NATIVE STRONG

THE SOCIAL DETERMINANTS OF HEALTH OF TYPE 2 DIABETES AND OBESITY

A RESEARCH FRAMEWORK

A RESEARCH FRAMEWORK FOR THE NOTAH BEGAY III FOUNDATION'S NATIVE STRONG: HEALTHY KIDS, HEALTHY FUTURES PROGRAM

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ACKNOWLEDGMENTS

This report was funded by the Robert Wood Johnson Foundation (RWJF) and the W.K. Kellogg Foundation (WKKF). We thank them for their support, but we also acknowledge that the content presented in this report is that of the authors and the Notah Begay III Foundation alone, and does not necessarily reflect the opinions of RWJF or WKKF.

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Suggested citation: Notah Begay III Foundation. (2015). "Social Determinants of Health of Type 2 diabetes and Obesity in Native American Children: A Research Framework for Notah Begay III Foundations Native Strong: Healthy Kids, Healthy Futures program." Santa Ana Pueblo: Notah Begay III Foundation

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ABOUT THE NOTAH BEGAY III FOUNDATION

Notah Begay III (NB3) Foundation, a 501(c)(3) nonprofit organization, is the only national Native American nonprofit organization solely dedicated to reversing Native American childhood obesity and type-2 diabetes. NB3 Foundation is setting a national standard for investing in evidence-based, community-driven and culturally relevant programs that prevent childhood obesity and type 2 diabetes, ensuring healthy futures for Native American children and their communities.

ABOUT NATIVE STRONG: HEALTHY KIDS, HEALTHY FUTURES

Native Strong is a national program of the NB3 Foundation. It is framed to help reverse childhood obesity and diabetes trends through four core functions – collaboration, strategic grantmaking, knowledge building and capacity building. Critical to and integrated across each of these core functions is research and evaluation, policy, advocacy and communication. Native Strong has supported 41 communities in our Promising Program and Capacity Building grant programs[1] across the country. Grantees (Native controlled nonprofits or Tribal programs) are utilizing various strategies to improve the health of their community and children such as, conducting community health assessments and hosting community convenings to drive action, conducting nutrition education, and physical activity programing to strengthening existing programs and finally, identifying policy, system and environmental strategies to sustain their work.

EXECUTIVE SUMMARY

Native American communities have and continue to build strong and thriving communities and governments, however many continue to struggle with challenges like high unemployment rates, low graduation rates, lack of access to healthy food and little access to quality health care, to name a few. Unfortunately, Native American people are all too aware of these systemic challenges in their community, but often have little voice or input within the research and public health community when it comes to the discussion of the social determinants of health in addressing childhood obesity within Native American communities.

Multiple years of research have made clear that Native American children are among the most likely to be obese and overweight and are at high risk for developing type 2 diabetes. What is less clear are the complex causes behind this growing epidemic and the culturally appropriate and effective ways to address the causes and improve the health for Native American children. In other words, beyond eating more vegetables or getting in more exercise, what are the deeper causes making our children and communities obese and sick?

This research project aims to better understand these issues by examining the social determinants of health of childhood obesity and type 2 diabetes among Native American people from a Native/Indigenous perspective. Using this perspective, this paper considers the unique indigenous factors (i.e. historical trauma, self determination, cultural activities, etc.) in better understanding the role and impact of the social determinants of health among Native people. The goal of this research project is to: 1) provide a research framework to guide the NB3 Foundation's approach to addressing childhood obesity in Native communities, 2) begin to analyze the current infrastructure for collecting available public data and 3) investigate the gaps and issues with data collection, access and dissemination.

Social determinants of health are the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces, economics, social policies, and politics. – World Health Organization, 2014.

REALITIES OF TYPE 2 DIABETES AND OBESITY AMONG NATIVE CHILDREN AND YOUTH

- American Indians and Alaskan Natives ages 10-20 had the highest risk of developing type 2 diabetes when compared with other racial/ethnic groups (Centers for Disease Control and Prevention, 2014).
- A 2002 study using Indian Health Service data demonstrated that the number of Native American youth diagnosed with diabetes increased by 71% and prevalence increased by 46% between 1990 and 1998; prevalence in the general population increased by only 14% (Acton, Rios Burrows, Moore, Querec, Geiss, & and Engelgau, 2002).
- The Urban Indian Health Commission found in 2007 that urban American Indian youth were two to three times as likely as their peers in the general population to either be obese or at risk of becoming obese (Urban Indian Health Commission , 2007).

SOCIAL DETERMINANTS OF HEALTH

- Social determinants of health (SDOH) are "the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics" (World Health Organization, 2014)
- Determinants related to type 2 diabetes and obesity include:
  - *Poverty and family socioeconomic status*
  - *Educational attainment and access to education*
  - *Childhood obesity*
  - *A family history of type 2 diabetes*
  - *Lack of access to medical care*
  - *Lack of exercise and safe spaces to exercise*
  - *The ability to purchase high quality and poor diet*
  - *Increased stress and unstable living conditions*
  - *Participation in cultural activities and heritage*
  - *Historical trauma*
  - *Racism and Social Exclusion*
  - *Self- Determination/Autonomy*

HEALTH FROM AN INDIGENOUS PERSPECTIVE

- Health from an indigenous perspective incorporates ideas of life balance, living in harmony with others and the land, as well as one's connection to food in creating or providing it (King, Smith, & Gracey, 2009). It also considers one's relationship within a community as well as an individual's physical, mental, emotional and spiritual health (King, Smith, & Gracey, 2009). This perspective connects well with the social determinants of health model.
- Indigenous determinants to be considered for this research project include:
  - *Self-determination/autonomy*
  - *Access and utilization of traditional lands*
  - *The impact of historical trauma*
  - *Experience of race-based social exclusion*

THE CHALLENGE OF DATA FOR NATIVE AMERICANS

- The lack of available data specifically on Native American populations--due to the relatively small size of the American Indian and Alaska Native populations in the US, these groups are rarely included in a large enough proportion within a sample to produce valid and useful statistics for their population. This limits the number of studies Native Americans are included in and creates a significant challenge for finding data on this population.
- The universal applicability of qualitative research-- Many of the studies reviewed and cited in this framework use qualitative research methods. While qualitative research provides a greater understanding of the unique social and cultural dynamics of a particular community and adds additional evidence to the body of research, the methodological limitations associated with qualitative research make any findings not universally applicable.

