

NORTH DAKOTA'S INTERDISCIPLINARY FELLOWSHIP TRAINING PROGRAM  
FOR MEDICAL AND ALLIED HEALTH STUDENTS

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ABSTRACT

In 1994, the National Health Service Corps (NHSC) initiated a fellowship program for students pursuing a career in primary health care fields. The goal of the program is to increase the recruitment and retention of health care professionals in health professional shortage areas (HPSAs) and medically under-served areas (MUAs) by expanding the number of service-linked educational opportunities available in these communities.

In 1995, a total of 33 state programs were awarded funding for the project, including North Dakota. An evaluation of the North Dakota program indicated that although the experience did not increase or decrease students' commitment to future rural practice, participants felt their preceptorship experiences were worthwhile and most came away with a very favorable image of the program. Further, it was found that the program:

1. Clearly had an educational function with the students,
2. Increased the students' positive image of practitioners within their chosen professions, and
3. Increased the students' level of confidence regarding their abilities.

INTRODUCTION

In 1994, the National Health Service Corps (NHSC) initiated a fellowship program for students pursuing primary health care fields. The goal of the program is to increase the recruitment and retention of health care professionals in health professional shortage areas (HPSAs) and medically under-served areas (MUAs) by expanding the number of service-linked educational opportunities available in these communities. Secondly, it sought to promote an interdisciplinary approach to primary care in rural and under-served areas. An interdisciplinary health care team exists when two or more health professionals meet regularly to set goals, communicate, and collaborate to provide patient care or address a community issue (Office of Educational Development, 1993; Padgett & Davis, 1994). The members of the interdisciplinary health care team may be professionals, para-professionals or non-professionals from any of the health professions.

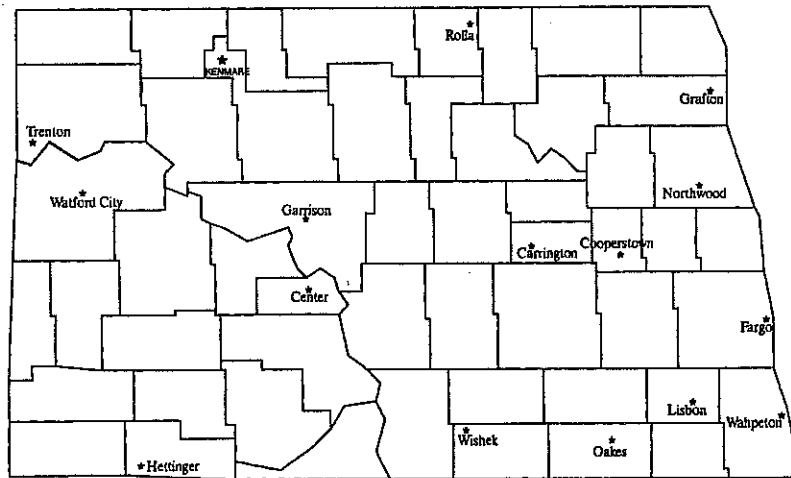
To accomplish this goal, the NHSC envisioned that the fellowship program would

- (1) increase statewide alliances to form a network of organizations to meet the diverse primary care needs of the under-served;
- (2) promote structured learning experiences, beginning with opportunities for students and residents to train in interdisciplinary teams;
- and (3) nurture the formation of culturally competent, community responsive primary care providers.

There were to be approximately 30 awards to state agencies, ranging from \$50,000 to \$175,000 per year. A total of 36 programs were funded for the project in 1994 and 33 were funded in 1995.

The NHSC directed programs to use the fellowship funding to increase the number of service-linked educational opportunities available in under-served communities for primary care students and residents. The fellowship was to support the core components of networking, clinical experiences, community experiences, mentoring, faculty development, clinical experiences, and critical skills development.

