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American Indians and Alaska Natives in Medicine

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Association of
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Association of American Medical Colleges
Washington, D.C.

Cover Art

"Cante Skuya," by Dyani White Hawk (Rosebud Sioux Tribe)

Association of American Medical Colleges

The AAMC serves and leads the academic medicine community to improve the health of all. Founded in 1876 and based in Washington, D.C., the AAMC is a not-for-profit association dedicated to transforming health care through innovative medical education, cutting-edge patient care, and groundbreaking medical research. Its members are all 151 accredited U.S. and 17 accredited Canadian medical schools; nearly 400 major teaching hospitals and health systems, including 51 Department of Veterans Affairs medical centers; and more than 80 academic societies. Through these institutions and organizations, the AAMC serves the leaders of America's medical schools and teaching hospitals and their more than 173,000 full-time faculty members, 89,000 medical students, 129,000 resident physicians, and more than 60,000 graduate students and postdoctoral researchers in the biomedical sciences.

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Association of American Indian Physicians

The AAIP was founded in 1971 as an educational, scientific, and charitable nonprofit corporation. A group of 14 American Indian and Alaska Native physicians sought to establish an organization that would provide both support and services to the American Indian and Alaska Native communities. At the time of its founding, the AAIP's primary goal was, and remains, to improve the health of American Indians and Alaska Natives. Its mission is "to pursue excellence in Native American health care by promoting education in the medical disciplines, honoring traditional healing principles and restoring the balance of mind, body, and spirit." The AAIP seeks to accomplish its mission by offering educational programs, services, and activities that motivate American Indian and Alaska Native students to remain in the academic pipeline and to pursue a career in the health professions and/or biomedical research. The AAIP also fosters forums where modern medicine combines with traditional healing to enhance health care delivery to American Indian and Alaska Native communities. The AAIP also provides leadership in various health care arenas affecting American Indians and Alaska Natives.

aaip.org

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Data note: The AAMC figures and tables contain data on applicants and matriculants who self-identified as American Indian or Alaska Native (alone, in combination, or alone or in combination) for academic years 1973-74 through 2017-18. "Alone" indicates those who selected only one race/ethnicity response. "In combination" indicates those who selected more than one race/ethnicity response. "Alone or in combination" includes both those who selected only one race/ethnicity and those who selected more than one race/ethnicity.

Race/ethnicity data are displayed only for U.S. citizens and permanent residents. Before 2002-03, applicants could select only one race/ethnicity response. Therefore, the data from before 2002-03 represent American Indian or Alaska Native alone, not in combination with any other race/ethnicity. From 2002-03 until 2012-13, the methodology for acquiring race/ethnicity was updated to one question asking an applicant's Hispanic origin and a second question asking an applicant's race.

Starting in 2013-14, the methodology for acquiring race/ethnicity information was updated again. Rather than one question asking an applicant's Hispanic origin and a second question asking an applicant's race, the Hispanic origin and race categories are now listed together under one question about how applicants self-identify. This question allows multiple responses. In addition, a new response option, "Other," was added. The change in methodology means that data collected from 1973-74 through 2017-18 may not be directly comparable.

Foreword by the AAIP

The AAIP, a nonprofit organization composed of more than 400 American Indian and/or Alaska Native (AI-AN) physicians, was established in 1971. The AAIP is dedicated to improving the quality of AI-AN health to its fullest potential, as intended by the Creator. By partnering with the Association of American Medical Colleges, we envision meeting the shared goal of enhancing AI-AN health quality by increasing the number of Native, or AI-AN, physicians within Indian Country's health care workforce.

The demographics on graduating AI-AN physicians and those represented within the Native health care workforce are appalling and embarrassing. They reveal a major underrepresentation that directly contributes to a high percentage of physician vacancies within the workforce and to poor quality of health care. As a result, there has been little chance to reduce the health disparities endured by Native people or the number of hospital closures in Indian Country. This has forced our people to rely on a workforce composed of too many physicians serving out a commitment rather than being committed to the people.

AI-AN physician faculty members are vastly underrepresented in American medical schools not necessarily by design but more by historical assimilation effects, federal Indian policy, and the long-standing belief of some academic advisors that for AI-AN students, a career in medicine is beyond their reach. This has led to a dearth of role models for mentoring and advocacy for our students within the medical school environment. Increasing the number of AI-AN physician faculty members and researchers in American medical schools will foster and support our common mission of increasing diversity and inclusion within each school, with the desired effect of recruiting, retaining, and graduating qualified AI-AN students.

This publication is ambitious in its scope and detailed in its facts and conclusions. Quite simply, this joint project represents and distills into one publication what is known and what is being done to increase the number of AI-AN medical students and physicians in medical schools, academic health centers, and their partner institutions.

The report summarizes results and best practices of many successful programs from around the country, giving institutions, AI-AN health care entities, and tribal health systems multiple blueprints to use when establishing their own programs that will bolster AI-AN medical school graduation numbers. The end goal is to create and increase a workforce of culturally connected and committed Native physicians, a more diverse and inclusive medical school faculty, and AI-AN physician researchers who will further our understanding of disease affecting Native people.

It is my hope that these blueprints for success will be taken up and refined by others to graduate more AI-AN physicians and to ultimately "move the needle" on the quality of health for Native people.

Ronald Shaw, MD (Osage-Creek)

Ronald B. Shaw, MD

President, AAIP
2016-18

Foreword by the AAMC

Medical schools are chiefly responsible for the development of what the physician workforce looks like today and what it will look like in the future. There is an unspoken reliance on and trust in the established admission criteria that U.S. medical schools use to holistically review and screen more than 50,000 applications a year and the interview and selection processes they adopt to offer acceptances to the very best candidates and to achieve mission-aligned outcomes.

Over the past 35 years, the AAMC, the Association of American Indian Physicians (AAIP), and other health professions and philanthropic organizations have developed and launched national initiatives to address not only the shortage of physicians, but the lack of diversity. We hoped these initiatives would stimulate an increase in the enrollment of applicants who have been historically excluded and underrepresented in medicine. For example, in 1989 the Robert Wood Johnson Foundation (RWJF) developed the Minority Medical Education Program, and in 1995, the RWJF and the W.K. Kellogg Foundation established the Health Professions Pipeline Initiative (better known as HPPI). The AAMC launched Project 3000 by 2000 in 1991 and in 2006 encouraged our medical schools to increase enrollment by 30% over a decade to address physician shortages. Despite these well-intentioned initiatives, increased enrollment for American Indian or Alaska Native students has not kept pace with the aspirational goals in academic medicine.

We must view this issue as a national crisis facing not just the American Indian-Alaskan Native (AI-AN) communities, but all medical schools and teaching hospitals. The new growth in the number of MD-granting institutions (now at 151) and in the number of available seats (about 21,000 seats total per year — an increase of more than 4,400 seats since 1980) has not made a difference for Native enrollment. We need transformative thinking and a new systems-based approach if we are to resolve this crisis with a plausible solution.

The purpose of this report is to catalyze new thinking and meaningful dialogue, to explore innovative ways to look forward, and to respect and learn from our past efforts. The report includes promising and effective practices that some medical schools have institutionalized and that led to greater enrollment and graduation of Native students. These featured medical schools were deliberate and resolute in their pursuit and provide exemplary practices that are possible to model. This report is an attempt to encourage all U.S. medical schools to revisit their missions, reexamine their admission criteria and screening and selection processes, and ask the following questions when reevaluating:

- Are there any *exclusionary practices* operating here at our institution that have created functional barriers that would prevent the enrollment of Native students?
- Are there any screening or selection *biases* at play in our admission processes when it comes to considering Native student applicants?
- Do we practice *conscious inclusion*, and are we *intentional* in our outreach and recruitment to include Native students?
- Are the admissions committee members *intentional* about considering Native students when reviewing the applicant pool being considered for interviews?

The AAMC is honored to cocreate this report with the AAIP, and it is our hope that we can all assist in addressing the challenges facing our Native communities across America. There has never been a better time to bridge the cultural divide and remind ourselves of the social accountability we have, as academic medical institutions, to society.

Sincerely,

David A. Acosta, MD, FAAFP
Chief Diversity and Inclusion Officer
AAMC

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Artist Statement

As a woman of Sičangu Lakota and European American ancestry, I was raised within Native and urban American communities. My work reflects these cross-cultural experiences through the combination of modern abstract painting and abstract Lakota art forms. Some works are executed strictly in paint, weaving conceptual influences and aesthetics from each respective history. Others accomplish the same intermingling of artistic lineages through stories embedded in materials. These mixed-media pieces combine traditional painting mediums — acrylic, oil, and canvas — with beadwork, porcupine quillwork, and other materials common to Lakota artistic traditions.

I strive to create honest, inclusive compositions that acknowledge all parts of my history: Native and non-Native, urban, academic and cultural education systems, and, at times, conflicting world views. This platform allows me to start from center, deepening my own understanding of the complexities of self and culture, correlations between personal and national histories, and Indigenous and mainstream art histories.

By highlighting the strength and legacy of Indigenous arts within a conceptual painting practice, the audience is invited to consider perceived parallel histories as truly intertwined. The complexity of visual and conceptual references encourages conversations that challenge the lack of representation of Native arts and people in the mainstream while highlighting the truth and necessity of equality and intersectionality.

About the Artist

Dyani White Hawk (Sičangu Lakota) is a painter, mixed-media artist, and independent curator based in Minneapolis, Minnesota. White Hawk earned a Master of Fine Arts from the University of Wisconsin-Madison (2011) and Bachelor of Fine Arts from the Institute of American Indian Arts in Santa Fe, New Mexico (2008). She served as gallery director and curator for the All My Relations Gallery in Minneapolis from 2011 to 2015.

White Hawk is a recipient of the 2017 Native Arts and Cultures Foundation Mentor Fellowship, the 2015 Native Arts and Cultures Foundation Visual Arts Fellowship, the 2014 Joan Mitchell Foundation Painters and Sculptors Grant, the 2013-14 McKnight Visual Artist Fellowship, and the 2012 Southwestern Association of Indian Arts Discovery Fellowship. She has participated in cross-cultural residencies in South Africa, Botswana, Australia, and Russia. Her work has been acquisitioned into the collections of the Denver Art Museum, Minneapolis Institute of Art, Smithsonian National Museum of the American Indian, Tweed Museum of Art, IAIA Museum of Contemporary Native Arts, Akta Lakota Museum, Wisconsin Union Art Collection at the University of Wisconsin-Madison, and Robert Penn Collection of Contemporary Northern Plains Indian Art of the University of South Dakota.

Executive Summary

The Association of American Indian Physicians (AAIP) and the Association of American Medical Colleges (AAMC) produced this report with the goal of increasing the presence of American Indians and Alaska Natives in academic health centers. The report provides data, research, informational resources, and institutional profiles to guide efforts to attract, recruit, and graduate American Indians and Alaska Natives. It also includes strategies to ensure that all physicians are prepared to serve American Indian and Alaska Native (AI-AN) communities. This report will help inform faculty and leaders in medical education, student affairs and programs, diversity and inclusion, prehealth advising, biomedical research, AI-AN communities, higher education, and community-based organizations.

The report does the following:

- Provides an overview of the current state of American Indians and Alaska Natives in medicine, including data and available research.
- Illustrates the case for increasing AI-AN representation in medicine by highlighting the value of diversity in education and training, workforce needs, and health disparities.
- Outlines a framework for consideration to promote a positive institutional culture and climate.
- Features institutional profiles of programs that have successfully graduated Native physicians.
- Presents a call to action for medical schools.

The report is divided into four sections. In Chapter 1, Taking in the Landscape, the authors use research and data to provide an overview of the state of American Indians and Alaska Natives in medicine. AAMC data show uneven and slow growth in the number of individuals who identify as AI-AN and have applied to and matriculated into U.S. MD-granting institutions over the past 16 years.[1] Disaggregated data show different trends for individuals identifying as AI-AN alone compared with individuals identifying as AI-AN in combination with another race or ethnicity.[1]

There have been significant efforts to increase the diversity of the physician workforce, particularly among African American, AI-AN, and Latino communities. However, the increases over time have been small. Like other underrepresented populations, American Indians and Alaska Natives have experienced minimal gains in their representation across the medical education continuum despite the growth and expansion of medical schools over the past 30 years.[2] For example, individuals reporting that they are AI-AN in combination with another race represented 0.66% of matriculants in the 2006-07 academic year compared with 0.76% in 2017-18. For individuals reporting as AI-AN alone, representation decreased, from 0.39% in academic year 2006-07 to 0.20% in 2017-18.[1] Physicians reported as AI-AN alone and in combination represented 0.56% (4,099) of the estimated 727,300 active physicians in 2016.[3] In 2017, 0.48% (836) of the 174,570 total full-time faculty members at MD-granting institutions were reported as AI-AN alone or in combination with another race or ethnicity.[4]

The authors describe complex historical factors that influence the health and education of Native communities in the United States. The colonization of the Americas led to the destruction of AI-AN family systems through such policies as forcing children to attend boarding schools, loss of AI-AN land, subjugation of AI-AN people, and termination of tribes.[5] These factors are the roots of many of the challenges AI-AN communities experience, including their access to health care and high-quality education, and they are the foundation for a unique relationship between AI-AN tribal communities as sovereign nations and the U.S. government: federally recognized tribes have a legal right to federal support for health care and education, among other trust obligations.[5,6] Despite these historical factors, AI-AN cultural ways have continued to contribute to resilience, preservation of traditions, and nation building.

AI-AN youth view health as a priority issue for their communities.[7] At the same time, they identify the need for culturally responsive education systems. Factors that dissuade AI-AN youth from pursuing medicine include lack of financial support, limited access to accurate information about the processes of preparing for and applying to medical school, cultural incongruence, absence of role models, limited social and cultural support, inability to stay close to family, and balancing familial responsibilities.[8-11] Currently, AI-AN students can borrow federal loans up to the full cost of attendance for medical school through GradPLUS, and federal income-driven repayment plans and loan forgiveness programs help ensure that medical education remains accessible, affordable, and an excellent investment for students from all backgrounds. Culturally responsive academic enrichment programs, access to information about the medical school application process, connection with role models, and financial support such as the Indian Health Service scholarship influence the number of AI-AN students preparing to apply and matriculating to medical school.[8,9,11]

In Chapter 2, Fertile Ground, the authors introduce the importance of attending to the culture and climate of institutions when considering strategies to increase AI-AN representation in medicine. They present the Campus Racial Climate Framework by Milem et al. (1999)[12] and explore its dimensions to understand these key issues and offer solutions to enhance the AI-AN presence at medical schools:

- **Historical legacy of inclusion and exclusion.** The authors discuss the significance of recognizing that AI-AN history in the United States has been equated to cultural genocide. This history has contributed to today's challenges for AI-AN communities, structural racism, and other barriers.[4] Institutions, especially those on or near tribal lands, should have processes in place to acknowledge this history.

- **Psychological climate.** Institutions are encouraged to understand how race relations, institutional responses to diversity and inclusion, management of discrimination, and bias are viewed by students, faculty, and staff. The authors note the importance of using culture and climate assessments and having systems in place for reporting and accountability. Programs that support intergroup dialogues and are responsive to cultural needs foster a positive psychological climate.[13]

- **Organization and structure.** Organization and structure relate to the financial resources, space, staff and leadership positions, and institutional policies and procedures dedicated to advancing diversity and inclusion.[12] These organizational and structural elements should align with the institution's mission while also allowing for Liaison Committee on Medical Education (LCME®) standards to be met. The authors highlight unique considerations for premedical programs and initiatives, admissions policies, and partnerships for AI-AN communities. It is important that institutions recognize the sovereignty of federally recognized tribes and know that they can recruit directly from these tribes, as they do now with students from particular U.S. states.[14,15]

- **Compositional and structural diversity.** The focus of compositional and structural diversity is the actual number of individuals who identify as AI-AN. In the 2016-17 academic year, 43% of MD-granting institutions had no students identifying as AI-AN (alone) enrolled in their schools.[16] The authors discuss the importance of understanding the impact of feeling like "the only one or one of few" and how institutions may help counteract that feeling for Native students, staff, and faculty. They also note the value of recognizing the diversity of tribes, disaggregating data, and attending to intersections of identity.

- **Behavioral dimension.** This dimension focuses on the actions and practices and the quality of interactions that can be observed in the learning environment. The authors discuss the effect on students and faculty of not including AI-AN health in medical school and residency training.

The framework sets the stage for understanding the profiles presented in Chapter 3, Learning From Our Community. The authors chose to profile four institutions that have a relatively high number of AI-AN graduates over a 35-year period, based on AAMC data and AAIP leadership experiences: University of Minnesota Medical School, Duluth campus; University of North Dakota School of Medicine and Health Sciences; University of New Mexico School of Medicine; and University of Arizona College of Medicine-Tucson.

The institutional profiles serve the following purposes, to:

- Share strategies to attract and recruit AI-AN students.
- Outline efforts to support AI-AN student success in medical school.
- Provide insight into institutional and community mechanisms to establish and sustain programs focused on AI-AN students.
- Identify components critical to the success of policies and programs that may be implemented at other institutions.

In the concluding chapter, At the Crossroads, the authors encourage all academic medical centers to take action to change the representation of American Indians and Alaska Natives in medicine. They offer the following summary themes for consideration.

Academic medicine has an important role in diminishing the impact of structural barriers.

Medical schools and teaching hospitals contribute significantly to local economies.[17] Opportunities to influence employment and community engagement may be leveraged to promote change for AI-AN communities.

Leadership engagement is essential.

Leaders within AI-AN communities and at institutions need to work together to make sustainable changes.

Inclusive practices foster community.

Institutions need to pay attention to their culture and climate to reap the benefits of diversity. This is only possible when they have policies and practices in place to ensure that everyone, including AI-AN students, faculty, and staff, believes they are valued members of the academic medicine community.

Collaborations that are mutually beneficial make a difference.

The institutional profiles, and related published work, show that collaborations and partnerships are necessary to increase the AI-AN representation in medicine. These collaborations are distinguished by their focus on being informed by AI-AN communities, being co-led with AI-AN communities, and practicing reciprocity.

A national response is needed.

This is not a challenge solely for institutions in regions with AI-AN communities. It is a national issue that needs the attention of all medical schools and teaching hospitals that are focused on preparing the next generation of physicians who are equipped to provide high-quality, culturally responsive care.

The hope is that all academic health centers will work on increasing the AI-AN physician workforce and contribute to the health of AI-AN communities through education, training, research, and practice.

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CHAPTER 1

Taking in the Landscape: Why Increasing American Indian and Alaska Native Representation in Medicine Is Critical

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Academic health centers play a critical role in advancing the nation's health by training future health professionals, serving as hubs for discovery and innovation, and providing high-quality health care.[1] To achieve this tripartite mission, there is an imperative to integrate diversity and inclusion in mission statements and include the importance of diversifying the health care workforce in institutional strategic priorities. Significant efforts to enhance the diversity of the physician workforce have, over time, made small gains in the representation of African American, American Indian and Alaska Native (AI-AN), and Latino communities.[2] Among these groups, American Indians and Alaska Natives have seen minimal gains in their representation across the medical education continuum despite the growth and expansion of medical schools.

