

## Research Article

# Perspectives from Students in the Native American Summer Research Internship Program

Jones M, Kamimura A, Levitt SE, Juarez N and Holsti M\*  
University of Utah, Salt Lake City, UT, USA

### ABSTRACT

**Objective:** The aim of this study is to explore the perceptions of American Indian/Alaska Native (AI/AN) undergraduate students by examining Science, Technology, Engineering, and Math (STEM) experiences and identifying potential challenges or barriers to visualizing careers in science and health. This study is important because it provides narratives from AI/AN people, who have been historically marginalized in research.

**Methods:** Focus group discussions about health disparities in AI/AN communities and access to biomedical science education and employment were run with AI/AN undergraduates from the United States of America who were participating in an internship program at the University of Utah during Summer 2018.

**Results:** The main themes touched on were lack of education and resources, limited academic mentorship, and misconceptions about health disparities in AI/AN communities. Students identified forces that work to limit

indigenous representation in the biomedical workforce, which included limited exposure to quality education, lack of support and encouragement from academic advisors, lack of mentorship, navigating the cultural significance of the human body in settings where the body is used for medical instruction, and being disconnected geographically from their land and community. Students expressed that it was difficult to maintain both a scientific and tribal identity, highlighting the violent history that western-led research efforts have had with AI/AN people and the misconceptions about indigenous individuals and their health.

**Conclusions:** It is vital that AI/AN people have a more proportionate rate of biomedical professionals and physicians because these healthcare professionals will provide more culturally competent care for AI/AN people than the general population.

**Keywords:** American Indian/Alaska Native; Health; Biomedical professions; Undergraduate education; USA

### Introduction

American Indian/Alaska Native (AI/AN) populations experience health disparities for leading chronic diseases, such as heart disease, diabetes, and obesity compared to the general population in the United States [1]. This is due in part, to the long national history of providing significant differences in access, inclusion and resources for AI/AN people, resulting in the inadequate provision of healthcare. Therefore, it is necessary to investigate the contentious history between the United States federal government and AI/AN people, as well as the systemic and systematic forms of discrimination within the current healthcare model that contribute to increased health disparities for AI/AN people.

Additionally, there is a lack of diversity in the biomedical field for AI/AN people, which is observable by the disproportionately low percentages of AI/AN physicians in the United States. As of 2014, the Association of American Medical Colleges (AAMC), reported that of all practicing physicians, 8.9% were African American, Hispanic or Latino, or AI/AN with AI/AN being represented at only 0.4% as compared to 48.9% white physicians [2]. It is vital to address the lack of diversity in biomedical fields in order to address the health disparities that exist in AI/AN individuals.

The biomedical sciences, health professions, and health related research have not adequately updated their enrollment, resources, and opportunities to enroll, retain and complete AI/AN students in their programs [3]. An example of the

lack of support for AI/AN students can be seen in the lower percentage of grant funding given to AI/AN scholars than their white counterparts [4]. Not only is lack of diversity in research problematic for AI/AN researchers, but it is also incredibly damaging to the whole research community. Greater diversity in authorship is directly correlated with publication in higher impact journals and increased citation [5]. In terms of journal quality and citations, publications with diverse authorship have higher quality while simultaneously enhancing research creativity and competently utilizing the nation's intellectual capital [3]. It is incumbent upon institutions of higher education in health professions they remain vigilant in the ongoing practice of improving diversity because physicians, specifically family physicians, act as the mediator between medical care and lifestyle for the patients they serve [6].

### Unique Health Challenges/Health Disparities of American Indian/Alaska Native (AI/AN) Peoples

Incorporating AI/AN voices is especially important in achieving the goal of culturally appropriate health care delivery to this community. Evidence indicates the lack of a consistent, strong physician-patient relationship is a key factor in health disparities [7]. AI/AN youth trained in the health sciences could be an asset to improving health disparities in the AI/AN community. The AAMC reported that AI/AN physicians are more likely to practice primary care than their white counterparts, and almost a quarter of AI/AN physicians practice family medicine [2]. The way forward for improving AI/AN

health must rely on trusting and listening to AI/AN youth as future leaders in the healthcare field, improving their access to higher education, and allowing them to advocate for the health of their communities.