**North Dakota National Health Service Corps Fellowship Sites**



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### THE NORTH DAKOTA EXPERIENCE

The North Dakota Fellowship was one of the 33 grantees carried over from 1994. North Dakota's overall goal was to promote opportunities for students to develop an appreciation for and an understanding of the interdisciplinary team approach to the delivery of primary health care services in rural and/or under-served areas of the state. Specifically, in the clinical experience of the fellowship period, the primary goals were the collaboration of team members and the development of an appreciation for an interdisciplinary team approach to providing primary care services. In order to accomplish these goals, the interdisciplinary approach sought to provide a practical application of theoretical knowledge. Students would learn how to utilize the skills of other health care providers during team patient care conferences. Students would also have the opportunity to work side-by-side with preceptors in the actual delivery of patient services. In doing so, they would be given the opportunity to foster these relationships with students of other health professions and hopefully refine their own

clinical judgement and skills in assessments, diagnosis, and the management of conditions commonly seen in an ambulatory setting versus the acute care setting.

Selection criteria for the 1995 Fellowship program included displaying a commitment to an educational process that extends beyond classroom training, demonstrating a desire to practice in a rural/under-served area, and completion of one year in medical school, advanced nurse practice program, mental health program, or an accredited primary care residency program. Given that the program participants were to be first-year students, they were assumed to have minimal clinical training/experience. The resulting cohort consisted of 30 students: 18 medical students (60.0%); seven PA/NP students (23.3%); and five social work students (16.7%).

### FELLOWSHIP ASSESSMENT

Fellowship students were required to fill out a pre-test and post-test questionnaire. The pre-test was administered in March and the post-test was handed out in September

**Table 1. Reasons for Wanting to Practice in a Smaller Community Among Students Who Indicated Such a Preference (N=12)**

<u>Reason</u>	<u>Percent</u>
The need for health care providers	83%
Grew up in a small community	75
Can see a greater variety of patients	75
Better place to raise a family	67
Spouse likes a small community	50
Can be more active with community affairs	42
Opportunity to work with established practice	42
Just like a small community	37
Can build a productive practice early	33
Spouse grew up in a smaller community	17
Other factors	17

1995. Exactly one-half (50.0%) of the thirty students were females and ages ranged from 23 to 47 years (mean=29, median=26, mode=23). Family medicine was the most commonly-mentioned future field of practice (58.3%) among the MD/PA/NP students, followed by internal medicine (16.7%), undecided (12.5%), and other (12.5%).

#### Students' commitment to rural practice

Students were surveyed about their pre-fellowship commitment to rural practice. At the time of the pre-test, twelve students (41.4%) said that they would like to practice in a community with fewer than 25,000 residents. These twelve students were then asked to indicate from a developed list the various reasons why they would prefer a smaller town (see Table 1). Issues that were most commonly mentioned dealt with substantial medical need in these areas (83% of students), their own familiarity with these regions (75%), variety within medical practice (75%), and safety of the environment for family (67%). Also frequently cited were the spouse's inclination toward a smaller town (50%), greater impact on community affairs (42%), and the opportunity to work in an established practice (42%).

#### Students' perceptions of the preceptor

Students were asked a series of questions regarding their preceptor and the extent of their interaction with him or her. Preceptors were full-time, practicing clinicians in their fields of expertise. "Preceptor sessions" are defined as any education-related encounter between the student and preceptor that occurred during the fellowship experience. More than two-thirds (69.2%) felt the frequency of preceptor sessions was about right, whereas (26.9%) said they were spaced too far apart, and 3.8% said they occurred too

often. Students did indicate that they had some degree of input regarding their preceptor's practice and 70.4% said they were encouraged to provide suggestions and 63.0% said their preceptor heeded at least some of their ideas. However, students' perceptions as to the overall significance of their contributions to their preceptor's practice were mixed. To illustrate, more than one-half (56.0%) felt their assistance did not entail a substantial amount of care provision.