This paper is providing the NB3 Foundation an approach and research framework to better understand the impact and role of the SDOH in addressing childhood obesity among Native American children. The full report is outlined into three key sections. The first section provides background information on the SDOH model and indigenous determinants of health and a rationale for utilizing this model to analyze the root causes of type 2 diabetes and obesity among Native American children and youth. The second section provides a detailed description of the study design, including research questions, the process for selecting specific social determinant indicators and associated data. The last section provides the expected limitations and planned outcomes of this research.

This document provides a baseline of information on the SDOH and serves as a model for the NB3 Foundation's research moving forward. Using this paper as a framework, NB3 Foundation intends to compile the data on selected SDOH indicators and publish several briefing and issue papers. These papers will be available on the NB3 Foundation website and in other forms with the goal of educating the community, foundations, Tribal Leaders, advocates and policy makers. These papers will include:

- Five (5) state (NM, AZ, OK, MN, WI) fact sheets, 1-1.5 pages, on the tribes within each state, state level data and appropriate social determinant indicators.
- Six (6) fact sheets, 1-2 pages, on specific SDOH indicators and how they apply in Indian Country, including examples of statewide, tribal and national data.
- Summary report of our findings

As far as we know this is one of few research projects being conducted with a Native/ Indigenous lens. As a result, it is our hope that this research will provide an initial framework and highlight data indicators for communities to consider in addressing childhood obesity and improving the health of their children. Underlying root causes can help communities develop a clearer picture of the driving causes behind childhood obesity and type 2 diabetes and help communities be strategic in addressing them. In addition, this research has the opportunity to highlight the challenges in collecting Native American-specific data and to advocate for improved sources of data to better understand the realities of health and life for Native Americans.

“AS FAR AS WE KNOW THIS IS ONE OF FEW RESEARCH PROJECTS BEING CONDUCTED WITH A NATIVE/INDIGENOUS LENS.“

Rationale and Background Information

WHAT ARE SOCIAL DETERMINANTS OF HEALTH AND WHY WILL WE USE THIS MODEL?

As this research project focuses on examining the social determinants of health related to Type 2 diabetes and obesity among Native American children and youth, it is important to first understand what social determinants of health are. By definition, social determinants of health are "the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics" (World Health Organization, 2014). This model views health from a broader perspective than individual health choices as the primary determinants of health and allows for forces such as poverty, education, and access to healthcare to have influence on the health outcomes of the individual and community.
For example, social determinants of health focus less on a person's exercise habits and more on the challenges to exercise in a community because built environment provides no safe spaces for physical activity (Singh, Siahpush, & and Kogan, 2010). And social determinants of health look less at individual eating choices and more at how living in food-deserts makes fruits and vegetables difficult to obtain (Townsend, Peerson, & and Murphy, 2001). Health from the social determinants perspective may involve complex factors such as whether individuals live near their families, workplace stress and unemployment, how far someone lives from a doctor's office, and the quality of the air they breathe (Devitt, Tsey, & and Hall, 2001; Robert Wood Johnson Foundation, 2010). All of these external circumstances impact the health of the individual and community, and yet may not be considered in a traditional individual health determinants model.

The ability to consider the context and conditions in which a person's health is formed and impacted gives the social determinants of health model explanatory power and efficacy in creating system wide change that a traditional "health risk" or "health behavior paradigm" does not (Jack, Jack, & Hayes, 2012). Social determinants of health allow us to identify non-traditional strategies for addressing health disparities instead of relying solely on changing individual health behaviors within preexisting social and economic conditions. Glasgow et al. notes that, "We need to embrace and study the complexity of the world, rather than attempting to ignore or reduce it by studying only isolated and often under representative situations," if we are to see theoretical policies translate into to real life intervention success (Glasgow, Lichtenstein, & Marcus, 2003; Jack, Jack, & Hayes, 2012). Social determinants give us a language and model to "embrace" the complexity of the world and study their impact on health at a community wide scale.

The social determinants of health model also fits naturally with how many indigenous and Native cultures view health. Health from an indigenous perspective often incorporates ideas of life balance, living in harmony with others and the land, as well as one's connection to food in creating or providing it (King, Smith, & Gracey, 2009). Nettleton et al. describes an indigenous perspective of health as, "not individual, but one that encompasses the health of the whole community and the health of the ecosystem in which [indigenous peoples] live" (Nettleton, Napolitano, & Stephens, 2007). From this perspective, Native Americans consider one's relationship within a community as well as an individual's physical, mental, emotional and spiritual health when evaluating well-being (King, Smith, & Gracey, 2009). In short, an indigenous perspective of health, much like the social determinants of health model, is "substantially social-cultural" (Nettleton, Napolitano, & Stephens, 2007) and defines health by its relationship to one's community, culture, and the environment.

RESEARCHERS HAVE NOTED THAT MANY OF THE STUDIES DONE ON INDIGENOUS HEALTH HAVE BEEN FROM NON-INDIGENOUS PERSPECTIVES (WILSON & ROSENBERG, 2002) THAT FAIL TO ACCOUNT FOR THIS SOCIALLY-ORIENTED UNDERSTANDING OF HEALTH. UTILIZING INDIGENOUS SOCIAL DETERMINANTS OF HEALTH TO ANALYZE THE ROOT CAUSES OF HEALTH DISPARITIES AMONG NATIVE AMERICAN CHILDREN AND YOUTH IS ONE WAY TO BRIDGE THIS GAP.

