

North Dakota Health Care

The Rural Crisis

I. Introduction

"One of the key challenges facing those who craft health policy is to ensure that people who live in rural America have access to medical care"¹

Many rural Americans have limited access to health care although rural populations are 'older, poorer, sicker, less educated and perceived as having a lower level of health than urban populations'.² The problem stems from two characteristics of American health care; the large number of Americans without health insurance, and the tendency of physicians to practice in urban and suburban areas.²

At the beginning of this century, more than 20% of the United States population resided in rural communities, with 59 million people living in areas with fewer than 2,500 people per town unit.³ In 2007, the United States Department of Agriculture listed North Dakota's population as being just over 50% rural with 331,908 of its 639,715 residents living in such areas. However, while 20% of Americans live in rural areas, only 9% of physicians practice there.³

Canada faces a similar situation. 31.6% of Canadians reside in communities of less than 10,000 yet only 18.6% of family physicians and 3.8% of specialists work in these rural areas.⁴

Several studies have been conducted on the many factors that affect an aspiring physician's choice of medical school, specialty, residency training program, and finally, choice of practice location. Despite the complexities of such studies, the conclusions have been remarkably similar and indicate how the problems of health care in rural areas might be addressed.

This paper recommends a model for the state of North Dakota, which will address the recruitment of medical school candidates likely to pursue primary care practice, suggest which medical school admissions policies and programs, if endorsed by the state, would likely yield rural primary care physicians based on the success of existing national programs, describe those educational programs that encourage rural primary care throughout medical school, and finally indicate which programs and policies will increase retention of rural primary care physicians for an extended period beyond residency. Furthermore, it will indicate how accountability for pursuing an aggressive rural agenda might be achieved.

II. The Identification Process

Recruiting at the High School Level

Identifying future candidates for rural primary care begins with recognizing young rural high school students who are qualified for, and express interest in, medical school. However, it should be remembered that many of those students will come from backgrounds of less affluence and opportunity, some will come from families without a member with college education, and a majority may never have considered that success in a biomedical career might be personally attainable. In 2007, a pilot program, Mission Physician, sought to identify high school students in rural areas whose characteristics seem to

match those of a potential future family physician. It was launched on the premise that medical schools that selectively recruit from rural areas have been shown to have a higher percentage of graduates who enter rural practice.⁵ Furthermore, the intuition that students of rural origin are more likely to choose primary care and rural practice as a career has been amply supported by other published studies⁶ while locally, a study conducted at the University of North Dakota School of Medicine and Health Sciences (UNDSMHS), also concluded that students from rural areas were more likely than urban students to practice in rural North Dakota communities.⁷ The importance of these findings is heightened by evidence that primary care physicians, by far, make up the majority of physicians currently practicing in rural communities.⁷

A model program for identifying qualified candidates is the Physician Shortage Area Program (PSAP) at Jefferson Medical College (JMC), Philadelphia's premier medical and health sciences university. Rabinowitz's 2001 study traced 3,414 graduates from JMC including 220 who were enrolled in 'PSAP', to identify factors likely to yield a greater supply of family physicians. This study demonstrated that developing strategies to increase the selection of medical school applicants of rural background with plans to practice family medicine would produce the greatest impact.⁸ Certain characteristics predictive of whether or not a student would choose primary care and would be likely to remain in primary care were identified. These included: growing up in a rural area, planning for family practice during medical school freshmen year, becoming a PSAP member, having a National Health Service Corps (NHSC) scholarship, male gender, and selecting a family practice 'elective' during senior medical school year. But, of those variables, only the first two were independently predictive. The study was conclusive in its findings that medical schools and policy makers should select and recruit candidates from rural areas for medical school, and furthermore create programs and other curricular experiences likely to increase the number of medical school matriculants destined for rural practice.⁹

As the PSAP program does with student recruitment, so 'Mission Physician' – a North Dakota pilot program – attempts to interest rural high school students, who have been identified by their counselors and/or head teachers, in the biomedical sciences and then expose them to its clinical divisions in depth through summer camps, providing education on medical topics with links to the basic sciences. In addition, the program keeps track of potential medical students and their experiences in a program database. The database also tracks each student's experiences with mentorships, tracks other high school graduates with suitable academic standing identified by the 'pre-med advisors' in surrounding colleges, as well as the progress of UND medical students involved in first and second year family medicine fellowships.