Among the estimated 727,300 active physicians in the United States in 2016, 0.56% (4,099) reported as American Indians and Alaska Natives.[3] (Data are estimated from 2012-16 American Community Survey (ACS) 5-Year Data Profiles. "Active physicians" are defined as people who report their occupation as "physician and surgeon," are currently at work, and work no less than 20 hours per week. Residents are excluded.) Of 174,570 total full-time faculty at MD-granting institutions in 2017, 0.10% (167) were reported as AI-AN (alone) and 0.38% (669) were reported as AI-AN in combination with another race or ethnicity.[4] These data represent an issue that has received limited attention and presents a significant concern for Native communities and the health of all in the United States. Academic health centers are well positioned to increase awareness of this issue and be part of the solution.

Active physicians

0.56%

reported as AI-AN alone or in combination with another race

(4,099 of 727,300 total)

Full-time faculty

0.48%

reported as AI-AN alone or in combination with another race or ethnicity

(836 of 174,570 total at MD-granting institutions)

This report highlights bright spots where academic health centers have made significant strides in attracting, recruiting, and graduating Native physicians and in integrating Native health into the educational and training environments. Bringing together these institutional models, other examples of work across the United States, and data and research, the AAMC and the AAIP hope to inform and inspire more action to increase AI-AN representation in academic health centers.

Why Now?

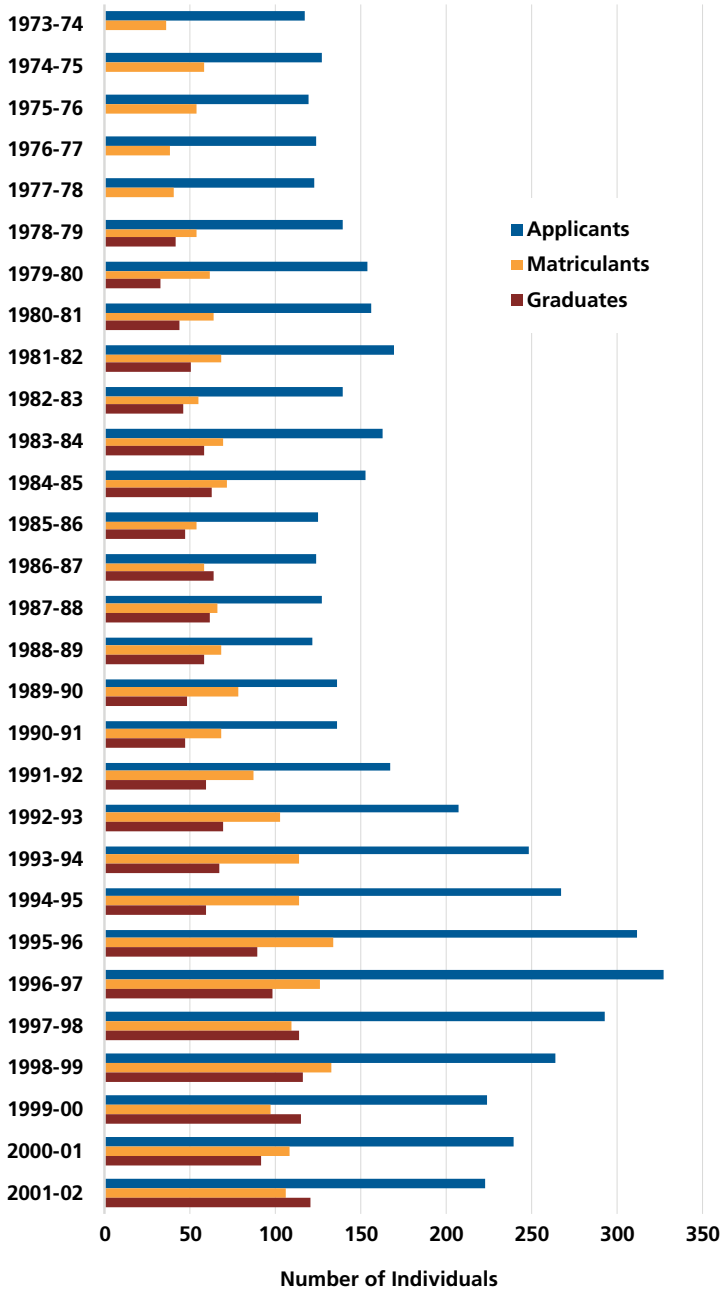
AI-AN people face immense challenges in the U.S. health care system and experience some of the worst physical and mental health outcomes in the nation.[5] For example, 19% (508,515) of AI-AN people report no health insurance, compared with 9% (25,800,000) of the U.S. population.[6] Underlying causes for the current health inequities are vast and complex. Nonetheless, AI-AN people have demonstrated incredible strength and resiliency. Despite generations living daily with the cascading fallout of colonialism, Native communities are reclaiming their culture and empowering themselves and their communities.[7]

No health insurance:

19% of AI-AN people **vs.** **9%** of U.S. population

Complicating matters is the profound underrepresentation of AI-AN physicians in the U.S. health care workforce. Since academic year 1973-74, the trend of individuals identifying as American Indian or Alaska Native (alone) applying to and enrolling in MD-granting programs is best characterized as uneven, with a few three-year periods that show increases followed by several years of decreases and small increases.

The most significant period of increases in AI-AN (alone) applicants and matriculants was the eight-year period from academic year 1989-90 through academic year 1996-97 (Figure 1). Fueled by Project 3000 by 2000 — launched by the AAMC in 1991 — the need to develop innovative strategies to attract underrepresented racial and ethnic minorities to MD-granting institutions received national attention.[8] Following this period, anti-affirmative action laws and court challenges influenced diversity efforts across higher education.[9] Figure 1 provides data for applicants, matriculants, and graduates identifying as AI-AN



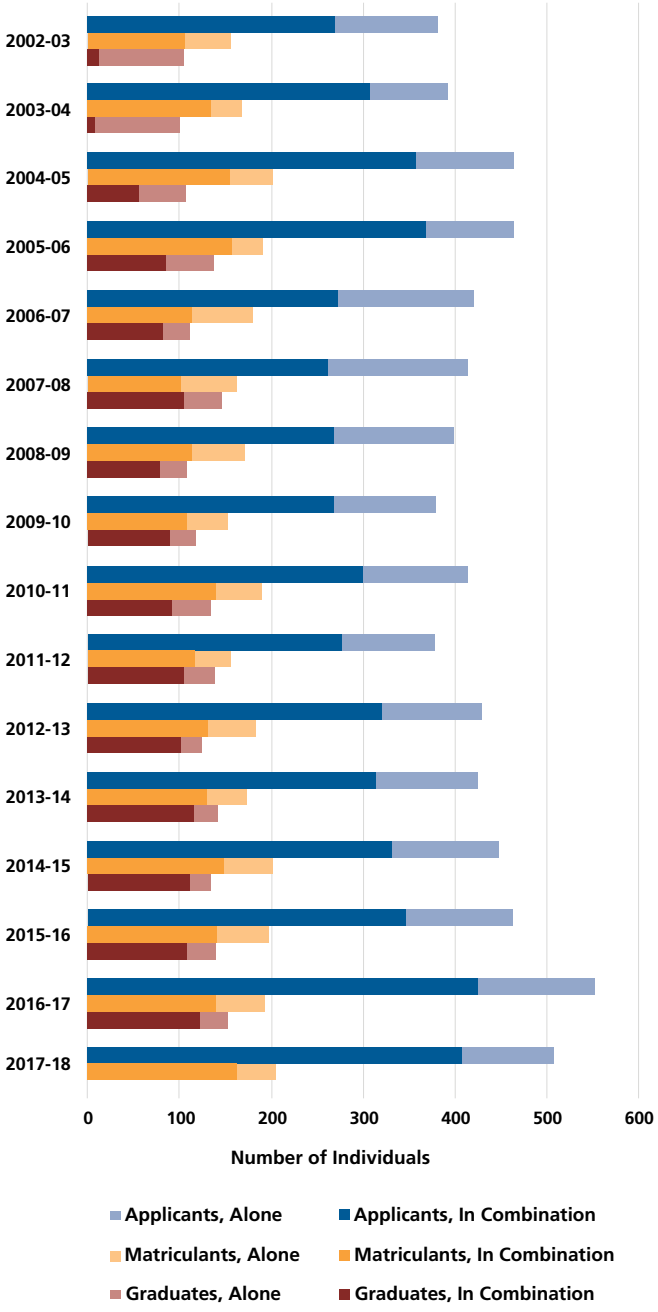
Source: AAMC Applicant Matriculant Data File and Student Records System. March 6, 2018.

Figure 1. American Indian or Alaska Native (alone) applicants, matriculants, and graduates of U.S. MD-granting institutions, 1973-74 through 2001-02.

(alone) for academic years 1973-74 through 2001-02. As depicted in Figure 2, the trend in the numbers of Native students applying and matriculating to MD-granting institutions has been slow and uneven in the past 16 years, particularly among individuals identifying as AI-AN alone.

For example, the number of applicants identifying as AI-AN alone in 2016-17 did not exceed the applicants to MD-granting institutions in the academic year 2006-07. There were also more students identifying as AI-AN alone entering MD-granting programs in 2006-07 than in 2017-18 (Table 1). Conversely, over the past 16 years, the number of applicants identifying as AI-AN in combination with at least one other race/ethnicity has increased steadily.

The AAIP's National Native Youth Initiative high school students visiting the AAMC, 2018.



Source: AAMC Applicant Matriculant Data File and Student Records System. March 6, 2018.

Figure 2. American Indian or Alaska Native (alone and in combination) applicants, matriculants, and graduates of U.S. MD-granting institutions, 2002-03 through 2017-18.

Table 1. AI-AN Applicants Alone or in Combination in 2006-07 and 2017-18

	2006-07		2017-18	
	Alone	In Combination	Alone	In Combination
Applicants	147 (0.38% of 39,108)	274 (0.70% of 39,108)	100 (0.19% of 51,680)	408 (0.78% of 51,680)
Matriculants	68 (0.39% of 17,361)	114 (0.66% 17,361)	42 (0.20% of 21,338)	163 (0.76% of 21,338)

Source: AAMC Applicant Matriculant Data File, March 6, 2018.

These data trends underscore the critical need to intentionally address the development of Native physicians. This action aligns with calls to increase the physician workforce in light of predicted physician workforce shortages and the need for more primary care physicians.[10] Native physicians are more likely to practice family medicine and in rural areas.[11] Native physicians, along with African American and Latino physicians, are more likely to practice in locations where 20% or more of the population are living in poverty, as well as in primary care health professions shortage areas (HPSAs) and medically underserved areas (MUAs), and they are more likely to serve medically underserved populations.[12] An increase in the number of AI-AN physicians in the U.S. physician workforce (inside and outside AI-AN areas) could turn around the disappointing trends in health equity for AI-AN people and improve the health care of all people in the United States.

Native Communities in the United States

The AI-AN population is one of the fastest growing racial and ethnic populations in the United States.[13] According to the 2010 U.S. Census, 5.2 million people identified as AI-AN (AI-AN alone and/or in combination with another race), making up 1.7% of the U.S. population.[13] In 2016 the AI-AN population (AI-AN alone or in combination) rose to 6.7 million, representing 2% of the U.S. population.[13] Most AI-AN people live in the West and Southwest regions of the country and are most highly concentrated in AI-AN areas (reservations and villages). Currently, the United States has approximately 573 federally recognized tribes and villages, each with unique customs, language, and spiritual and religious beliefs.[14] However, the majority of AI-AN people — 78% — live outside AI-AN areas, in cities. The cities with the largest AI-AN populations are New York, Los Angeles, and Phoenix.[13]

The relationship between the federal government and AI-AN communities is complex, with the U.S. government establishing nation-to-nation relationships with each sovereign tribe, as well as a federal trust obligation that includes providing health care for AI-AN populations.[15,16] American Indians and Alaska Natives have a legal birthright to health care; however, access to safe, high-quality, and culturally responsive health care remains elusive.[5,17] In addition, AI-AN people face marked health inequities compared with the general U.S. population: AI-AN individuals live with higher burdens of chronic, preventable diseases and die much younger[5]; 25% of AI-AN deaths occur before age 45, compared with 15% of African Americans and 7% of Whites.[18]

Deaths before age 45:

25% of AI-AN people | **15%** of African Americans | **7%** of Whites

AI-AN health status is arguably the worst in the nation and often goes unrecognized, tucked away in the "other" category of health data and reports. As a nation, we must not get distracted and divert our eyes from these realities that we all need to face.

The poor health of AI-AN people can be attributed to the social determinants that negatively affect health: poverty, low education, joblessness, lack of medical insurance, inadequate housing, poor sanitation, and lack of safe drinking water.[16] The Indian Health Service (IHS) reports that adequate sanitation facilities are not present for a staggering 36% of AI-AN households, and of these homes, 6.5% "lack access to a safe water supply and/or waste disposal facilities, compared to less than 1% of homes for the U.S. general population."[19]

Impact of Colonialism and Historical Trauma

> *"This condition is the heritage of centuries of injustice. From the time of their first contact with European settlers, the American Indians have been oppressed and brutalized, deprived of their ancestral lands and denied the opportunity to control their own destiny. Even the Federal programs which are intended to meet their needs have frequently proven to be ineffective and demeaning.*
>
> *But the story of the Indian in America is something more than the record of the white man's frequent aggression, broken agreements, intermittent remorse and prolonged failure. It is a record also of endurance, of survival, of adaptation and creativity in the face of overwhelming obstacles. It is a record of enormous contributions to this country — to its art and culture, to its strength and spirit, to its sense of history and its sense of purpose."*
>
> *— President Richard Nixon, July 1970*[20]

Other determinants of AI-AN health outcomes are less apparent and may be unrecognized, overlooked, minimized, or ignored altogether. In their everyday lives, AI-AN people feel the cumulative effects of colonialism and its associated policies that present in the form of historical trauma and socially marginalizing phenomena — racism, bias, and microaggressions.[21] Some devastating components of these experiences are similar to those of other Indigenous populations that endure widespread social marginalization,[22] and many experiences are unique to AI-AN people.

Colonization in the Americas brought the breakdown of AI-AN family systems, loss and destruction of AI-AN land, and subjugation of AI-AN people.[23] These and other factors collectively translated to ethnic and cultural genocide.[24,25] New diseases were introduced (small pox and measles were the most pernicious) and spread alarmingly fast, causing infection and death to sweep through AI-AN communities. Scholars have described the introduction of these illnesses as "one of the earliest episodes of biological warfare," proving more devastating to AI-AN populations than European weapons of war.[26]

AI-AN communities were subjected to policies that would terminate tribes, essentially erasing them as a people. These U.S. government policies included forcible, often inhumane, removal from homelands, the creation of reservations, and forced assimilation to the "American" way of life.[23] The horrendous nature of such actions left generations of trauma and scarring. In the mid-19th century, the federal government set up boarding schools that became a common way to assimilate AI-AN children; the schools were established with the idea that stripping these children of their culture early on would eliminate their following and passing along their traditions later in life.[27] The AI-AN experience with boarding schools, summarized in Box 1, represents a historical trauma linked to the health disparities of today.[28,29]

Despite the hostile effects of colonialism and cultural genocide, AI-AN communities have proven to be resilient and prevailed over such extreme adversity. The nation's civil rights era and the organization of AI-AN communities helped push the government's approach away from termination of tribes and toward tribal empowerment and sovereignty.

Box 1. Boarding Schools and Their Lasting Impact on AI-AN Communities

Children were strategically placed in schools located far from their parents, isolating them from families and communities and ensuring that parents would have no access to their children. The children were not allowed to speak their own language, wear traditional hairstyles or dress, or engage in cultural practices; they were forced into Christianity. Illness went untreated, and death was common. Bodies were not always returned to families. Children were often malnourished and subject to widespread physical and sexual abuse.

According to Sammy Toineeta (Lakota), who helped found the National Boarding School Healing Project, these boarding schools are "one of the grossest human rights violations because [they] targeted children and [were] the tool for perpetrating cultural genocide."[30] Boarding schools successfully stunted the transmission of cultural knowledge and fractured family structures. In too many cases, physical and psychological abuse from the boarding schools became internalized learned behaviors that were passed on from generation to generation, leaving individuals, families, and communities in physical, emotional, and spiritual distress. AI-AN communities continue to bear the fallout of boarding schools and other damaging historical influences.

In his July 1970 message on Indian Affairs to the U.S. Congress, President Nixon stated:

> … it is long past time that the Indian policies of the Federal government began to recognize and build upon the capacities and insights of the Indian people… the time has come to break decisively with the past and to create the conditions for a new era in which the Indian future is determined by Indian acts and Indian decisions.[20]

Nixon outlined nine areas that required change. A major step forward was the 1975 Indian Self-Determination and Education Assistance Act, which created a framework for tribes to use to exercise greater control of federal resources, including direct delivery of health care. More legislative action followed with the passage of the 1976 Indian Health Care Improvement Act, 1978 Indian Freedom of Religion Act, and the 1978 American Indian Child Welfare Act.[15]

With these and subsequent federal self-governance acts of the 1980s and 1990s, AI-AN communities were able to decide about their own health care and education, freely engage in their own spiritual practices, and have a legal voice in the treatment of their children. Today, AI-AN people are actively rebuilding their communities, regaining strength, and reclaiming their cultures by revitalizing languages and traditions as they strive for community healing, empowerment, and positive futures for their children.[31]

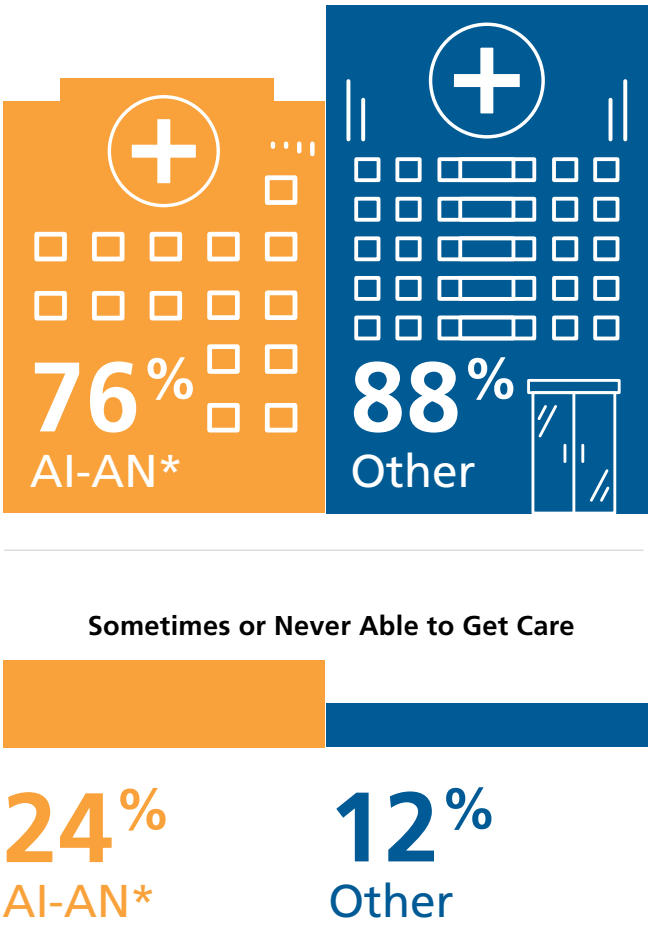
These cultural factors — spiritual and religious beliefs, language, and customs — have influenced Native health and access to high-quality health care for generations. However, as previously stated, the current health care workforce is relatively void of AI-AN voices and representation, and thus void of the AI-AN-specific cultural knowledge that AI-AN communities have relied upon for millennia. AI-AN communities are disproportionately underrepresented across the U.S. medical ecosystem, from medical education students and faculty to the physician workforce. National studies show that a diverse workforce leads to improvements in access to care, health care delivery, cultural competence, and patient satisfaction.[32-35] By intentionally training more AI-AN physicians, medical schools could play a larger role in improving the current health trends of AI-AN people.

