enhanced behavioral pediatrics training was added in 1993. This required first-year resident rotation teaches residents creative ways to find organic, emotional, and social causes of childhood behavior problems.
- Resident development seminars, initiated in July 1992, include a series of seminars, workshops and symposia designed to provide residents experiences in leadership, cultural diversity, professional boundaries, clinical teaching, practice management, conflict resolution, and career planning.
- A mini-grant program to develop new primary care teaching curricula has included adolescent interviewing and assessment, childhood growth and development, strengthening physician-patient relationships, serving the needs of adolescents and young adults with disabilities and chronic illnesses, pediatric sports medicine, and acute pediatric care. A variety of teaching techniques such as videotapes, role playing by actors, lectures and case based discussion groups have been used.

E. Medicine-Pediatrics Residency Program

- This 4-year program combines the Medicine and Pediatric residencies. It provides in-depth primary care education that crosses traditional boundaries of adult and child care.

- Since the first graduating class in 1993, 16 (59%) of the 27 Medicine-Pediatric graduates have entered primary care practices, 1 in Red Lake, Minnesota.
- Integrated Pediatrics and Medicine resident training occurs at Regions' Hospital, which provides an opportunity to teach integrated pediatric and general medical health care in a primary care setting.
- As in the General Pediatrics Residency Program, Medicine-Pediatrics residents also train in a 1-month rural or underserved urban clinic rotation, have curriculum with required components in emergency medicine, developmental disabilities, adolescent health, domestic violence, and managed care; have a 2-month Primary Care Fundamentals course, behavioral pediatric training, and resident development seminars.

F. Obstetrics/Gynecology Residency Program

- Since 1993, 31 residents have graduated from the program. Of these, 29 practice primary Ob/Gyn care, 17 in Minnesota, 3 of whom entered primary care practice in rural Minnesota.
- Five Ob/Gyn residents have completed rural Minnesota rotations in Chisago, Mankato, Northfield, and Waconia, with 3 more residents planning rural rotations for the current academic year.
- Continuity clinics emphasize adolescent care, especially in under-served communities.
- Women's mental health curriculum was developed to include specific educational rotations for residents in women's quality of life and coping mechanisms.

G. Emergency Medicine

- Comprehensive advanced life support courses for physicians planned in 1997-98 to be held in Hutchinson, Chisago, and Princeton.
- 34 residents in primary care specialties (Family Practice, Internal Medicine, and Pediatrics) will participate in skilled lab experiences related to emergency medicine during 1997-98.

V. MEDICAL STUDENT EDUCATION ACCOMPLISHMENTS

A. Medical School Graduates Enter Primary Care

In 1997, 62% of graduates entered one of the primary care fields, and a record number (35% of 223 graduating) entered the field of family practice. In 1997, nearly 60% of our graduates remained in the State of Minnesota for residency training.

B. Primary Care Task Force

A working group of key Medical School faculty completed an in-depth review and discussion of the entire undergraduate curriculum, focusing on primary care competencies which are being taught to our graduates. As a result of these discussions, six working groups were formed, charged with the responsibility to review, in detail, teaching in specific areas. The groups are developing proposals for curriculum change in the following six areas:

- Communication skills and patient relationships
- Ethical considerations in practice
- Knowledge of managed care organizations
- Preventive medicine and health promotion/wellness
- Evidence based epidemiological sound medical practice
- Interdisciplinary team practices

C. Clinical Medicine Courses

MinnesotaCare legislation stated, *"The Medical School is requested to ensure that its curriculum provides students with early exposure to primary care physicians and primary care practice. The Medical School is requested to also support premedical school educational initiatives that provide students with greater exposure to primary care physicians and practices."*