III. The Educational Experience

Admissions Policy

Selective medical school admissions policies have a strong influence in dictating the supply of primary care physicians for rural practice, and can improve the likelihood of a physician not only locating but also remaining in a rural community by not only selectively encouraging candidates from rural areas, but also those expressing interest in returning to their home towns or similar rural areas to practice.¹⁰ Others have also confirmed that medical schools that selectively recruit from rural areas have been shown to have a higher percentage of graduates who enter rural practice.¹¹ However, programs such as PSAP have shown that nurturing rural practice physicians must start early, even before college, while Rabinowitz's 1999 study is evidence that young physicians were more likely to enter rural primary care if they had

been enrolled in a PSAP program throughout medical school. At the time of Rabinowitz's study, PSAP graduates from one of Pennsylvania's seven medical schools made up 21% of rural Pennsylvania's primary care doctors, while international graduates comprised 12%. From a wider perspective, graduates from Jefferson Medical College who were enrolled in the 'PSAP' program were more likely to practice in rural areas than non PSAP graduates (34% to 13%), to practice in underserved areas (30% to 9%), to practice family medicine (52% to 13%), and to have combined family practice with rural care (21% to 2%).¹²

'Who Goes into Rural Practice?'

Of 93 variables obtained from the Jefferson Medical College Alumni Association, ten were determined to be univariately predictive of rural practice. Once more, the single most important and independently predictive variable was growing up in a rural community with 69% of rural practitioners being from rural areas, but there was also a strong correlation between professional plans for rural practice during senior year of medical school and eventual rural practice.¹²

The Medical School Experience: Encouraging Rural Practice

One suggested remedy to the problems of rural physician geographic maldistribution is to change the medical education system so that it not only selects, but also specifically trains and deploys more health care professionals, who choose to practice in rural areas.² A study on experience-based learning revealed that 'supported participation' during medical education, that is mentorships and fellowships, greatly impacted the medical students' abilities to participate in further practice.¹³ The most successful medical schools are also those with coordinated, rural-oriented medical education programs that provide early and extensive rural experiences.⁶ Accordingly, medical schools which are decentralized, located in rural areas, have a rural focus, encourage admission of rural students, facilitate a rural-oriented medical curriculum, and provide early and repeated undergraduate rural medicine learning experiences, are the most successful at graduating physicians who will choose rural practice as a career.¹⁴

Consequently, the medical education institution should emphasize a focused curriculum in primary care with field experiences in rural practice settings. In turn, the rural practice experience should facilitate the opportunity to understand health and illness in a rural context. Furthermore, it is recognized that rural physicians perform procedures more frequently than urban family physicians. So, in an attempt to better prepare physicians for the rigors of rural care, the College of Family Physicians of Canada, established a Working Group on Postgraduate Education for Rural Family Practice in Canada.¹⁵ After reviewing the state of postgraduate education for rural practice in Canada, the group outlined an appropriate curriculum to prepare new family physicians for the challenges of rural practice.⁸ The group found that training in procedures that can be performed by rural generalists with good outcomes can best be achieved through accredited training programs with appropriate hospital rotations to learn advanced skills for the hospital role of many rural family doctors.⁸

A Midwestern role model program that provides rural medical experiences for third year medical students is the Rural Physician Associate Program (RPAP) at the University of Minnesota at Duluth and Minneapolis. In 2005 the program reported that despite a national trend away from primary care by medical students, RPAP had successfully maintained an 80% primary care physician rate.¹⁶ Similarly RPAP has shown an 87% retention rate after 5-10 years of practice.

RPAP members are strategically selected: most express interest in primary care before entering the program. RPAP also follows the suggestions of scholarly research in mandating a mentor relationship with

the physician in training and his/her preceptor. It also gives the student the opportunity to observe the lives of other practicing physicians who are enthusiastic about primary care, thus encouraging them to practice primary care in a rural context.¹⁷ RPAP students work in a local clinic under the supervision of a family physician preceptor, in a community with an average population of 8,000.¹⁸ A 2006 study of RPAP showed that members performed at least as well as their peers in traditional rotations in performance evaluations on common primary care clinical scenarios.¹⁸ While the RPAP program attracts students with an interest in primary care or community-based patient care, the fact that there has not been a significant decrease in interest in the program, or the rates of entering primary care practice, is evidence that the program is meeting its original goals despite challenging times.¹⁶

Easterbrook in 1999 conducted a study on medical students at the Family Medicine Program at Queen's University, Kingston, Ontario, between 1977 and 1991, revealing a correlation between exposure to rural practice during undergraduate medicine and the eventual decision to undertake rural practice. Physicians with this exposure during undergraduate experiences were 1.7 times more likely to practice in a rural area, while those physicians from rural backgrounds were 2.3 times more likely to practice in a rural area than others, and 2.5 times more likely to still be in rural practice at the time of the study.⁴