Finally, it should be noted that while we utilize the word "determinant", social determinants of health should not be seen as deterministic or give the impression of predictability (Gonzales, 2014). These models are not linear and the relationship between a determinant and a related health outcome is not causal in nature (Gonzales, 2014). Rather social determinants of health can be seen as influences on the development of a person or people group's health. They create the context in which health is developed and dealt with. Moreover, each community, whether indigenous/tribal or not, is unique, and the social determinants of health within that community will manifest themselves in ways unique to that community. While we can find common determinants and their associated indicators, social determinants will be shaped by the history, culture, landscape, and resources of a community. Therefore, consideration of these factors within each community is vital.

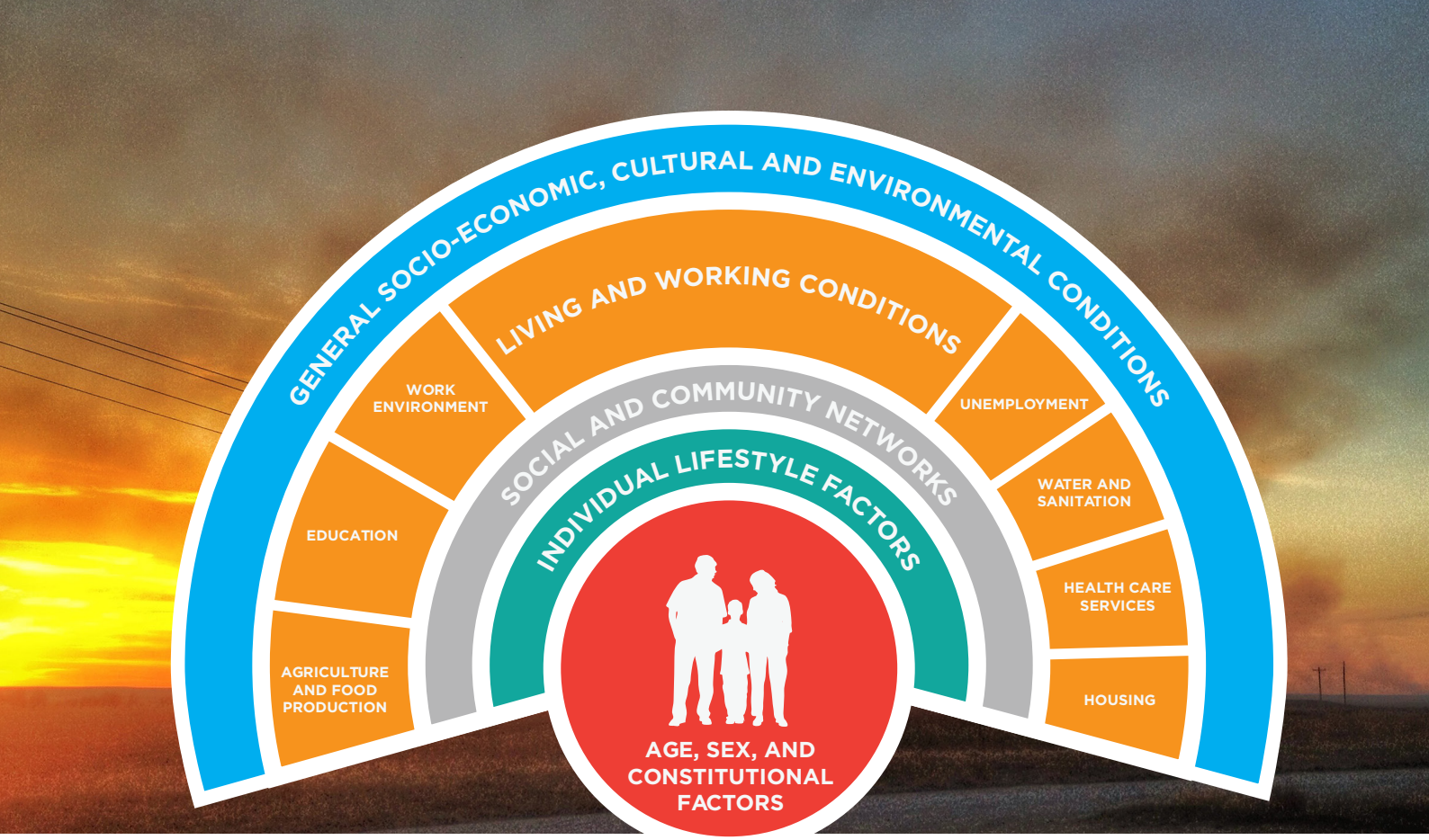


Figure 1 Dahlgren and Whitehead's "Rainbow" model of the Social Determinants of Health from their 1991 report. Reprinted from "Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews" by C. Bambra et al., 2010, Journal of Epidemiological and Community Health, 64. p. 285. Copyright 2010 by BMJ Publishing Group. Reprinted with permission