Utilization of the federal agency for indigenous health, the Indian Health Service (IHS) can be a barrier in health access. The IHS facilities are often on reservation land that is not accessible to all AI/AN people. Nearly one-half of AI/AN people do not report living on reservations and therefore cannot easily access IHS services [6]. AI/AN people experience greater rates of morbidity and mortality than non-AI/AN people, which equates to the lowest life expectancy of any racial/ethnic group [8]. The leading cause of death for AI/AN people is heart disease, diabetes, and unintentional injury [9]. Urban AI/AN people, those who do not live on reservations, experience some varying health concerns than AI/AN people who live on a reservation. The top five causes of death for Urban AI/AN people are heart disease, cancer, unintentional injury, diabetes and chronic liver disease [10]. AI/AN experience higher rates of death due to self-harm/suicide, assault/homicide, and chronic liver disease and cirrhosis than their non-AI/AN counterparts [9]. Not only do AI/AN people experience health disparities in regards to their physical health, but also to their mental health. AI/AN struggle with higher percentages of mental health challenges than their non-AI/AN counterparts [1]. Amongst AI/AN youth, 29% were diagnosed as having a minimum of one psychiatric disorder [9]. Rates of suicide are 250% higher for AI/AN people ages 15-34 than the general population [11].

An area to explore in addressing these pressing health concerns is increasing the number of AI/AN physicians to provide culturally competent medical care, and be in leadership positions to educate new health professionals and influence community health in minority populations [12]. Family physicians are well positioned to provide meaningful and adequate care when they have an understanding of the cultural influences that structure an individual's life outside of the physician's office [6].

There is evidence that underrepresented minority healthcare providers are more likely to treat underrepresented minority patients, which can lead to a strengthened physician-patient relationship and improved quality of care [7]. Therefore, it is important to understand the factors that affect the pipeline which leads to representation of underrepresented minority students in STEM areas of study.

## Methods

### Overview

This study examines perspectives of students in the Native American Summer Research Internship Program (NARI), at the University of Utah. This program, founded in 2010 is designed to provide opportunities for AI/AN undergraduate students, and was developed through a community-based participatory approach. Educators from the University of Utah established relationships with tribal elders in order to competently and effectively create specific resources that would work “to promote trust, recruitment of students, and retention in scientific disciplines” [13]. Including perspectives of the tribal elders who

served as consultants on the development of NARI, informed the programs intent to help eliminate health disparities among AI/AN people by increasing their representation and leadership in the biomedical workforces. NARI is a paid internship, which runs for ten weeks at the University of Utah, with the goal to provide research experiences and resources to elevate the representation of indigenous peoples in the biomedical workforce.

The objective of this study is to explore the perceptions of participants in the NARI program, and identify potential challenges or barriers to visualizing careers in science. The overarching goal of this project is to better understand self-reported health disparities and work to foster solutions. This study was given an exemption status from the University of Utah Institutional Review Board (IRB).

### Study participants

Study participants are undergraduate students participating in the Native American Summer Research Internship (NARI) program at the University of Utah. Participants originated from four states: Arizona, Minnesota, New Mexico and South Dakota. Participants equally identified as either male or female, undergraduate students.

### Data collection procedure and data analysis

NARI students were recruited via email and announcements during their core program experiences. Participation was voluntary and without compensation. Focus group interviews were conducted with NARI participants about their self-reported health disparities, their self-proposed strategies to mitigating said disparities, and the limiting factors preventing them from occupying positions in the biomedical field to advocate for their communities.

Four focus groups were conducted throughout the summer of 2018. At the beginning of each of the focus groups, students were informed that the questions were open ended to generate dialogue. The research team developed the interview guide and the prompting questions were as follows:

- What are some of the challenges of maintaining both a scientific and tribal identity?
- What are some of the forces limiting Native American peoples from getting involved in the biomedical field?
- What are the self-assessed health disparities for their specific community?
- What are some misconceptions about health disparities in their specific community?
- What are some possible solutions to health disparities in their specific community?
- What do they perceive as the barriers to improving health disparities in their specific community?