- Primary care experiences have been integrated into the existing Clinical Medicine (CM) curriculum.
 - * The Year One clinical medicine curriculum (CMS) was changed in 1993, to include primary care clinical experiences for all students beginning in the first academic quarter. CMS now focuses on medical ethics and professionalism, cultural diversity, environmental and occupational medicine, patient communication and medical interviewing skills, and physical examination skills. It is taught in primary care skills tutorials, primary care community preceptorships, and a series of lectures.
- Changes which have been effectively implemented, positively evaluated by students and faculty, and expanded, include:
 - * Beginning CMS in the Fall quarter, rather than the Spring quarter at the end of the first year.
 - * Addition of biomedical ethics content, taught in small group tutorials and lectures.
 - * Addition of environmental medicine content, taught in small group tutorials and community site visits.
 - * Addition of content addressing the health needs of racially and culturally diverse populations, taught in large group sessions, urban community site visits, and small group discussions.
 - * Addition of content on professional responsibilities, taught in small group tutorials, using short stories, poems, and essays, to explore the experiences of patients and the image of physicians (new in 1997)
 - * Enhanced instruction in communication and interviewing skills, through videotape review of interviews
 - * Assignment of students to community preceptors, who serve as primary care role models, and teach students to integrate the basic sciences they are learning with clinical practice
 - * Clinical Medicine II, taught in small tutorials in the fall of Year Two, provides students with experience in learning examination skills with patients. Given the decline in numbers, and increased acuity of illness, of hospitalized patients, resources have been strained for providing effective instruction in basic examination skills. An alternate approach - using a defined panel of "trained patients" from the community, who agreed to be seen at a clinic visit for the purpose of a "general examination" - was effectively implemented in 1996 and substantially expanded in 1997.
 - * In Clinical Medicine III, students enhance their examination skills, and begin to learn differential diagnosis and preventive medicine and screening, rotating in 4 6-week blocks, a day a week, in Family Medicine, Internal Medicine, Neurology, and Pediatrics.
 - * Formerly hospital-based, this course has been largely shifted in Family Medicine, Pediatrics, and Neurology to ambulatory community sites.
 - * The schedule of 2 half-days a week was changed to provide a day-long clinic experience each week. The new schedule, which emphasizes greater continuity of clinical experience and opportunities for students to experience a day in the life of a primary care physician, is designed to support more positive attitudes toward generalist careers in primary care medicine, which comprise the major portion of this course.
 - * Clinical Medicine IV (Primary Care Medicine) has as its main themes primary care medicine, common clinical problems, and preventive medicine.

- * Clinical Medicine IV, formerly a 6-week course in ambulatory medicine, was extensively revised in 1996. Significant changes include: requiring 8 rather than 6 weeks, to increase students' exposure to primary care; emphasizing primary care, in addition to ambulatory care; requiring all students to have a 4-week block in family practice and a 4-week block in one other primary care discipline (pediatrics, internal medicine, or geriatrics), to provide cross-disciplinary perspectives on primary care; and scheduling the clerkship in the 3rd rather than the 4th year, to provide earlier exposure to primary care.
- * The seminar and workshop series has been extensively revised to emphasize common primary care problems, focused interviewing skills, preventive medicine, clinical epidemiology, ethics issues, and coordination of comprehensive care for patients.
- * Project requirements have been added, for each 4-week clinical block. Students may choose to do a case-based paper with an evidence-based review of the literature or a community education project, or a clinic patient education project. These projects are designed to provide experience with essential aspects of primary care, evidence-based medicine and patient/community education.
- * Over 50 new preceptors have been successfully recruited to provide the additional clinical experience needed for this expanded course.
- The **Urban Community Ambulatory Medicine** rotation was added in 1996 as an alternative format for taking Clinical Medicine IV, and expanded in 1997. This rotation provides students a 16-week experience in urban clinics serving underserved populations (e.g., Family Medical Center, Hennepin County Medical Center, United Family Health Care Center, Riverside Medical Center, Bloomington Lake Clinic, West Side Clinic). It provides for immersion in urban health care, with opportunities to learn how to access local community resources to enhance patient care, to work with translators and/or learn the basics of a foreign language, and to work directly with community groups to develop preventive and health assistance strategies.
- Faculty development for community preceptors. More than 200 community preceptors are involved in teaching the CMS-IV courses, many for the first time during the past three years. A number of communication and faculty development approaches have been implemented, including:
 - * A monthly newsletter containing curriculum perspectives and teaching tips
 - * Written guidelines
 - * An instructional videotape, sent to all CMS community preceptors
 - * A series of faculty development seminars on teaching skills
 - * Future initiatives include development of an end of CMS-IV standardized clinical performance examination (Objective Structured Clinical Examination-ONCE) to provide an end-of Clinical Medicine sequence evaluation of knowledge and skills related to common primary care problems, focused examination skills, preventive medicine, screening and patient education.