Medical Schools Emphasis on Residency and Retention

Because programs such as the PSAP address multiple aspects of recruitment, education, retention, etc, it is difficult to calculate the contribution of any single component. However there is sufficient evidence to suggest that a rural background, when used as an admissions factor, is many times more likely to produce prolonged primary care and rural practice over other factors.⁵

Retention in a rural care practice, on the other hand, is strongly dependent on postgraduate rural-practice training. Doctors who are appropriately prepared to be rural physicians, particularly those prepared for small-town living, stay longer in their rural practices. Again, the evidence shows that medical education and experiences have a significant, measurable impact on a physician's choice to stay in rural care, more so than any known characteristic of the doctor. Residency programs situated in rural areas correlate positively with rural care as well as length of time practicing there.¹⁹ In one study of the correlation between preparedness for rural care and retention within rural care, it was demonstrated that physicians who had spent three or four months in rural areas during medical school, graduated from family practice residencies emphasizing rural medicine, and participating in rural residency rotations, reported feeling more prepared for rural care.⁸

Conversely, Rabinowitz noted that when physicians chose to move from a rural area, lifestyle, reimbursement, personality and practice conflicts, and workload were frequently cited.¹² Further, 40% of respondents indicated that managed care would have a high negative impact on their income with probable, consequent relocation. Consequently, policies that implicate reimbursement among other factors are vital in sustaining rural primary care and targeted reimbursement incentives in Britain, Canada, and Australia, have significantly improved the flow of health professionals to rural areas.² In fact, the factors suggested to cause physicians to relocate from rural care seem to imply that any program seeking to increase retention of its rural physicians should assist with moving expenses, improve physician access to technologies and supplemental educational opportunities, and make other reasonable accommodations for that physician. Clearly, a positive rural care experience during medical school can positively influence students' attitudes towards rural practice and the eventual decision to locate in a rural

area¹¹ and substantial evidence implies that a medical education enriched with rural experiences will likely produce more rural primary care physicians.

IV. Development of a Model

Rabinowitz's work in March of 2008 demonstrates how the hypothetical replication of a model to recruit rural family physicians would produce the number of primary care physicians to meet the needs of rural America. The study was based on the rural outcomes record of ten medical school programs designed to specifically address the rural physician demand. The study suggested a weighted average of 53% to 64% graduates practicing in a rural area, dependent on the definition of rural. Using the conservative estimate of 53% to account for varying definitions, Rabinowitz and colleagues projected the impact of 125 U.S. allopathic medical schools if they were to adopt a similar model producing ten students per year. They found that initiating new programs in every medical school would yield 1,139 rural physicians yearly. Using the same formula, they estimated the model would produce 6,260 additional rural physicians over the next decade.²⁰

In 2004, Curran and Rourke stated: "Despite the many interventions that have been reported, medical schools on their own cannot solve all of the issues and concerns surrounding the recruitment and retention of rural physicians...many of these issues need to be addressed at a broader political level through measures such as the reform of healthcare, funding assistance and practice arrangements." There is abundant evidence to suggest that this is true for North Dakota.

North Dakota

Rural Demographics

According to Rural Health Facts published by the Center for Rural Health at the University of North Dakota School of Medicine and Health Sciences, 32% of physicians practice in rural areas of North Dakota while 54% of North Dakotans live in 49 non-metropolitan counties. North Dakota has 371 legally incorporated cities only four of which are above 25,000 in population and only 15 North Dakota cities support populations above 2,500.²¹

Physician Supply

In 2004, the North Dakota Medical Services Directory 2004-2005 indicated that North Dakota had 1,461 licensed physicians. Family physicians provide the majority of patient care in rural areas but 4% of North Dakota counties do not have even one practicing physician.²²

The state ranks 38th out of 50 in number of active physicians age 60 or older with the startling implication that one fourth of those doctors will retire within the next seven years.²³ So, while North Dakota is above the national average of rural physician to citizen ratio with 32% practicing rural medicine compared to 9% nationwide, the current demographics give great concern about the future supply of rural physicians. Furthermore, there is urgent need to reinforce the mission of the UNDSMHS to ensure that it produces primary care physicians, redistributes them to rural areas, and assists with their retention.

Importance of Mission

The problems of physician supply for rural North Dakota were clearly on the minds of legislators in 1975 when the Legislature determined that in the development of a four year School of Medicine, principal items of importance would be:

- Attracting and maintaining an adequate supply of qualified physician manpower
- Providing access to medical education for North Dakota residents
- Achieving the objective of increasing physician availability
- Developing a high quality medical education program

Over the years, the emphasis has changed. Under the current Dean, the mission of the School states: *"The mission of the University of North Dakota School of Medicine and Health Sciences is to educate and prepare North Dakota residents as physicians, medical scientists and other health professionals for service to the people of North Dakota and the nation and to advance medical and biomedical knowledge through research"*.