Access to Health Care

Native communities seek health care in a variety of settings. Although the IHS provides care for 2.3 million AI-AN patients, most American Indians and Alaska Natives receive health care outside the IHS system.[36] It is therefore vital to train the entire U.S. physician workforce to meet the needs of this unique population.

Tribal health facilities located in areas with the highest concentration of AI-AN people face an ongoing physician workforce shortage, which perpetuates health inequities for AI-AN people. IHS data indicate a 25% physician vacancy rate at tribal health clinics nationally.[37] As a comparison, the national physician vacancy rate is 21% at community health centers and 18% at hospitals.[38,39] Preventable diseases are the leading causes of mortality in the AI-AN population, largely because the persistent physician vacancies at tribal clinics result in decreased access to health care and the perpetuation of health disparities. Lack of continuity of care is also a concern because of the high turnover of doctors and nurses who serve only temporary placements of less than three years in tribal facilities.[32] The figure on this page shows that when seeking care in any facility, AI-AN people are twice as likely as other racial and ethnic groups to say that they are sometimes or never able to get care.

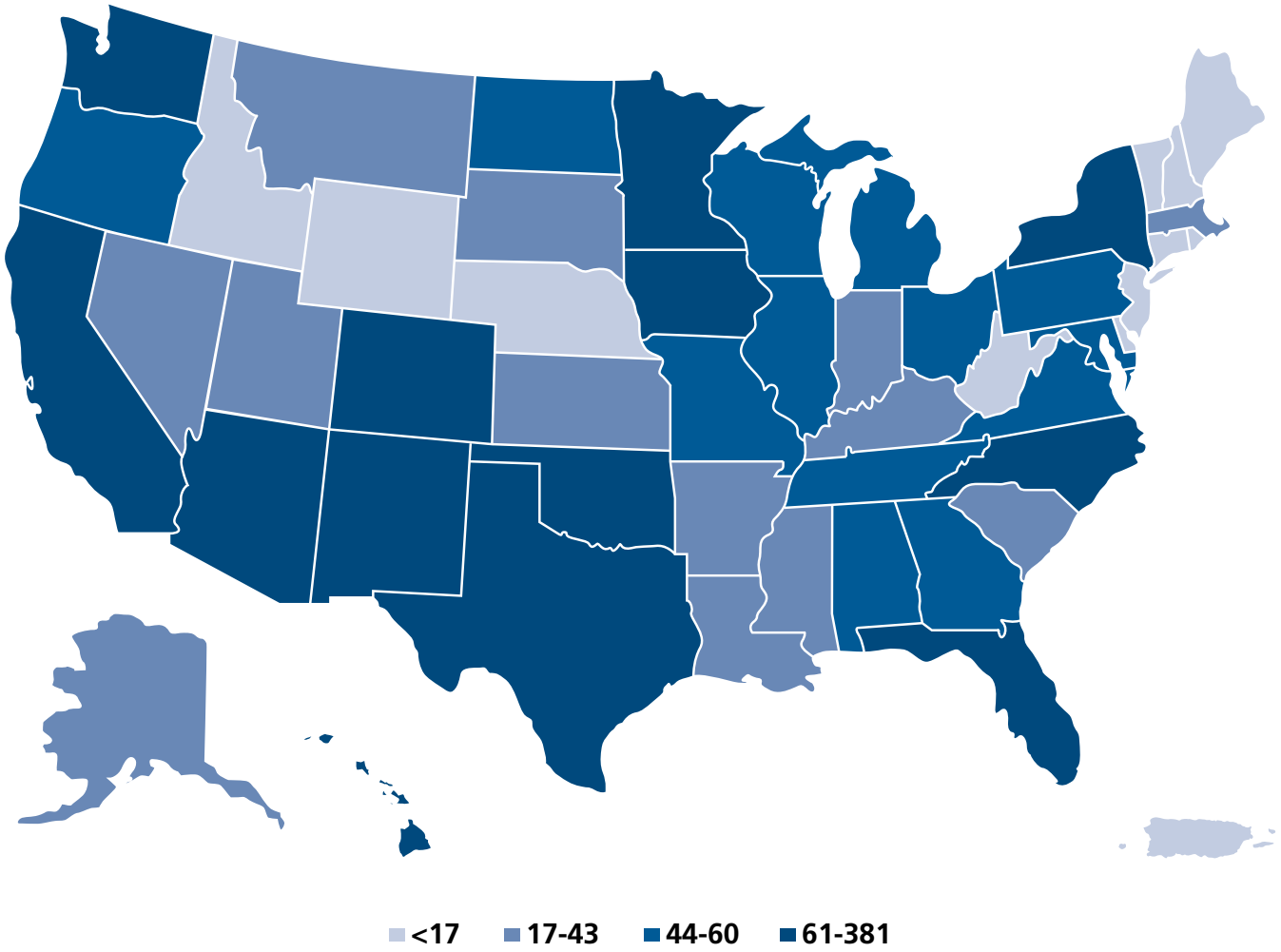
Thinking about the time you needed medical care in the last 12 months, how often were you able to get it?



Source: AAMC Consumer Survey of Health Care Access, 2016-17.

*Includes anyone who identified as American Indian or Alaska Native, alone or in combination with another racial or ethnic group.

Figure 3 displays the distribution across the United Sates of active MD physicians who identify as AI-AN. Most Native physicians are concentrated in areas with high populations of AI-AN people.



Source: American Medical Association Physician Masterfile, Dec. 31, 2016.

Figure 3. Active U.S. MD physicians in 2016 who identify as American Indian or Alaska Native.

Racial concordance can influence patient satisfaction, patient use of health care services, the time when treatment is sought, and the time when treatment is initiated.[33-35] AI-AN physicians bring their cultural histories and backgrounds to each patient encounter and often have the unique perspective to understand, relate to, and empathize with tribal patients. Patient trust, communication, and likelihood to adhere to treatment were heightened when patients perceived that their beliefs, values, and communication styles were like those of their physicians.[40] Thus, the presence of AI-AN physicians in patient care can foster improved health for AI-AN patients. Eliminating health disparities necessitates addressing health care needs with a multifaceted approach.[41] AI-AN physicians can act as leaders and patient advocates who influence the nature of health research and policy and ensure that they consider

the unique, oftentimes life-threatening, health concerns of AI-AN people.[42]

AI-AN medical students are also more likely than their peers to work with AI-AN people once they enter clinical practice. Physicians who are underrepresented are more likely to work with underserved populations regardless of career choice and debt.[43] Thus, including more AI-AN professionals in medical education could alleviate current workforce challenges, particularly throughout Indian Country, and provide more comprehensive solutions to the challenges faced by the U.S. health system.[44]

Plans to work in underserved areas:

(Source: AAMC Matriculating Student Questionnaire, 2015 and 2016.)

(Source: AAMC Medical School Graduation Questionnaire, 2016 and 2017.)

Enhancing the Learning Environment

Beyond the physician-patient relationship, AI-AN and other physicians often educate one another and together become community advocates, political activists, health promoters, role models, scholars, and teachers.[42] For instance, the inclusion of AI-AN physicians in clinical practice and in academia could help unpack preconceived notions about Native communities and foster interpersonal and cultural acceptance and respect. They would dispel for others the common stereotypes of and myths about AI-AN people, that they are alcoholics, share the exact same customs and traditions, are members of tribes that are wealthy from casinos and government support, do not understand the value of land, are mystical Earth mothers and sacred sages, do not value hard work, and act like warriors and savages, among others.[45,46]

Ultimately, the presence of AI-AN physicians in academic medicine, clinical practice, research, and leadership roles could directly confront some of these unhealthy stereotypes for all people, not only AI-AN people. An AI-AN voice in U.S. medical and health professions education would add depth and holistic perspectives to addressing the challenges of delivering safe, affordable, and high-quality health care to all people.

The presence of AI-AN academic faculty and physicians can enhance the training of all medical students and AI-AN medical students in particular.[47] AI-AN faculty's cultural knowledge and awareness of barriers specific to AI-AN students in medical education offer a more effective approach to student recruitment, admission screening, selection, support, and success.[47-49] Research identifies the availability of AI-AN faculty and residents as a factor in the success of AI-AN medical students. Such individuals can assist students in overcoming feelings of isolation, provide support in reducing rates of attrition, and encourage research specific to AI-AN populations.[48] AI-AN mentors are often equipped to provide culturally responsive and safe mentorship to AI-AN students. AI-AN faculty mentors can provide opportunities for AI-AN students to speak openly and honestly of barriers, specifically the challenges related to family and cultural conflict.[50] AI-AN faculty are also real-life examples of success and role models for students, providing a glimpse of what their lives can be like after completing their education.[47,48] However, there are few AI-AN faculty and even fewer medical schools with a critical mass of AI-AN faculty. Based on 2017 AAMC data, faculty reported as AI-AN alone represent 0.10% (167) of U.S. full-time faculty at MD-granting institutions, and faculty reported as AI-AN in combination with another race or ethnicity represent 0.38% (669).[4]

Increasing AI-AN presence as faculty and students in medical schools may increase interest in and greater awareness of tribal health issues for all students. It may also inspire medical students to work in underserved areas after graduation, serving as physicians in the IHS, tribal health clinics, and urban Indian health clinics.

Great contributions to Indian health have been made by people who are not American Indians or Alaska Natives, and medical schools have developed curricular programs that help students from other racial and ethnic groups work in Indian health.[51-53] For instance, the University of Minnesota Medical School, Duluth campus, requires an Indigenous health curriculum for all medical students. The curriculum's design and implementation was led by AI-AN faulty and community members with the goal of better equipping all medical students with the skills and an increased awareness to promote health equity for Indigenous peoples.[51] The University of Hawai'i John A. Burns School of Medicine conducts a Native Hawaiian-led cultural immersion as part of its cultural competency training for community physicians to improve cultural understanding and ultimately improve the health of Indigenous people.[53] The University of Washington School of Medicine developed its Indian Health Pathway program to interest students in working with tribal and rural communities, thus helping alleviate workforce shortages and access issues.[40]

Developing the Next Generation of Native Physicians

Various factors influence AI-AN representation in health professions. The gaps in education start early. Native youth identify the following areas for improvement:[54]

- School climate that supports racial equity.
- Access to resources.
- More culturally appropriate curriculum.
- Addressing institutional racism.

In many ways, the uneven trends in medical school applicants and enrollment can be attributed to earlier trends at the elementary, high school, and college levels. Box 2 describes the higher education overview.

Research focusing on premedical and medical students finds that academic enrichment programs, access to information about the medical school process, and financial support such as the Indian Health Service scholarship play important roles in the decision to consider a career in medicine and in the process of applying to and preparing for medical school.[49,55-57] Frequently cited challenges that discourage students from pursuing medicine include lack of financial support, which often negatively affects the time to prepare for the MCAT® and the ability to pay for applications; limited access to accurate information about the process; cultural incongruence; absence of role models; limited social and cultural support; inability to stay close to family; and balancing familial responsibilities.[49,55-57] Despite the availability of federal aid programs that include GradPLUS, federal income-driven repayment plans, and loan forgiveness programs that ensure that medical education remains accessible and affordable, AI-AN students are often unaware of these opportunities.

Who has premedical debt:

45%
of AI-AN matriculants

36%
of matriculants

Source: AAMC Matriculating Student Questionnaire, 2015 and 2016.

The paucity of AI-AN individuals in contemporary media and professional fields is also detrimental to AI-AN youth pursuing health and professional careers. The concept of a future self is formed early in life, so the presence of role models has the power to drive the decisions of youth as dreams and future vocations are considered and pursued.[58]

Box 2. American Indian and Alaska Native Communities and Higher Education

Heather Shotton, PhD

Access to higher education has been a long-standing concern for Native communities. High school dropout rates, low matriculation rates, and underrepresentation in undergraduate and graduate/professional education remain points of concern. High school dropout rates for AI-AN students range between 12% and 14%.[1,2] And despite Native students increasingly reporting a desire to go to college, Native student enrollment in postsecondary education remains the lowest of all racial and ethnic groups.

In 2013, 32% of AI-AN students ages 18-24 were enrolled in college.[3] They make up between 0.8% and 1.0% of the total undergraduate population.[1,3,4] While we have witnessed an overall increase in enrollment of American Indians and Alaska Natives in higher education over the past 25 years — from 95,500 in 1990 to 132,000 in 2015 — in recent years, there has been a decline in their enrollment.[3] Reports from the National Center for Education Statistics indicate that between 2010 and 2015, enrollment of AI-AN students decreased by 26% (from 179,000 to 132,000 students), despite a 29% increase (139,000 to 179,000) between 2000 and 2010.[4] This is an alarming trend for an already underrepresented population.

Discussions of enrollment in postsecondary education for Native students must inevitably include discussions of access. Some scholars point to the importance of a college-going culture as key to college access. Research identifies having clear educational and college expectations, providing a college preparatory curriculum, facilitating access to college application processes, supporting access to the ACT and/or SAT, and offering strong college counseling as critical components for creating a college-oriented culture.[5] However, AI-AN students often attend secondary schools with poor resources, decreasing the likelihood that Advanced Placement courses are offered, and only one in four will take the ACT.[6] Beyond academic programming, there is a critical need for Native and community role models and culturally appropriate support avenues.[7] Furthermore, there is encouragement to push beyond the limited ways that college access is explored: Getting to college is more than applying and gaining admission to an institution; "students need access to information such as financial aid and how to navigate the financial aid process, college preparation coursework, ACT and SAT prep courses, study skills, and skills such as how to talk to a professor and find support on campus."[7]

When considering issues of access and success in postsecondary education, it is critical to understand the unique factors that influence participation of Native students. Higher education institutions continue to emphasize individual gains such as personal income as motivating factors for college and career choices.[8,9] However, from many tribal perspectives, where "individual development happens for the betterment of the community," a focus on individual gains is counter to tribal cultures.[10] Reciprocity and a desire to give back to their communities have consistently been identified as motivations for Native students.[11-14] Native students are taught that education is a "ladder," a "weapon," a tool their communities need to create

solutions to the challenges facing their tribes.[7] Education in this context is viewed as an instrument for building tribal nations, and creating pathways to college and medical professions must honor values of reciprocity and nation-building goals.

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Recent efforts such as the We Are Healers initiative highlight the successes of using video testimonials of Native role models to inspire Native youth to pursue careers in the health professions.[59]

Other key facilitators get Native youth into the health professions, including motivation to serve Native people, traditional beliefs and spirituality, visible Native mentors, community connectedness, and health care experiences. Social representation of AI-AN people in a contemporary context (that is, as physicians and other positive role models) functions as a building block for AI-AN youth to use in forming their own identities.[49,55-57]

There is a dearth of recent research about the factors that influence Native youth career decisions, particularly in the health professions. However, the *State of Native Youth Report* discusses health and wellness as being among the top issues for Native youth.[60] Considering how to eliminate and reduce barriers and supporting facilitating factors will be critical in clearing the path for Native youth to have successful careers.

Despite policies and the historical and structural issues influencing Native health and the underrepresentation of Natives in medicine, academic medicine can play an integral role in effecting change. Increasing AI-AN perspective and presence in U.S. medical education and the health professions workforce has the potential to generate the solutions to the challenges in academic medicine, especially for AI-AN people, while advancing health equity for all people.

Medical schools' plans to advance diversity and inclusion are often well-documented in mission statements and strategic plans.[52] Often what is missing is the exchange of knowledge about effective practices to make the plans a reality. The next chapter uses the Campus Racial Climate Framework to organize data, research, and other resources focused on AI-AN communities, as well as on diversity and inclusion strategies. Chapter 2 is followed by institutional profiles of MD-granting schools that have long-standing commitments to engage Native communities. These profiles offer concrete examples that can be replicated or adapted at all U.S. medical schools.

99%

of medical schools report specific programs or policies to recruit a diverse student body (n = 140 U.S. MD-granting institutions).

Source: 2017 AAMC Survey of Medical School Enrollment.

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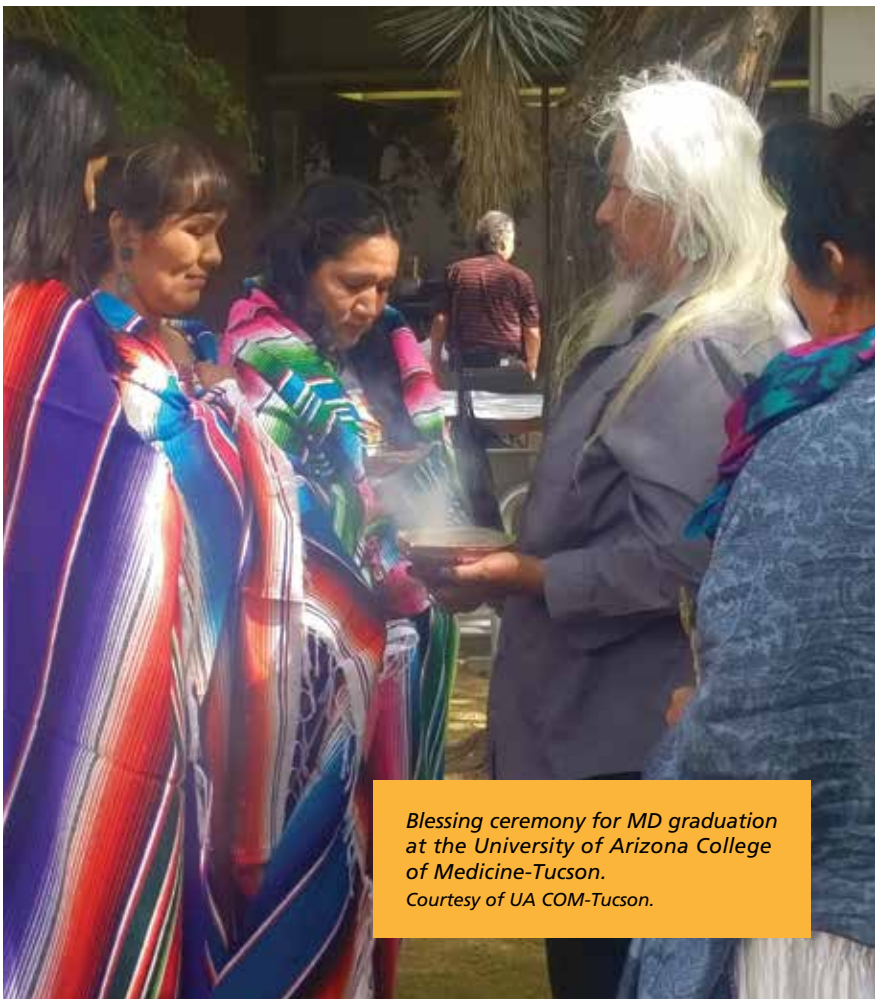

Blessing ceremony for MD graduation at the University of Arizona College of Medicine-Tucson.
Courtesy of UA COM-Tucson.