D. Preventive Medicine Curriculum Initiatives

- Preventive medicine initiatives in the medical student curriculum continue to be developed and strengthened longitudinally for all four years. One of the primary goals of these initiatives is for graduating medical students to have acquired attitudes, knowledge, and skills that improve their ability to provide appropriate preventive services and promote health among individual patients and in populations.
- An emphasis is placed on the role of the primary care physician in the delivery of preventive services to improve quality of medical care as well as addressing cost containment.

- These initiatives will be linked with graduate education curricula and post-graduate offerings in continuing medical education. A review of the curriculum by the Primary Care Committee in 1997 has identified additional areas to strengthen these initiatives. A working group will review these ideas and make recommendations for implementation for the 1998-1999 academic year.
- Clinical Medicine I includes didactic content in the first year regarding assessment of patient risk factors for diseases and injury through comprehensive medical history taking.
- **Human Behavior** is a required 28-hour course presented in the spring of the first year which introduces medical students to human behavior and health behavior change. The course continues to be more closely linked to the Foundations of Preventive Medicine course reinforcing the importance of health behavioral change as a fundamental component of disease prevention and health promotion.
- **Foundations of Preventive Medicine** is a required 15-hour course presented at the end of the first year with an emphasis on epidemiology, epidemiologic research design, biostatistics, critical thinking and analysis of the medical literature, and current strategies in clinical preventive medicine and public health.
- Clinical Medicine III in the second year includes a specific **risk factor assessment** module in the Family Practice rotation. Medical students are encouraged to use risk factor assessment strategies learned in the first year to assess patients and complete write-ups. Medical students work with preceptors in community clinics and managed care clinics where they are exposed to preventive services delivery systems.
- Pathophysiology is a required organ-system based course in the second year which includes lectures and small group case discussions. Two of course directors have included preventive medicine implications of common disease processes in either lectures or small group case discussions, e.g., iron deficiency anemia prevention in hematology, atherosclerosis prevention in cardiology.
- Clinical epidemiology and the prevention of disease and injury is an emphasis in the **Clinical Medicine IV** course. Seminars and workshops address such topics as smoking cessation, alcoholism and chemical dependency, child abuse and neglect, clinical nutrition, exercise prescription, cancer screening, and immunizations.
- **New preventive medicine initiatives planned for the 1998-1999 academic year**

Foundations of Preventive Medicine: Move the course to an earlier period in the first year to expose medical students to concepts of disease prevention and health promotion, epidemiology, public health, critical thinking, evidence-based medicine, and analysis of the medical literature early in the curriculum. Expand the course to include computer assisted instruction, computer-based literature searching on preventive topics, electronic communication, and an overview of computer systems to enhance the delivery of preventive services, e.g., computer assisted physician reminders, patient tracking, and patient education.

Clinical Medicine I: Increase the content of clinical assessment of risk factors for common diseases in the history and physical examination through enhancement of current tutorial content, goals, and objectives.

Pathophysiology: Development of at least one case for each organ system which incorporates clinical epidemiology and risk factor assessment related to a common pathologic process, disease, or condition based on models already used in hematology and cardiology.

Clinical Medicine I: Expand the use of age-specific periodic health examination cards from the *Guide to Clinical Preventive Services: Report of the U.S. Preventive Services Task Force (1996)* presented to medical students in the Foundations of Preventive Medicine course in the first year to include patient assessment and write-ups in all four rotations in Clinical Medicine III: Family Practice, Medicine, Pediatrics, and Neurology.

Clinical Medicine IV: Continue to improve delivery of clinical epidemiology and preventive medicine content in seminars and workshops. Reinforce risk factor assessment and management of patients in clinic settings and expand medical student clinical logs to include preventive services addressed.

Other clinical rotations: Introduce "Preventive Medicine Rounds" as bedside or ambulatory patient care rounds and discussions regarding preventive medicine issues related to selected patients. Promote "Preventive Medicine Grand Rounds" as a didactic medical student focused case presentation and discussion of relevant patient care components and current preventive strategies and content.