This subtle but significant change was referred to by the State Auditor. *"We recommend the School of Medicine and Health Sciences ensure their mission statement is consistent with legislative intent established in state law"*.²⁴

Further, recurring rhetoric suggests that research is particularly close to the heart of the current administration and in the meantime, the rural focus has suffered. In a 2008 US News and World survey of US medical schools, UND ranked seventh out of ten Midwestern medical schools in the percentage of graduates choosing a primary care specialty, and in the all important statistic of those graduates who choose an in-state residency training program, last in the nation.²⁵ In 2006, the position was even worse.²⁶ This was also noted in the legislative audit. *"We recommend the School of Medicine and Health Sciences, in conjunction with the Medical Center Advisory Council, develop additional incentives and continue to take appropriate steps for keeping graduating students within the state"*.²⁷

Meanwhile, North Dakota's population is currently aging and shrinking providing a great challenge for the workforce across all industries, including health care. Population changes influence the health care system because different age groups have different needs and change has direct implications for the supply and demand of health services, providers, and others.²¹

The ultimate tragedy for the state is that it suffers greatly as a result of poor or non-existent national health policies with subsequent collapse of primary care graduate production. This is ironic since North Dakota invests in children and education such that a wide range of children are prepared for higher education and medical education, and also invests substantially in health professional education. However, US medical schools have preferentially admitted the medical students least likely to be found in practice in North Dakota while powerful states have abused their economic power by taking physicians that they want from those states economically disadvantaged by their demographics.³¹ Nevertheless, the state's educational influence is so strong that of physicians in practice in North Dakota, 43% have been born in the state, 49% have attended UND School of Medicine and Health Sciences, and 58% have completed residency training in a North Dakota residency program.

Sadly, an examination of the characteristics of the last four classes to be admitted to UND School of Medicine and Health Sciences suggests that North Dakota has followed the lead of the other 'American

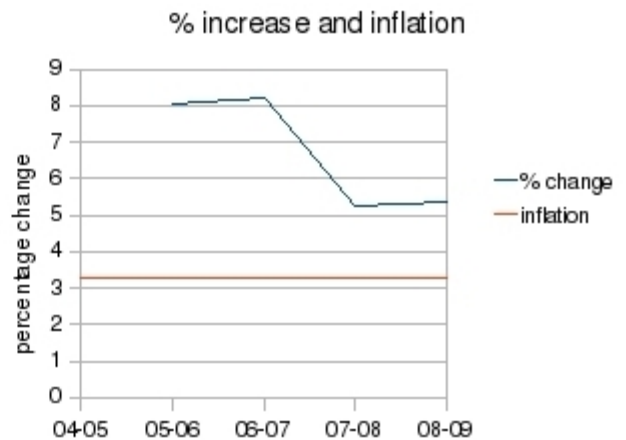
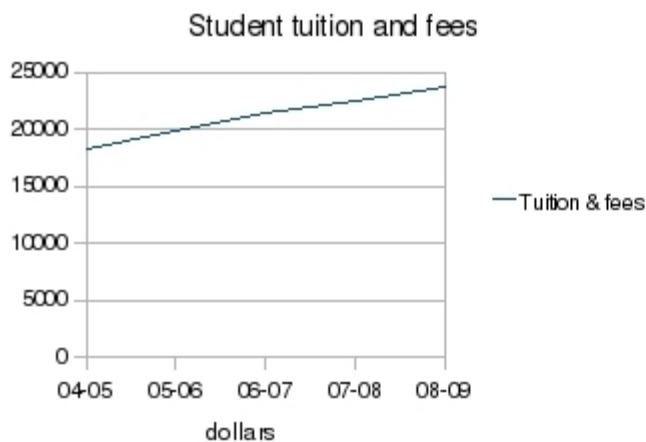
Association of Medical Colleges' (AAMC) medical schools, dominated as they are by 'academic health centers'. For example, over the past four years, 259 students have been admitted to UND School of Medicine and Health Sciences with characteristics as follows:

- Twenty-five students admitted into the 'Indians into Medicine' program from states other than North Dakota;
- Fifty-three students who completed undergraduate education at prestigious private colleges and who paid an average of \$26,000 for each of four years of college tuition, that is, a total of \$104,000 excluding board and subsistence, prior to being admitted to UND School of Medicine and Health Sciences.