KEY CONCEPTS IN THE SOCIAL DETERMINANTS OF HEALTH MODEL

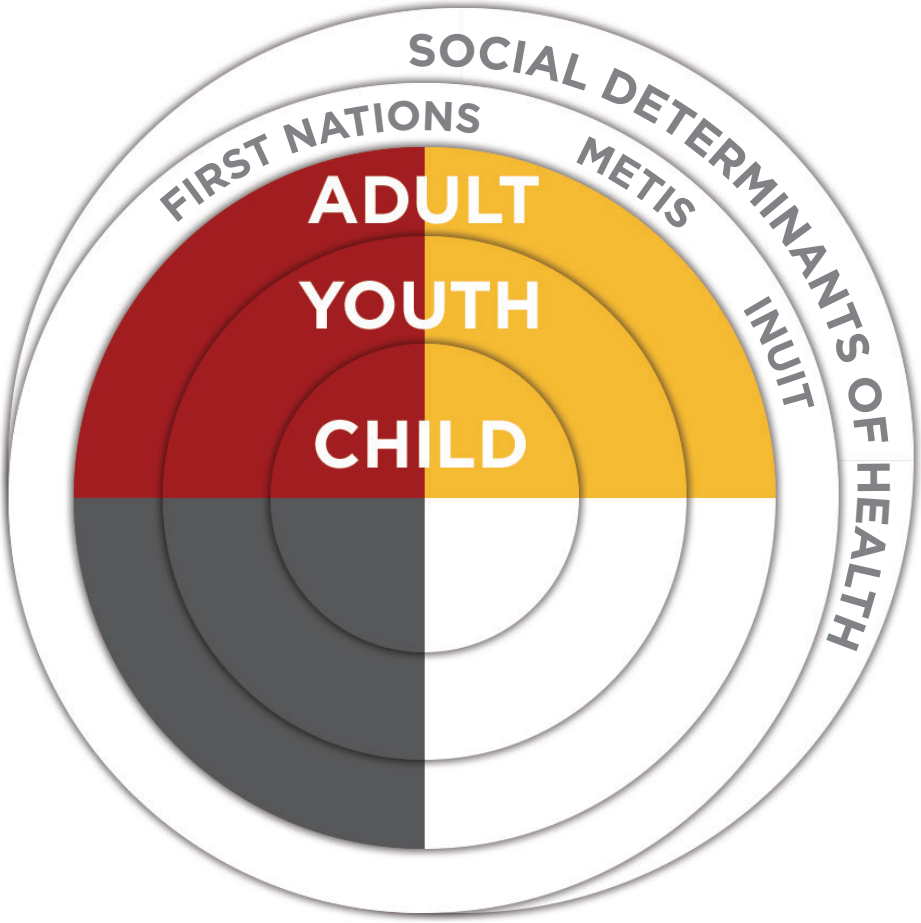
The concept "determinants of health" began in the 1970s out of a growing understanding that there were specific factors, both biological and social, that influenced health. This term refers more to structural rather than individual or behavioral determinants (Stahl, Wismar, Ollila, Lahtinen, & Leppo, 2006). Health researchers found that policies addressing these determinants had the potential for greater efficacy in making system-wide changes compared to policies promoting individual behavioral changes alone. The successor to this original research is the social determinants of health model, which prioritizes factors in health that represent inequalities created by social structures such as poverty (Stahl et al., 2006).

Dahlgren and Whitehead first conceptualized the social determinants of health model in a 1991 paper. In it, they present a "rainbow" type model (Figure 1.) that places biological givens such as sex, age and hereditary factors at the center and overlays them with successive layers of influence: lifestyle factors, community, living and working conditions, and socioeconomic, cultural, and environmental conditions (Dahlgren & Whitehead, 1991).
The authors use this model to demonstrate how an individual is impacted not only by personal health determinants and lifestyle choices but also by the conditions in which they live, work, play, grow and change. The model was further refined in 2003 to encompass a core set of social determinants that research had overwhelmingly shown as influential on population health—the social gradient, stress, early life, social exclusion, work, unemployment, social support, addiction, food, and transport (Wilkinson & Marmot, 2003).

Researchers within the public health field have gone on to develop models with greater complexity and a better understanding of the social determinants that impact the health and lives of specific groups of people. For this paper, we have focused on research

surrounding the social determinants of health of Native and indigenous peoples. Researchers working within Native health place particular emphasis on models that incorporate an indigenous understanding of health and the unique conditions and challenges faced by these populations. One particular example, the "Integrated Life Course and Social Determinants Model of Aboriginal Health" model (Figure 2.), incorporates "four dimensions of health across the life course including, physical, spiritual, emotional and mental [health]" and "reflects Aboriginal contexts and social determinants that not only have a direct impact on health but also interact with one another to create vulnerabilities and capacities for health" (Reading & Wein, 2009). This model allows for analysis of social determinants of health through the context of Native and indigenous cultures in addition to social structures and history. This context is imperative for our research.

Additionally, Reading and Wein classify social determinants of health into three categories—proximal, intermediate and distal—based on Marmot's 2007 analysis of the underlying "causes of causes" of health (Marmot, 2007). In this analysis, Marmot suggests that determinants most immediate in one's life may have been influenced by determinants further removed from them, either through distance or time. Proximal determinants are conditions that directly impact one's spiritual, emotional, physical and mental health. These include health behaviors, physical environment, education, food security, and socioeconomic status. Intermediate determinants are described as the originators of proximal determinants. They are the secondary layer of determinants, not directly impacting an individual but influencing the environment and conditions in which this person lives. These determinants include access to healthcare and exposure to traditional culture. Finally, distal determinants are the political, economic and social contexts that surround both intermediate and proximal determinants. In the case of indigenous and Native peoples, distal determinants incorporate the historical legacies of colonialism, racism and social exclusion as well as the early repression and reemergence of tribal self-determinism (Reading & Wein, 2009).



INTEGRATED LIFE COURSE AND SOCIAL DETERMINANTS MODEL OF ABORIGINAL HEALTH

- MENTAL HEALTH
- PHYSICAL HEALTH
- EMOTIONAL HEALTH
- SPIRITUAL HEALTH

Figure 2 The integrated life course and social determinants of health model for aboriginal people groups in Canada. Reprinted from "Health Inequalities and Social Determinants of Aboriginal Peoples' Health" by C. L. Reading and F. Wien, 2009, National Collaborating Centre for Aboriginal Health, p. 26. Copyright 2007 by Charlotte Loppie Reading. Reprinted with permission

In their model, Reading and Wein also incorporate the concept of life course, or the study of long-term effects of physical and social exposures through every stage of development - from gestation to adulthood - on the one's overall health and disease risks (Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003; Reading J. , 2009). The life course concept "...explicitly recognizes the importance of time and timing in understanding causal links between exposures and outcomes within an individual life course, across generations and in population-level disease trends" (Solar & Irwin, 2010). It "directs attention to how SDOH operate at every level of development...both to immediately influence health and to provide the basis for health or illness later in life" (Solar & Irwin, 2010). The incorporation of the life course concept is essential for making the case that interventions addressing the social determinants of health in childhood will have long-term positive impacts on the lives of Native children since our research will focus on the social determinants of health as they impact Native American children and youth. Additionally, it allows for the social determinant model to be adjusted from an adult centric model to a child/youth centric model as it assumes that exposure to certain determinants and health risks at a particular period in life, usually in early life, has a lasting effect that remains relatively constant throughout an individual's life (Reading J. , 2009).

