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**American Indians  
and Alaska Natives:  
How Do They Find their Path  
to Medical School?**

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**by**

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# American Indians and Alaska Natives: How Do They Find their Path to Medical School?

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## ABSTRACT

### PURPOSE

The purpose of this study is to understand the paths of American Indian and Alaska Native (AI/AN) students who successfully entered medical school, focusing on the significant people and experiences that motivated or supported students on their journey as well as struggles and barriers on the path to meeting their goal.

### METHOD

This study used qualitative semi-structured, one-on-one, confidential interviews with 11 AI/AN medical students. The research team content-analyzed the interviews and arrived at a consensus on salient support and barrier themes. Study subjects were also invited to give feedback on the themes identified in their own interviews.

### RESULTS

This research documented six major supports and eight major barriers to AI/AN students' paths to medical school. The themes included educational experiences, competing career options and priorities, health care experiences, financial factors, cultural connections, family and friends, spirituality, and discrimination. Students reported financial barriers severe enough to constrain participation in the medical school application process, a finding that has not been reported elsewhere. This study also demonstrated ways in which ties to Native communities both supported students and created conflict between Native culture and the culture of modern Western medicine. Another unique contribution was this study's findings regarding the importance of spirituality as these students pursued a medical career.

### CONCLUSION

Promoting AI/AN participation in medical careers can be facilitated with strategies appropriate to the academic, financial, and cultural needs of AI/AN students.

## INTRODUCTION

American Indians and Alaska Natives (AI/ANs<sup>1</sup>) continue to have significant health status disparities compared with the U.S. general population (Indian Health Service, n.d.; Kington et al., 2001). Life expectancy in 1995 was 5.4 years less (71.1) for AI/ANs in the United States than for whites (76.5) (Indian Health Service, n.d.). Death rates for AI/ANs, compared with all other races in the country, are 2.5 times higher from diabetes, more than 5 times higher from alcoholism and tuberculosis, 1.7 times higher for pneumonia, influenza, and suicide, and 1.4 times higher for homicide (Burrows et al., 2000; Harris, 2002; Indian Health Service, n.d.). AI/ANs' disproportionate levels of noncommunicable chronic diseases and lifestyle-related health issues—such as type 2 diabetes mellitus, tobacco use, substance abuse, and violence—result in decreased quality of life in addition to premature mortality (Godes, 1986; Indian Health Service, 2001; Lee et al., 1995; Will et al., 1997). To address these disparities, it is essential to assure access to the highest quality health care that is sensitive to AI/AN cultural issues.

Health professionals caring for AI/ANs are in short supply. Nearly three-fourths of rural Native Americans live in federally designated Health Professions Shortage Areas (Probst et al., 2002). Lack of cultural competence among providers is another significant barrier to quality health care for AI/ANs (Cohen et al., 2002; Napoli, 2002). Government dispossession policies that historically removed AI/ANs from their original lands, labor, language, cultures, and religious beliefs, including Traditional Indian Medicine (TIM), have also contributed to the health disparities between AI/ANs and the general U.S. population (Bird, 2002). Training more AI/AN physicians is critical to addressing these problems. AI/AN physicians understand the effects of the dispossession policies of the past and are better prepared to deliver culturally

appropriate and sensitive care (Berlin & Fowkes, 1983; Libby et al., 1997). Minority groups that are underrepresented in medicine, and Native physicians specifically, are more likely to choose primary care and locate in underserved communities with higher proportions of minorities, where they can use their special competencies to advantage (Cantor et al., 1996; Cohen et al., 2002; Kington et al., 2001; Komaromy et al., 1996; Nickens, 1992; Tedesco, 2001; Xu et al., 1997).

Greater numbers of AI/AN practitioners can also help reduce health disparities by working through Indian health organizations, such as the Association of American Indian Physicians, to ensure adequate funding for the IHS and tribal health programs. Indian physicians can lead tribal council efforts to increase the socioeconomic status of AI/AN communities and provide needed role models and mentors to improve the education of all medical students and residents, particularly AI/ANs. Racial and ethnic diversity among providers and administrators is also critical to advance research on minority health issues and to improve the performance of health care organizations that serve diverse populations in our society (Cohen et al., 2002).

But AI/ANs, like other groups underrepresented in medicine, have yet to achieve parity in medical school enrollment, and the numbers have been stagnating (Cohen et al., 2002; Grumbach et al., 2002). During 2001-02, only 520 AI/ANs were attending medical school across the country, representing just 0.8 percent of enrollees (Barzansky & Etzel, 2002) or half the proportion of AI/ANs in the general population.<sup>2</sup>

Though there is a body of literature about minorities and the “pipeline” to medicine, most of the research focuses on African Americans, Hispanics, or all minorities who are underrepresented in medicine as an undifferentiated group. The aim of this research is to understand the unique paths of AI/AN students who successfully entered medical school, focusing on the significant people and experiences that motivated or supported students on their journey as well as obstacles or barriers to their aspirations. Understanding these issues is critical to developing effective strategies to increase the representation of AI/ANs in the physician workforce.

## METHODS

This qualitative study used semi-structured, one-on-one, confidential interviews with AI/AN medical students to learn about the barriers and supports these students experienced on their path to medical school. This study’s methods were reviewed and approved by

the University of Washington (UW) Human Subjects Division.