Consequently, about 30% of students admitted to UND School of Medicine and Health Sciences over the past four years have almost zero potential for entering family medicine in North Dakota, either due to state of origin or pre-existing student loans, and so the pattern of AAMC policies described in this paper is repeated.

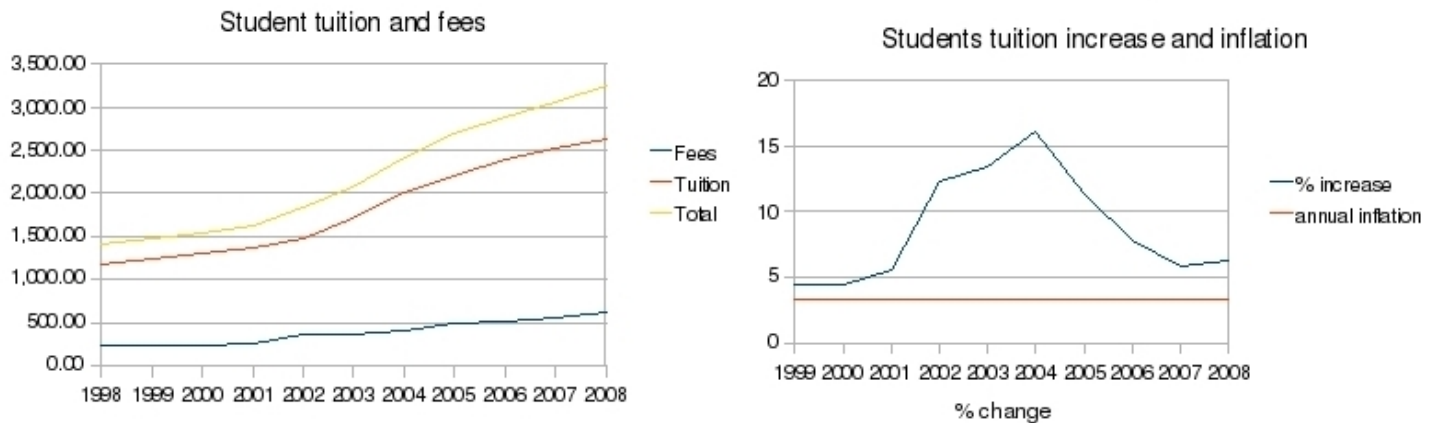
At the same time, there have been stepwise annual increases in tuition and fees at UND School of Medicine and Health Sciences to add to the disincentives to students of rural backgrounds as follows:

- 04-05 tuition and fees \$18,325
- 05-06 tuition and fees \$19,800
- 06-07 tuition and fees \$21,428
- 07-08 tuition and fees \$22,548
- 08-09 tuition and fees \$23,752



Of course, these are not the only increased expenses that the students face. Their required "step" examination fees, not included in tuition and fees, have increased as have their board and travel expenses incurred during these examinations. Even their cost of parking has been proposed to increase from \$70 to \$155 in 2009.

Undergraduates have fared no better with tuition increases outstripping average annual inflation by factors of two and three.



Finally, senior medical students throughout the United States reporting total education debt of \$200,000 or more increased from 7.8% to 15.9% in the past two years. (Association of American Medical Colleges)

Many of the seeds of North Dakota's crisis in primary care can be found on our own doorstep and it should be realized that all of this, with its devastating effect on primary care, has taken place not at a time when the world has decided that primary care practice is outmoded, but ironically at the same time that the 2008 World Health Report has called for a revival of the primary health care approach launched 30 years ago.

V. An Optimized Process for North Dakota Process

The foregoing evidence has strongly indicated that the process of nurturing a rural physician starts early and Mission Physician, as a pilot program, has shown locally that rural high school students can be recruited and are enthusiastic. However, the literature also indicates the continuing need for mentoring and preceptorship.

Consequently, interested students need to be tracked through future undergraduate learning, assigned family physician or other primary care preceptorships, and offered recurring clinical rotations within family medicine residency programs.

Also, policies regarding admission to medical school have a critical impact on the supply of rural physicians. Traditional Medical College Aptitude Test Scores (MCAT), although emphasized by the Association of American Medical Colleges, have a modest predictability for academic success³² tell nothing of character, commitment to service and eventual specialty, while the abundant evidence supporting selection on the basis of student background has already been presented. Indeed, there is striking evidence that selecting medical students by zip code will produce more physicians who will enter rural practice. (Appendix A) Consequently, a dedicated admission track, with its own selection committee and process, should be legislated. It makes no sense to create such a process for "Indians into Medicine" on the one hand, but leave the rural communities to fend for themselves, on the other. Likewise, it makes little sense to identify aspiring future rural physicians then leave them to the disadvantage of a possibly elitist admission system. Admission into the rural track should be heavily biased toward hometown

location, expressed interest in family practice since freshmen year, and an evaluation of all academic activities involved in programs such as Mission Physician and subsequent preceptorships over the previous four years.