INDIGENOUS SOCIAL DETERMINANTS OF HEALTH

In the last several years, researchers have pursued a new avenue of inquiry looking at specific "indigenous" social determinants of health. Increasing evidence suggests that the social determinants of health model cannot fully explain the inequalities experienced by indigenous peoples, and determinants more related to their unique life experiences must be taken into account (Brown, McPherson, Peterson, Newman, & Cranmer, 2012). Moreover, policies and practices to improve the social conditions and contexts that determine indigenous health will be most effective if the identities, connections and experiences that are fundamental to being indigenous are considered (Brown et al., 2012; Wilson, 2003).

THE INCORPORATION OF THE LIFE COURSE CONCEPT IS ESSENTIAL FOR MAKING THE CASE THAT INTERVENTIONS ADDRESSING THE SOCIAL DETERMINANTS OF HEALTH IN CHILDHOOD WILL HAVE LONG-TERM POSITIVE IMPACTS ON THE LIVES OF NATIVE CHILDREN SINCE OUR RESEARCH WILL FOCUS ON THE SOCIAL DETERMINANTS OF HEALTH AS THEY IMPACT NATIVE AMERICAN CHILDREN AND YOUTH.

If social determinants of health are those conditions in which people are born, live, work, age and change, then "indigenous" social determinants of health are those life and work conditions unique to indigenous people and communities that impact and contribute to their health. Indigenous determinants could account for, among other things, the impacts of the traditional practices,

beliefs, customs, history, language and culture held by Native Americans (King, Smith, & Gracey, 2009). Although there is no consensus on the definition of "indigenous", it is generally accepted to incorporate the concepts of "ancestral occupation of land, separation from colonizing peoples, language, culture, self-identification, group recognition, and self-determination" (Nettleton, Napolitano, & Stephens, 2007). Specific indigenous determinants have therefore focused on those conditions that arise out of the indigenous experience, such as speaking one's traditional language, participating in traditional and cultural activities including the provision of food, use of traditional healing practices, identifying with or participating in traditional spirituality, and spending time on indigenous land (King, Smith, & Gracey, 2009). Unlike many other types of social determinants of health, some indigenous determinants of health, such as language transmission and preservation, access to traditional lands, and participating in traditional spirituality, can be seen as strengths of indigenous communities rather than weaknesses.

Below we explore several indigenous determinants in greater depth to gain a better understanding of their impact within indigenous populations such as Native American children and youth:

Self-Determination/ Autonomy—Public health and psychology researchers have shown that greater personal self-determination, or the control a person is able to exert over their circumstances and decisions, is strongly correlated with better health outcomes (Murphy, 2014; Richmond & Ross, 2009).

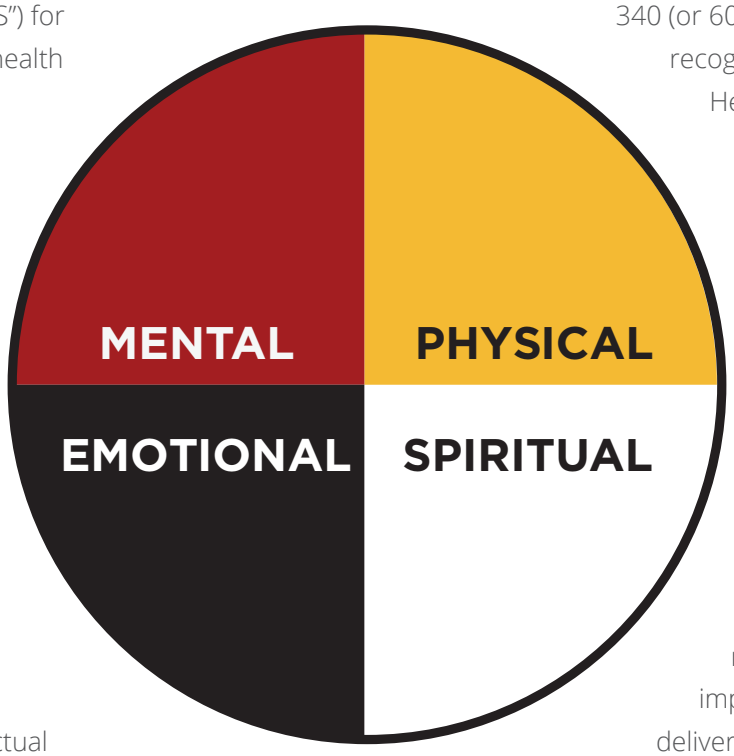
Indeed, social psychologists researching self-determination (also described as autonomy in the literature) have found that nothing is more important than self-determination/autonomy in an individual's healthy development and psychological wellbeing (Marmot, 2007; Murphy, 2014).

Self-determination can also apply to a community. A group of people can suffer a loss of autonomy when they experience oppression, assimilation, colonization, or any other form of domination or control. Due to outside pressure, they can no longer live self-endorsed lives according to their own values and preferences. (Murphy, 2014). Rather, they must live according to dominant group's values and preferences. However, when communities are able to rise up from under such oppression to regain self-determination, they reclaim the freedoms to govern themselves, choose their membership, and make decisions that reflect their values, identity, language, and cultural norms, without external influence (Murphy, 2014).

STUDIES IN OTHER COUNTRIES HAVE FOUND THE SAME POSITIVE ASSOCIATIONS BETWEEN SELF-DETERMINATION AND HEALTH. SPECIFICALLY, NATIVE YOUTH SUICIDE RATES WERE SIGNIFICANTLY LOWER OR NEAR ZERO IN TRIBAL COMMUNITIES THAT HAD SUCCESSFULLY PURSUED FACTORS OF CULTURAL CONTINUITY LIKE, AMONG OTHER THINGS, SELF-GOVERNANCE AND CONTROL OVER CERTAIN SOCIAL SERVICES LIKE HEALTHCARE (CHANDER & LALONDE, 2008).