## STUDY POPULATION

Our study population included all 11 American Indian or Alaska Native medical students who were enrolled at the UW School of Medicine (UWSOM) and who had participated in the activities offered by the school’s Native American Center of Excellence (NACOE). The Center is located within the school’s Office of Multicultural Affairs, and it offers a full range of activities and support services to medical students, including an academic Indian Health Pathway that provides courses, clerkships, and certification to medical students who wish to practice in Native American and Alaska Native clinical settings; the Medicine Wheel Society that provides pre-medical and medical students, alumni, faculty, and health professionals at the UW opportunities to interact socially and in community service projects; and premedical enrichment programs such as the Minority Medical Education Program. Many of the AI/AN students recruited to UWSOM have participated in these programs, including all subjects in this study. We chose students active in the NACOE for this study, as we were interested in understanding the barriers and supports for those students who most strongly identified themselves culturally as American Indians and Alaska Natives.

## INTERVIEWS

Our research team developed an 18-question interview guide for this study (see Appendix). Ten questions asked about sociodemographics and students’ connections with their tribes or Native communities. The remainder were open-ended questions about their path to medical school, including the struggles and supports they encountered along the path, their beliefs about healing and spirituality, and their experiences with the medical school application process.

The study team hired an Alaska Native undergraduate student at the UW to conduct the interviews so that the interviewees felt as comfortable as possible discussing issues specific to AI/AN culture. The NACOE Director sent a letter to 11 students introducing the study and the interviewer and asking them to contact one of the investigators if they did not wish to be contacted by the interviewer. All the students agreed to participate in the study. The tape of one student, who had a very short interview, was unusable, resulting in 10 valid interviews for this study. All the students were reimbursed \$75 for the time they spent in the interview and in reviewing our summary and interpretation of their responses.

## STUDY ANALYSIS

All four study investigators performed a content analysis of each participant's responses to the open-ended questions, looking for salient themes (e.g., struggles and supports that the students experienced on their path to medical school). We met as a group to review our individual findings and to reach consensus on the identified factors influencing the students. We concentrated on the answers to the questions about the struggles and supports the students encountered on their path to medical school, but we included answers from other questions as they pertained to these areas. The research team felt that the content analysis required an astute awareness of AI/AN culture. Two of the investigators are Native Americans who work with NACOE, ensuring that this cultural awareness was operant throughout the analysis. The other two investigators are non-Native American researchers with the WWAMI Center for Health Workforce Studies, which sponsored this research. The identified themes were grouped into a scheme of categories that three of the four co-investigators used to review and code all transcripts. All four co-investigators reviewed the codes and resolved any discrepancies between investigators. Once the findings were summarized, each student was informed of the themes that we identified from her interview so that she had an opportunity to ensure that we accurately interpreted her comments. The findings reported here represent the investigators' consensus on the key themes across all 10 subjects.<sup>3</sup>

## SAMPLE DESCRIPTION

Although not a criterion for study inclusion, all 10 subjects were women. Their ages ranged from 24 to 42, with a mean of 30. Five were from Indian reservations in the lower 48 states, three were Alaska Natives from Alaska villages and members of Alaska Corporations, and two considered themselves urban Indians raised off of their reservations. Six subjects were raised in single-parent families, all with mothers as the head of the household. Four subjects had been raised with both parents and siblings. Six of the respondents were currently single; four were married. Of these four, three had their own biological children and one had a stepchild. In sum, there was no "typical" AI/AN medical student; the 10 study respondents represented diverse ages, communities of origin, tribal affiliations, and family structures.

## RESULTS

Our analysis identified several areas of influence that the students described as supports or struggles on their path to medical school. Major themes included educational experiences, competing career options and priorities, health care experiences, financial factors, cultural connections, family and friends, spirituality, and discrimination. Each of these major themes has been divided into subthemes. These major themes and their subthemes are listed in Table 1 (supports) and Table 2 (barriers). The tables report the number of respondents mentioning each major theme and subtheme.

### EDUCATIONAL EXPERIENCES

Students talked about a wide variety of educational experiences on the path to medical school, both in terms of supports and barriers. This was the most commonly cited category of experience.

**Academics:** Eight of the ten students reported that either enjoying school in general or having an aptitude for math or science or both were important supports on their path to medical school. Three of the students noted that a poor-quality education, especially in science, served as a barrier to their pursuit of a medical career.

**Academic and Professional Preparation Programs:** Academic and professional preparation programs with varying emphases—including gifted programs, math or science enrichment programs, research opportunities, and programs geared specifically to prepare students for a medical career—were key supports for 9 of the 10 interviewees on their path to medical school. These programs spanned all levels of the educational process. While a few mentioned elementary or secondary programs, all but one reported that college enrichment programs—such as the Minority Medical Education Program (MMEP), American Indian Research Opportunities program, IHS summer externships, and the Howard Hughes Research program—supported their pursuit of a career in medicine. Programs such as the MMEP provide a range of practical support services for students, including help with the medical school application process and MCAT preparation, academic counseling, increasing awareness of career opportunities, and meeting fellow AI/ANs who were pursuing a career in medicine, as Maryanne's comment illustrates:

I went to the MMEP program... It totally solidified everything for me and it showed me that there was an open door... I can't imagine having to do that application not knowing what I was doing, but in MMEP they have you fill out sample applications, and they talk about what goes in that blank space and what type of things you should hit upon here versus there. And what should be in a personal statement, because a



personal statement for med school is very different than a personal statement for Ph.D. school.