Focus group interviews were between 45 to 90 minutes, and were conducted with a total of 12 AI/AN students. The interviews were then transcribed and analyzed, and themes from these interviews were used to structure the analysis of limiting factors for indigenous peoples inclusion in the biomedical field.

After transcription, the transcripts reviewed by two other authors on this paper for review and analysis to find main themes. The interviews were varied in size and length as shown below by. With the data collected, a thematic analyses was conducted the research team (Table 1).

## Findings

### Forces limiting involvement in the biomedical field

When asked specifically about forces limiting involvement in the biomedical field, students in the focus groups had varied responses.

**Exposure to education:** The students voiced feeling like they were not encouraged to visualize themselves in higher education by those in positions of power in public schools:

*“It’s, um, I think we need to get out of that limiting kids of telling them that they can’t get there because of money or because that they’re not, they don’t come from a good home. Um, they need to see those opportunities. I think that’s something that’s limiting them is that they don’t know that they can do it. They don’t know that resources are out there.”*

Another way that students in the focus groups felt was limiting their access to higher education in the biomedical field was a lack of fundamental STEM curriculum in early education:

*“I think growing up on the reservation, um; I think one of the main barriers is education. Um, just because we don’t have, we don’t have a lot of good, like, science teachers or we did, or on the reservation you have teachers who come in from teach for America and they’re only there for a year or two and don’t really and are like relatively new teachers and they’re just like developing their lesson plans and then like, because I remember for like my chemistry class in high school like we did, we went over the periodic table but we just that was about it.”*

One student in particular shared about the experience of doing poorly in a STEM introductory course and then being encouraged by undergraduate advisors to find a different path:

*“And then your advisors are first off all like, ‘Hey, I don’t think this is like a field for you. Maybe you should try something else.’ And I think a lot of children on the reservation, a lot of people, students on the reservation have those same experiences. Um, because I talk to some of my friends and that’s what they said that their advisors told them, which I think is another barrier to like them going into STEM is just being discouraged.”*

**Cultural significance of the body:** Another topic discussed about forces limiting AI/AN people from entering the biomedical field was the cultural significance of the human body for a lot of AI/AN people and the difficulty that poses for human dissection.

*“...this notion of, um, dissecting or um, you know, using a human cadaver. I think that kind of alarms some people.”*

Though dissection is becoming less relevant and ingrained

in the study of medicine, as alternatives are being created and implemented regularly, a large portion of medical study still relies on the dissection of human cadavers, which can present a challenge for some AI/AN students [14].

*“...indigenous individuals, um, who come from a traditional background and they have practices that they still maintain within, um, their beliefs. Um, this notion of, um, dissecting or um, you know using a human cadaver... So it’s just a challenge that they themselves kind of cope with and they get, um, instructions from their elders in their communities and their families about, you know, best practices on protecting themselves and also honoring the individual that they’re practicing on, like the cadaver. Um, so I think that kind of limits some people, but some people push those boundaries and pursue and actually do that.”*

**Relationship to land and home:** Many students in the focus group discussion shared how difficult it can be for AI/AN students to leave their home, especially their land, to attend big institutions that are far away.

*“...it was very hard and challenging moving away from home because my family is very agriculturalists. They are horticulturist. So we raised animals, we raised, um, sheep, we cultivated crops. And so being that, that’s what my family came from, it was very challenging to move away from home as an Undergrad. So I think those are just some of the challenges for students wanting to go into biomedical fields is leaving home because some of the bigger institutions that have these opportunities and have the availability to progress our people are away from our home territories. And I think that’s um, one of the reasons that limits us.”*

*“...it’s hard because, you know, you come, if you have a big household and you’re the oldest one or you’re the main person that takes care of everything, it’s hard to leave and know that you’re not there to help, um, that.”*