The desire for these freedoms drove the Native American sovereignty and the self-determination movements in the US. Since the middle of the last century, Native American tribes have advocated for greater self-governance and the ability to exercise decision making over issues that affect their own people. While change was slow in coming, a landmark

bill in 1975 set the federal government and the tribes on a path towards greater tribal self-determination. Called Public Law 93-638 ("PL 93-638"), the Indian Self-Determination and Education Assistance Act fundamentally changed the political relationship between the federal government and the American Indian and Alaska Natives tribes. Importantly, it shifted responsibility for specific services from the federal government to the individual tribes, increasing a tribe's control over its own destiny (Cornell & Kalt, 2010). It created the ability for tribes to contract with the federal departments, like the Bureau of Indian Affairs ("BIA") and the Indian Health Service ("IHS") for federal funds to provide health and social services to their people and make decisions about how those funds would be spent. These services would have otherwise been managed directly by federal agencies, limiting tribal control and oversight. It also transitioned the "federal government and its agents from its heretofore ubiquitous and dominating role as actual service provider and reservation-governing decision maker to program advisor and advocate for tribal self-governance and greater tribal control over public programs" (Cornell & Kalt, 2010). PL 93-638 in a very real sense restored some of the tribes' freedoms for decision making and governance that they had lost when they were subjugated by the federal government in the decades and century before.



This change has wrought significant results. While PL 93-638 impacted multiple social service areas, in health, it has created greater autonomy and satisfaction under multiple measures of healthcare delivery (Cornell & Kalt, 2010). A survey by the National Indian Health Board found that tribes contracting under PL 93-638 found improved patient satisfaction and decreased waiting times, both positive measures for healthcare delivery (Cornell, Jorgensen, Rainie, Starks, & Grogan, 2012). Moreover, the high number of "638" contracting tribes compared to the number of tribes receiving direct services from IHS provides strong evidence that tribes desire to have greater control and self-determination with respect to their health: "As of December 2013, the IHS and Tribes have negotiated 83 self-governance compacts that are funded through 108 funding agreements with 340 (or 60%) of the 566 federally recognized Tribes" (Indian Health Service, 2014). While the Indian healthcare system continues to be systematically underfunded and insufficient to meet the full needs of Native Americans, the self-determination policies of PL 93-638 have made a measurable improvement on the delivery of care and satisfaction with the system.

Studies in other countries have found the same positive associations between self-determination and health. In one of the few quantitative studies looking specifically at the relationship between health and self-determination, Chandler and LaLonde found among the First Nations tribes in British Columbia, Canada a connection between factors of "cultural continuity", those actions that preserve a tribe's cultural past as well as enable them to have control over their future, and suicide rates among their youth (Chander & Lalonde, 2008).

Specifically, Native youth suicide rates were

significantly lower or near zero in tribal communities that had successfully pursued factors of cultural continuity like, among other things, self-governance and control over certain social services like healthcare (Chander & Lalonde, 2008). While they did not speculate as to the reasons why they found this association, Chandler and LaLonde did demonstrate that the positive association between factors of cultural continuity and reductions in youth suicide rates was statistically significant and persistent over time (Chander & Lalonde, 2008).

Access and Utilization of Traditional Lands—Multiple researchers have worked to elucidate the relationship between health and access to and utilization of traditional lands (Kingsley, Townsend, Phillips, & Aldous, 2009). They have found that the relationship between Native individuals and their traditional lands has a strong influence, even a potentially deterministic impact, on the health of an indigenous person and their greater community. This connection is first revealed through the indigenous concept of health. As mentioned previously, this concept of health is more holistic than its western counterpart, and it involves all aspects of a person and community—the physical, social, cultural, emotional and environmental components (Kingsley et al. 2009; Harris & Harper, 2000). Many indigenous peoples use the image of the "wheel" to describe their understanding of health (Figure 3.); in this wheel, the physical, mental, emotional and spiritual components of health are connected and in equilibrium with each other (Kingsley et al. 2009; Reading and Wein, 2009).

When one of these elements is out of balance, ill health results; maintaining balance within this medicine wheel is essential for good health (Wilson, 2003). In interviews with the Anishinabek, "First Peoples", of northern Ontario, Canada, it was made clear that the ability to maintain or rebalance your health lies with a person's or community's connection to "Mother Earth" or the land (Wilson, 2003). The Anishinabek believe that the land supports all four elements of life (physical, mental, emotional, and spiritual) on a daily basis through what she provides (Wilson, 2003).

Other studies have similar connections between traditional land and health. Australian indigenous people living on their traditional land, instead of in urban areas, have been shown to have lower rates of diabetes and cardiovascular disease, and lower overall mortality and morbidity rates (McDermott, O'Dea, Rowley, Kight, & Burgess, 1998) and research among the Inuit peoples of Canada have also shown that feeling good, or having a sense of wellbeing, is strongly dependent upon eating traditional food taken from their traditional lands (Borré, 1994). When this connection to the land is disrupted, the consequences can be seen in the health and wellbeing of indigenous communities. Without access to the land, the First Peoples were no long able to live how they and their ancestors previously had; they were without the "living classroom" the land provided to teach them the ways of their people (Brown et al., 2012). Indeed, a connection to the land, as seen by one Namgis First Nation elder, is so central to the way of life and health of an Indigenous people that it should be the starting point and not a separate conversation when looking at ways to improve the health of the First Peoples (Brown et al., 2012).

RICHMOND AND ROSS FOUND THAT A SHIFT IN CULTURE AND REDUCED ACCESS TO THE LAND AND ENVIRONMENTAL RESOURCES HAS, IN THE MINDS OF ONE INDIGENOUS COMMUNITY, RESULTED IN A LOSS OF BOTH INDIVIDUAL AND COMMUNITY HEALTH AS WELL AS A WAY OF LIFE: "WE LOST OUR TRADITIONAL WAY OF LIFE AND I THINK THAT'S WHY PEOPLE HAVE POOR HEALTH NOW, BECAUSE WE DON'T EAT OUR TRADITIONAL FOODS OR DO THINGS LIKE WE USE TO" (RICHMOND & ROSS, 2009).