Six students specifically mentioned the importance of the support of the NACOE and the Office of Multicultural Affairs at the UW, including the individuals who staffed the MMEP.<sup>4</sup> The fact that the UW placed AI/AN health issues in its curriculum in the form of an Indian Health Pathway and provided strong regional primary care opportunities (through its WWAMI Program<sup>5</sup>) served as a motivation both in choosing a medical career and in attending the UW in particular:

Also knowing that there was the Native American Center of Excellence and Indian Pathway program here definitely gave me purpose for wanting to go to, especially to the UW, because I applied to only five other schools but none of the other schools that I applied to had anything to offer Indian students, I mean nothing. Not a single class, not a single student group, nothing. So knowing that there was a curriculum here totally gave me purpose and totally made me know that there was a school that I wanted to go to because other schools did not have a program like this.... (Maryanne)

While the vast majority of students were supported by educational programs, four noted that either poor performance on standardized tests or lack of support prior to standardized tests were barriers to their medical school application.

**Mentors, Role Models, and Advisors:** The educational experiences, advice, and encouragement provided by key individuals—mentors, role models, advisors and counselors—were

important to 9 out of the 10 interviewees at all stages on their path to medical school. This support included faculty at educational preparation programs, high school and college teachers and counselors, IHS physicians, research mentors, and AI/AN role models. More than half (6 of 10) of the students felt exposure to or mentoring from an AI/AN health professional was an important support. For Rhoda, the mere knowledge that someone like her had been successful in medicine served as a significant support, even if she did not know this person well:

The other role model I had was, still have, is my cousin, he's a doctor. And I didn't know him growing up real well—I mean he came home every now and then and I knew who he was—but just having that, knowing that he is a doctor in the

**Table 1: Number of Students Reporting Supports on the Path to a Medical Career by Major Themes, Subthemes, and Specific Influences**

Major Themes	Total Mentioning Major Theme	Subthemes and Specific Influences	Total Mentioning Subtheme/ Specific Influence
<b>Educational Experiences</b>	<b>9</b>	<b>Academics</b>	<b>8</b>
		Aptitude or interest in math or science	7
		Aptitude or interest in school generally	4
		<b>Academic / Professional Preparation Programs</b>	<b>9</b>
		College programs: e.g., MMEP,* AIRO,† Howard Hughes	9
		Academic/cultural centers: e.g., NACOE	6
		Secondary programs: e.g., Upward Bound	3
		Elementary programs: gifted program for girls	1
		<b>Mentors / Role Models / Advisors / Counselors</b>	<b>9</b>
		Miscellaneous: e.g., faculty, health professional, enrichment program director	9
		AI/AN health professional	6
		AI/AN mentor or advisor (not health professional)	5
		College: academic counselor	5
		High school: mentor or counselor	4
IHS physician	3		
Woman mentor in science or medicine	2		
Guidance through AISES,‡ AAIP§	3		
<b>Health Care Experiences</b>	<b>10</b>	Work or professional experience	7
		Family or personal health care experience	6
<b>Finances</b>	<b>8</b>	Formal scholarship	7
		Informal, individual helper	3
<b>Cultural Connections</b>	<b>10</b>	Motivation to serve AI/AN people	10
		Connection to home, culture, community, or tribal support	9
		Leadership skills or experience in AI/AN community	4
		Geographic nearness of medical school to home	3
<b>Family and Friend Influences</b>	<b>10</b>	Female relatives	9
		General family support of education or aspirations	7
		Male relatives	5
		College friends	1
<b>Spirituality</b>	<b>10</b>	Spiritual beliefs, events, or messages	10
<b>Miscellaneous</b>	<b>2</b>	Basketball community	2

\* Minority Medical Education Program.

† American Indian Research Opportunities.

‡ American Indian Science and Engineering Society.

§ Association of American Indian Physicians.

village and still maintained ties at home. And he’s working in the city now; he served as another role model.

Half the students found that other AI/AN individuals were important supports for their path to medicine. In all, seven students mentioned at least one AI/AN community member, other than immediate family members or health professionals, who played a significant role in the pursuit of their goals. A pivotal experience for Suzanne was her involvement in a peer counseling group in secondary school:

That definitely had a huge influence on my life and through that I also met very powerful, very spiritual Native American people who would come...and put on training sessions for us.

Three students found guidance that helped them decide to pursue a medical career through national AI/AN organizations, such as the American Indian Science and Engineering Society or the Association of American Indian Physicians.

Half the students reported that college counselors and advisors helped them decide and prepare for their career path. Four of the ten subjects felt that high school counselors and advisors were helpful.

Despite the support of mentors, role models, and advisors, half the students felt that the lack of AI/AN role models served as a barrier on the path to medical school. Students were acutely aware of this scarcity of Native role models in both the health professions and at all stages of the educational process, as these comments illustrate:

I see so many people get, so many Indian kids get scholarships to go play sports at big colleges and they go away and within a year they’re back at home. And people are like well, “so and so couldn’t handle it.” It’s not that they can’t handle it, but it’s not having anybody to show you the way, you know? We always need a leader. (Darlene)