Graduate medical education: Develop strategies to link the undergraduate preventive medicine curriculum content with the curricula of the Family Practice, Medicine, Pediatrics, Med-Peds, and OB-GYN graduate education programs. Begin with an assessment of current graduate education content and make recommendations for the coordination with undergraduate curriculum and the enhancement of graduate education in clinical epidemiology, clinical preventive medicine, and preventive services delivery systems implementation and evaluation.

E. Duluth Medical School

- The Duluth Medical School has continued to enhance its curriculum for training future rural family physicians through third and fourth year medical student rotations in Duluth and surrounding rural communities. Goals and objectives of these rotations are defined by objectives of the departments on the Twin Cities Medical School campus.
- Since 1994, 111 students have taken 180 rotations (figures include students who began rotations in December, 1997, but finished in 1998). The numbers of students participating in Duluth site rotations as well as the numbers of these rotations have increased every year. Most recently, the 1997-98 academic year rotations number 69 (taken or reserved), which is a 33% increase over the 52 rotations held by students in 1996-97 and amount to 38% of the total Duluth Site rotations in which students participated since the beginning of the Clerkship Program.

F. Primary Care Women's Health Initiatives in Obstetrics / Gynecology

- MinnesotaCare funds were allocated in 1997-98 for enhancing the Women's Health Curriculum for medical students.
- Enhancement in adolescent health training has occurred with continuity clinics developed at CUHCC and Hennepin County Medical Center. Work with high school adolescents has begun.
- Added cases and enhancement in the Problem-Based Learning opportunities for medical students and added primary care physician mentors has increased the student ratings for this program.
- Additional medical student community-based preceptorship opportunities were established at North Memorial Campus, Mercy and Unity Hospital sites, and private physician offices.

VI. CONTINUING MEDICAL EDUCATION ACTIVITIES

MinnesotaCare legislation stated: *"The [University of Minnesota] medical school is requested to develop continuing medical education programs for primary care physicians that are comprehensive, community-based, and accessible to primary care physicians in all areas of the state."*

- 26 of the 53 major courses offered by the Office of Continuing Medical Education (OCME) at the University of Minnesota during 1997 were designed to meet the needs of primary care physicians in Minnesota. Primary among these were the Family Practice Review, the Internal Medicine Review, Topics and Advances in Pediatrics, the Annual Autumn Seminar in Obstetrics and Gynecology, Controversies in Critical Care, and Emerging Infectious Diseases.

- 44 of the 53 courses offered in 1997 were conducted in the Twin Cities. Of the approximately 4,100 Minnesota physicians who attended these programs, 45 percent were from outside the metropolitan area.
- Every week University faculty travel to rural communities affiliated with the Rural Physician Associate Program (RPAP) spending the day with third-year medical students and their physician preceptors in educational activities. Since 1974 (the first year of electronic record) there have been 2,690 faculty visits to greater Minnesota associated with RPAP; 43 of these visits occurred in 1997.
- Most programs presented in greater Minnesota are coordinated through the Medical Outreach Office of the University of Minnesota Health System, which works in cooperation with the OCME.
- The Director of the OCME, the largest CME office in the five-state area, is a resource to other CME programs throughout the state. He meets regularly with CME committees at other hospitals and responds to many phone inquiries. The OCME also jointly sponsors many programs with state medical organizations.
- General Ob/Gyn physicians continue to provide CME to rural physicians on hormone replacement therapy, osteoporosis and bone density management, heart disease update, and other topics. An increasing number of lay group requests for update on women's health issues are being received.
- During 1997 the OCME continued to use the computerized Upper Midwest Health Care System, which links clinics and physicians throughout Minnesota. It has used this system to poll the needs of Minnesota physicians and to use their ideas in developing new courses. Currently the OCME is developing a series of week-long intensive programs to enable individual physicians to update skills in specific areas. 1997 saw a significant increase in monographs and on-line CME activities developed to extend opportunities to physicians practicing in rural areas.