Findings indicated that students felt their preceptors were very helpful during the course of their experiences. Students were asked if there were ways in which their preceptor could have been more helpful. As most were generally satisfied with their preceptors, few students offered a response to this question. Of those that responded, the most common suggestion was to encourage more interaction/contact between student and preceptor (29.2%). As one student stated, "There is a need to meet more often in regard to how it's going and to make needed changes along the way." Also mentioned was the desire for the preceptors to increase their preparation in regards to taking on students (16.7%) and students wanted to take a more "hands on" approach (16.7%).

#### Students' perception of rural/under-served practice

Fellowship students were asked about their perspectives in terms of the positive and negative aspects of a rural practice. Participants felt that one of the strongest aspects of a rural practice is the high degree of patient familiarity and continuity of care (25.4% of the responses). As one student put it, "The community takes you in as one of their own—they become loyal friends as well as patients." Mentioned in similar frequency (25.4%) was the small town environment. "The rural lifestyle is nice," stated one student. The

third most frequently given response was the high level of autonomy (18.6%) afforded to practitioners in rural/under-served areas. One student noted his preceptor's "affinity for being flexible and creative." Another said, "You run the whole show; you are your own boss." Also mentioned by students were the positive feelings associated with filling a significant service need or void (11.9%). A student remarked, "Practicing in an under-served area may make a difference as to the total well-being of a community."

Some negative aspects of a rural practice were noted by the students. The most commonly mentioned response was the scarcity of resources such as technological equipment (16.4% of the responses). One participant noted that "the facilities and staff may not be as up-to-date as in a larger hospital." Another stated that one was "unable to perform some complicated procedures." Also frequently mentioned were poor access to social amenities (14.5%), lack of collegial support (14.5%), and long working hours (14.5%). One student noted his dislike for the "lack of social events and entertainment opportunities." Another felt a "sense of practicing without the support of much of the medical community." Students also mentioned the lack of privacy/confidentiality (12.7%) as a negative aspect of a rural practice. As one student asserted, "Some people are afraid to come in for help because the community knows they're receiving services." Others mentioned that there may be language barriers or cultural drawbacks as well as poor access to continuing medical education.

#### Students' perception of the fellowship program and experiences

Several questions on the fellowship post-test were designed to elicit information regarding students' perceptions on various

facets of the program. For example, students were asked about the degree to which they felt they were prepared for the clinical experience. Results indicated that most felt they were ready for the practice site itself, as more than one-half (55.5%) said they were very prepared. The remaining 44.5% indicated being moderately prepared. No participants reported being poorly prepared for the experience. Students felt they were less prepared for the amount of faculty and administrative support they would receive as well as the nature of preceptor interaction.

When fellowship participants were questioned about their perception of the amount of time involved with the program, more than three-quarters (76.9%) said it was about the right length. Five students (19.2%) said the experience was too brief and one (3.8%) felt it was too long.

When students were asked to share ways in which the fellowship program might be improved, responses tended to reflect concerns about the preparation of the students (29.6% of the responses) and sites (18.5%). One student stated that "the sites we travel to need to be more informed as to the goal of the fellowship—they were as lost as I." Another suggested that, "In the orientation, it should be explained how important it is to be self-directed and creative in working in these rural areas."

#### Pre/Post experience comparisons

Students were asked about their strength of intention to practice in a rural/under-served area (see Table 2). Prior to the experience, (37.0%) of the students expressed a strong interest (codes 4 through 5) in someday practicing in such an area. After the event, more than one-half (55.5%) indicated a strong preference. Further, the mean ranking increased slightly from 2.82 to 3.44 in the pre/post experience time frame. It should be

**Table 2. Strength of Intention to Practice in a Rural/Under-served Area**

Response	Pre-Experience		Post-Experience	
	Percent	Mean	Percent	Mean
1 (weak)	14.8% (4)		3.7 (1)	
2	25.9 (7)		11.1 (3)	
3	22.2 (6)		29.6 (8)	
4	37.0 (10)		48.1 (13)	
5 (strong)	0.0 (0)		7.4 (2)	
		2.82		3.44

noted that the observed increases are not substantial enough to conclusively assert that the students' commitment to a rural practice was significantly stronger after the fellowship experience. Further, one could not state that the fellowship program itself substantially increased the likelihood of the students practicing in these areas. However, one could confidently state that the program did not lessen their commitment to practice in under-served areas.