**Table 2: Number of Students Reporting Struggles on the Path to a Medical Career by Major Themes and Subthemes**

Major Themes	Total Mentioning Major Theme	Subthemes and Specific Influences	Total Mentioning Subtheme/ Specific Influence
<b>Educational Experiences</b>	<b>10</b>	<b>Academics</b>	<b>3</b>
		Poor quality education or academic disadvantage	3
		<b>Medical School Application Process</b>	<b>4</b>
		Poor performance of lack of support on standardized tests	4
		Lack of information on medical school preparation and application process	1
		Difficulty in medical school admissions interview	1
		<b>Mentors, Role Models, and Advisors</b>	<b>6</b>
Lack of AI/AN role models in higher education or health professions	5		
Gender inequality: lack of female professional role models	1		
<b>Competing Career Priorities or Options</b>	<b>5</b>	Competing interests or pressures, uncertainty about a medical career	5
<b>Health Care Experiences</b>	<b>1</b>	Poor impression of physicians	1
<b>Finances</b>	<b>7</b>	Lack of finances for higher education	5
		Lack of finances for medical school application process	4
<b>Cultural Connections</b>	<b>8</b>	Feeling caught between two cultures	8
		Pull to stay near tribe or community, geographic distance of college	7
		Lack of AI/AN community in higher education or health professions	6
<b>Family and Friends</b>	<b>9</b>	Pull to stay near home, loneliness away from family	5
		Family or friend crisis	4
		Lack of family support of education or emotional support for aspirations	3
		Balancing children with school	3
		Gender discrimination: husband’s career takes priority over wife’s	1
<b>Spirituality</b>	<b>1</b>	Concern about conflict between Native religion and modern Western medicine	1
<b>Discrimination</b>	<b>5</b>	Experiences of discrimination, racism, or prejudice	5

I don't remember the first time I saw a Native doctor. I'm actually going to be the first doctor from my tribe. (Edna)

## COMPETING CAREER OPTIONS AND PRIORITIES

Five students reported difficulty in choosing medicine over other career options or uncertainty that medicine was the right career path. Some had already established satisfying, alternate careers. Others considered the pros and cons of a variety of careers before choosing medicine. This decision process created significant angst for Kelly, who was working in the health care environment:

I struggled for years. Part of this puzzle was that I couldn't understand why I wanted to be a doctor when I didn't like them, and so I sort of needed to resolve that part of it. I knew I couldn't go into medicine until I figured out my place in it, and it was through that work that I met some really fabulous doctors and realized that there was a place for me and that I could make it fit. So that was sort of again one of the building blocks to this pathway.

## HEALTH CARE EXPERIENCES

All of the students either had a personal or family medical experience or a professional health care experience that supported their choice of medicine as a career. Not only positive but also negative health care experiences had motivational effects. Seven of the ten students related the importance of working in health care. Kelly described poignantly above how her work in the health field was a critical experience that provided the exposure to physicians and medicine that enabled her to identify with a medical career.

Six students discussed how a personal or family illness experience helped them decide on a medical career. These experiences included exposure to the Indian Health Service (IHS)/Tribal/Urban Indian Programs medical system, caring for relatives who were ill, witnessing poor health care, and realizing there was a need for AI/AN physicians to provide culturally appropriate care, as in the case of Edith:

When I hit college and then my mother died of a curable illness, it just made me even more want to be a doctor because then I realized how the people on the reservation aren't really comfortable with going to see the physicians because they're not Indian. And all while I was growing up I never had seen an Indian physician, I didn't even know there were Indian doctors out there and so that made me more determined to get my degree in medicine...because I think she waited too long to go to the doctor...So that's kind of what sealed it for me, was losing her and just the experience with the medical field there, and it just made me want to go back and improve it.

## FINANCIAL FACTORS

Financial factors were mentioned by all but one student as either a support or a barrier on their paths to medical school. Seven of the ten subjects reported the importance of the availability of formal scholarships, including the Indian Health Care Improvement Act's 437 IHS scholarship program, in their ability to seek a medical education. The interviewees also mentioned a number of other sources of financial support, including community organizations, continuing education scholarships, and college academic scholarships. Rhoda explained how understanding the mechanics of both debt and earning potential helped dispel her doubts about a medical career:

I was actually at a camp and there was a man...who was an orthodontist. And when he found out that I was interested in going into the medical field or going to medical school but I still had some hesitation, he asked me about that, and I told him it's going to cost too much. And he said no, he sat me down and...tallied everything up. And he said now at this point all my friends are graduating from college, and they're getting jobs and I was still \$100,000 in debt. And then he tracked it out a few more years and then he came out even, and he said, you know, it's okay, don't ever let money be a problem. And it turned out, I applied for the IHS scholarship and got that and never had a real problem or a big issue for me financial-wise.

Financial hardship was mentioned by seven students, four of whom noted the significant expense of the medical school application and interview process alone. As Lynnette explained:

You had to pay your own plane ticket or whatever to the school to interview and then after that you waited. So it was kind of long. And expensive. I had no idea just to apply it was so expensive. I knew a girl who took out a thousand dollars in loans to apply, and she applied to tons of places and interviewed at tons of places, and that had to have cost a lot of money. I mean she needed that huge, huge loan she took out. And I didn't have anybody...really to borrow [from], I just had my one coworker willing to give me some money.

## CULTURAL CONNECTIONS

We asked students about Native language fluency, where they grew up, frequency of visits home, and involvement with their home communities as a way of assessing student connections to Native communities and cultural traditions. The degree of connectedness varied from student to student. One understood her tribal language. Seven of the subjects spoke "a little," usually a few words or songs. One did not speak her tribal language at all.<sup>6</sup> One was learning her language, and five indicated that they wanted to learn more. Four of the ten students mentioned serving as leaders in a range of activities in the AI/AN community. These



included leadership in Native dancing and powwows, AI/AN organizations, or formation of AI/AN interest groups. Those students from Indian reservations were closely connected with their reservation homes during medical school, indicating that they visited during all school holidays or more frequently. The urban Indians and Alaska Natives generally visited home less frequently—one or two times per year.