The challenge of not being around for your family was something communicated by another student in the focus group in regard to traditional culture:

*“Our family structures are, or you were really involved and for the family we’re close. Um, there’s, there’s always things, um, whether it’d be like traditional cultural things going on back home. Um, and so that can also be a barrier that one has to face, um, when, when you’re making the decision to, to leave home temporarily, um, to, to further educate yourself.”*

**Financial issues:** Many students shared that a significant challenge to their success in the biomedical field was a lack of financial resources. *“I think another limitation is, um, many of our home communities are, um, poverty stricken and just like the sheer, um, like, the, you know the, the amount of, um, money it’s going to take complete medical school.”* Not only did students communicate a lack of financial security in going to college, but also a lack of information about existing financial assistance programs [15-25].

*“...not a lot of people grow up super wealthy and then second of all they might not understand all the different opportunities that are available to them or like funding sources, such as like filling out a FAFSA, or something.”*

**Table 1:** A thematic analyses of Focus group.

Focus group	1	2	3	4
Length (minutes)	58	15	42	37
Number of Participants	2	2	5	3



**Lack of mentorship:** One of the most abundantly discussed forces limiting AI/AN peoples involvement in the biomedical field is lack of mentors who are college graduates, and can communicate strategies to help AI/AN students be successful in the biomedical field.

*“So then they feel like scared because I know, uh, my parents didn’t go to school and then like I remember trying to encourage my best friend and she was scared because her parents didn’t go so she didn’t think, she didn’t think she could do it.”*

Students also shared it was difficult to imagine a college career because their high school educators did not envision that for them.

*“...I think, on the reservation, they focus more on just like getting kids through high school rather than just like getting them into college. Um, there’s not, I mean there’s college prep but you have to be very motivated in order to do it and it can be very intimidating, especially if you’re like a first generation college student or first generation going to school because a lot of kid’s parents don’t go to school.”*

Mentorship and aspirational advising does not start in high school, but rather is a narrative that follows students from the time they are children.

*“...kids that are in, I know something about in fifth grade or sixth grade, that’s when the kids decide if they want to go to college or not. And that’s when they decide what they want to do. Um, mentorship during that critical time is kind of not there and they don’t have, you know, people to say, hey, you can go to, you can be a doctor if you wanted to. I think kids kind of have this perception, “Oh, maybe I’m just going to work. I don’t think I have, I can’t, I can’t stand school. I don’t think I can go through school. I don’t think I can make it.”*

**Balancing science and tribal identity:** Some students felt there were challenges but they could work to find a balance between these two identities. For example, one student discussed how they were able to integrate the two identities:

*“I don’t really see, um, like, um, a challenge or like conflict between the two. I find that there’s really, there’s, um, a lot of things that they, they’re, to me, they’re really similar, um, with our culture, you know, learning the plants or even medicines um, that’s, that’s science, that’s a type of science.”*

*“I feel like you could actually like marry those two together and it can be one identity because like a lot of the times, science, like scientific findings do line up with what like some of our traditional values are like what we believe in, like with medicine and stuff like that.”*

*“It’s a balance that you have to maintain, you have to be okay with what you’re doing. You have to be okay with, like if I do certain things then you know, I can pray about it later and I know that I’m doing it for a purpose and then, it’s not just like I’m picking apart something for fun, like it has a purpose and that, um, I’m just maintaining a balance.”*

Overall, many students felt as though balancing of tribal and scientific identity was challenging for AI/AN students entering the biomedical field. *“I think just in general. Some people just don’t, um, necessarily trust science in the native community.”*

This lack of trust in science in the native community can work to create a divide between the students’ academic pursuits and familial culture.

### **Misconceptions about indigenous health and investment**

In the United States of America there are 573 federally recognized tribes, and many more unrecognized, all with their own unique traditions and customs.

*“I can’t speak for all Navajos because, you know, we all grew up differently.”*

A painful stereotype in AI/AN communities is their portrayal in regards to struggling with Substance Used Disorder (SUD).