CHAPTER 2
Cultivating Fertile Ground

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Critical to any effort focused on enhancing diversity and inclusion is paying attention to an institution's climate and culture.[1] Greater emphasis has been placed on increasing the diversity of the student body with limited focus on the environment in which all students and other members of the academic medicine community are expected to thrive.[2] While programmatic efforts directed at individuals are important and necessary, coupling them with initiatives that allow for the benefits of diversity to be actualized will deliver more effective results. Fostering inclusive and equity-minded environments directly influences success and retention.[3]

Role of Culture and Climate

According to the AAMC Group on Diversity and Inclusion, "Inclusion is achieved by nurturing the climate and culture of the institution through professional development, education, policy, and practice. The objective is creating a climate that fosters belonging, respect, and value for all and encourages engagement and connection throughout the institution and community."[4] This is critical for creating and sustaining an environment where all in academic medicine can thrive, including American Indians and Alaska Natives.

> *Climate* is defined as perceptions, attitudes, and behaviors reflecting the institutional beliefs and values (the culture).
>
> *Culture* is defined as deeply instilled institutional values and beliefs.[5]

In a forum on unconscious bias attended by faculty and leaders in medical education, one attendee provided a vivid example of how the environment and issues of inclusion translate into an individual's everyday experience at an institution: "From the administrators that you see and interact with, the people that make decisions, the pictures on the walls, the names of the buildings, all of these ways communicate that you are an outsider and your perspective isn't valued here."[6] For American Indian-Alaska Native (AI-AN) students, the environment and lack of inclusion are potentially more challenging because there are so few Native people in academic medicine.[7,8]

This chapter outlines tools, resources, and information that foster an enriched learning and working environment inclusive of Native communities. Attention to these factors will create value for everyone in medical education.

Culture and climate are challenging concepts to understand and operationalize. Drawing from the work of Milem, Chang, and Antonio, which integrates work from 1999 by Sylvia Hurtado and colleagues, the Campus Racial Climate Framework offers insights into how to dissect key aspects of culture and climate within the context of the external forces — government, policy, and sociohistory.[1] This framework has five key elements:

- Historical legacy of inclusion and exclusion.
- Psychological climate.
- Organization and structure.
- Compositional-structural diversity.
- Behavioral dimension.

Each element affects the others, and all are influenced by external factors. Using this framework, there are areas to consider based on existing literature in higher education

and the health professions that can promote inclusion of AI-AN peoples. This chapter is followed by profiles of medical schools that have successfully graduated Native physicians and implemented institutional practices inclusive of Native culture.

Historical Legacy of Inclusion and Exclusion

AI-AN people live within a government, policy, and social and historical context distinct from other racial and ethnic groups in the United States. Since the 18th century, Native people have endured warfare, forced acculturation, removal of children to attend boarding schools, displacement from their lands, termination, racism, and other acts of oppression.[9] Throughout U.S. history, a range of federal Indian policies, treaties, and intergovernmental relationships have influenced both health and education funding and access.[9] Consequently, the U.S. government has recognized a legal responsibility to provide and protect tribal treaty rights and health care.[10,11]

Over generations, structural racism and other barriers within higher education have become inherent to the Native experience. It is pivotal to understand the historical trauma and exclusionary practices experienced by Native communities and how that may be evident within an institution of higher learning. Institution leaders need to assess and understand their campuses' current awareness and experience with Native communities.[12] These are questions to consider:

- Is there an existing AI-AN student organization or program at the larger university?
- Are there current or past relationships with local tribes?
- What is the history of land use and awareness of treaties?

Depending on geographic region, there may be questions about how the institution honors or recognizes its connection to or location in Indian Country.[12] For example, are there existing relationships that can be leveraged or are in need of repair? Institutions in or near Indian Country can include in their medical school orientations an acknowledgment of place in relation to Native people.

> Acknowledgment of traditional territory is an important cultural protocol for many Indigenous peoples, nations, and cultures. The practice demonstrates respect for the traditional custodians of a particular region or area and strengthens relationships.

Native people also experienced exclusion through the blood quantum laws, or Indian blood laws, enacted in the United States and the former colonies to define qualification of ancestry as American Indian in relation to tribal locality.[13] These laws were developed by Euro-Americans and did not reflect how AI-AN communities traditionally identified themselves. Defining AI-AN identity based on blood quantum ignored the traditional practices of family. Federal policy has also influenced the recognition and existence of tribal communities. The policy of "termination" had the stated goal of assimilating American Indians into society by ending tribes, which resulted in loss of recognition by the federal government, land, and tribal affiliation, thus affecting American Indian identity.[14]

Psychological Climate

The psychological climate reflects the perceptions of individuals within the environment related to relations across racial and ethnic groups, institutional responses to diversity, perceptions of discrimination, and bias.[1] It can be heavily influenced by external forces and the institutional climate. Some negative interactions may be microaggressions that have adverse effects on well-being and productivity.[15] For example, a study by Yeung and Johnston shows the differential impact of a racially biased incident on perceptions of climate, cross-racial interactions, and perceptions by the targeted and nontargeted groups across various racial and ethnic groups.[16] It is important for institutions to have systems in place that address racism, bias, and discrimination.[17] Programs that support

intergroup dialogues and prepare faculty to appropriately respond to and facilitate these conversations are important to maintaining a positive psychological climate.[15]

Student programs and student affairs offices that are responsive to Native culture and provide support throughout the medical school experience also contribute to a positive psychological climate. For example, in a 2009 article based on his experience in the Native Investigator Development Program, Manson underscored the importance of creating a "nonthreatening venue" for research trainees to openly share self-doubt and negative experiences and benefit from lessons learned from peers, mentors, and faculty.[18] Institutional commitment to academic support, access to a peer network, advising and counseling, and engagement of faculty and family foster a supportive milieu.[18-20] Programs that are culturally responsive, open or close with a spiritual acknowledgment, and leverage cultural assets — such as ancestral stories — are also important in promoting a positive psychological climate.[21]

The psychological climate can also influence retention and student success.[1] AAMC medical school graduation data for academic years 2002-03 through 2011-12 show that AI-AN students have lower graduation rates at the fourth, fifth, and sixth years compared with White students (Table 2). These data suggest there is a need to better understand any factors that contribute to these differences by race and ethnicity.

Table 2. Graduation Rates by Years to Graduation and Total Matriculants, by AI-AN or White Race/Ethnicities, 2002-03 Through 2011-12 (Aggregated)

Race/Ethnicity (Alone or In Combination)	4 Years	5 Years	6 Years	Total Matriculants
American Indian or Alaska Native	71%	86%	89%	1,307
White	87%	96%	97%	98,911

Source: AAMC Student Records System, June 27, 2018.

Notes: Graduation rates were calculated only for medical students who matriculated into MD-granting programs; students in joint-degree programs and with Advanced Standing statuses (such as from foreign medical schools) were excluded from the analysis. Students who identified with more than one race/ethnicity category were counted in each of those categories.

> *I have personally found mentorship and advocacy an effective instrument in my own achievements and aiding my own self-realization with regards to my identity as an individual, future physician and … [as] a leader within a community.*
>
> ***Victoria Black Horse, MD***
> ***(Seminole Nation of Oklahoma)***
> *2017 University of Minnesota Graduate First-Year Resident, Internal Medicine*

The psychological climate may be assessed through institutional surveys of satisfaction or engagement, and focus groups.[22,23] Responses should be considered by race and ethnicity, other dimensions of diversity, and the intersections between various identities (for example, sex and socioeconomic status).[23] For medical schools, examining the AAMC Graduation Questionnaire results by race and ethnicity can provide insights about the psychological climate.[24] Valuable resources are available to assist with the assessment of an institution's culture and climate that can provide the basis for informing the institution's efforts to create a more inclusive environment.[23]

Organization and Structure

Organization and structural elements encompass policies, actions, and behaviors that include:[1]

- Financial resources.
- Dedicated office and space.
- Staff and leadership positions.
- Institutional guidelines and codes of conduct.
- Programs.
- Reward structures.
- Hiring and admission practices.
- Curriculum.

Each institution should consider a mission-driven strategic plan that sets the foundation for its organizational and structural elements.[25,26] Critical to this endeavor are the engagement of a broad set of leaders, including department chairs, and the establishment of accountability measures.[26]

Efforts for achieving success involve dedicated diversity offices and a team of leaders, funding and budget allocations from the institution, and incentives or rewards for promoting diverse and inclusive environments.[27] The following section delves into organizational and structural elements with a focus on AI-AN communities.

The Liaison Committee on Medical Education (LCME®), the national accrediting body for MD-granting institutions, provides guidance on medical school recruitment, admission, and programmatic efforts to promote diversity.[28] Box 3 explains the LCME standard on these efforts.

Box 3. LCME Standard 3: Academic and Learning Environments

3.3 Diversity/Pipeline Programs and Partnerships

A medical school has effective policies and practices in place, and engages in ongoing, systematic, and focused recruitment and retention activities, to achieve mission-appropriate diversity outcomes among its students, faculty, senior administrative staff, and other relevant members of its academic community. These activities include the use of programs and/or partnerships aimed at achieving diversity among qualified applicants for medical school admission and the evaluation of program and partnership outcomes.

Source: Liaison Committee on Medical Education. Functions and Structure of a Medical School. *Washington, DC: AAMC and the American Medical Association; March 2018.*

Many institutions host academic and career enrichment programs that start as early as elementary school and go through the postbaccalaureate level to advance their diversity efforts.[29] These programs are viewed as beneficial to increasing AI-AN students' interest in medicine and supporting their progress along the pathway to becoming a physician.[7,19,30-32]

Aside from the typical academic and career focus, successful programs for AI-AN students use engagement of the local community, integration of cultural practices, and mentoring by Native students and faculty.[19,20,30,31] Pathway programs, often called pipeline programs, are a critical structural element for attracting, recruiting, and enrolling AI-AN students.

Sequist offers an important perspective on how to leverage such programs to find talent in what he describes as an "atypical" selection process:[7]

> We forego academic transcripts in favor of evidence — in recommendations and personal statements — of unrealized potential. We also look for applicants with a demonstrated commitment to the Native American community.

The range of these programs, and those highlighted in the institutional profiles in Chapter 3, underscores two key considerations: early engagement and thinking broadly about how to define talent.

Role of Admissions Policies and Practices

Admissions policies and practices are structural elements that significantly affect institutional diversity.[1] For example, institutional policies, including holistic review, demonstrate institutional commitment to increasing diversity along a range of demographic and personal characteristics and experiences.[33,34] Findings from the profiles illustrate the significance of including Native people with voting rights on admissions committees. Initial findings also suggest that the use of assessments such as the Implicit Association Test increases the awareness of bias that, in turn, influences admission decisions toward greater diversity.[35]

Since the 1990s there have been legal actions against university admissions efforts to increase diversity that challenge admission based on racial preferences.[36] Holistic review, as upheld by the U.S. Supreme Court, allows for an individualized consideration of a range of demographic factors and experiences to develop a diverse student cohort that aligns with an institution's mission.[33,34]

Considering the political identity of American Indians and Alaska Natives from federally recognized tribes, medical schools may explore the development of targeted recruitment and admissions efforts.[37,38] As University of Washington (UW) admission guidelines state:

> The University of Washington recognizes the unique "government to government" relationship that exists between the tribes and federal government. UW departments and programs are encouraged to consider tribal or corporate enrollment or affiliation as a positive factor in admission, financial aid, and outreach programs.[39]

Schools of higher education, medical schools included, can focus on targeted recruitment and admission of tribally enrolled members, efforts that are like those focused on recruiting and admitting students from particular states.[37,38]

> *"American Indians/Alaska Natives are a racial group, and affirmative action rules do apply. AI-AN data come from the U.S. Census, and it is self-reported race.*
>
> *However, 'Enrolled Tribal Member' is NOT a race or ethnicity — it is a political designation, and tribal leadership and tribal regulations determine who is an enrolled member.*
>
> *So, setting aside positions in a medical school (or any other entity) for enrolled tribal members is legal. It would be like University of North*

Dakota saying, '75% of the medical school class will be from ND.' Or, any university making 'in-state residents' a priority. 'Enrolled tribal members' is the same type of category.

Donald Warne, MD, MPH
(Oglala Lakota Tribe)
Director, INMED Associate Dean,
Diversity, Equity and Inclusion
School of Medicine and Health Sciences
University of North Dakota

The Learning Environment

The learning environment and the curricula signal the priorities for learners, and they often reflect the institution's level of commitment to diversity and inclusion.[40] The LCME standards underscore the importance of curricular content and experiences that incorporate cultural competence and health care disparities.[28]

Of the 147 U.S. medical schools surveyed at the time, 131 participated in the AAMC Curriculum Inventory in 2016-17, and only 14 reported AI-AN health education content. Although there may be more medical schools today including this content, at the time this represented only 11% of MD-granting institutions reporting AI-AN health education content as part of their curriculum.

11%
of U.S. MD-granting schools' curricula have AI-AN health content

Source: AAMC Curriculum Inventory, 2016-17.

The benefit to including content about Native communities in the curriculum is two-fold: (1) the content provides visibility and acknowledges the importance of the health of Native communities and (2) the content prepares all learners to work with diverse communities. It is important to educate medical students in settings where AI-AN patients receive care so they can gain a basic understanding of AI-AN health care delivery (and its history) and an appreciation of the vast diversity in AI-AN tribes, languages, and culture, from which a compassion for AI-AN patients can grow.

People often say, "If you've seen one tribe, you've seen one tribe." The goal is not to become an expert on Native health issues or on what it is like to be a Native person or to fully understand what all Native patients experience in our system. The goal is to humbly interact with the uncomfortable feeling of realizing how little you know while meeting people and learn from and about them, about our system and shared history with AI-AN people. Hopefully, this will encourage a lifelong interest in learning from others and seeking equity in the health care system.

This perspective underscores the importance of practicing cultural humility when working with tribal communities. Cultural humility involves self-reflection and evaluation, and recognizing power imbalances and the importance of engaging with the community.[41]

Inclusion of AI-AN communities in the curricula of medical school — and of health professions in general — can also help deconstruct images of Native American culture often formed through popular culture, specifically film and television, which has created a romanticized image of a culture that no longer exists. Throughout history, Native communities have been woefully underrepresented or misrepresented in media. Native people have been inaccurately portrayed as bloodthirsty villains and tragic alcoholics who need to be saved by the Euro-American hero.[42,43] The museum industry has also influenced the public understanding of Native Americans by displaying artifacts as "cabinets of curiosity." Even when well-intentioned, these representations have perpetrated macroaggressions and stereotypes, including the false notion that tribal communities are dead communities. Along with curricular efforts to ensure culturally responsive care, institutions are beginning to require unconscious bias training to minimize the impact of stereotypes on care delivery.

Depending on local or regional community needs, an institution may decide to offer a stand-alone course or integrate content throughout the curriculum. At a minimum, key health issues and cultural assets unique to AI-AN communities should be integrated in all medical school curricula focused on providing culturally responsive care. This is consistent with LCME requirements found in Standard 7 (Box 4).

The following are topics to consider for Native-focused curricular content. They offer the historical context and social underpinnings affecting the health of AI-AN populations nationwide.

- History: The histories of Native communities.
- Geography: An overview of where reservations are and where those who live in them come from originally, as well as the urbanization or relocation of Native peoples to metropolitan areas.
- Public Health: Native health statistics and the impact of lack of data for Native American populations.
- Social Justice: Native health policy and the underpinnings of the development and management of the various health care delivery systems, including the Indian Health Service (IHS), tribal health care systems, and urban Indian health.
- Reflection: Time to reflect on course content through discussions with students and facilitators that also touch upon health equity, racism, historical trauma, what it means to be a healer vs. a physician, and the practice of medicine cross-culturally.

Lewis and Prunuske provide guiding principles to help institutions develop curricular content aligned with local context and community, and they give examples of existing curricula.[44] These efforts are often developed collaboratively and implemented by faculty within and outside the institution and the local community.[19,44-46] The infusion of Native values in the curriculum allows all students to understand and practice the humble responsibility of a healer-physician in the community.

Box 4. LCME Standard 7: Curricular Content

7.6 Cultural Competence and Health Care Disparities

The faculty of a medical school ensure that the medical curriculum provides opportunities for medical students to learn to recognize and appropriately address gender and cultural biases in themselves, in others, and in the health care delivery process. The medical curriculum includes instruction regarding the following:

- The manner in which people of diverse cultures and belief systems perceive health and illness and respond to various symptoms, diseases, and treatments.
- The basic principles of culturally competent health care.
- The recognition and development of solutions for health care disparities.
- The importance of meeting the health care needs of medically underserved populations.
- The development of core professional attributes (e.g., altruism, accountability) needed to provide effective care in a multidimensional and diverse society.

Source: Liaison Committee on Medical Education. Functions and Structure of a Medical School. *Washington, DC: AAMC and the American Medical Association; March 2018.*

In Native tradition, providing health care is not an exercise in power of physician over patient but rather a humble choice to serve. For Native physicians, the relationship with the patient is an equal, shared one, not a hierarchy. Proper communication (to include the art of listening intently, respectfully), understanding of socioeconomic barriers, and access to proper means for healing are important considerations in Native culture. See Box 5 for resources related to Native perspectives on health and illness.

Institutions can also explore the feasibility of offering students clinical rotations, preceptorships, and elective clerkships in tribal communities.[18] Residency programs, too, can integrate training in Native health and traditional healing practices that align with the Accreditation Council for Graduate Medical Education (ACGME).[44] The Seattle Indian Health Board (SIHB) sponsors a residency program at a community health center that exposes trainees to interprofessional teams, including traditional Indian medicine practitioners, committed to serving the health needs of American Indians, Alaska Natives, and the underserved. Since 1994 SIHB has been a satellite of the Swedish/Providence Cherry Hill Family Medicine Residency Program and the University of Washington's Family Medicine Residency Network. The program prepares physicians who want to pursue a career in providing health care to American Indians or Alaska Natives in a rural, reservation, or urban setting.[47]

Faculty development is another element critical to the successful planning, implementation, and evaluation of culturally responsive education and training.[48] Research finds that faculty biases are an issue in establishing and maintaining inclusive environments.[6,27,35] When faculty foster a learning environment that students perceive as valuing diversity and diverse perspectives, students are influenced toward an openness to diversity.[49] Curriculum content can also affect decisions to attend a specific medical school, including content about diverse communities and health disparities.[50]

Box 5. Native Voices: Native People's Concepts of Health and Illness

The National Library of Medicine developed a collection, Native Voices: Native People's Concepts of Health and Illness, that can supplement the curriculum. It includes videos about Native health beliefs and practices, profiles of community leaders and health providers, and a policy timeline focused on the impact of federal, state, and Indian policies on health. The resources can be found at nlm.nih.gov/nativevoices.

Formal Partnerships and Collaborations

When located near Indian Country, institutions can create a tribal liaison, directorship, or senior leadership position that focuses on developing relationships with tribal governments, health care systems, and education departments. Long-standing commitment from institutions to have representation at community meetings, events, and celebrations is pivotal to relationship building. It shows tribes and communities that academic medicine can "walk the talk." Growing and sustaining relationships with tribal communities should be a priority; these relationships are mutually beneficial and not centered on the needs of the academic institution. Work being done at the University of Washington School of Medicine is a good example of how to prepare and properly facilitate partnership development and collaboration with tribal communities.[19,51,52] See Box 6.