Whatever their community origin or history of connection to Native cultural traditions, active current involvement in NACOE and the Indian Health Pathway curriculum were criteria for study participation. Thus it is not surprising that all 10 students described either being motivated to serve AI/AN people generally or having supportive connections to their own AI/AN communities. The comments of Marsha and Edna show some of the ways that these motivations and connections helped sustain students' medical career aspirations:

I think just growing up around people in a small community, I know like a lot more about the lifestyle and what people are facing and things like that. I did a preceptorship at a remote clinic my first year of medical school with a doctor there, and he was very good and very into the cultural aspect of medicine and things like that. But it was just amazing all the stuff he didn't know about Native people. And you know, I just thought I would have such an advantage coming in to work in this kind of situation, just because I know so much more about the patients up front. (Marsha)

I really want to go home because...I think by going home...I can kind of talk to the kids. They might listen to me. ...We need to get the kids going at an early age into—just to explore health careers in general—yes, you know, we have a Native doc; you can be a doctor. You know what I mean? You can be whatever you want to be, but I think getting home and exposing the kids to different fields. We have a couple Native lawyers now—I just think that's important for people to go back home after they're educated to show the kids this is what you can do. There's too many not leaving, because they think, like I thought, when I finished, I'm going to leave and not come back. (Edna)

A strong connection to one's Native tribe or village could have opposing influences on career aspirations. Some students indicated that the nearness to home of medical school was a factor that made a medical education seem possible and made their chosen school attractive. But for all five of the students from reservations and two of the three Alaska Native students, these strong connections to their tribe or village and the long distance to the medical school campus were also sources of struggle. Most also lamented the lack of AI/AN community in higher education and in the health professions. The pull of

community and culture had the potential to disrupt some students' pursuit of medical education:

When times would get hard I'd go home for a weekend and just be with them, you know, just be home with all of my Indians, just get together and just laugh and it was just really healing for me. (Edith)

That's the problem, you know, you choose to go off to college and you lose—you don't lose your roots, your roots actually strengthen, but you lose that constant being around your culture and I think that's what makes it really difficult to go off to college, that's a big challenge, I think, for people leaving their villages. (Rhoda)

In addition, eight of the ten students revealed the stress of being caught between their own culture and that of the non-Native culture that dominates higher education and the Western medical profession. These students expressed concern about "fitting in" to Western medicine while at the same time feeling that their pursuit of a Western medical profession would distance them from their traditional Native culture and change their roles within their home communities, as Darlene explained:

That's a decision that holds a lot of people back [on] the reservation because it's hard to leave because it's a different world, that was a big obstacle. I didn't only go through culture shock moving off the reservation into a big city. I went through culture shock...from who I was there into this whole professional role, being a young new doctor, it's been a challenge to accept it...It's been a challenge in my community to accept it too, you know? Because they know me as "little Darlene." I'm now a doctor so it's by far not easy, but in a certain way it is a culture shock.

## FAMILY AND FRIENDS

All of the students reported that close friends or family members, immediate or distant, were important supports on their path to medical school. Nine of the ten students specifically mentioned supportive female relatives—mothers, sisters, and grandmothers. Half of the respondents mentioned male sources of support, including husbands and boyfriends, as well as fathers, brothers, and cousins. Family represented the most important support for Edith and Darlene:

...my mom and my sister and my boyfriend have always been behind me 100 percent, so they're definitely the top of my support, those three people, they've always been behind me in whatever I do. It wasn't "Edith is going to medical school," it was like my family is going too. (Edith)

My family by far is my biggest support. Now to tell the truth, that was the only support I had. (Darlene)

It was not always possible to neatly distinguish “family” from “Native community” in the analysis of the interviews. Just as connections to community had both positive and negative effects on the pursuit of a medical career, so did students’ connections to family. But we attempted to preserve a distinction between family and community because, at times, they did represent different spheres of influence.

In spite of the overwhelming support that students’ families provided them, family issues also presented barriers to 9 of the 10 students as they proceeded on the path to medical school. Loneliness away from family was similar to the yearning for Native community. Half the students described how the pull of home and loneliness of being hundreds of miles away from family—needing family support and yet being far from it—presented barriers to higher education:

There were so many times that I was just so lonely, so lonesome for home, that I didn’t think I could do this. God, I don’t want to discourage anybody and tell them how hard it was. There were times I called home and I was bawling. I don’t want to scare anybody, but at the same time I have to be realistic and say, yes, this is hard and you have to have that support from home to do this. (Darlene)

Well, when I went back into the university system, I had a hard time dealing with loneliness. I was really close to my cousin at the time because he lived with us and it just tore me up to have to leave him. I came home just about every weekend, it was a very long drive, and I always came home because I was so lonely. I lived for my weekends to go back home and see my family, and I decided I was going to finish one semester and come back [laughs]. But then toward the end of the semester I figured out that I didn’t mind it that bad, that it wasn’t too bad, I could deal with it. So it’s always been hard to leave home, but it’s gotten easier. (Lynette)

Family matters posed other challenges as well. Four of the ten students described a crisis such as a loved one’s death or illness as an obstacle on their path to medicine. Four students also mentioned other family-related barriers, including the lack of family support for education or career aspirations in general or difficulty balancing the demands of higher education with raising children.