Currently, there exists a voluntary fellowship for medical students at the end of the first and second medical school years. This fellowship, the Don Breen Fellowship, was created by the North Dakota Chapter of the American Academy of Family Physicians in honor of an outstanding rural family physician, and is currently supported financially by the Academy and Dakota Medical Foundation. While voluntary, it is an excellent example of the principle of "supported participation" described in the scholarly literature to ensure that the student is retained in the rural program.

Additionally, about ten years ago, the School of Medicine and Health Sciences introduced "ROME", Rural Opportunities in Medical Education, closely modeled on Minnesota's highly acclaimed RPAP program. In this program, third year medical students were originally given the opportunity to spend nine months of that year (now modified to eight months) in a rural setting that met several predetermined characteristics. The advantages of such a program as demonstrated in the scholarly literature have already been outlined, not only as they pertain to the recruitment of future rural physicians, but also from the aspect of effective clinical teaching through mentorship and enthusiasm. However, once again, unless the rural mission of the School is clearly understood and accepted, ROME can be simply used to decompress congestion on the major urban campuses and its unique advantages lost.

Consequently, it can be seen that many of the key pieces of a successful program to improve the rural physician supply, as demonstrated repeatedly nationally, are in place, or can be put in place, provided an aggressive rural mission at the School of Medicine and Health Sciences is advanced.

However, three important parts of the process are missing, all of which would require new financial support.

The first is the encouragement of the State's remaining family medicine residency programs, (Grand Forks, Bismarck and Minot), to develop recurring rotations in rural practices such as Beulah, Bottineau, Carrington, Harvey, Hazen, Hettinger, Hillsboro, Langdon, Mayville, Oakes, Park River, Rolla, and Rugby.

The second is exploration of new rural residency tracks, in which a resident would spend his/her first year in core rotations in either Grand Forks, Bismarck or Minot, but be contracted to spend the remaining two years in a community such as Devils Lake, Dickinson, Jamestown, Valley City, Wahpeton and Williston.

The third is the exploration of novel training programs, such as employed successfully in Nebraska, whereby a student would spend three years in medical school, but have the fourth year combined as an internship in one of the residency programs, with a post-graduate "fellowship" year, after three years of residency training, learning procedural skills such as colonoscopy, advanced obstetric skills, etc., the so called 3-3-1 program. (Appendix B)

Accordingly, as a result of literature describing successful national responses to the crisis of health care in rural America, together with our own failure to meet the expectations of the 1975 Legislature, together with successful examples in Minnesota, Nebraska, Iowa and Oklahoma (see appendices), we propose the

creation of an Office of Primary Care, answerable to the Legislature, to safeguard the mission of the School of Medicine and Health Sciences for the citizens of North Dakota.

Office of Primary Care

Essential elements for improving health care to rural North Dakota include:

- Recognizing those types of physicians who produce the most efficient and effective access to health care
- Recognizing the characteristics of those physicians most likely to stay in North Dakota
- Coordinating those policy elements that can help the state survive the worst American health policy in forty years, policy that singles out states such as North Dakota for abuse

First, the physicians most likely to be found in North Dakota were born in North Dakota, graduated from medical school in North Dakota, or are family physicians. The physicians least likely to be found in North Dakota were born in United States locations of high density populations or physicians, or attended medical schools with the top Medical College Admission Scores.

Second, less than 40% of nurse practitioners remain in primary care. Limitations include fewer years in a career, lower activity levels, and lower volume of primary care. Consequently, it takes ten nurse practitioners to provide the same primary care as a single family physician.

Third, less than 35% of physician assistants remain in primary care. Limitations include lower activity and primary care volume. Consequently, it takes five physician assistants to provide the same care as a single family physician. It takes 12 internal medicine graduates from international medical schools to provide the same primary care as a single family physician. Limitations include fewer years in a career, lower activity levels, over 20% departing from the United States, and lower volume of primary care.

Stated otherwise, concerning family physicians in North Dakota, the backbone of health care, the following odds apply:

- 3:1 he/she attended UND School of Medicine and Health Sciences
- 11:1 he/she was born in North Dakota
- 385:1 he/she completed a family medicine residency program within the state, this latter statistic emphasizing one of the greatest failures of the medical school i.e. last in the nation for AAMC school's whose graduates complete an in-state residency

Accordingly, to address our needs, we must:

- Recruit medical students from less exclusive origins;
- Invest in North Dakota medical education;
- Graduate family physicians;
- Keep graduates in the state during and after training.