The mean strength of their intention to practice in a rural area was broken down by student type. Results indicated that all three types experienced some kind of increase after the fellowship experience. NP/PA students expressed the most commitment to such a practice in both the pre- and post-tests. The NP/PA and social work students had the

largest increases in the mean scores. Again, all noted increases were modest.

Table 3 displays the community size of the students' preferred practice sites. Because students were not asked about the degree of service needed by the community, these two items solely dealt with the students' commitment to practice in sparsely populated (likely rural) locations. Pre-test results indicated that 41.4% would like to practice in a community with a population less than 25,000. Following the experience, 37.0% indicated the same community preference. This percent decrease is negligible and provides impetus for the conclusion that no change in commitment to rural practice was found. When community size preference was broken down by student type (see Table 4), NP/PA students were found to have the strongest commitment

**Table 3. Size of Community in which Respondent would Prefer to Set Up a Future Practice**

Response	Pre-Experience		Post-Experience	
	Percent		Percent	
Less than 5,000	6.9%	(2)	3.7%	(1)
5,000 to 9,999	13.8	(4)	18.5	(5)
10,000 to 24,999	20.7	(6)	14.8	(4)
25,000 to 49,999	17.2	(5)	29.6	(8)
50,000 to 9,999	37.9	(11)	25.9	(7)
100,000+	3.4	(1)	7.4	(2)

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toward practicing in an under-served region.

On both the pre- and post-test, students were given a 18-item scale that measured their level of agreement to statements that dealt with various professional issues. The scale was constructed to measure the effect of the fellowship experience on the students' knowledge of health professional tasks, responsibilities, and conduct. All of the statements were worded in a positive tone such as, "Individuals in my profession are well-trained." Agreement level was measured from 1 (strongly disagree) to 6 (strongly agree). Results indicated that of the 18 items, 17 had a positive change in the overall means. These findings provided support for concluding that students (1) learned more about their respective professions, and (2) came out of the fellowship experience with a more positive image of practitioners within their chosen professions.

Students were also asked about their perceived level of confidence regarding a variety of professional tasks and abilities. Confidence level was measured on a scale from zero (no confidence) to 100 (100% or full confidence). Items were designed to measure the effect of the fellowship experience on the students' beliefs in their own abilities to (1) practice in their chosen profession and (2) work effectively in an interdisciplinary arrangement. Results showed that of the 16 items, 14 had a positive change in mean

confidence level from the pre- to post-experience period. A few exceptionally large increases were noted. Students were, on average, 10% to 13% more confident in their abilities after the fellowship experience to identify cultural differences that exist in rural-based patients (change = +12.7%), assist a patient in obtaining rural health care (change = +10.7%), and communicate health information to a rural patient that cannot speak English (change = +10.6%).

When figures were analyzed by student type, some interesting differences and congruencies were observed. Of all fellowship participants, medical students had the highest number of positive changes (13) among the 16 items. The items that had the largest improvements in mean scores among these students included the same three items that had the largest change scores among the fellowship class as a whole (listed above). In addition, medical students also had substantially large improvements in their confidence level regarding their ability to identify differences between rural and urban health care systems (change = +9.3%) and conduct effective problem-solving techniques using various resources of several types of health personnel (change = +9.3%). These students did rate their confidence level substantially lower on one item. One-half (50.0%) of the medical students reported a lower confidence level after the experience regarding the notion

**Table 4. Students Who Preferred to Practice in a Community of Less than 25,000, by Student Type**

<u>Student Type</u>	<u>Pre-Experience</u>	<u>Post-Experience</u>	<u>Change</u>
ALL (N=30)	41.4%	37.0%	-4.4%
Medical (N=18)	29.4	25.1	-4.3
NP/PA (N=7)	85.8	71.5	-14.3
Social work (N=5)	20.0	20.0	0.0

that participating in the fellowship program would improve their professional interaction skills (mean change = -6.7%).