*“I think there’s a stereotype that natives are alcoholics. There is a stereotype that we all are no good or we’re violent or that we’re like, um, un-contributing to the world type of thing.”*

Another thing that came up from students during the focus groups was the misconceptions about AI/AN individual’s access to healthcare.

*“... I think a lot of people assume that we get free healthcare, but it depends really on where you live and how you kind of have the means to get to these things, and these things I mean, um, healthcare in general, like I had mentioned previously, my aunt had to take a very long time to strategically plan to get to her dentist. Um, I think of the misconceptions is that we get free health care, that we get the best healthcare, um, which is completely, um, false.”*

There also can be a misconception that AI/AN people have no desire to be upwardly mobile in regards to their quality of health.

*“In my opinion, I think a major misconception is that we, the people in our communities, um, we don’t, we don’t care. We’re okay with where we’re at. Um, we’re not, we don’t want to be involved. Um, is that, that’s a major misconception I hear a lot, is that, that all these, these health disparities, these things that affect our native population and then the natives aren’t doing enough and they’re not involved in it.”*

### **Health disparities, barriers to health, and possible solutions**

It is necessary to listen to primary accounts of experienced health disparities from AI/AN people to understand beyond the statistics and into the personal narratives of the people who experience these disparities.

**Substance Use Disorder:** Students in the NARI program did discuss many experiences with SUD.

*“I just remembered that my cousin passed away from substance abuse and then her son a couple of months later. So it’s a pretty big thing in our communities.”*

Not only is the prevalence of this substance challenge impacting AI/AN adults and youth, but also children.

*“...this goes back into substance abuse, where our women, our young women are consuming alcohol and they are unaware that they are carrying a child or that they’re pregnant. And so*

*that leads to fetal alcohol syndrome, which has been a pretty big thing on a lot of Indian reservations.”*

It is important to recognize the influences outside of reservations that work to promote alcohol consumption among AI/AN populations on reservations.

*“...alcohol is illegal on the reservation, but you know, you have those border towns that specifically target, um Native American families that are going back to the reservation when they get groceries or something. They kind of want to sell to them specifically because it’s not on the reservation.”*

**Mental health in indigenous communities:** Students also discussed the possible link between SUD and mental health complications.

*“I think it’s a bigger issue than what most people think of, um, and a lot of it has to stem to mental health.”*

Not only was the link between mental health challenges and SUD widely discussed, but also the stigmatization of mental health disorders.

*“... I think that one of the, like, barriers to that is like educating the community and really destigmatizing mental health because a lot of traditional, like old, the older generation, they don’t like to talk about like, um, depression or like suicidal thoughts because it’s kind of taboo to talk about like really bad things like that.”*

The consequences of a lack of open dialogue about mental health struggles are life threatening.

*“...suicide is really prevalent on the reservation, in my community, um, depression and just so many different mental health disparities that are just taking over that, you know, it roots in people not knowing who they are and people not being influenced, from what I say, the outside world.”*

**Diabetes in indigenous communities:** Another prevalent health disparity between AI/AN people and the general population is rates of diabetes.

*“... another disparity I would definitely say is Diabetes, or just not having a knowledge of what, what’s the right foods to eat because I can think of like a lot of people in my family like just normalize like hot Cheetos or like a lot of sodas in their diets for their kids. A lot of my cousins are really obese, but, it’s not really like a problem that, you know, it’s, it’s just like a normal lifestyle.”*

**Lack of healthcare access on reservations:** Not only did the NARI students, especially those who live on reservations, share how they experienced health disparities but they also shared their struggles with receiving quality healthcare in their home territories with a consistent healthcare provider.

*“Our biggest, biggest health disparity I think is having quality physicians that are really striving to, to do good work in these, often rural, communities. For instance, back home, we get a lot of, uh, physicians who will come in, they’ll be a part of the Indian Health Service to get their loans repaid and then the*

*day their loans are repaid, they’re out the door.*

This lack of access to consistent physicians not only impacts serious injury and illness but also primary care check-ups.