## **SPIRITUALITY**

Native cultures have their own systems of medicine that are intertwined with spiritual beliefs and practices (Hollow, 1999). These spiritual traditions have an impact on both AI/AN patients and AI/AN caregivers in modern Western health care systems (DuBray & Sanders, 1999). For this reason, students were asked explicitly about the role of spirituality in their lives and its influence on their path to a medical career. All

10 cited spiritual beliefs, events, or messages that were important influences. Kelly interpreted the presence of eagles during her MCAT examinations as a favorable sign:

I come to medicine with a whole bunch of spirituality, which I’ve been struggling with a lot. So I did them [MCAT tests] and while I was doing the MCATs during the lunchtime where I was taking them, I was sitting out on the grass and it was overlooking this river. And I looked up and here were a pair of eagles flying over. And they just kind of flew around for about 20 minutes, and I just started crying because I was like, you know what? It’s okay, I’m fine, it doesn’t matter. It was a huge relief of course.

Anita talked about the role of spirituality in trusting that she was on the right path, even when facing obstacles:

I’ve learned to really trust myself which I think is a manifestation of the Great Spirit...A lot of it has come from my idea about healing and wellness, about being in balance and being in harmony. And so I think a lot of what was troubling me is that I wasn’t really being true to what I really wanted to do, and I stayed in my former occupation much longer than I ever planned. And I think that was one of the things that was always kind of gnawing at me is that I wasn’t really in sync with what I was supposed to be doing. And as I’ve started this process, I’ve had to just do a lot of leaps of faith that things would work out, which is also kind of core in my spiritual beliefs. It’s about just turning things over and trusting and just knowing there’s a higher good, and even when things are not working out, there’s a reason for it, you just need to pay attention and I just need to go for it. So with all the struggles I’ve had with medical school, the hardships and the things that have come up, I’ve just had to go back to it’s happening for a reason, I don’t understand it, but I have to trust, it’s part of my path to keep on going. And so I have.

And Edith talked about guidance from her Grandfathers, a manifestation of the deity in Native spirituality:

And so that’s how it’s played a part in my life, it’s helped me through, it’s what I never forget. If I forget that, I’m not going to make it and so I practice my religion, just asking the Creator and my Grandfathers for help and just to help me through this day, help me to get to where I want to get so I can help these people....I guess that’s kind of how it’s played a part in my life and I’ve always grown up with it—it just seems like a natural part of life for me, I don’t even think about it, it’s always there.

Four of the ten subjects visited spiritual leaders of their tribe who encouraged them to pursue a career in medicine and were helpful in addressing some of the concerns they encountered along the path to medical

school. Lynnette recounted how spiritual leaders helped her resolve the potential conflicts between modern Western medicine and traditional Indian Medicine:

I was afraid that I would be doing something wrong in our religion, in our way of life, in terms of dealing with the cadavers or in terms of reaching into somebody's body like a surgery or just in those ways. I was kind of worried about it, and so I went to a man on my reservation who is considered to be my godfather, and he has some of the spiritual power to communicate...And in a ceremony he brought up the questions, what I was wondering, and they told me not to worry about it. ...There's another man on my reservation who also has come forward and he is one of our spiritual leaders at home. And he has told me that he would like to talk to me at one point about how they, how Western medicine...is involved in our beliefs. I guess he has his own way of thinking about how it all...can work together. Yeah, so I think it would be interesting to hear what he has to say. But he was really positive too and he wasn't saying they're totally separate again or he wasn't saying it was bad for me to be in this field. I think what he really wanted me to do was to work towards having a balance between the two, and that he was encouraging.

## DISCRIMINATION

Five of the ten students described instances of direct and indirect discrimination or racism that they encountered. Some of these experiences were directly related to their educational pursuits on the way to a medical career, as in the case of Darlene:

When I got to college...it was point blank a racist community....My advisor didn't really have any support to offer me and the first quarter of school I wanted to take 15 credits all in premed, and he said well, being Native American you should only take 12 first.

For others, like Edna, the discrimination was not always directly related to their medical career path or not directly experienced:

I can remember when I was younger, wishing that I wasn't Native just because...we would go into town and people were whispering...My nephew who worked for the tribe, I brought him into town to cash his check...at the grocery store...and the cashier asked him, "Oh, do you get this every month?" He was like, "Well, no, every two weeks." I could not believe it, I was so mad...We got out to the parking lot, I was like, "Do you know what she just asked you?...She asked you... 'Do you get handouts?'" It took all that I could do to not just strangle that lady. This is a paycheck—"I worked for that." I mean they just assume, you're Native, you're a bringing a check in, oh, this is a handout.

Whatever the nature of the prejudice, and whether or not it was experienced directly by the student, these incidents represented a challenge that students had to overcome to succeed in their goals.

## DISCUSSION

This research demonstrated several powerful influences on AI/AN students' paths to medical school that served as struggles and supports. These influences ranged from the personal, such as family and friends, to Native community connections, to formal programmatic and educational resources.

Educational experiences from elementary school to college were the most frequently mentioned supports to the students in this study. Students reported that academic enrichment programs such as the MMEP enhanced their knowledge of the application process and increased their confidence that medicine was their career path of choice. Even beyond the academic preparation, physician shadowing opportunities, and community building among minority aspirants to medicine, students valued the institutional commitment to AI/AN health issues that these programs demonstrated. They valued a year-round program established at the medical school that would support their medical career development in general and in the context of AI/AN community health. Both program content and staff made important contributions to students' sense of belonging in medicine. The presence of these support programs appeared to be a strong factor in consideration of a medical career and selection of medical school.