The NP/PA students had improvements in confidence level on 10 of the 16 items. The items that had the largest positive changes among these students mirrored those that had the largest increases among all fellowship students as a whole. Similar to medical students, NP/PAs reported a substantial drop in confidence level regarding the experience's role in improving their professional interaction skills.

Social work students also had improvements in mean confidence level for 10 of the 16 items. These students had the largest confidence increases on one of the three that saw most improvement among all students as a whole: ability to identify cultural differences that exist from patients in rural communities (change = +14.0%). Social work students also reported large increases in their confidence level regarding their ability to contribute to a discussion with a team of health care professionals regarding: a patient care treatment plan (change = +14.0%) and a patient (change = +10.0%). Similar to all other program participants, social work students reported a decrease in confidence regarding the experience's role in improving their professional interaction skills (change = -11.0%).

On both the pre- and post-tests, participants were asked to assess the amount of contact they would have with a variety of other health care professionals in the course of their future practice. Items were rated on a 1-to-5 scale with 1 equaling no contact and 5 signifying daily contact. Examination of the net changes in means revealed that none of the items had noteworthy transformations. Professional types that students said they might see slightly more often than they had anticipated included NPs/PAs (+0.27) and respiratory therapists (+0.15). Those that

students felt they might encounter slightly less than they had envisioned included pharmacists (-0.27), social workers (-0.18), physicians (-0.06), and physical therapists (-0.03). Although pre/post mean changes were slight, it did appear that the fellowship students did learn about the degree of contact they can expect in a rural interdisciplinary practice. This was clearly the primary aim of this particular item grouping.

These professional interaction figures were also analyzed by student type. Few large pre/post experience changes were noted among medical students regarding the amount of contact they will have with other professionals. They did indicate that they would have less contact with social workers than they had previously thought (change = -0.31). NP/PA students concluded they would have more contact with respiratory therapists (change = +0.33) than they previously believed and less with pharmacists (change = -0.71). Social work students stated they would have more contact than they had previously thought with NPs/PAs (change = +0.80) and respiratory therapists (change = +0.40).

## CONCLUSION

Based on the response of students, it is clear the North Dakota fellowship program has been a positive influence in a variety of ways. Analysis of the data led to several conclusions which are listed below, along with a brief discussion of supporting evidence and recommendations. First, the fellowship experience was viewed as a positive, worthwhile endeavor by students. Very few negative encounters were reported. Communities where positive encounters occurred should be considered for further development as sites in ensuing years. Those



sites where students reported negative experiences need to be further scrutinized as to the reason why this occurred.

Second, the fellowship experience clearly had an educational function with the students. They reported learning a great deal about the nature of a rural practice. Also, many stated they had learned much about what individuals in their chosen profession do on a day-to-day basis. Many students returned from their preceptorships with renewed vigor toward succeeding in their educational endeavors.

Third, the fellowship experience increased students' positive image of practitioners within their chosen professions. Generally, they had good impressions of their chosen fields before the fellowship experience. Post-test results indicated that their views on a variety of professional tasks and characteristics became more positive.

Fourth, the fellowship experience increased the students' level of confidence regarding some professional tasks and abilities. They were substantially more confident in their abilities to interact with rural/under-served populations and to successfully provide care to them.

Finally, the fellowship experience did not substantially increase students' degree of commitment toward rural/under-served practice. Yet, it clearly did not decrease students' level of intention to practice in such areas. It should be noted that this is a highly subjective measure of commitment to this type of practice. The real test will entail examining who and how many of these students actually end up practicing in such an area of the state or nation.

## REFERENCES

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