*“... last year I had to take my Aunt to go to the dentist and um, the day before she prepped, she filled up her truck with gas, she packed, um, her like just snacks for the road and um, we had to drive two hours to go see a dentist, which you would think, okay, when I go to the dentist I can just go down the street and see my dentist, but for my Aunt, she literally had to plan, um, she had to get gas, so that takes money. She had to have a vehicle. Um, so little things that we don’t think about I think is also a health disparity and something that limits native people in seeking health services.”*

Students in the focus groups also shared that inadequate health services impacted their elders and their end-of-life care.

*“... I think we can’t forget about our elders because they like to stay at home and it’s kind of hard to find, um, house care for them, um, but I know most native families like to take care of their elders themselves.”*

*Possible Solutions to Mitigating Health Disparities in Indigenous Communities*

NARI students had many thoughtful and progressive recommendations. One of the most agreed upon solutions from the focus groups was that a big contributor to improving health disparities in AI/AN communities starts with providing AI/AN youth with better educational opportunities and outreach.

*“I think it would be nice to see educators go into their communities and just do simple demonstrations on science to get students interested in it at an early age rather than tackling them um, at their later stage and when they’re in college and trying to get them to where, um, they’re interested, because sometimes we see students who are in their undergrad and it’s kind of too late.”*

Not only is it important to empower young students with robust opportunities, but also to encourage students to find their intellectual passion.

*“Like these really big problems that we’re talking about a lot of the time it can be intimidating and people might think that there is no way like one person could be able to change something within their own community, but I feel like as you go to college and your see like all these different ways like research or going into the medical field or going into social work or anything like that, there’s like so many different ways that you can make an impact on your reservation and I think that it’s important for kids to go to college so that way they can be exposed to those different opportunities.”*

The importance that NARI students put on learning went beyond the classroom and back to their roots.

*“So we’re at an, I think natives are trying to, native organizations and groups and educators are at this point where they’re trying to, um, they are trying to reintroduce languages to do like revitalization programs that are trying to revitalize*

*cultural competency within their communities, which is really excellent. But I think that becomes, um, kind of skewed when we're trying to promote higher education because sometimes I think it could be a little overwhelming for youth to kind of understand what's being fed to them academically."*

## **Discussion**

In this study, AI/AN undergraduate students were interviewed about their experiences with health disparities in their communities, barriers preventing them from being successful in the biomedical and health fields, and strategies that could be used to promote diversity for AI/AN in health professions. A thematic analysis was conducted that revealed four basic themes: Forces Limiting Indigenous Representation in the Biomedical Workforce, Challenges to Maintaining a Scientific and Tribal Identity, Misconceptions about Indigenous Peoples Health and Education, and Health Disparities and Possible Solutions to said Disparities.

First, the students identified forces that work to limit indigenous representation in the biomedical workforce, which included limited exposure to quality education, lack of support and encouragement from academic advisors, lack of mentorship, navigating the cultural significance of the human body in settings where the body is used for medical instruction, and being disconnected geographically from their land and community.

Second, the challenges experienced by AI/AN students to balance their scientific identity with their tribal identity. Some students felt that it was very difficult to maintain both a scientific and tribal identity, highlighting the violent history that western-led research efforts have had with AI/AN people. This is congruent with existing research narrative that AI/AN people do not trust medical research because of events such as how Arizona State University mishandled the Havasupai Tribes blood samples [9]. Alternatively, many AI/AN students interviewed did not feel there was a challenge to balancing a scientific and tribal identity. One student shared that they felt their scientific identity was similar to their tribal identity as both put emphasis on learning about agriculture and its relationship with healing and medicine.

Third, the students shared there were misconceptions about indigenous individuals and their health. Some of the students indicated feeling uncomfortable about speaking for their communities, as their experience with higher education and their culture was so personal. Students did share that a painful stereotype that exists for AI/AN people is that they are all suffering from SUD. The especially damaging implication of this stereotype is that AI/AN people do not want to change their health outcomes, do not want to participate in society, and that they are comfortable staying where they are. In that same vein, another piece of misinformation that exists in regard to AI/AN communities is that everyone receives free healthcare. This was communicated as unequivocally false, as students shared just how difficult it is to reach IHS facilities, as well as challenges of confidentiality with health organizations on the reservations.