At the same time, several of our subjects discussed how poor educational experiences hindered their path to medical school. This finding is consistent with the research demonstrating that sufficient and early academic preparation prior to college helps AI/ANs in math and science. Special programs and good teachers both contribute to minority science interest (Asera & Treisman, 1995; Schimmel, 2000). Underrepresented minorities are at an academic disadvantage compared with white students starting in kindergarten, and the situation worsens from there (Gándara, 2001; Tekian, 1997). AI/ANs are segregated into resource-poor schools with poorer quality teaching and tracked into less rigorous courses, limiting awareness, aspirations, and preparation (Betz, 1997; Darling-Hammond, 2001; Gándara, 2001; Kerbeshian, 1989; Martin, 1991; Meece & Kurtz-Costes, 2001; Moore-West et al., 1984; Reyhner, 1992; Tekian, 1997). This prevents them from receiving basic preparation, particularly in mathematics and science, needed to compete for entry and to complete physician training (Ascher, 1985; Betz, 1997). Students in the University of North Dakota's Indians into Medicine program, an academic



support program for AI/AN students preparing for health careers, felt their college preparation was poor, and they lacked confidence in their academic qualifications for medical school (Kerbeshian, 1989). Similarly, another study showed that AI/ANs felt their study habits were poor and thought the length and difficulty of schooling was a barrier to medicine (Moore-West et al., 1984). Few of the students in the current study mentioned any support programs that preceded the college years, but the literature and the experiences of the students suggest that earlier support is needed.

Mentors, role models, and high school and college advisors provided another form of educational support. A number of studies of AI/AN and other minority students have shown that the availability of role models and mentors affects academic achievement (Ascher, 1985; Asera & Treisman, 1995; Berg & Iantuono, 1979; Falk & Aitken, 1984; Meece & Kurtz-Costes, 2001; Pavel & Padilla, 1993). Unique to AI/AN students is the support they received from Native mentors and role models, but non-AI/AN advisors were also influential. This study did not attempt to distinguish between role models, mentors, or other kinds of influential advisors, but the limited research in this area suggests that the requirements for effective role modeling versus mentoring may be distinct. Having role models of the same race or gender is probably important, whereas it is less clear whether the race and gender of mentors matters the same way (Jacobi, 1991). It is probably beneficial at times to have mentors of the predominant race or gender in a profession to provide certain kinds of “insider” advice that would not otherwise be available (e.g., white mentors for minorities, or male mentors for females).

Mentors in other fields can be especially influential in steering gifted minority students away from the health professions (Thurmond & Cregler, 1999). Minorities at higher educational levels often have compelling professional opportunities and interests that compete with careers involving science (Schimmel, 2000). Medical training exacts a high cost in terms of both finances and family life, factors that may discourage minorities disproportionately from medicine in favor of other professions that are lucrative and more family-friendly. This was certainly the case for several of the students in this study who were reluctant or uncertain about giving up a good current career to start a second one in medicine.

All students mentioned work or personal health care experiences that supported or encouraged them in their physician career aspirations. Negative health care experiences either motivated students more to become physicians themselves so that they could provide culturally appropriate care or created an image problem to overcome before considering a physician

career path. The role of health care experiences underscores the importance of interactions with health care systems in shaping awareness of what it means to be a physician. These results also raise the question of how many young Native people may be turned off and lost to the medical profession by poor or culturally inappropriate care.

Financial factors played an important role for nearly all of the students. Students received scholarship support of various types. Several students were well advised in college or through mentors about the existence of the 437 IHS scholarship program. This scholarship supports Indian students at the college level who want a career in health. At the college level, these funds do not require a payback. When used to support medical school studies, the scholarship program requires a payback of one year of service in the Indian Health Service (IHS)/Tribal/Urban Indian Programs medical system for each year of scholarship support. Students also noted the significant expense of the application process itself, including the American Medical College Application Service application and travel to interviews. One student received financial help for the process, but in general there are few scholarship funds for these expenses, and students had to depend on friends, family, advisors, or Indian organizations to help them with the costs of application and interviewing. These findings are consistent with other research showing that lower socioeconomic status among AI/ANs limits aspirations and preparation for professional careers, as many AI/AN students have to focus on immediate family subsistence rather than long-term goals (Martin, 1991). Financial barriers for AI/ANs have been shown to be especially formidable in the medical career training process (Meece & Kurtz-Costes, 2001; Tekian, 1997).

Connections to AI/AN communities had a powerful influence on the study subjects. These ties provided both support and conflicts along the path to a Western medical career. Various studies have shown that maintaining traditional cultural ties and values encourages academic success (Benjamin et al., 1993; Brandt, 1992; Falk & Aitken, 1984; Huffman et al., 1986; Willetto, 1999). AI/AN students tend to be more strongly connected to their communities of origin than other students (Benjamin et al., 1993), but the stress of having to live in two cultures was palpable for almost all of these students. Their home tribal or village cultures had little in common with academic culture in a predominantly white society. Traditional AI/AN cultures value the survival and success of the tribal group over the success of the individual (Bransford et al., 2000; Radda et al., 1998). This is in distinct contrast to a white culture that values individual success most highly. The divergent orientations of these two cultures regarding competition and individual versus group success set up a conflict that

AI/AN students must resolve to prepare for medical school, successfully compete in the application process, and undertake medical education.