Another strategy for enhancing the learning environment involves academic health centers partnering with tribal colleges, community colleges, or universities that are surrounded by or within the region of tribal communities. Tribal colleges and universities (TCUs) are bastions

Box 6. Building Relationships With Tribal Communities

In a 2006 paper, Acosta and Olsen offered insights, based on lessons learned, on how academic medical centers can work with tribal communities:[19]

- Connect with the most appropriate community representative.
- Show respect for and adhere to the governing council protocols.
- Allow tribal leaders to share their histories, customs, traditions, and key issues or concerns.
- Identify institutional colleagues who have gained trust within the community and can broker relationship building.
- Participate actively in tribal activities and events.
- Involve tribal members in the process from the beginning, including sharing project roles with tribal leadership.
- Follow up after the conclusion of the project or activity to share outcomes or other data.

of cultural knowledge and expertise about AI-AN communities.[53] TCUs offer 358 total programs, including apprenticeships, diplomas, and certificates and associate, bachelor's, and master's degree programs.[54]

For academic years 2013-14 through 2017-18, data from the AAMC Applicant Matriculant Data File show that only four graduates from tribal colleges and universities applied to an MD-granting institution. Two applicants identified as American Indian or Alaska Native alone, and two identified as American Indian or Alaska Native in combination with another race or ethnicity. None of these four applicants matriculated to a U.S. MD-granting medical school. These data suggest that not partnering with TCUs is a missed opportunity. One such opportunity is exploring degree pathways for Native students from the tribal colleges.[53]

Other examples include academic health centers partnering with TCUs to establish culturally appropriate courses and collaborative research projects.[51,52]

Table 3 shows the undergraduate institutions that had at least 20 AI-AN students apply to MD-granting programs for academic years 2013-14 through 2017-18. (Appendix A provides the full list of institutions with at least five applicants to MD-granting schools.) The mechanisms these institutions use to encourage and prepare their students to apply, especially the replicable ones, should be explored. Resources such as *Beyond the Asterisk*[55] provide examples of culturally responsive, student-focused initiatives that support Native students at higher education institutions and may be adapted for medical schools.

Tribal college and university graduates, 2013-18:

4
Total who applied to medical school

0
Total who matriculated

Table 3. Undergraduate Institutions With at Least 20 American Indian or Alaska Native (Alone and in Combination) Applicants to U.S. MD-Granting Institutions, 2013-14 Through 2017-18

Undergraduate Institution	Alone	In Combination	Alone or In Combination
University of Oklahoma Norman Campus, Norman, OK	28	46	74
University of New Mexico-Main Campus, Albuquerque, NM	28	30	58
University of Arizona, Tucson, AZ	17	28	45
Oklahoma State University, Stillwater, OK	19	22	41
Stanford University, Stanford, CA	7	23	30
Brigham Young University, Provo, UT	17	13	30
University of Texas at Austin, Austin, TX	4	25	29
University of Washington, Seattle, WA	7	21	28
University of California-Davis, Davis, CA	7	19	26
Texas A & M University, College Station, TX	6	19	25
University of Michigan-Ann Arbor, Ann Arbor, MI	8	17	25
University of California-Berkeley, Berkeley, CA	3	20	23
University of Florida, Gainesville, FL	3	20	23
Arizona State University, Tempe, AZ	10	13	23
University of Wisconsin-Madison, Madison, WI	9	14	23
University of Arkansas Main Campus, Fayetteville, AR	11	12	23
The Ohio State University Main Campus, Columbus, OH	2	18	20
Vanderbilt University, Nashville, TN	5	15	20

Source: AAMC Applicant Matriculant Data File, March 13, 2018.

Some institutions may not have a local tribal community or AI-AN presence; however, programs created through innovative partnerships, such as the Pre-Admissions Workshop (PAW) in southwestern U.S. states,[21] show how multiple medical schools can collaborate for broader impact. PAW is an example of how resources, personnel, and funding are leveraged to increase engagement of AI-AN students in medicine.

Compositional-Structural Diversity

Compositional-structural diversity refers to the "numerical and proportional" representation of students, faculty, leaders, and staff by race and ethnicity.[1] Considering the underenrollment of AI-AN students in medical schools, compositional diversity is key to influencing the other elements of culture and climate. It can also influence an institution's attractiveness to students and faculty.[27]

Native medical students and physicians often note the challenges of being the only one or one of a few.[7,56]

AI-AN Student Enrollment in U.S. MD-Granting Institutions, 2016-17

9% 4 or more students

48% 1 to 3 students

43% 0 students

Source: AAMC FACT Table B-5: Total Enrollment by U.S. Medical School and Race/Ethnicity, 2016-2017.

This publication references AI-AN communities very generally. There are 573 federally recognized tribes, all of which have their own languages, cultural customs, traditional practices, and experiences within the United

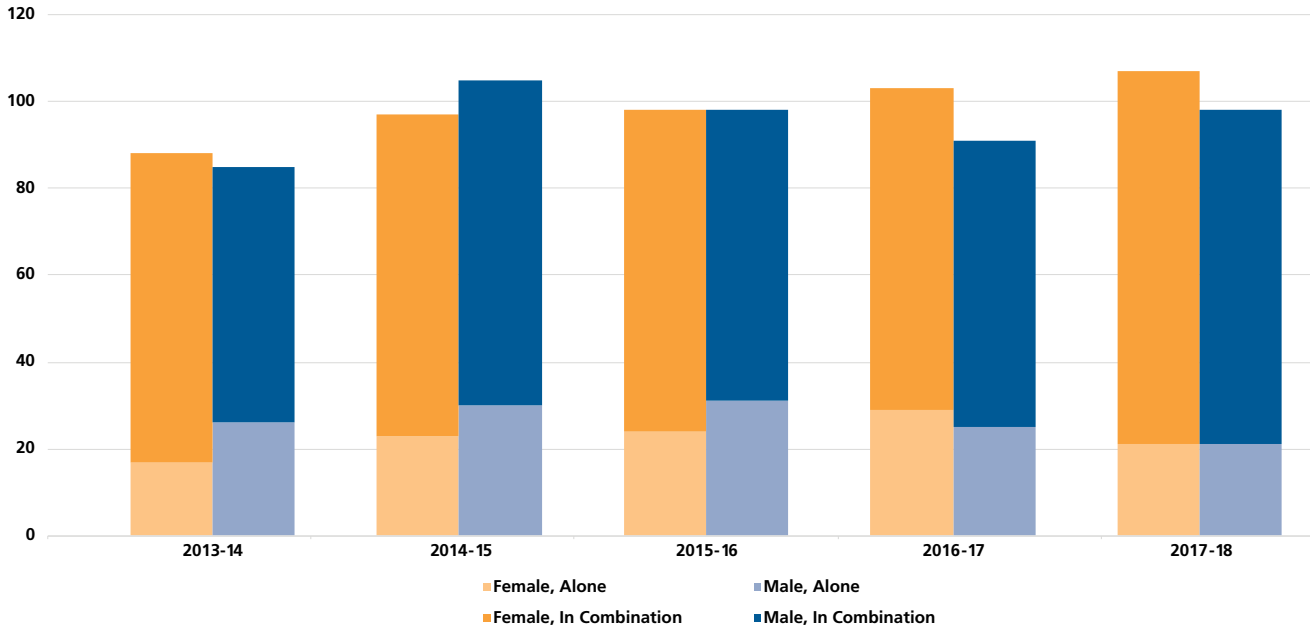
States.[57] Table 4 shows the self-reported tribal affiliations of applicants and matriculants to MD-granting programs for each self-reported tribe from academic years 2013-14 through 2017-18. Applicants identifying as Cherokee, Choctaw, and Navajo represent the highest number of applicants over the five-year period. Taking into account the size of some tribal nations, it can be beneficial to work with tribal communities to understand factors that contribute to differences by tribe in application rates to medical school.

Table 4. Tribes That Had at Least 10 Self-Reported Tribal Members Who Applied to Medical School, by Number of Applicants and Matriculants, 2013-14 Through 2017-18

Reported Tribal Affiliation	Applicants	Matriculants
Cherokee	629	144
Choctaw	118	29
Navajo	88	24
More than one tribal affiliation	84	20
Chickasaw	55	13
Blackfeet	43	8
Lumbee	37	7
Chippewa	34	8
Muscogee	28	11
Osage	26	6
Apache	25	2
Choctaw Oklahoma	19	5
Creek	19	2
Sioux	19	2
Echota	18	6
Mohawk	15	5
Eastern Band - Cherokee	14	7
Sault Ste Marie Tribe of Chippewa Indians	14	5
Seminole	12	7
Turtle Mountain Band of Chippewa Indians	12	5
Cheyenne River Sioux	11	1
Delaware	11	4
Aleut	10	1
Choctaw-Apache	10	2
Citizen Potawatomi Nation	10	2
Micmac	10	4
Pascua Yaqui	10	1
Potawanomi	10	3

Source: AAMC Applicant Matriculant Data File, Feb. 28, 2018.

Medical school leaders and administrators must consider other aspects of diversity and identity in AI-AN communities — such as sex, two-spirit, socioeconomic status, and spirituality — when designing and implementing programs and initiatives. Figure 4 shows the beginning of a trend in academic year 2016-17, when the number of AI-AN female matriculants exceeded the number of AI-AN male matriculants. The total number of female matriculants to medical school of all races/ethnicities surpassed male matriculants in the 2017-18 entering class.[57]



Source: AAMC Applicant Matriculant Data File, March 8, 2018.

Figure 4. American Indian or Alaska Native (alone or in combination) matriculants to U.S. MD-granting institutions, by sex, 2013-14 through 2017-18.

In addition to considering tribal affiliation and sex, institutions should attend to other aspects that are important to AI-AN communities when creating an inclusive environment for AI-AN students, residents, and faculty:

- Awareness of potential burden of an AI-AN "minority tax," defined as "the tax of extra responsibilities placed on racial and ethnic minority faculty in the name of efforts to achieve diversity."[58]
- Feelings of dual responsibility to become experts in both Western medicine and "original instructions," also known as traditional medicine and cultural ways.
- Need to perform religious ceremonies and spiritual practices that Western education systems may not accommodate but are in keeping with cultural responsibilities, protocols, and ceremonies, some of which may be sex specific.[59]
- Awareness of the spiritual care needed when working with an ancestor's anatomy and how to demonstrate respect for ancestors.[60]

The LCME® requires that medical schools articulate their diversity goals and plans for recruitment and enrollment.[28] Commitment to recruitment of Native students should be reflected in the enrollment plan by including specific tactics used to engage Native communities. Examples of these efforts are detailed in the institutional profiles in Chapter 3, Learning From Our Community, of this report. Institutions should actively recruit Native American teachers and program staff and support the professional development of non-Native allies who understand and can work with the unique needs of AI-AN communities.

Behavioral Dimension

The behavioral dimension of culture and climate focuses on the "interactions and practices" and the "quality of interactions and relationships" observed in the environment and include pedagogical approaches.[1] Within medical education, good examples of this are the "informal curriculum" and the "hidden

curriculum." The informal curriculum refers to what is conveyed during interactions among medical students, residents, and faculty outside the classroom. The hidden curriculum is the set of influences functioning at the level of an organization's structure and culture that transmit unintended messages about that culture.[61]

The hidden curriculum is one factor to consider when reviewing curricula for inclusion of Native communities. If certain curricular or pedagogical considerations about Native students, residents, and faculty are not present, then the unintended message is that they are not important. Martimianakis and colleagues share this suggestion about attending to the hidden curriculum:

> Think about education as a sociopolitical endeavor — a starting point for interrogating how systems, structures, and institutions impact socialization and professionalization processes.[40]

This perspective emphasizes that the lack of inclusion of AI-AN communities sends a message about who and what is critical in the delivery of U.S. health care. In their examination of cases used in the curriculum, Turbes et al. found that the treatment of women, individuals of a particular sexual orientation, and individuals of particular races and ethnicities — specifically, the omission of women, the use of sexual orientation in the context of risk assessment, and missing demographic data on race and ethnicity — inadvertently relayed messages about each of these groups.[62] Their findings suggested that unintentionally, "white, male, and heterosexual are placed in a central, normative position."[62] Inclusion of AI-AN communities in the medical school and residency curricula is critical to conveying the importance of Native health in the preparation and training of all physicians.

Each dimension within the Campus Racial Climate Framework offers numerous opportunities to create more diverse and inclusive environments that support the engagement of AI-AN communities and benefit all in academic medicine.

The following chapter presents profiles of MD-granting institutions with long-standing efforts to increase the presence of AI-AN communities in medicine. The hope is that medical schools will replicate or adapt these policies and practices to increase their AI-AN populations and work to ensure that all physicians are prepared to provide culturally responsive care to AI-AN communities.

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Charter class of 1972 University of Minnesota, Duluth Campus. Dr. Johns is the first person in the second row on the left.
Courtesy of UM MSD.

I will never forget the phone call. I was a chemical engineering student at the University of Minnesota and the caller was Dr. Robert Pozos. He identified himself as a physiology professor at the new medical school in Duluth and asked if I ever thought about going to medical school. My quick answer was 'no.' He apparently saw a list of Native students in the University of Minnesota system and made the call that changed my life. I knew nothing about medicine or medical school. I was the first in my family to go to college and therefore had no one to even suggest I could be a physician.

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CHAPTER 3
Learning From Our Community: Effective Practices

Overview of Institutional Profiles

Medical school missions often include diversity and inclusion as strategic priorities. Critical to achieving these strategic priorities are the policies, structures, funding, human resources, and programs that are part of the institution's fabric.[1] Medical schools engage in a variety of efforts focused on advancing diversity and inclusion;[2] however, continued and additional efforts are necessary to increase the number of underrepresented racial and ethnic groups in medicine overall.[3] This chapter describes the efforts of selected institutions that are making notable gains in attracting, recruiting, and supporting AI-AN students and graduating significant numbers of AI-AN physicians.

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Graduation data over a 37-year period (academic years 1980-81 through 2017-18) show that certain institutions have contributed significantly to the number of American Indians and Alaska Natives in the physician workforce (Table 5).

Table 5. American Indian or Alaska Native Graduates of U.S. MD-Granting Institutions, 1980-2017

U.S. Medical School of Graduation	AI-AN Graduates			Unique Total Graduates
	Alone	In Combination	Alone or In Combination	
University of Oklahoma College of Medicine	225	88	313	5,510
University of Minnesota Medical School	133	44	177	8,675
University of North Dakota School of Medicine and Health Sciences	98	34	132	1,975
University of Washington School of Medicine	79	32	111	6,453
University of New Mexico School of Medicine	73	14	87	2,707
University of North Carolina at Chapel Hill School of Medicine	56	16	72	5,760
Brody School of Medicine at East Carolina University	47	6	53	2,418
University of California, San Francisco, School of Medicine	46	27	73	5,610
University of Wisconsin School of Medicine and Public Health	45	17	62	5,481
University of Kansas School of Medicine	40	23	63	6,382
University of Arizona College of Medicine	39	16	55	3,842
Stanford University School of Medicine	37	10	47	3,102
University of South Dakota, Sanford School of Medicine	36	10	46	1,843
Harvard Medical School	35	23	58	6,077
University of Texas Health Science Center at San Antonio Joe R. and Teresa Lozano Long School of Medicine	33	9	42	7,255
University of Texas Medical Branch School of Medicine	30	18	48	7,254
University of Michigan Medical School	30	14	44	6,757
University of Alabama School of Medicine	29	19	48	5,945

Source: AAMC Student Records System, March 12, 2018.

Note: The race/ethnicity responses are reported alone, as well as alone or in combination with any other race/ethnicity response. "Alone" indicates those who selected only one race/ethnicity response; "in combination" indicates those who selected more than one race/ethnicity response. Only U.S. citizens and permanent residents are included in the counts of AI-AN graduates.

As indicated in Table 5, many of the institutions with the highest number of AI-AN graduates are in states with high concentrations of Native communities. (Appendix B shows AI-AN data for all medical schools.) AAMC data for academic year 2017-18 also show that the majority of AI-AN applicants to MD-granting institutions are from the Southern (41%, or 79 individuals) and Western (31%, or 64) regions in the United States compared with the Central (18%, or 40) and Northeast (10%, or 22) regions. (Appendix C contains information by state for academic years 2013-14 through 2017-18.)

Many institutions focus their diversity efforts on state and regional demographics that may not be inclusive of Native communities. However, because the increases in AI-AN students entering medicine is slow at best, there is a national imperative for all medical schools to consider how they can contribute to the development of diverse and culturally responsive physicians who are from Native communities or allies who are prepared to serve Native communities. The data in Appendix C can inform strategies for outreach and recruitment.

The AAIP has selected four institutions that are implementing efforts to address the underrepresentation of AI-AN students in U.S. medical schools. The profiles are not intended to be comprehensive but rather to demonstrate what could be considered effective practices. In addition to these four profiled institutions, the University of Washington School of Medicine has successful pathway and recruitment programs that are well-documented, and the University of South Dakota Sanford School of Medicine focuses some of its efforts on training culturally prepared physicians and creating opportunities for American Indian youth to enter the health professions.[4,5]

The institutional profiles serve the following purposes:

- Share key strategies to attract and recruit AI-AN students.
- Outline efforts to support AI-AN student success in medical school.
- Provide insight on institutional and community mechanisms to establish and sustain AI-AN-focused programs.
- Identify critical components to the success of policies and programs that may be implemented at other institutions.

Two of the featured schools, University of Minnesota Medical School, Duluth campus, and University of North Dakota School of Medicine and Health Sciences, have maintained high-functioning programs targeting AI-AN students for more than 30 years. These programs exemplify the institutionalization of successful programs, the integration of AI-AN programming into the medical school, and the characteristics of programs that enjoy long-term, proven success. The other two medical schools, University of New Mexico and University of Arizona, demonstrate more recent successes, the results of which come from renewed efforts by the institutions to increase their AI-AN student populations. These two schools show how new strategies can succeed in existing infrastructures and how leadership establishes expectations for the medical school. The institutional profiles reflect information current as of June 2018.

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University of Minnesota Medical School, Duluth Campus

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The University of Minnesota Medical School is a leader in graduating American Indian and Alaska Native (AI-AN) physicians and has long held the honor of graduating the second largest number of AI-AN physicians in the nation. This success is due in large part to the efforts of the regional campus, UM Medical School, Duluth campus (UM MSD). The story behind the success of UM MSD is inspirational.

UM MSD's support of AI-AN students began 45 years ago with the school's founding in 1972. Although its charter class numbered only 24 students, two were AI-AN students, which was a remarkably large number for the time. Only a year later, in 1973, through the foresight of a couple of young faculty members in partnership with area AI-AN community leaders, the first AI-AN premedical program was born. The state-mandated school mission is tailored to train physicians who will serve AI-AN communities.

The accomplishments of UM MSD are laudable, born out of decades of unwavering acknowledgment of, and encompassing, the cultural commitment to the critical need of advancing health equity by training AI-AN physicians.

Community-Based Recruitment Efforts

Only shortly after UM MSD opened its doors, AI-AN community leaders and some forward-thinking UM MSD faculty members came together and acknowledged the poor health status of the Minnesota's AI-AN people. They agreed that an AI-AN physician workforce was essential to addressing these critical health concerns and that increasing these workforce numbers would be a school priority. Forty-five years later, this founding principle still stands arm-in-arm with the other half of the school's mission of training rural physicians. Central to fulfillment of UM MSD's mission has been the collective effort of the school's departments, faculty, and administration.