The final theme of barriers to good health, is the incredibly complex and nuanced prevalence of SUD. Many AI/AN students shared having family experience with SUD. One vital aspect of the conversation about alcoholism in AI/AN communities in reservations is that businesses sell alcohol outside of the reservation specifically targeting AI/AN people. Additionally, there was emphasis on the importance of destigmatizing mental health and providing adequate resources for AI/AN communities. It is clear in the existing research that AI/AN communities are in critical need of resources for mental health, as AI/AN people die at higher rates from suicide than the general population [9]. Not only was mental health discussed in terms of health disparities, but also the prevalence of physical health disparities, such as diabetes. The robust discussion of diabetes in AI/AN communities is congruent with existing research that Type 2 Diabetes is twice as likely for AI/AN people than non AI/AN people [1]. In conclusion, it was made clear by AI/AN students that the root of health disparities lies in insufficient access to adequate medical care.

While these focus groups provided information about experiences of AI/AN students pursuing careers in the biomedical and health workforce, there were some limitations. There was a relatively small number of participants in this study, which means only a small percentage of the AI/AN population was interviewed and therefore a conclusive analysis of attitudes of AI/AN was not collected. In future research, it would be of interest to hold focus group discussions with a larger sample size. Another limitation of the study is that only AI/AN students in college were interviewed, which leaves out the narratives of AI/AN people who are not able to access or engage with higher education.

Given that there are health disparities in this population [1] and that this population is underrepresented in grant funding [4], this research is timely and contributes to the emerging literature on how better to incorporate indigenous and native voices. If educators, researchers, and current medical providers wish to promote AI/AN diversity in their institutions, it is vital to trust the advice and learned experiences of AI/AN youth. Not only would this practice work to improve health disparities of indigenous people, but it would also improve the competency of the biomedical workforce (Table 2).

## **Ethical Approval**

The protocol of this study was reviewed by the University of Utah Institutional Review Board (IRB). The IRB determined that this study met the Federal and non-Federal Exemption Categories.

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**Table 2:** Over view of health disparities in the population.

Participant	Tribal Affiliation	Home State	Half of K-12 education outside of a reservation?	Gender	Age	Year in College	Major
1	Navajo	Arizona	Yes	Female	21	Senior (or 4th year)	Psychology
2	Navajo (Diné)	New Mexico	No	Male	29	Other (consistency - 2016)	Anthropology/ Psychology
3	Blackfeet Nation	Montana	No	Male	21	Senior (or 4th year)	Biology
4	Navajo	New Mexico	Yes	Female	22	Senior (or 4th year)	Biology
5	Navajo Nation	New Mexico	Yes	Female	21	Senior (or 4th year)	Psychology + Native American Studies
6	Ho-Chunk Nation	Minnesota	Yes	Male	21	Senior (or 4th year)	Exercise Sports Science
7	Navajo	New Mexico	Yes	Female	20	Senior (or 4th year)	Public Health
8	Cheyenne River Sioux Tribe - Lakota	South Dakota	No	Female	23	Other (consistency)	Medical Anthropology
9	Pueblo of Laguna	New Mexico	No	Male	22	Other (graduated)	BSc - Biochemistry
10	Sicangu Lakota Rosebud Sioux Tribe	South Dakota	Yes	Female	22	Senior (or 4th year)	Heath Sciences + Public Health
11	Navajo	New Mexico	Yes	Male	30	Junior (or 3rd year)	Biochemistry/Biology/ Molecular Cell Biology
12	White Earth	Minnesota	Yes	Female	21	Other (graduated)	Biology

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**ADDRESS OF CORRESPONDENCE:** Holsti M, MD, MPH, BS. Department of Pediatrics, University of Utah, 295 Chipeta Way, Salt Lake City, UT 84108, USA, Tel: +18015877450; E-mail: Maija.Holsti@hsc.utah.edu

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