In addition to impacting physical health, a connection to the land has spiritual, mental and emotional health implications. Wilson found that Anishinabek beliefs about being connected to the land were deeply rooted in a spiritual connection to the land, and that the people are connected spiritually to both the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THE GREAT SEAL OF THE PUEBLO OF SANTA ANA
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Creator and Mother Earth through traditional healing practices and medicines that are provided by the land (Wilson, 2003). One man describes "harvesting medicine as medicine" for him, connecting him with Mother Earth and being rejuvenated both spiritually and physically through the act of picking plants and thanking Mother Earth for her provision (Wilson, 2003). Some indigenous peoples also believe that the land is alive and contains ancestors (Kingsley et al., 2009) and spirits (Wilson, 2003) which they can connect to through interaction with the land.

A connection to the land also impacts indigenous identity, which has important implications for mental and emotional health. A connection to Mother Earth is deeply imbedded in many indigenous people's understanding of themselves and their way of life: "Mother Earth is everything that you see. You look everywhere on earth and you see Mother Earth. The way you raise your children, the way people do things together, the way we live among our people. She is in everything we do" (Wilson, 2003). The land is not just influencing identity but is actually a part of identity (Wilson, 2003). Native land, in the eyes of indigenous people, is fundamental to and inseparable from their sense of being (Brown et al., 2012). It also provides a sense of belonging to a group, a people and a history (Kingsley et al., 2009; Brown et al., 2012), and can be a protective factor in preventing negative mental health outcomes (Walters & Simoni, 2002). Chandler and LaLonde found that communities that actively pursued acts of "cultural continuity," including reclaiming connections to traditional lands, positively impacted identity formation among their youth that correlated to the reduction in suicides among this population (Chander & Lalonde, 2008).

It should be noted that much of the research in this field to date is anecdotal and qualitative in nature, which presents limitations on the universal applicability of the aforementioned studies. However, like Kingsley et al. noted, each study adds additional, if not broadly applicable, evidence demonstrating the centrality of land to the health and wellbeing of indigenous people (Kingsley et al., 2009). Additional research, particularly research that incorporates cultural specific dimensions between health and place and recognizes the complexity of the indigenous understandings of health, identity, spirituality and place, is needed (Wilson, 2003). Furthermore, we noted that much of the research in this field is from Australia and Canada and few studies have looked at relationship between land and health among the Native Americans in the US; additional research among the Native American populations would broaden our understanding of the importance of land, place, and health specifically for these people groups.

RESEARCHERS HAVE NOTED THAT MANY OF THE STUDIES DONE ON INDIGENOUS HEALTH HAVE BEEN FROM NON-INDIGENOUS PERSPECTIVES (WILSON & ROSENBERG, 2002) THAT FAIL TO ACCOUNT FOR THIS SOCIALLY-ORIENTED UNDERSTANDING OF HEALTH. UTILIZING INDIGENOUS SOCIAL DETERMINANTS OF HEALTH TO ANALYZE THE ROOT CAUSES OF HEALTH DISPARITIES AMONG NATIVE AMERICAN CHILDREN AND YOUTH IS ONE WAY TO BRIDGE THIS GAP.

Historical Trauma—No discussion of indigenous determinants of health would be complete without a consideration of historical trauma. Historical trauma is "[the] cumulative emotional and psychological wounding across generations, including the lifespan, which emanates from

massive group trauma" brought on by the long-term subjugation, colonialization and genocide perpetrated against indigenous people around the world and the Native American and Alaska Native peoples in the United States (Brave Heart, Chase, Elkins, & Altchul, 2011). For Native Americans, historical trauma manifested itself through the displacement from ancestral homelands, loss of spiritual ties to the land, population loss through mechanisms such as disease and warfare, and an eventual "cultural genocide" including the killing of millions of individuals, the forced relocation of entire tribes, and the compulsory assimilation of Native American children through mission schools.

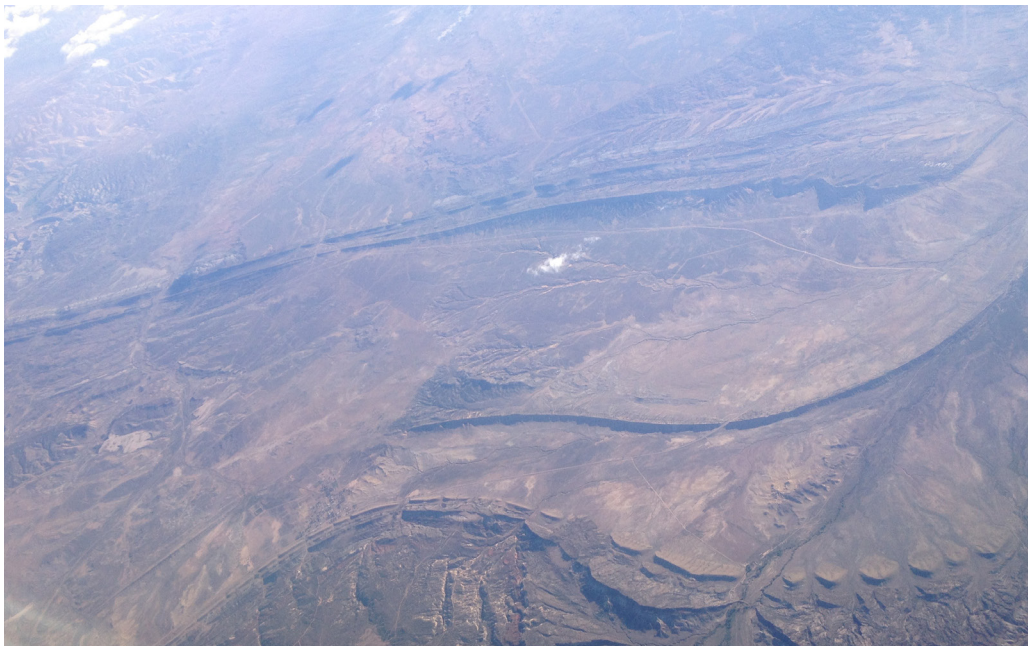
MULTIPLE PAPERS HAVE EXPLORED THE CONNECTION BETWEEN HISTORICAL TRAUMA AND THE CURRENT HEALTH DISPARITIES EXPERIENCE BY INDIGENOUS POPULATIONS, FINDING CORRELATIONS BETWEEN THE EXPERIENCE OF HISTORICAL TRAUMA AND THE PHYSICAL MANIFESTATIONS OF DISEASE (BRAVE HEART M. Y., 1999; STRUTHERS & LOWE, 2003; SOTERO, 2006).