Only a year old, UM MSD began to offer Native Americans into Medicine, a premedical program for AI-AN students, and over time, other programs began. In 1987 the Center of American Indian and Minority Health (CAIMH) was established as an umbrella under which these programs were organized. Yet the school's commitment to educating AI-AN students stretches beyond the bounds of medicine and CAIMH. For example, UM MSD's Department of Biomedical Sciences has offered biomedical science training programs for AI-AN and other underrepresented students since 1995. More recently, through partnerships with area tribal communities, it started to offer AI-AN kindergarten-through-sixth-grade community-based STEM and career exploration programs. The school has effectively built an institutional culture that values AI-AN student success.

CAIMH has played a pivotal role in UM MSD's accomplishments with its expansive services. For many years, CAIMH used a comprehensive student pathway program (commonly referred to as a "pipeline"), Indian Health Pathway (IHP), that allowed students to take graduated steps toward their health professions goals. The focus has shifted to undergraduate levels and a more generalized approach that includes programming for students aspiring to careers in the health professions to address more fully AI-AN health care needs. Additionally,

students at all levels are offered mentorship and academic and career guidance. Some of CAIMH's highlights are discussed next.

Beginning as early as kindergarten, CAIMH's IHP provided a seamless progression of enrichment programs all the way to acceptance into a health professions school. Community-based science programs (now a function of UM MSD's Department of Biomedical Sciences, described below) addressed primary school efforts. Students could then move directly to continued science and career exploration during middle and high school through school presentations and medical school visits led by medical students, faculty, and CAIMH staff.

The high school program offered both nonresidential and residential on-campus programming. At different points in time, the nonresidential programs included a research-based program and another that was built on a curriculum of problem-based learning and experiential lab activities. The on-campus residential program gave high school students a taste of college life while they stayed in campus dorms under the supervision of adult resident assistants. During the day, the students participated in science and health professions enrichment.

CAIMH high school student observing a health care process.
Courtesy of UM MSD.

Undergraduates participate in the long-standing Native Americans into Medicine (NAM) program. NAM provides experiences in exploring science and health professions careers, which include shadowing staff in local clinics. At one point, CAIMH had off-site preceptorship programs for both high school and undergraduate students; these were organized by CAIMH and implemented in tribal health clinics. For many years, CAIMH had an AI-AN community advisory board that guided program direction and improvement.

Undergraduates learning to suture at the University of Minnesota.
Courtesy of UM MSD.

In preparation for medical school application, CAIMH offers two separate pre-admission workshops: the Great Lakes American Indian Medical School Applicant Workshop and, in partnership with the Association of American Indian Physicians, the Pre-Admission Workshop. Both are intense two-day workshops that provide information and tips on writing personal statements, securing letters of recommendation, financial aid, and AMCAS® (American Medical College Application Service®) application guidance. Students engage in mock medical school interviews and network with one another, medical students, CAIMH staff, admissions deans, and AI-AN physicians.

UM MSD also sponsored a pre-matriculation program offered to eligible incoming medical students, AI-AN and rural students who were educationally and/or economically disadvantaged and therefore considered at risk. The pre-matriculation program was built around a basic science curriculum that exposed students to the nature of medical school coursework while also providing a framework whereby students build social and academic support networks and study and time-management skills. In addition, the program helped students develop a healthy school-home balance to ensure self-care and care for their families. Because many of UM MSD's AI-AN students are far from home, time to engage with other AI-AN students and the local AI-AN community was essential.

The pre-matriculation program's success prompted consideration of how some program components could benefit the larger student body. Thus, an abbreviated version was born and became available to the entire entering class during the first weeks of medical school. Even after students matriculated, the IHP offered students opportunities to attend two national conferences, both focusing on AI-AN health and attended by large numbers of AI-AN physicians and medical students from across the nation. In addition to improving knowledge about pertinent health issues through various sessions, these conferences fostered essential social and cultural connections, opportunities to hone professional skills, and important networking relationships. The following section discusses how AI-AN students continued to receive ongoing academic, personal, and cultural support through CAIMH.

Medical school graduates at the University of Minnesota Medical School, Duluth campus.
Courtesy of UM MSD.

Knowing that AI-AN health cannot be addressed solely through the presence of a strong physician workforce, UM MSD supports training a broad spectrum of critically needed professionals, including scientists. The Department of Biomedical Sciences (BMS) offers biomedical science programs (Bridges to Baccalaureate and Pathways to Advanced Degrees in Life Science) that began more than 20 years ago. These programs have successfully trained impressive numbers of AI-AN and other underserved students who moved into advanced science degree programs and are now scientists. The Bridges and Pathways programs are structured summer programs that provide experiential research training as well as enrichment activities to enhance critical thinking and professionalism.

BMS has also recently implemented efforts to encourage kindergarten-through-sixth-grade AI-AN students to look toward futures in science. Held in partnership with Minnesota AI-AN communities, the projects employ a community-based science program model. The community-based approach makes beneficial, enriching programming accessible to young students, with activities implemented right in their home communities rather than at an institution that could be located as many as three or more hours away. Grants secured through BMS provide funds to communities as they carry out their programs. To receive funding, communities must create a plan to address requisite areas of learning: science, math, health and wellness, AI-AN culture, research, and health professions career exploration activities. The specific curricular design and program structure are left to the community awarded the funding. Thus, the programs are designed by community members who know firsthand the academic, social, and cultural needs of the community's children. Such an approach empowers communities and provides children with meaningful learning led by respected role models who are part of their daily lives.

Institutional Resources

Though CAIMH and UMN MSD departmental efforts have been critical to ensuring longevity of AI-AN student support and success, the fundamental importance of institutional support must not be overlooked. At UMN MSD, institutional commitment is evident in the layered commitment of dollars, faculty effort, and access to resources. The following provides an overview:

- For CAIMH, the school provides more than $300,000 annually; with this, an operating budget covers two 1.0 full-time equivalent (FTE) support personnel and some program and recruitment expenses.
- In combination with a named professorship in Native American Health provided by the UMN Foundation, these funds further support the 1.0 FTE physician faculty director. Additional program expenses may be funded by grant support. CAIMH has dedicated office space that creates ample room for the director and three staff, a reception area, and a student lounge.
- In BMS, two faculty contribute 0.4 FTE toward this department's AI-AN student programs; one is funded by UMN MSD, while the salary and fringe portions of the Bridges and Pathways programs director is grant funded. UM MSD also provides the personnel cost for a 1.0 FTE support staff member who dedicates significant effort to the Bridges and Pathways programs.

An exact tally of faculty time given to the UM MSD AI-AN programs by those not directly responsible has never been tracked. However, a safe estimate of combined volunteer effort would be approximately 0.2 FTE annually toward programmatic activities and content expertise for all academic levels of the IHP, Bridges, and Pathways AI-AN student programs. When totaled across the school's 45-year history, this translates to thousands of hours of faculty effort and countless dollars.

Institutional support extends to AI-AN students in the form of scholarships such as the Dean's Scholarship, which provides full tuition for four years. UMN MSD also has 10 out-of-state tuition waivers, and recently the school opened eligibility for one Dean's Scholarship to high-performing, out-of-state underrepresented-in-medicine students (this type of scholarship has traditionally been offered only to Minnesota residents). Although these tuition waivers and the Dean's Scholarship are not earmarked for AI-AN students, the majority of out-of-state students are AI-AN individuals. UM MSD also offers small scholarships for students underrepresented in medicine.

AI-AN health content is integrated into the school's curriculum and includes problem-based learning cases, a course dedicated to AI-AN health, and an elective AI-AN health course led by the CAIMH director. Thirteen percent of the UMN MSD faculty are AI-AN individuals, whose presence affords an additional layer of support for AI-AN students. UM MSD is a model of how institutional support can advance the goal of training AI-AN physicians and others who are prepared to care for Native communities.

Admissions

UM MSD is a mission-based campus, and admission practices play a critical role in fulfilling this mission. For example, the school employs a holistic application review when considering medical school candidates. With the goal of training physicians who will serve AI-AN communities, components of the holistic review include focused consideration of the cultural backgrounds and unique life experiences of AI-AN students. The committee considers how the presence of diversity can positively affect the learning of all students in the medical school classroom and contribute to excellence in patient care and health equity by exposing students and fostering openness to different worldviews, belief systems, and values.

Including AI-AN voices on admissions committees is essential when considering AI-AN candidates. AI-AN representation helps maintain focus on the significance of AI-AN presence in the student body, provides input for other committee members about pertinent cultural components when considering applicants, and ensures mindfulness of biases.

All UMN MSD applicants complete two interviews with two individual committee members. All AI-AN candidates interview with a CAIMH committee member and a second committee member separately. The CAIMH committee member also interviews non-AI-AN candidates. The inclusion of AI-AN representation on the UMN MSD Admissions Committee began in the 1990s, with the CAIMH committee member having voting power and standing committee membership. This member can help address questions posed by committee members and assist in understanding important cultural attributes of an applicant.

Fostering Supportive Networks on Campus

AI-AN student support is ongoing and a part of UM MSD's campus culture. Academic support networks are maintained through the many faculty efforts already described. Faculty serving in many capacities help students understand that they are human and approachable and want to see students succeed, which creates an accessible, open-door environment where students feel comfortable asking for assistance. CAIMH provides academic, personal, and cultural support. In addition to a student lounge, organized off-campus get-togethers give students time with one another in casual settings. Cultural support is integrated into CAIMH student activities by including traditional blessings by AI-AN community members, smudging (a ceremony involving burning sacred herbs), drum groups, and honor ceremonies.

CAIMH also sponsored students to attend events such as national meetings and conferences where they can network and connect with AI-AN physicians, who may become mentors, and other AI-AN medical students and physicians from other locations. Important community connections occur through preceptorship opportunities at tribal health facilities and leadership roles in CAIMH programs. The sheer number of AI-AN students at UM MSD naturally gives rise to supportive networks. In addition, the Association of Native American Medical Students (ANAMS) has an active chapter on campus. Moreover, the presence of other AI-AN students quells a potential sense of isolation and positively influences the class at large. All students become more open to and accepting of diversity in its broadest sense and build meaningful relationships in which individuals learn from each other.

Local Ojibwe community members drumming at an event honoring Native American graduates at the Center for American Indian and Minority Health (CAIMH) at the University of Minnesota Medical School, Duluth campus. Courtesy of UM MSD.

In reflection, the coming together 45 years ago of a few people with a desire to achieve a single, overarching purpose gave rise to the UM MSD legacy. The school has been home to educational programming that spans kindergarten to medical school and has trained hundreds of physicians who went on to serve AI-AN people. UM MSD is a model school and national leader in supporting AI-AN students, serving AI-AN communities, and maintaining a steadfast dedication to bettering AI-AN health and promoting health equity for AI-AN people. It achieves these efforts through funding, resources, and human capital and by fulfilling its social mission to train AI-AN physicians and advance research around AI-AN health.

> *"From the very beginning, UM MSD has been incredibly supportive. As a low-income, non-traditional student, I was concerned about the expenses of medical school as well as my preparation for the fast-paced schedule that lay ahead. UM MSD covered my expenses to interview with them, offered me an out-of-state tuition waiver, and invited me to participate in the Pre-Matriculation Program. The CAIMH has been a fantastic resource for me throughout my first year and I am so thankful for the Native presence and community here at UM MSD. I can't imagine what my medical school experience would be like without the support they have given me.* Qe'ci'yew'yew *(thank you)!"*

BreAnna Houss,
Year 2 Medical Student
(Nimiipuu (Nez Perce))
University of Minnesota Medical School, Duluth Campus

University of North Dakota School of Medicine and Health Sciences

Gerald Hill, MD (Klamath)
Chair, Klamath Tribes Health Advisory Committee, and Member and Past President, AAIP

The University of North Dakota (UND) School of Medicine (SOM) has a long history of success in Native American recruitment and graduation. The UND SOM has graduated 228 American Indian physicians in total and 41 in the past 10 years. Success has been in large part due to the Indians into Medicine (INMED) program that has existed on the UND SOM campus since 1973. The UND INMED program also supports Native American students in other health professions and assisted in the graduation of 456 Native American allied health and nursing students from the University of North Dakota.

The UND INMED program is a comprehensive education assistance program designed to assist AI-AN health professions students enrolled at UND. The program features a multifaceted and staged approach:

- Academic and personal advisement.
- Assistance with financial aid resources.
- Application assistance.
- Summer enrichment programs.

The INMED program first engages students in a six-week summer academic enrichment program for AI-AN students in grades 7-12. Subsequent stages of the program feature Pathways, a six-week summer program designed for graduates of tribally controlled community colleges who will be matriculating at the main campus, and a six-week MCAT preparation program for AI-AN college juniors and seniors planning to apply to medical school.

Admission Policies and Procedures

In alignment with the spirit of the INMED program, UND thoughtfully considers admission policies that address AI-AN representation in the admission, interview, and matriculation processes. Every year for the past 26 years, the UND SOM has reserved seven slots for AI-AN students. In addition, the school's in-state residency requirements have been eliminated. The SOM routinely has Native American representation on the admissions committee, and INMED staff, including the director, are present during the interviews as well as the deliberations to respond to inquiries by admissions committee members and to help with any potential cultural misinterpretation.

Students participating in INMED educational opportunities must be enrolled members of federally recognized tribes, and they are not limited by residency in the state of North Dakota. A presidential tuition waiver is awarded to students living in other states; it covers the non-resident portion of the tuition. The SOM also sponsors a diversity tuition waiver that is awarded to students who demonstrate how they will contribute to the diversity of the class. Finally, AI-AN students in the Pathways program described above receive a one-year resident tuition waiver to the university.

In addition to the seven educational opportunities available to enrolled members of AI-AN tribes, the admission and interview processes include efforts to increase the likelihood that AI-AN students will attend the UND SOM. The INMED program offers a pre-admission day to AI-AN students before the applicants' interviews. Students receive information on the school's curriculum, housing opportunities, financial aid resources, and a mock interview. The INMED program staff also contact each student individually to discuss the candidate's future and opportunities.

Medical students on Match Day at the University of North Dakota School of Medicine and Health Sciences. Courtesy of UND SOM.

The UND SOM maintains close ties to tribal communities through the INMED program. The program has an active advisory board composed of tribal government appointees from 24 American Indian reservations in North Dakota, South Dakota, Nebraska, Wyoming, and Montana. Advisory board members are often elected tribal council members and are considered critical to maintaining relationships with tribal communities. Board members often travel with INMED staff and are part of the recruitment efforts in the 24 tribes in those five states. Many health care professionals serving these tribes are graduates of the UND INMED program, which fosters a sense of program ownership by tribal people of the area.

> *"It never really occurred to me that I would get into medical school. When I did, it took quite a while for the idea to take hold. I walked around in a daze for some time."*
>
> ***Joycelyn Dorscher, MD (Turtle Mountain Band of Chippewa in North Dakota)***
> *Associate Dean, Student Affairs and Admissions, School of Medicine and Health Sciences University of North Dakota*

Fostering Supportive Networks on Campus

The scope of the INMED program does not stop after students are accepted to medical school but continues in AI-AN student experiences at UND SOM. The INMED student support model focuses on the traditional family support model. Resources include tutors, advisors, and family social activities. The INMED program provides

all levels of ceremonial support based on student needs. For example, a former INMED physician graduate and tribal elder came to the new school building to conduct a traditional Indian ceremony for students. Blessing ceremonies were conducted in the cadaver lab, the INMED offices, and other areas of the building. As part of the academic support of INMED students, the INMED program was given an adjoining area in the new school for student study and computer space.

University of New Mexico School of Medicine

Gerald Hill, MD (Klamath)
Chair, Klamath Tribes Health Advisory Committee, and Member and Past President, AAIP

The University of New Mexico (UNM) School of Medicine (SOM) has experienced a significant increase in the number of Native applicants and matriculants in recent years. There have been 57 AI-AN matriculants to the UNM SOM in the past 10 years.

Community-Based Recruitment Efforts

UNM SOM's long-term relationships with local and regional AI tribes have helped distinguish UNM with this success. Of UNM AI-AN matriculants, 90% come from the local area (New Mexico and the Navajo Nation), and the remaining 10% come from outside the state.

Efforts to support AI-AN learners at UNM SOM include initiatives addressing the needs of AI-AN students specifically and programs addressing underrepresented populations more broadly. Programming specific to the preparation, recruitment, and retention of AI-AN students is a dual effort with national organizations and local community partners collaborating on initiatives such as the Four Corners Medical Education Alliance. This alliance is a partnership of five medical schools in the Four Corners region of the United States and the AAIP. It facilitates a rotating annual pre-admissions workshop for AI-AN premedical students.

A participant in a community youth program at the University of New Mexico School of Medicine. Courtesy of UNM SOM.

UNM SOM also works closely with the American Indian Student Affairs Office on UNM's main campus to offer premed advising, resources, and other advice for AI-AN students interested in medical school. The work to support these students is made possible by ties to local and regional AI-AN communities primarily through programs administered by the Health Sciences Center Office for Diversity and a strong relationship between this office and the Sante Fe Indian School.

Issues related to AI-AN community health are not limited to programs that target AI-AN students — they are also integrated in the curriculum for pipeline programs run by the UNM Health Sciences Center Office for Diversity. These programs include a six-week clinical experience in

Students working in the lab as part of the Pre-Admissions Workshop at the University of New Mexico School of Medicine. Courtesy of UNM SOM.

a rural community; MCAT preparation; the Undergraduate Health Sciences Enrichment Program; the Health Career Academy, which offers high school students math enrichment and health career exploration; the Dream Makers Health Career Program, which targets middle and high school students; and the Interprofessional Health Outreach Program (IHOP). IHOP is a health science student initiative and includes the UNM Society of Native American Health Professions Students; IHOP students usually serve as officers in that society.

Admission Policies and Procedures

In crafting initiatives that support AI-AN student application and matriculation to UNM SOM, policies are two-fold in nature: They address both the admissions committee and the consideration given to learners during the application process. For admission, UNM SOM traditionally accepted only in-state residents; however, thoughtful consideration is given to enrolled members of federally recognized tribes outside New Mexico. These applicants must provide proof of tribal membership and/or a description of their involvement with their tribal communities at the time of the secondary application. On interview day, a representative from the Center for Native American Health meets all AI-AN applicants and provides a tour of the Native American student lounge on the health sciences campus. The lounge houses study resources, computer resources, and a study space for Native students.

Policies addressing the admissions committee routinely call for two to five committee members who are AI-AN faculty, community physicians, and medical students to assist in providing perspectives on the Native American applicants. The admissions committee conducts periodic meetings with the Native American committee members to discuss issues, challenges, and successes with AI-AN applicants. During the selection process, Native American students are prioritized in the rank score tie-breaking process. Once an applicant is offered admission, current Native American medical students may be asked to contact the applicant to answer questions and provide insight into their experiences on campus. The UNM Combined BA-MD Degree Program also favors Native American learners because of the program's focus on service to rural and underrepresented communities.

The purpose of the Combined BA-MD Program is to help alleviate the physician shortage in rural and underserved areas of New Mexico. Each year the program admits 28 high school students who receive a conditional admission to the School of Medicine. The program is funded by the New Mexico State Legislature and provides financial support for students who are committed to practicing medicine in New Mexico's rural and medically underserved communities.