VII. INCREASED APPROPRIATION INITIATIVES FOR FY98

The 1997 MinnesotaCare statute increased funding to the Primary Care Training Initiative \$180,000 for FY98 and \$180,000 for FY99 which has been matched by the University of Minnesota Medical School. This \$360,000 per year is being used to expand and initiate the activities necessary to meet the primary care training goals. Many of these programs integrate the primary care departments of Family Practice, Medicine, Obstetrics and Gynecology, and Pediatrics. The following are now being implemented:

A. Rural Education Expansion

- Increased rural ambulatory 1-month electives for supervisory residents in Family Practice, Medicine, and Ob/Gyn.
- Added a new one-week rotation for first-year Pediatric residents in rural Minnesota.
- Provided e-mail and Internet access for residents on rural rotations.
- Adding a family support program for residents on rural rotations.
- Enhanced reimbursement for travel, housing, and preceptors
- Expanding rural CME activities in Pediatrics, Medicine, Ob/Gyn, and Emergency Medicine.

B. Managed Care Curriculum Expansion

- The Academic Health Center has directed a task force, composed of representatives from the AHC and community to identify new skills needed to deliver services in a managed care environment and facilitate the development of a new curriculum for medical students and residents.
- Enhanced training in this area includes:
 - * System-based practices where residents experience managed health care
 - * Information systems analysis of resource utilization and quality improvement

- * Integrating managed care curriculum into all existing programs
- * Integrating evidence-based medicine in all aspects of the new curriculum
- Managed care curriculum development has provided a forum for interdisciplinary activities. Trial primary care resident programs supported by this initiative have defined some effective educational interventions. Examples of these initiatives include the following:
 - * Internal Medicine Residency: A core curriculum has been developed and implemented that is patient-based and interactive. Patient care problems are solved through effective identification and analysis of current evidence. These cases deal with care not only by individual physicians, but also by systems. Fundamental issues in managed care are addressed, especially in teaching residents how to distinguish between needed and wasted diagnostic and therapeutic interventions.

Integral to this curriculum is use of information systems. An Internet Web site has been established for use in several ways: (1) to get timely feedback from residents regarding their educational needs; (2) to evaluate the effectiveness of curricular innovations; and (3) to disseminate knowledge to residents at distant sites, as rural locations become more widely used for training.
 - * Pediatrics Residency: Managed care workshops for Pediatric and Medicine/Pediatric residents have been developed and implemented during a 2-month Primary Care Fundamentals block in the first year of training. Information systems are being integrated with the Medicine Residency.
 - * Family Practice Residency: An intensive workshop has been delivered by Dr. Ken Kephart dealing with a variety of issues in managed care, especially focusing on care coordination, quality improvement, practice guidelines, and ethical issues.

C. Medical School Women's Health Initiative

- An elective for medical students in Women's Health emphasizing issues of psychosocial, reproductive, cardiovascular and metabolic problems of women.
- Providing students with clinical experience and academic perspectives in comprehensive health care for women, consistent with national mandates for a new paradigm in women's health care.
- Conducted at multiple clinical sites, with an interdisciplinary core faculty from the departments of Family Practice, Internal Medicine, Gynecology, Psychiatry, and Psychology with selected faculty from other disciplines.

D. Adolescent Interviewing Initiative

This training program will use adults and adolescents as actors to play scripted clinical scenario to teach Pediatric, Internal Medicine, and Family Practice (on elective) residents interviewing skills with adolescents.

E. Primary Care Skills Preparation Laboratory for Primary Care Residents

- A laboratory has been established that affords primary care residents an opportunity to learn and practice life saving techniques they would otherwise have no opportunity to actually perform.
- The laboratory can simulate most emergencies. The residents can actually see the pathophysiology of various critical conditions and the results of their hands on treatment.
- Rural practice is a daunting prospect for residents who have not had an opportunity to practice the emergency skills expected of them. This lab greatly increases the confidence level of primary care residents considering rural practice.