The roles of family and friends were emphasized by all of the students in this study. The support of family and friends can positively affect achievement (Ascher, 1985; Falk & Aitken, 1984; Quintilian, 1985; Radda et al., 1998; Willetto, 1999). Parental encouragement predicts school retention for AI/ANs and may be particularly influential for career choice (Brandt, 1992; Lee, 1984). Our results showed that female family members in particular supported this group of all female students. On the other hand, family illnesses and death served as deterrents to several students on their path to medicine. These family and community priorities can override individual career demands, occasionally conflicting with academic achievement. Students in this study struggled with loneliness when in school away from home, one of the most challenging aspects of their higher education. Thus their strong family and community ties had opposing influences on their educational experiences—both galvanizing their interest and clarifying the commitment to their communities, while also drawing them away from the medical school path and making the journey more arduous.

All 10 subjects reported that spirituality had played a role in their pursuit of medicine. Traditional Indian medicine (TIM) and spirituality are inextricably linked, though the degree of traditionalism varied substantially among the subjects. Some appeared to have a kind of mental cultural checklist that motivated them to verify with tribal healers or spiritual leaders that pursuing modern Western medicine would not conflict with TIM. Spirituality and modern science are not a natural pair, adding to the sense of cultural conflict. Traditional healers were helpful by providing ceremonies and the reassurance that it was not against tribal taboos to work with cadavers and that modern western medicine and TIM could coexist and work together.

The last barrier that the study subjects had to overcome on their path to medicine was discrimination and prejudice. Prejudice and stereotyping, whether experienced individually or witnessed in the culture at large, hamper minority achievement (Betz, 1997; Meece & Kurtz-Costes, 2001; Steele, 1997; Steele & Aronson, 1995). Indians into Medicine students in North Dakota reported experiencing prejudice from the dominant culture in medical school (Kerbeshian, 1989). Discrimination can exclude minorities from important career-building networking interactions (Betz, 1997). Tokenism can add unnecessary pressure, and the well-documented phenomenon of stereotype threat can lead to anxiety that lowers minority

performance, especially in advanced academic settings (Betz, 1997; Meece & Kurtz-Costes, 2001; Steele, 1997).

We were intrigued by the fact that all study subjects were women. Further research could shed light on whether the all-female sample composition reflects a gender imbalance in higher education, whether it occurred by chance, or whether other factors are at play in the recruitment of AI/AN men and women to medical school careers and involvement in Indian health issues. Three of the ten women mentioned that gender mattered in terms of expectations about prioritizing family and career and the need for female professional role models. That most of the women did not discuss any impact of gender may reflect the fact that the sample consisted only of women who had successfully entered medical school. Interviews with other women might paint a different picture.

The lack of a comparison group and the small sample size are limitations of this study. Further research should explore not only how Native women's experiences compare to men's but also how the paths of those who successfully gain admission to medical school compare to the paths of those who do not. The tables of results illustrate graphically the fact that these students reported more supports than struggles on their way; again, these tables might look different had we included those who had not been accepted to medical school. Further research should also examine how the paths of AI/ANs compare with those of other ethnic and racial groups in the medical career pipeline.

This study was based on students' retrospective interpretations of their experience. Although depending entirely on the students' judgments has the potential to miss critical factors, the strength of this approach is that students have the benefit of the wisdom of their accumulated experience in reflecting on the questions they were asked.

Factors from the deeply personal, such as spirituality and family, to the academic exerted powerful influences over AI/AN students. These factors acted as sources of struggle or support, or both, on the path to medical school. Further research is needed to improve our understanding of these dynamics. But health workforce and educational policy development do not wait for more studies. Given the consistency of our findings with existing research on the underrepresented in medicine and AI/AN populations, the urgent need for more AI/AN physicians, and the appropriateness of providing AI/ANs an equitable opportunity to be physicians, this research can help tribal, governmental, professional, and educational institutions develop a blueprint for supporting AI/ANs starting in childhood on the path to pursuing higher education and a profession in health service.



## NOTES

<sup>1</sup> We will use the terms “AI/AN,” “Indian,” and “Native” interchangeably throughout, except where we distinguish specifically between American Indians (from the lower 48 states) and Alaska Natives.

<sup>2</sup> The Census 2000 total population figure includes only American Indians and Alaska Natives, but medical school enrollment figures from the Liaison Committee on Medical Education also include Native Hawaiians, so the disparity could be even larger.

<sup>3</sup> We refer to students with pseudonyms and all identifying information has been removed or altered in direct quotations in order to preserve confidentiality.

<sup>4</sup> These people and programs continued to provide students support once they were in medical school, but our analysis focuses only on ways the university supported the pursuit of medicine prior to acceptance.

<sup>5</sup> WWAMI is the medical education network of the University of Washington School of Medicine covering the five-state region of Washington, Wyoming, Alaska, Montana, and Idaho.

<sup>6</sup> One interviewee was not asked this question.

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## APPENDIX

### INTERVIEW GUIDE

How old are you?

Where did you grow up?

Was this on a reservation? (only if applicable—not for Alaska Natives)

What is your tribe? (if applicable—not for Alaska Natives)

What native language do you speak?

Who did you grow up with?

How often do you go home?

What has your involvement been with your native community?

Who is in your immediate family?

Did you have any family members or close friends who were healers?

How did you find your path to apply to medical school?

- At what point did you decide to pursue a career as a physician?

- At what point did you know that you wanted to become a physician?

What were the struggles you encountered on this path?

What were the supports you encountered on this path?

Please describe what you believe healing is.

How did you first come to see yourself as a person who could heal other people?

How do you think your spiritual beliefs affected your career decision?

How does what you are doing now fit with the goals you set as an undergraduate student?

What was your experience of the application process to medical school?

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