The BA-MD track includes a prehealth humanities and social sciences curriculum; a rigorous basic science curriculum; a summer practicum immersion experience, in which students live and serve in different rural communities in New Mexico; and completing a community health project.

Fostering Supportive Networks on Campus

Once in medical school, students receive academic, social, and cultural support in addition to financial assistance for USMLE (United States Medical Licensing Exam) fees and preparation, professional conference travel, cultural events and activities, and professional licensure through the UNM Health Sciences Center for Native American Health.

Financial contributions dedicated to AI-AN students include one full-tuition scholarship for the top-ranking Native student matriculating and support for the Center for Native American Health, the Office of Diversity, and the BA-MD program. The BA-MD program supports the Sante Fe Indian School by funding one full-time employee to host a health professions course at the school and by creating a pathway for high school AI-AN students into the health professions and the BA-MD program.

One challenge to increasing the number of AI-AN students at the UNM SOM is competition from other schools. Students may have offers from multiple schools.

UNM SOM may not be able to provide an attractive offer of scholarships and financial aid when compared with the competing institutions' offers. This challenge is somewhat mitigated by the relatively low tuition and cost of attendance at UNM, in addition to the one full-tuition scholarship noted earlier and the special scholarships that are sometimes available for AI-AN students from the dean.

University of Arizona College of Medicine-Tucson

Nicole G. Stern, MD, FACP (Mescalero Apache)
Director At Large, AAIP Board of Directors, 2017-19,
AAIP President, 2012-13, and
Staff Physician, Sansum Clinic, Inc.

The University of Arizona College of Medicine (UA COM) has historical interest in matriculating and graduating AI-AN medical students with the hope that they will become physician leaders and consider returning to their tribal communities as practicing physicians. Initially, the University of Arizona, like other state-of-the-art medical programs around the country, struggled with small gains and frequent setbacks in the number of AI-AN students pursing medical careers in the state. Efforts started in the mid-1980s with UA reviewing its admissions policies and adopting the AAMC's Simulated Minority Admissions Exercise (SAME), later called the Expanded Minority Admissions Exercise, the precursors to the Holistic Admissions Workshop. As a result, UA COM-Tucson used SAME early on for its admissions committee orientation to make sure all members understood the importance of having a diverse medical school class.

By the early to mid-1990s, UA COM-Tucson — countering pressure from Arizona State University, state legislators, politicians, and Phoenix-area medical community leaders to establish a second state-supported MD-granting medical school in Arizona — increased its percentage of enrolled underrepresented minority students as a way to preserve its status as the only public medical school in Arizona. UA COM-Tucson increased its AI-AN student recruitment efforts and had its largest class of AI-AN students, matriculating five in 1994. However, once the Phoenix threat was gone, numbers decreased again. Between 1994 and the early 2000s, UA COM-Tucson admitted anywhere from zero to two AI-AN students per year. In 2009 UA COM-Tucson changed its admission requirements and accepted applicants from all states. This dramatically increased the overall applicant pool, in addition to the number of applications from AI-AN students. Between 2006 and 2016, 21 AI-AN students matriculated at UA COM-Tucson. Of these students, eight began their studies at a community college. In 2015 UA COM-Tucson enrolled its largest class ever of AI-AN students, with eight matriculating. In 2016 six AI-AN students matriculated, and five matriculated in July 2017.

Recently, as collaborations continued between its Office of Admissions and the current Office of Diversity and Inclusion, UA COM-Tucson saw a dramatic rise in the number of AI-AN students who were admitted and matriculated. Factors relevant to this increased matriculation of AI-AN students include the selection of UA COM-Tucson as one of two pilot schools in the AAMC Holistic Admissions Project, as well as the formal partnership of UA COM-Tucson with the UA College of Education to assess institutional climate and measure progress of admission reform actions.

Community-Based Recruitment Efforts

Local efforts to increase the AI-AN applicant pool to UA COM-Tucson started early with the Med-Start Program. Med-Start, a long-running K-12 pipeline program held at the UA COM-Tucson, was one of the earliest federal Health Careers Opportunity Programs in the country. To this day, it is a well-known program in Arizona and contributes to a favorable image of the medical school held by underrepresented students. For undergraduate AI-AN students in Arizona, New Mexico, Colorado, and Utah, the Four Corners Medical Education Alliance showcases the

AAIP's Pre-Admission Workshop. Now in its eighth year, this two-day workshop prepares AI-AN college students for the medical school application process and results in an increased applicant pool for UA COM-Tucson.

Other undergraduate recruitment activities include the Indians into Medicine Program. UA COM-Tucson was a recipient of this Indian Health Service grant for the first time in 2002 and again in 2014. The grant provides academic, financial, and cultural support to AI-AN prehealth professional students, as well as to UA COM-Tucson medical students.

UA COM-Tucson supports the Border Latino and American Indian Summer Exposure to Research Program (BLAISER). BLAISER was created to address health disparities in Arizona's ethnically diverse and fast-growing communities. This cutting-edge, 10-week undergraduate research program provides an extraordinary laboratory training opportunity, pairing junior- and senior-level student-scholars with preeminent University of Arizona health sciences researchers. The program arms students who come from underrepresented backgrounds with skills that make them competitive in their pursuit of postsecondary education and research. BLAISER is offered to students at no cost and provides a $3,000 stipend, housing, and undergraduate credit.

For AI-AN students applying to medical school, UA COM-Tucson offers the Pre-Medical Pathways Program (PMAP). This pre-matriculation program, created in 2014 for about 10 students per year, morphed out of a previous postbaccalaureate program tested by UA COM-Tucson over a two-year period. PMAP is offered by UA COM-Tucson with support from the Office of Admissions and the Office of Diversity and Inclusion. This rigorous 18-month program targets socioeconomically disadvantaged, first-generation college students from rural or border communities or from those enrolled in American Indian tribes. The program provides students with additional science coursework, MCAT preparation, clinical experience, and mentorship. The PMAP student who successfully completes the program gains automatic admission to medical school.

Students participating in a Med-Start Program activity at the University of Arizona College of Medicine-Tucson.
Courtesy of UA COM-Tucson.

Traditional blessing ceremony for incoming AI-AN medical students at the University of Arizona College of Medicine-Tucson.
Courtesy of UA COM-Tucson.

Admission Policies

UA COM-Tucson has implemented policies and practices guided by the Office of Admissions that may increase the likelihood of AI-AN students attending the medical school. A key component in achieving this is to have at least one AI-AN faculty member or one AI-AN student on the admissions committee. As soon as the Office of Admissions notifies potential students about their acceptance, UA COM-Tucson American Indian faculty and leadership email

admitted students, sharing information about the college and all available support services. Following matriculation, AI-AN medical and health professions students can attend culturally aligned offerings such as the traditional blessing and honoring ceremonies and talking medicine circles.

Collaborations

Over the past several years, UA COM-Tucson has partnered with the assistant vice president of tribal relations at the University of Arizona to build relationships with the local communities. Through this partnership, UA COM-Tucson is able to offer information, establish programming, and share resources when recruiting AI-AN applicants. Other critical partnerships between UA COM-Tucson and other local programs interested in increasing the AI-AN physician workforce include collaborations with the Native American Cancer Prevention Partnership, Area Health Education Centers, UA College of Public Health, American Indian Studies, and the Colleges of Agriculture, Law, and Education.

The UA COM-Tucson financial aid director diligently works with local and national donors to offset the cost of medical education for UA COM-Tucson students. The Office of Admissions works with the main campus graduate college to apply federal grant funding to UA COM-Tucson PMAP and medical students. In 2006 UA COM-Tucson and UA COM-Phoenix launched a joint scholarship program with the Navajo Nation. A co-funded effort by UA COM-Tucson or UA COM-Phoenix and the Navajo Nation, the Navajo Nation Future Physicians' Scholarship Fund provides scholarship money for up to seven Navajo students, paying for tuition and fees in exchange for a five-year service agreement to return to the Navajo Nation once the student's medical residency training is completed.

Similar to challenges faced by other medical schools, UA COM-Tucson must compete with other medical schools offering similar or more competitive financial aid packages.

Navajo Nation Future Physicians' Scholarship Fund signing ceremony at the University of Arizona.
Courtesy of UA COM-Tucson.

Only through constant partnering, both internally and externally, will UA COM-Tucson be successful in supporting its students and implementing programming and other efforts to recruit and retain AI-AN students. Without these valuable partnerships, much of the work done by the UA COM-Tucson would not be sustainable.

> *"We all come into the identity of our profession with the aid of those who have come before us, those who support our desires and guide us along our journey. My growth continues even after receiving my medical degree from the University of Arizona in Tucson, Arizona, and completing a residency in internal medicine at the Banner Good Samaritan program in Phoenix. I would not be a physician today if it were not for people who enabled my achievement."*

Donovan Williams, MD (Dine/Navajo)
Assistant Dean of Diversity and Inclusion
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CHAPTER 4
At the Crossroads

Norma Poll-Hunter, PhD
Anna Wirta Kosobuski, EdD (Ojibwe)
Nicole G. Stern, MD, FACP (Mescalero Apache)
Gerald Hill, MD (Klamath)
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Medical schools and teaching hospitals are at the forefront of efforts to train the next generation of physicians and scientists, deliver high-quality health care, and facilitate research and innovation. Beyond these significant contributions, as a community, medical schools and teaching hospitals also function as "economic engines" that create employment opportunities and investments in business and community development.[1] This underscores the value of academic medicine leadership in taking an active role in finding and implementing solutions to increase American Indian and Alaska Native (AI-AN) presence and engagement in medicine.

This report provides an overview of research, data, and institutional policies and practices that have contributed to the development of Native physicians and allies who can meet the health care needs of AI-AN communities within and outside Indian Country. Taken together, there are important overarching themes that academic medicine should consider a call to action when developing strategies to address the issues discussed in the report.

Academic medicine has an important role in diminishing the impact of structural barriers. While multifaceted historical, political, and social factors influence the educational and health outcomes of AI-AN communities, academic medicine has a unique role in developing a culturally responsive health care workforce and contributing to the health of U.S. citizens and AI-AN communities. Medical schools and teaching hospitals have a far-reaching influence on local economies.[1] This influence can be leveraged to have a greater positive effect on the health of Native communities and to increase the presence of AI-AN individuals in the health care workforce. Efforts related to job creation, business, and community development can help mitigate adverse social determinants.

The institutional profiles in this report demonstrate that strategic, mission-driven approaches incorporating educational, social, and cultural elements offer promise in acknowledging and working to minimize the negative factors affecting AI-AN communities. The most successful efforts were informed by Native communities, staffed by Native people when possible, and supported by stable, institutional sources of funding.

Leadership engagement is essential. Leadership engagement and support in Native communities and within medical schools, teaching hospitals, and larger universities are essential. Engaging tribal and community leaders from the start and throughout the process of planning and implementation of policies and programs is a best practice. Within institutions, the engagement of deans' offices and university executives accelerates the planning, execution, and sustainability of policies, programmatic efforts, and financial support.[2]

Inclusive practices foster community. Attending to the culture and climate of institutions is important for ensuring that learners, faculty, staff, administrators, and leaders feel valued. Listening to learn about the needs of the communities within and beyond an institution's walls is essential. Also, acknowledging and addressing biases and symbols or expressions of racism are critical to creating safe and productive learning and working environments.[3,4]

Structural elements such as policies and procedures, in addition to the curriculum, can also ensure that Native culture is recognized and valued as essential to the learning and work environments. Measurable efforts toward creating inclusive learning environments can increase an institution's attractiveness, despite the actual numbers of Native students and faculty.[5] They also enrich the learning and work environments for all.

Collaborations that are mutually beneficial make a difference. Institutions that work alongside tribal leaders and community members are successful in attracting, recruiting, and supporting aspiring AI-AN physicians. When institutions engage with students — from their early education years and throughout the medical education continuum — and with schools, families, and tribal communities, those institutions create programs, policies, and a culture that are reflective of and sensitive to Native culture and values. The institutions profiled in this report demonstrate a steadfast commitment to the time it takes to build trust and long-term relationships.

A national response is needed. Some institutions may believe that increasing the AI-AN physician workforce is an issue that does not affect them. However, as a community, academic medicine has a responsibility to train physicians who are prepared to tackle today's and tomorrow's greatest health and health care challenges.

There is a sense of urgency considering the convergence of physician workforce shortages, the need for more primary care practitioners,[6] and persistent health disparities disproportionately affecting racial and ethnic individuals and communities living in poverty.[7] Federal funding, including programs like the Health Career Opportunity Program and the Centers of Excellence, have been significant contributors to supporting AI-AN communities. Growing these programs is critical to addressing this national issue. Medical schools and teaching hospitals need to attract and nurture talent from diverse communities and prepare students and residents to provide culturally responsive care.

This report provides guideposts for creating medical schools and teaching hospitals that value and leverage diversity and inclusion to promote excellence in education, research, and health care. Increasing the number of AI-AN physicians in the U.S. workforce can bring valuable Indigenous perspectives about health at the individual, family, and community levels. A health system inclusive of AI-AN voices in the education and training of physicians could bring about more comprehensive solutions to the nation's current challenges and transform the health care system to better meet the needs of all people.

> National efforts such as the AAMC's Project 3000 by 2000 demonstrated that when forces are combined for a common mission to advance diversity, there are broad and far-reaching effects.[8]

Engaging AI-AN communities in medical education will bring great value to the learning environment, research, and the practice of medicine.

The evidence cited in this report shows that we are at a crossroads.

> To make real and sustainable change, we must acknowledge that there is a problem with a severe lack of AI-AN representation in medicine and the health professions and work together as a community.

Combined and coordinated efforts from multiple fronts — academic health centers, federal government, tribal communities, philanthropy, and community-based organizations — can make a difference. The AAMC and the AAIP hope that all our medical schools and teaching hospitals will take on the challenge to contribute to solutions that will increase the number of American Indians and Alaska Natives in medicine.

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University of Minnesota, Duluth, Native Americans into Medicine Program participants.
Courtesy of UM MSD.

APPENDIX A

American Indian-Alaska Native Number of MD Applicants by Undergraduate Institution, 2013-17

Undergraduate Institution	Alone	In Combination	Alone or In Combination
University of Oklahoma Norman Campus, Norman, OK	28	46	74
University of New Mexico-Main Campus, Albuquerque, NM	28	30	58
University of Arizona, Tucson, AZ	17	28	45
Oklahoma State University, Stillwater, OK	19	22	41
Stanford University, Stanford, CA	7	23	30
Brigham Young University, Provo, UT	17	13	30
University of Texas at Austin, Austin, TX	4	25	29
University of Washington, Seattle, WA	7	21	28
University of California-Davis, Davis, CA	7	19	26
Texas A&M University, College Station, TX	6	19	25
University of Michigan-Ann Arbor, Ann Arbor, MI	8	17	25
University of California-Berkeley, Berkeley, CA	3	20	23
University of Florida, Gainesville, FL	3	20	23
Arizona State University, Tempe, AZ	10	13	23
University of Wisconsin-Madison, Madison, WI	9	14	23
University of Arkansas Main Campus, Fayetteville, AR	11	12	23
Ohio State University Main Campus, Columbus, OH	2	18	20
Vanderbilt University, Nashville, TN	5	15	20
University of Tulsa, Tulsa, OK	4	14	18
University of Central Florida, Orlando, FL	1	16	17
Cornell University, Ithaca, NY	1	16	17
University of Colorado at Boulder, Boulder, CO	6	11	17
University of North Dakota, Grand Forks, ND	8	9	17
University of Southern California, Los Angeles, CA	0	16	16
University of North Carolina at Chapel Hill, Chapel Hill, NC	8	8	16
Baylor University, Waco, TX	5	11	16
Northeastern State University, Tahlequah, OK	11	5	16
University of Alabama, Tuscaloosa, AL	3	12	15
Dartmouth College, Hanover, NH	6	9	15
Johns Hopkins University, Baltimore, MD	1	13	14
Northern Arizona University, Flagstaff, AZ	7	6	13
University of Notre Dame, Notre Dame, IN	1	12	13
Louisiana St University and Agricultural and Mechanical Col, Baton Rouge, LA	1	12	13
Clemson University, Clemson, SC	1	12	13
Emory University, Atlanta, GA	1	11	12
Michigan State University, East Lansing, MI	1	11	12
Texas Tech University-Lubbock, Lubbock, TX	4	8	12
University of California-Santa Cruz, Santa Cruz, CA	3	9	12
Duke University, Durham, NC	4	8	12
University of Georgia, Athens, GA	2	10	12
University of California-Irvine, Irvine, CA	1	11	12
University of Central Oklahoma, Edmond, OK	6	6	12
Florida State University, Tallahassee, FL	3	8	11

Continued

Undergraduate Institution	Alone	In Combination	Alone or In Combination
Oregon State University, Corvallis, OR	3	8	11
University of South Florida, Tampa, FL	0	11	11
University of Minnesota, Minneapolis, MN	1	10	11
University of Kansas Main Campus, Lawrence, KS	4	7	11
Harvard University, Cambridge, MA	2	9	11
North Carolina State University, Raleigh, NC	0	11	11
Tulane University, New Orleans, LA	2	9	11
Northwestern University-Evanston, Evanston, IL	0	10	10
Wichita State University, Wichita, KS	2	8	10
Boston University, Boston, MA	0	10	10
Princeton University, Princeton, NJ	0	10	10
University of Hawaii at Manoa, Honolulu, HI	1	9	10
Yale University, New Haven, CT	2	8	10
College of William & Mary, Williamsburg, VA	3	6	9
University of Illinois at Urbana-Champaign, Champaign, IL	0	9	9
University of Utah, Salt Lake City, UT	3	6	9
University of California-San Diego, La Jolla, CA	4	5	9
Penn State University Park, University Park, PA	0	9	9
University of Maryland-College Park, College Park, MD	3	6	9
New Mexico State University-Main Campus, Las Cruces, NM	4	5	9
University of Tennessee-Knoxville, Knoxville, TN	0	9	9
University of Alabama at Birmingham, Birmingham, AL	4	5	9
University of Missouri-Columbia, Columbia, MO	0	9	9
University of California-Los Angeles, Los Angeles, CA	0	8	8
Washington University in St. Louis, St. Louis, MO	1	7	8
University of California-Santa Barbara, Santa Barbara, CA	1	7	8
University of Virginia, Charlottesville, VA	2	6	8
University of Pennsylvania, Philadelphia, PA	0	8	8
University of Mississippi, University, MS	1	7	8
University of Chicago, Chicago, IL	1	6	7
Rogers State University, Claremore, OK	0	7	7
University of Texas at San Antonio, San Antonio, TX	0	7	7
University of South Carolina Columbia, Columbia, SC	0	7	7
Colorado State University, Fort Collins, CO	2	5	7
College of Charleston, Charleston, SC	2	5	7
University of Nevada-Reno, Reno, NV	3	4	7
Pittsburg State University, Pittsburg, KS	0	7	7
New York University, New York, NY	0	7	7
Western Washington University, Bellingham, WA	0	7	7
University of Louisville, Louisville, KY	0	7	7
California Polytechnic State University-San Luis Obispo, San Luis Obispo, CA	0	6	6
Texas Christian University, Ft Worth, TX	4	2	6
Massachusetts Institute of Technology, Cambridge, MA	0	6	6
California State Polytechnic University-Pomona, Pomona, CA	2	4	6
Montana State University-Bozeman, Bozeman, MT	1	5	6
Fort Lewis College, Durango, CO	4	2	6
Seattle Pacific University, Seattle, WA	0	6	6

Continued

Undergraduate Institution	Alone	In Combination	Alone or In Combination
East Central University, Ada, OK	4	2	6
University of Alaska Anchorage, Anchorage, AK	3	3	6
San Diego State University, San Diego, CA	0	6	6
University of Colorado Denver | Anschutz Medical Campus, Denver, CO	1	5	6
Virginia Commonwealth University, Richmond, VA	1	5	6
Stony Brook University, Stony Brook, NY	0	6	6
Indiana University-Bloomington, Bloomington, IN	0	6	6
Oral Roberts University, Tulsa, OK	5	1	6
University of Connecticut, Storrs, CT	1	5	6
Miami University, Oxford, OH	1	5	6
Georgetown University, Washington, DC	1	5	6
Auburn University, Auburn, AL	1	5	6
University of South Dakota, Vermillion, SD	2	4	6
Swarthmore College, Swarthmore, PA	1	5	6
Gonzaga University, Spokane, WA	0	6	6
Rice University, Houston, TX	1	4	5
United States Military Academy, West Point, NY	2	3	5
University of Nebraska - Lincoln, Lincoln, NE	0	5	5
University of Pittsburgh, Pittsburgh, PA	1	4	5
Portland State University, Portland, OR	2	3	5
Grand Valley State University, Allendale, MI	5	0	5
Central Washington University, Ellensburg, WA	3	2	5
University of Denver, Denver, CO	0	5	5
Baldwin Wallace University, Berea, OH	0	5	5
Florida Atlantic University-Boca Raton, Boca Raton, FL	0	5	5
University of Minnesota-Duluth, Duluth, MN	3	2	5
Southeastern Oklahoma State University, Durant, OK	1	4	5
University of South Alabama, Mobile, AL	3	2	5
State University of New York at Binghamton, Binghamton, NY	0	5	5
Brown University, Providence, RI	3	2	5
University of Missouri-Kansas City, Kansas City, MO	0	5	5
Texas State University-San Marcos, San Marcos, TX	0	5	5
Oklahoma Christian University, Oklahoma City, OK	2	3	5
Marquette University, Milwaukee, WI	0	5	5
Columbia University in the City of New York, New York, NY	2	3	5
Temple University, Philadelphia, PA	3	2	5
University of Kentucky, Lexington, KY	0	5	5
Northeastern University, Boston, MA	2	3	5

Source: AAMC Applicant Matriculant Data File, March 13, 2018.