VIII. PRIMARY CARE PHYSICIAN TRAINING INITIATIVE BUDGET, FY98**Rural Primary Care Residency Expansion**

Waseca/Mankato Rural Family Practice Residency	\$449,365
Duluth Family Practice Residency	89,151
Other Primary Care Residency Rural Expansion	87,000

Primary Care Residency Programs

Interdepartmental Initiatives	690,805
General Internal Medicine	105,483
General Pediatrics	794,932
Combined Medicine/Pediatrics	92,519

Medical Student Programs

Twin Cities Campus	268,033
Duluth Campus	115,286

Administration 24,426

Total Budget **\$2,717,000**

REVENUE

Legislative Appropriation 2,537,000

Medical School Match 180,000

Total Revenue **\$2,717,000**

Appendix I

University of Minnesota Medical School	
MinnesotaCare Primary Care Physician Training Budget	
FY98	
RURAL FAMILY PRACTICE RESIDENCY	
Prior Year Encumbrances	-
Waseka/Mankato	449,365
Interdepartmental Programs (shown above)	
Rural Residency Expansion	33,000
Managed Care Curriculum	31,000
Systems-Based Curriculum	3,000
Women's Health Initiative	7,500
Subtotal Interdepartmental Programs	74,500
Total Budget Family Practice Programs	523,865
less prior year carry-forward: non-interdepartmental programs	-
interdepartmental programs	4,800
Current Year Allocation	528,665
MEDICINE GENERALIST RESIDENCY INITIATIVES	
Prior Year Encumbrances	-
Managed Care Electives	10,000
Rural Elective	8,835
Resident Recruitment	22,080
Longitudinal Clinic	26,972
Residency Management	35,415
General Medicine Fellowship	1,000
Medical Education Informatics	29,418
Internal Medicine RPAP / UPAP Site Development	14,459
Physician Management Initiative	10,000
Interdepartmental Programs (shown above)	
Rural Resident Expansion	21,240
Managed Care Curriculum	67,250
Systems-Based Curriculum	82,020
Women's Health Initiative: Student	7,500
Women's Health Initiative: Resident	11,421
Faculty Development & Evaluation	3,565
Primary Care Genetics	7,921
Resident / Program Evaluation	31,382
Generalist Grants	36,396
Adolescent Medicine	17,678
Med / Peds Residency	58,819
Subtotal Interdepartmental Programs	345,192
Total Internal Medicine Programs	503,371
less prior year carry-forward: non-interdepartmental programs	(52,696)
interdepartmental programs	(68,990)
Current Year Allocation	381,685
PEDIATRIC GENERALIST RESIDENCY INITIATIVES	
Prior Year Encumbrances	86,197
Rural Rotation	60,628
Underserved Urban Clinics	14,859
Hennepin County Ambulatory Clinics	9,690
Emergency Medicine	149,101
Primary Care Network	56,650
Inpatient Primary Care	16,577
Children with Disabilities	12,264
Behavioral Pediatrics	115,740
Primary Care Fundamentals	147,081
Resident Career Development	30,233
Residency Management	134,002
Resident Recruitment	48,107
Interdepartmental Programs (shown above)	
Rural Resident Expansion	56,500
Managed Care Curriculum	31,000
Systems-Based Curriculum	42,467
Women's Health Initiative: Student	2,000
Primary Care Genetics / Endocrinology	83,345
Resident / Program Evaluation	31,702
Generalist Grants	30,743
Adolescent Medicine	145,643
Adolescent Interview Training	44,000
Med / Peds Residency	33,700
Subtotal Interdepartmental Programs	501,100
Total Pediatric Programs	1,382,229
less prior year carry-forward: non-interdepartmental programs	(86,197)
interdepartmental programs	(45,254)
Current Year Allocation	1,250,778
OB/GYN GENERALIST RESIDENCY INITIATIVES	
Prior Year Encumbrances	
Interdepartmental Programs (shown above)	
Rural Resident Expansion	12,750
Women's Health Initiative: Student	55,159
Subtotal Interdepartmental Programs	67,909
Total Ob/Gyn Programs	67,909
less prior year carry-forward: non-interdepartmental programs	-
interdepartmental programs	(15,773)
Current Year Allocation	52,136