As a result, we propose:

- an independent Office of Primary Care be established by the Legislature, answerable to the Legislature, to safeguard the rural mission of the School of Medicine for the citizens of North Dakota, and to advise the Legislature on appropriate state-wide primary care health policy;
- that the expense of maintaining the Office of Primary Care be 'budget neutral' being funded by those appropriated funds currently identified as being used in the support of family medicine by

the School of Medicine, with the exception that new funding will be required to support the three new initiatives outlined, together with resident stipend support; (Appendix C)

- that the permanent staff of the Office be limited to a Director and administrative assistant, but be supported by legislative counsel where appropriate;
- that the Director be appointed by the Governor on the advice of the North Dakota Chapter of the American Academy of Family Physicians;
- that the Director be a family physician with no less than 20 years of continuous direct patient care and responsibility;
- that the Director's commitment be limited to 50% of a full time commitment;
- that the Office of Primary Care be authorized to support, at its discretion, the positions of Chair of Family Medicine, Director of Pre-doctoral Studies, and two administrative assistants, within the Department of Family Medicine at the School of Medicine, subject to satisfactory audit demonstrating that departmental activities are in full, energetic and consistent support of the rural mission and its goals, in the opinion of the Office of Primary Care;
- that payments made for salary support for faculty at the School of Medicine not exceed the 85th percentile for a family physician in full-time clinical practice in the State of North Dakota;
- that the Director of the Primary Care Office be supported by an advisory committee whose members are nominated by the American Academy of Family Physicians;
- that the Office of Primary Care coordinate and support efforts to identify, energize and support programs for high school students thought to have the characteristics of future rural physicians;
- that the Office of Primary Care coordinate and support efforts to identify, energize and support fellowships designed to offer primary care experiences at undergraduate, and freshman and sophomore medical student levels;
- that the Office of Primary Care coordinate and support efforts to identify, energize and support the Rural Opportunities for Medical Education program for selected junior medical students, subject to satisfactory audit that the program provides a mentor relationship with the student and his/her preceptor, and gives the student the opportunity to observe the lives of other practicing physicians who are enthusiastic about primary care, and demonstrates the practice of medicine in a truly rural context;
- that the Office of Primary Care support those post-graduate residency training programs in family medicine within the state that are vigorous and support the rural initiative principles in the opinion of the Office;
- that the Office of Primary Care support resident rural rotations;
- that the Office of Primary Care have the authority to investigate and financially support rural residency tracks;
- that the Office of Primary Care have the authority to investigate and financially support the feasibility of the so-called 3-3-1 training program for rural health;
- that the Office of Primary Care have the authority to support additional stipends for residents in family medicine residency programs within the state;
- that the Office of Primary Care suggest to the Legislature strategies for coordinating and consolidating programs of loan forgiveness, moving expenses, technology assistance, etc., designed to ameliorate those circumstances shown in the literature to be significant in physicians moving from rural areas.

These proposals, if implemented, will safeguard the rural mission of the medical school and address many of the prescient concerns of the 1975 Legislature at the time of the creation of the four-year school.

In addition, the proposals implement the best scientific literature from the United States, Canada, Britain and Australia, all countries challenged with distance and demography in the provision of health care. Further, direct and simple accountability for the rural portion of the medical school's mission will be created on behalf of the Legislature.

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Appendix A

Minnesota and Duluth

The State of Minnesota created University of Minnesota School of Medicine at Duluth during the 1970's medical school expansion as a two-year branch campus dedicated to health access. Duluth begins with specific admission favoring those most likely to be found in family medicine – rural origin, lower and middle income origins, birth outside of medical school counties, service orientation, interest in family medicine, and interest in rural practice. Duluth trains physicians in locations much more representative of rural practice. Duluth is the only medical school in the nation that has managed to achieve independence from health policy with a consistent 45-50% of graduates choosing family medicine across Five Periods of Health Policy including the past decade with other medical schools registering 50% declines in family practice choice.

Duluth has contributed 60 graduates a year for over 36 years. Duluth graduates have top primary care rates of 60%, top family practice rates of 46%, and deliver top levels of primary care at 16 primary care years per graduate. In addition Duluth also ranks at the top of rural distribution with 30% of graduates found in rural locations. The Duluth graduates are a complete reversal of normal medical school distributions. Normally about 75% of medical school graduates are found in zip codes with 75 or more physicians and only 35% of the population in less than 4% of the land area. Duluth graduates have only 30% in such locations leaving 70% of Duluth graduates found in zip codes with less than 75 physicians that have 65% of the population in 96% of the land area. Duluth graduates are the best solution for health access, care of the elderly, complex populations, and shortages of rural specialists that are all found at the highest levels in the locations outside of current physician concentrations.