Note: Institutions with fewer than five applicants to MD-granting schools are not listed.

APPENDIX B

American Indian-Alaska Native Number of MD Graduates by U.S. Medical School, 1980-81 Through 2016-17

U.S. Medical School of Graduation	AI-AN Graduates			Unique Total Graduates
	Alone	In Combination	Alone or In Combination	
University of Oklahoma College of Medicine	225	88	313	5,510
University of Minnesota Medical School	133	44	177	8,675
University of North Dakota School of Medicine and Health Sciences	98	34	132	1,975
University of Washington School of Medicine	79	32	111	6,453
University of New Mexico School of Medicine	73	14	87	2,707
University of North Carolina at Chapel Hill School of Medicine	56	16	72	5,760
Brody School of Medicine at East Carolina University	47	6	53	2,418
University of California, San Francisco, School of Medicine	46	27	73	5,610
University of Wisconsin School of Medicine and Public Health	45	17	62	5,481
University of Kansas School of Medicine	40	23	63	6,382
University of Arizona College of Medicine	39	16	55	3,842
Stanford University School of Medicine	37	10	47	3,102
University of South Dakota, Sanford School of Medicine	36	10	46	1,843
Harvard Medical School	35	23	58	6,077
University of Texas Health Science Center at San Antonio Joe R. and Teresa Lozano Long School of Medicine	33	9	42	7,255
University of Texas Medical Branch School of Medicine	30	18	48	7,254
University of Michigan Medical School	30	14	44	6,757
University of Alabama School of Medicine	29	19	48	5,945
University of Illinois College of Medicine	28	15	43	10,959
Michigan State University College of Human Medicine	28	14	42	4,268
Uniformed Services University of the Health Sciences F. Edward Hebert School of Medicine	28	10	38	5,667
University of California, Davis, School of Medicine	28	10	38	3,411
University of Utah School of Medicine	26	6	32	3,565
Geisel School of Medicine at Dartmouth	25	7	32	2,394
University of Colorado School of Medicine	24	32	56	4,868
Wayne State University School of Medicine	23	15	38	9,428
Tulane University School of Medicine	23	10	33	5,724
Baylor College of Medicine	21	20	41	6,125
Tufts University School of Medicine	21	9	30	6,067
Medical College of Wisconsin	20	25	45	7,074
Sidney Kimmel Medical College at Thomas Jefferson University	20	6	26	8,343
University of Arkansas for Medical Sciences College of Medicine	20	5	25	5,002
University of Nebraska College of Medicine	19	6	25	4,513
University of Texas Southwestern Medical School	19	5	24	7,591
McGovern Medical School at the University of Texas Health Science Center at Houston	18	16	34	7,253
Mayo Clinic School of Medicine	18	10	28	1,520
USF Health Morsani College of Medicine	18	8	26	3,704
George Washington University School of Medicine and Health Sciences	17	5	22	5,737

Continued

U.S. Medical School of Graduation	AI-AN Graduates			Unique Total Graduates
	Alone	In Combination	Alone or In Combination	
Oregon Health & Science University School of Medicine	16	20	36	3,809
Texas Tech University Health Sciences Center School of Medicine	16	16	32	4,063
University of California, San Diego School of Medicine	16	12	28	4,364
Boston University School of Medicine	15	8	23	5,645
Louisiana State University School of Medicine in New Orleans	15	4	19	6,358
Creighton University School of Medicine	14	19	33	4,325
Ohio State University College of Medicine	14	16	30	7,606
Wake Forest School of Medicine of Wake Forest Baptist Medical Center	14	15	29	3,922
University of Iowa Roy J. and Lucille A. Carver College of Medicine	14	12	26	5,768
Keck School of Medicine of the University of Southern California	14	10	24	5,917
Indiana University School of Medicine	13	23	36	10,125
Meharry Medical College	13	9	22	2,957
Georgetown University School of Medicine	13	5	18	6,983
University of Florida College of Medicine	13	4	17	4,349
University of Missouri-Columbia School of Medicine	12	12	24	3,622
University of Virginia School of Medicine	12	12	24	5,059
Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo	12	9	21	5,179
Perelman School of Medicine at the University of Pennsylvania	11	14	25	5,576
Duke University School of Medicine	11	10	21	3,790
Northwestern University The Feinberg School of Medicine	11	10	21	6,151
Washington University in St. Louis School of Medicine	11	6	17	4,422
Virginia Commonwealth University School of Medicine	10	7	17	6,323
University of Nevada, Reno School of Medicine	10	4	14	1,881
Weill Cornell Medicine	9	9	18	3,761
University of California, Los Angeles David Geffen School of Medicine	9	9	18	5,637
Case Western Reserve University School of Medicine	9	8	17	5,685
Louisiana State University School of Medicine in Shreveport	9	7	16	3,678
University of South Alabama College of Medicine	9	6	15	2,362
Northeast Ohio Medical University	9	4	13	3,673
Medical College of Georgia at Augusta University	9	4	13	6,655
New York Medical College	9	3	12	7,189
University of California, Irvine, School of Medicine	9	2	11	3,385
Icahn School of Medicine at Mount Sinai	8	10	18	4,638
Texas A&M Health Science Center College of Medicine	8	7	15	2,633
Loma Linda University School of Medicine	8	6	14	5,549
Emory University School of Medicine	8	5	13	4,277
Marshall University Joan C. Edwards School of Medicine	8	3	11	1,772
Vanderbilt University School of Medicine	7	12	19	3,747
Johns Hopkins University School of Medicine	7	11	18	4,295
University of Tennessee Health Science Center College of Medicine	7	9	16	5,869
University of Chicago Division of the Biological Sciences The Pritzker School of Medicine	7	9	16	3,782
University of Louisville School of Medicine	7	7	14	5,017

Continued

U.S. Medical School of Graduation	AI-AN Graduates			Unique Total Graduates
	Alone	In Combination	Alone or In Combination	
Columbia University Vagelos College of Physicians and Surgeons	7	6	13	5,550
University of Connecticut School of Medicine	7	6	13	2,993
Chicago Medical School at Rosalind Franklin University of Medicine & Science	7	5	12	6,206
The University of Toledo College of Medicine	7	5	12	5,022
University of Rochester School of Medicine and Dentistry	7	4	11	3,598
Robert Larner, M.D., College of Medicine at the University of Vermont	7	1	8	3,512
Medical College of Pennsylvania	7	0	7	2,009
Lewis Katz School of Medicine at Temple University	6	11	17	6,581
East Tennessee State University James H. Quillen College of Medicine	6	7	13	2,007
Albert Einstein College of Medicine	6	7	13	6,408
Saint Louis University School of Medicine	6	4	10	5,575
University of Maryland School of Medicine	6	4	10	5,615
Drexel University College of Medicine	5	14	19	4,798
Pennsylvania State University College of Medicine	5	8	13	4,055
Rush Medical College of Rush University Medical Center	5	7	12	4,457
Eastern Virginia Medical School	5	7	12	3,661
Southern Illinois University School of Medicine	5	5	10	2,499
University of Massachusetts Medical School	5	5	10	3,749
Medical University of South Carolina College of Medicine	4	16	20	5,265
Howard University College of Medicine	4	13	17	3,632
Wright State University Boonshoft School of Medicine	4	7	11	3,270
The Warren Alpert Medical School of Brown University	4	7	11	3,103
Albany Medical College	4	6	10	4,777
Yale School of Medicine	4	5	9	3,616
University of Cincinnati College of Medicine	4	5	9	5,918
Loyola University Chicago Stritch School of Medicine	4	5	9	4,785
UCLA/Drew Medical Education Program	4	3	7	746
University of Missouri-Kansas City School of Medicine	4	3	7	3,266
Hahnemann University School of Medicine	4	0	4	3,032
University of Hawaii, John A. Burns School of Medicine	3	11	14	2,166
New York University School of Medicine	3	8	11	5,965
University of Miami Leonard M. Miller School of Medicine	3	5	8	5,942
State University of New York Upstate Medical University	3	4	7	5,582
University of Kentucky College of Medicine	3	2	5	3,565
West Virginia University School of Medicine	2	6	8	3,200
Stony Brook University School of Medicine	2	6	8	3,875
State University of New York Downstate Medical Center College of Medicine	2	5	7	7,547
Mercer University School of Medicine	2	3	5	1,741
Morehouse School of Medicine	2	2	4	1,255
Rutgers, Robert Wood Johnson Medical School	2	2	4	5,182
Oral Roberts University School of Medicine	2	0	2	334
University of Mississippi School of Medicine	1	6	7	4,054
Florida State University College of Medicine	1	5	6	1,145

Continued

U.S. Medical School of Graduation	AI-AN Graduates			Unique Total Graduates
	Alone	In Combination	Alone or In Combination	
Rutgers New Jersey Medical School	1	2	3	6,052
Universidad Central del Caribe School of Medicine	1	2	3	2,142
University of Pittsburgh School of Medicine	0	5	5	5,056
University of Central Florida College of Medicine	0	5	5	376
Central Michigan University College of Medicine	0	1	1	62
University of South Carolina School of Medicine Greenville	0	1	1	100
Virginia Tech Carilion School of Medicine	0	1	1	162
Oakland University William Beaumont School of Medicine	0	1	1	204
Geisinger Commonwealth School of Medicine	0	1	1	341
Florida International University Herbert Wertheim College of Medicine	0	1	1	378
University of South Carolina School of Medicine	0	1	1	2,411
Donald and Barbara Zucker School of Medicine at Hofstra/Northwell	0	1	1	159
Texas Tech University Health Sciences Center Paul L. Foster School of Medicine	0	1	1	328
Cooper Medical School of Rowan University	0	1	1	100
Ponce Health Sciences University School of Medicine	0	0	0	1,948
San Juan Bautista School of Medicine	0	0	0	488
Charles E. Schmidt College of Medicine at Florida Atlantic University	0	0	0	177
University of California, Riverside School of Medicine	0	0	0	40
University of Arizona College of Medicine - Phoenix	0	0	0	73
University of Puerto Rico School of Medicine	0	0	0	4,148
Frank H. Netter MD School of Medicine at Quinnipiac University	0	0	0	58

Source: AAMC Student Records System, March 12, 2018.

APPENDIX C

American Indian-Alaska Native Number of MD Applicants by State, 2013-17

Region	State of Legal Residence	2013-14			2014-15			2015-16		
		Alone	In Combination	Alone or In Combination	Alone	In Combination	Alone or In Combination	Alone	In Combination	Alone or In Combination
Central	Illinois	3	10	13	1	12	13	1	6	7
	Indiana	0	4	4	0	3	3	1	1	2
	Iowa	1	0	1	1	3	4	0	0	0
	Kansas	1	7	8	1	11	12	2	6	8
	Michigan	4	12	16	4	13	17	4	7	11
	Minnesota	3	6	9	1	2	3	5	9	14
	Missouri	1	9	10	3	5	8	2	6	8
	Nebraska	0	3	3	0	2	2	0	0	0
	North Dakota	0	2	2	1	1	2	4	1	5
	Ohio	0	9	9	1	16	17	2	5	7
	South Dakota	3	1	4	0	2	2	0	1	1
	Wisconsin	2	7	9	2	6	8	1	3	4
	All for the Region	18	70	88	15	76	91	22	45	67
Northeast	Connecticut	0	2	2	0	5	5	0	5	5
	Delaware	0	0	0	0	2	2	0	1	1
	District of Columbia	0	2	2	0	1	1	0	0	0
	Maine	2	0	2	1	0	1	0	1	1
	Maryland	0	7	7	2	3	5	0	6	6
	Massachusetts	0	6	6	0	5	5	1	7	8
	New Hampshire	0	0	0	1	1	2	0	1	1
	New Jersey	0	4	4	1	5	6	0	4	4
	New York	2	8	10	2	9	11	1	11	12
	Pennsylvania	4	11	15	2	10	12	1	15	16
	Rhode Island	0	1	1	0	0	0	0	0	0
	Vermont	0	0	0	0	0	0	1	0	1
	All for the Region	8	41	49	9	41	50	4	51	55
South	Alabama	3	4	7	2	2	4	5	3	8
	Arkansas	3	3	6	1	3	4	3	5	8
	Florida	4	8	12	4	15	19	1	32	33
	Georgia	2	7	9	3	8	11	2	6	8
	Kentucky	1	6	7	0	6	6	0	2	2
	Louisiana	3	6	9	3	8	11	2	4	6
	Mississippi	0	5	5	0	8	8	0	6	6
	North Carolina	3	8	11	3	4	7	2	8	10
	Oklahoma	22	15	37	22	25	47	22	29	51
	Puerto Rico	0	0	0	0	0	0	0	0	0
	South Carolina	0	4	4	2	2	4	0	5	5
	Tennessee	0	9	9	2	7	9	2	7	9
	Texas	8	28	36	16	26	42	13	32	45
	Virginia	2	6	8	1	8	9	1	5	6
	West Virginia	1	3	4	0	0	0	0	0	0
	All for the Region	52	112	164	59	122	181	53	144	197
West	Alaska	0	6	6	1	3	4	5	1	6
	Arizona	5	10	15	8	9	17	8	14	22
	California	3	33	36	11	43	54	9	43	52
	Colorado	3	7	10	2	8	10	2	10	12
	Hawaii	0	6	6	0	4	4	0	5	5
	Idaho	2	0	2	1	2	3	0	2	2
	Montana	2	5	7	1	2	3	1	1	2
	Nevada	0	1	1	1	0	1	2	2	4
	New Mexico	6	4	10	3	7	10	5	9	14
	Oregon	3	8	11	2	4	6	0	3	3
	Utah	3	3	6	1	3	4	2	3	5
	Washington	5	8	13	3	7	10	2	12	14
	Wyoming	0	0	0	0	0	0	0	0	0
	All for the Region	32	91	123	34	92	126	36	105	141
Legal Residence Is Unknown		0	0	0	0	0	0	0	3	3
U.S. Territories and Possessions		0	1	1	0	1	1	0	0	0
Total		**110**	**315**	**425**	**117**	**332**	**449**	**115**	**348**	**463**

Continued

Region	State of Legal Residence	2016-17*			2017-18		
		Alone	In Combination	Alone or In Combination	Alone	In Combination	Alone or In Combination
Central	Illinois	0	9	9	1	16	17
	Indiana	2	2	4	0	5	5
	Iowa	0	3	3	1	0	1
	Kansas	4	7	11	1	5	6
	Michigan	3	7	10	5	16	21
	Minnesota	3	9	12	1	6	7
	Missouri	3	6	9	0	6	6
	Nebraska	0	1	1	0	1	1
	North Dakota	0	4	4	3	3	6
	Ohio	3	15	18	1	10	11
	South Dakota	2	0	2	2	0	2
	Wisconsin	3	8	11	1	5	6
	All for the Region	23	71	94	16	73	89
Northeast	Connecticut	0	3	3	0	3	3
	Delaware	0	0	0	0	1	1
	District of Columbia	0	1	1	0	1	1
	Maine	0	1	1	0	1	1
	Maryland	3	11	14	4	9	13
	Massachusetts	1	4	5	1	8	9
	New Hampshire	0	2	2	0	1	1
	New Jersey	0	4	4	0	5	5
	New York	0	19	19	0	9	9
	Pennsylvania	0	8	8	0	10	10
	Rhode Island	0	1	1	0	0	0
	Vermont	0	1	1	0	0	0
	All for the Region	4	55	59	5	48	53
South	Alabama	6	8	14	2	7	9
	Arkansas	2	5	7	1	8	9
	Florida	2	29	31	5	19	24
	Georgia	1	14	15	1	9	10
	Kentucky	0	5	5	0	3	3
	Louisiana	1	8	9	3	5	8
	Mississippi	1	1	2	2	2	4
	North Carolina	6	11	17	5	10	15
	Oklahoma	22	34	56	19	33	52
	Puerto Rico	0	2	2	0	1	1
	South Carolina	1	7	8	1	6	7
	Tennessee	0	4	4	1	8	9
	Texas	11	46	57	6	40	46
	Virginia	1	4	5	0	11	11
	West Virginia	1	1	2	0	1	1
	All for the Region	55	179	234	46	163	209
West	Alaska	1	3	4	3	4	7
	Arizona	9	11	20	13	15	28
	California	10	53	63	5	49	54
	Colorado	3	12	15	1	12	13
	Hawaii	1	8	9	0	3	3
	Idaho	0	0	0	0	1	1
	Montana	1	2	3	2	5	7
	Nevada	0	4	4	2	7	9
	New Mexico	10	9	19	5	8	13
	Oregon	3	7	10	1	7	8
	Utah	3	3	6	1	4	5
	Washington	3	9	12	0	7	7
	Wyoming	1	0	1	0	2	2
	All for the Region	45	121	166	33	124	157
Legal Residence Is Unknown		0	0	0	0	0	0
U.S. Territories and Possessions		0	0	0	0	0	0
Total		**127**	**426**	**553**	**100**	**408**	**508**

Source: AAMC Applicant Matriculant Data File, March 13, 2018.

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