University of Minnesota Medical School	
MinnesotaCare Primary Care Physician Training Budget	
FY98	
PSYCHIATRY GENERALIST RESIDENCY INITIATIVES	
Prior Year Encumbrances	-
Interdepartmental Programs (shown above)	
Women's Health Initiative: Student	4,000
Subtotal Interdepartmental Programs	4,000
Total Psychiatry Programs	4,000
less prior year carry-forward: non-interdepartmental programs	-
interdepartmental programs	-
Current Year Allocation	4,000
EMERGENCY MEDICINE GENERALIST RESIDENCY INITIATIVES	
Prior Year Encumbrances	-
Rural Resident Expansion	4,085
Primary Care Skills Laboratory	700
Subtotal Interdepartmental Programs	4,785
Total Emergency Medicine Programs	4,785
less prior year carry-forward: non-interdepartmental programs	-
interdepartmental programs	(1,945)
Current Year Allocation	2,840
MEDICAL STUDENT CURRICULUM AFFAIRS - TWIN CITIES	
Prior Year Encumbrances	40,600
Clinical Medicine I/II	
Medicine	12,280
Physiology	6,345
Pediatrics	512
Family Practice - Twin Cities	55,153
Medical School Curriculum	43,097
Subtotal	117,386
Clinical Medicine III	
Ob/Gyn Problem-Based Learning	28,257
Medical School Curriculum	31,503
Subtotal	59,760
Clinical Medicine IV	
Medicine	27,421
Pediatrics	15,942
Family Practice - Twin Cities	34,920
Medical School Curriculum	23,150
Subtotal	101,433
Clinical Preceptors	
Pediatrics	40,933
Ob/Gyn	10,233
Subtotal	51,167
Interdepartmental: Managed Care Curriculum	-
TOTAL TWIN CITIES CURRICULUM AFFAIRS	370,347
less prior year carry-forward: non-interdepartmental programs	(83,164)
interdepartmental programs	(19,150)
Current Year Allocation	268,033
ADMINISTRATION - OVERALL PROGRAM	
Prior Year Encumbrances	-
Pediatrics	27,413
Medical School Administration	8,633
Dean's Commitment Funds	-
TOTAL ADMINISTRATION	36,046
less prior year carry-forward	(11,620)
Current Year Allocation	24,426
UNIV. OF MN DULUTH MEDICAL SCHOOL	
Prior Year Encumbrances	-
Duluth Family Practice Residency	67,566
Interdepartmental Programs (shown above)	
Rural Resident Expansion	26,500
Medical Student Education	115,286
TOTAL UM DULUTH	209,352
less prior year carry-forward: non-interdepartmental programs	-
interdepartmental programs	(4,915)
Current Year Allocation	204,437
TOTAL COSTS	3,101,904
Less Prior Year Carry-Forward	(384,904)
TOTAL BUDGET	2,717,000
REVENUE	
Base State Appropriation	2,537,000
Medical School Match - Dean's Funds	180,000
TOTAL REVENUE	2,717,000

Appendix II

PREDICTORS OF PRIMARY CARE CAREER CHOICE

MinnesotaCare legislation stated, "*The University of Minnesota medical school is requested to study the demographic characteristics of students that are associated with a primary care career choice. The medical school is requested to modify the selection process for medical students based on the results of this study, in order to increase the number of medical school graduates choosing careers in primary care.*"

- This study, completed in December 1995 and reported in the 1995 Annual Report, examined demographic factors that predict the primary care career choice of medical students entering the University of Minnesota Medical Schools in the Twin Cities and Duluth.
- The study found that **few** demographic, educational performance and application factors knowable at the time of medical school application predict career choice.
- **Only 6% of career choice variability can be predicted**, and only three factors were associated with primary care career choice:
 - Being **female**,
 - Being a **college science major**, and
 - Attending high school in a **small town**.
- **Career choice was strongly related to educational experience of medical students.**
 - Primary care was chosen by:
 - 17% of students attending the Twin Cities medical school campus for all 4 years, and
 - 78% of those matriculating in Duluth, finishing the third and fourth year in the Twin Cities, and exercising the RPAP option in the third year.
 - After controlling for sociodemographic characteristics and high school town size, some of the differences in career choice appear to be related to a **student's predisposition toward primary care**, as measured by whether they applied to the Duluth or Twin Cities campus.
 - 93% of those choosing family practice residencies at graduation actually entered family practice.
 - 42% of those choosing internal medicine residencies entered general medicine practice.
 - 68% of those choosing pediatric residencies entered general pediatric practice.