The RPAP program is a remarkable medical education program that trains third year medical students for nine months in small and isolated rural locations. The RPAP program includes 30 Duluth graduates and 30 from the main University of Minnesota campus. The price tag for RPAP has been \$800,000 per year but RPAP graduates have delivered over three billion dollars of economic impact to rural Minnesota alone.

Duluth efforts start with the State of Minnesota that invests in children and education to prepare enough medical students of rural, lower income, and middle income origins to present a variety of well prepared potential medical students to medical school admission committees. North Dakota makes a similar effort. Duluth selects those most likely to choose rural practice and family practice. Duluth trains medical students in rural locations with family practice physicians at the highest levels in the nation as the result of the RPAP program. In the RPAP program the medical students are paid a stipend in the third year. The third year of training is the first clinical year and the most important year prior to the decision for family medicine. Medical students in rural areas are treated more like physicians and do not experience the marginalization found in typical clinical training. RPAP graduates also help make rural workforce more effective with volume of care increasing during the year that a site has an RPAP student. Minnesota supports some of the highest family physician salaries in rural areas. Medical students in RPAP experience locations with 40-80% family physicians and the broadest scope of family practice. Medical students not training in RPAP typically train in locations with top concentrations of physicians that have 5% family physicians and family physicians that have the most narrow scope of practice.

Appendix B

Nebraska Rural Graduate Training

The departments of family medicine and internal medicine began the efforts to address rural physician workforce with the Combined Residency Program. Initially this program was designed as four years of medical school and four years of residency training leading to internal medicine and family practice certification. The program was too long to attract medical students and was shortened with an innovative M-4/PGY-1 year of training. Graduates often chose rural training track family practice residency programs to complete their training. The rural training track programs were developed in rural locations with 24,000 to 50,000 spread across the state. The first year of training was in Omaha with the last two years at a rural site. The rural training tracks boosted outcomes to over 70% found in rural Nebraska locations. Program director Jim Stageman then developed the accelerated family practice residency program. The model included the transitional M-4/PGY-1 year and added a rural/procedural fellowship year to make training a 3-3-1 model or three years medical school, three years residency, and one year of fellowship. The accelerated model also resulted in over 70% that located practices in rural Nebraska. Dr. Stageman also added inner city training based in the One World Community Health Center serving a predominantly Hispanic migrant area. The Rural Training Track in Scottsdale/Gering also integrates training at a Community/Migrant Center. All family practice residents including Air Force residents and the companion Lincoln Family Practice residents spend two months in rural Nebraska in a location in need of physicians. This Combined Outstate Residency Experience is also a source of workforce. Residents go to the same locations for two months at a time, 12 months a year, for a three-year period. Locations typically have 3-5 physicians, are in need of one or two physicians, and practice the broad range found in rural practice. Hospitals pay stipend and travel costs and provide two-bedroom housing for residents. With a consistent stream of residents, sites can add support staff and depend upon help with call and with emergency room services. Resident moonlighting activities in rural locations are also encouraged.

Nebraska rural primary care levels increased from 58-63 primary care physicians per 100,000 across the past decade. Metropolitan primary care levels collapsed from 147 to 78 primary care physicians during the same time period.

Appendix C

Oklahoma Family Practice Residency Interventions

Oklahoma has substantial rural underserved populations in need of physicians. The state has correctly interpreted two key areas. It must have family physicians and it must retain family physicians within the state for residency training. For years it watched as medical students in the state left Oklahoma for family practice residencies in other states who failed to return to Oklahoma.

Oklahoma pays family practice residents an additional \$1,000 per month just for choosing family practice and pays family practice residents an additional \$1,000 per month when they select an approved Oklahoma site in need of physicians. Communities help pay for the additional salary increase of the family practice resident.

Appendix D

Iowa Statewide Coordination

Roger Tracy has been an assistant dean at the medical school for many years. He has collected volumes of data on Iowa physicians with a focus on rural physicians and family physicians. He helps to coordinate the birth to admission, admission, training, and policy efforts in the state. His office tracks any with previous contact with the state by birth, medical school, or training and works to retain physicians in the state as well as to return physicians back to Iowa. Family physicians in Iowa who are considering a move are encouraged to relocate within the state or to training programs as faculty members.