Multiple papers have explored the connection between historical trauma and the current health disparities experience by indigenous populations, finding correlations between the experience of historical trauma and the physical manifestations of disease (Brave Heart M. Y., 1999; Struthers & Lowe, 2003; Sotero, 2006). And while the connections between historical trauma and physical health are still being discovered, Whitbeck et al. posit that the continuation of disease experienced by Native Americans is due in part to the continuation of historical trauma:

"Finally, we believe that these findings suggest that the "holocaust" is not over for many American Indian people. It continues to affect their perceptions on a daily basis and impinges on their psychological and physical health. There has been no 'safe place' to begin again. The threats to their way of life and culture have been ongoing, the losses progressive as each generation passes away. These losses are so salient because they are not truly 'historical' in the sense that they are not in past. Rather they are 'historical' in the sense that they began a long time ago. There has been a continual, persistent, and progressive process of loss that began with military defeat and continues through today with loss of culture…the losses are not over. They are continuing day by day" (Whitbeck, Adams, Hoyt, & Chen, 2004).

Brave Heart and Walters echo this belief, pointing to a cultural holocaust that persists to this day through cultural appropriation, racism, and oppression (Brave Heart & DeBruyn, 1998; Walters & Simoni, 2002).

The Whitbeck paper goes on to explore a new technique for modeling and measuring historical trauma, which may eventually enable researchers, if appropriate, to quantitatively include historical trauma within empirical social determinant models. While it is outside of the scope of our research to attempt to measure historical trauma, our analysis of the social determinants of health would not be complete without a discussion of historical trauma as it continues to have a significant impact on the health of Native Americans in the US.



Experience of race-based social exclusion—For many indigenous peoples, race is a crucial social determinant of health. A large body of research has been devoted to the interactive effects of race and socioeconomic indicators such as income and education level because socioeconomic status is often inextricably linked with race due to a long history of social trauma and institutional racism (Anderson & Bulatao, 2004). Research suggests, however, that even when socioeconomic status is removed from the equation, race alone remains a strong predictor of health for minority populations, including American Indians (Williams D. R., 1999; Devitt, Tsey, & and Hall, 2001); this may be due to race impacting the quality of care individuals receive (Liburd, Jack Jr, Williams, & Tucker, 2005).

THE STARK REALITIES CREATED BY RACISM AND HISTORICAL TRAUMA PLAY OUT IN THE HIGH RATES OF CHRONIC DISEASE, MENTAL HEALTH AND SOCIETAL ISSUES EXPERIENCED BY NATIVE AMERICAN ADULTS AND CHILDREN. AMERICAN INDIANS AND ALASKA NATIVES HAVE THE HIGHEST PREVALENCE OF TYPE 2 DIABETES IN THE WORLD, AND THE INCIDENCE IS INCREASING AMONG THE AI/AN POPULATION FASTER THAN ANY OTHER ETHNIC POPULATION (BRIGHAM AND WOMEN'S, 2010).

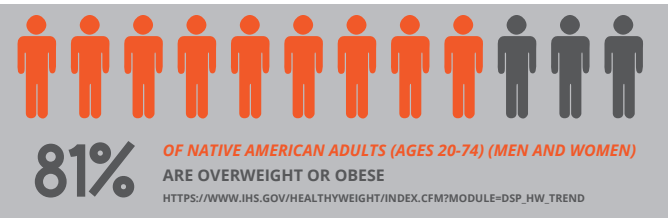
Racism also impacts health through the experience of historical trauma. Health scientists, psychologists, and anthropologists have conducted many studies on the long-term effects of historical trauma and institutionalized racism, finding that these processes act through a variety of mechanisms to impact Native American health. For example, the experience of historical trauma may increase a Native American's mistrust of non-native clinicians and counselors, which creates further barriers to adequate care (Belcourt-Dittloff & Stewart, 2000).

The stark realities created by racism and historical trauma play out in the high rates of chronic disease, mental health and societal issues experienced by Native American adults and children. American Indians and Alaska Natives have the highest prevalence of type 2 diabetes in the world, and the incidence is increasing among the AI/AN population faster than any other ethnic population (Brigham and Women's, 2010). Moreover, cardiovascular disease is the leading cause of death among Native Americans and this rate is significantly higher than the US general population (Brigham and Women's, 2010). With respect to mental and social health issues, American Indians suffer from high rates of suicide, homicide, domestic violence, child abuse, accidental death, and alcoholism (Brave Heart & DeBruyn, 1998). Native women and adolescents are particularly vulnerable populations; in 2006, the infant mortality rate for American Indians was 48.4% greater than the mortality rate for white infants and Native American women were two to four times more likely to experience rape than women of other races (Bohn, 2003). Similarly, Native American women were nearly twice as likely to die of diabetes (Walters & Simoni, 2002). These are only a few of the many health disparities that exist for Native Americans

when compared to other racial groups.
The experience of racism can be overt, as evidenced by discrimination, racism, and cultural appropriation (Belcourt-Dittloff & Stewart, 2000; Fine-Dare, 2002), but it can also be more subversive. One of the most important arenas in which we see the latter form of discrimination is the Native American health care system. Native Americans are both an "underserved and under-represented" population in terms of health care needs. The US Commission on Civil Rights has found that Native Americans lag 20-25 years behind the general population in health status, representing the most severe unmet health care needs of any group in the US, and despite their need for improved healthcare and services, the monetary value of Native American care is significantly less than the average health expenditures for all Americans (US Commission on Civil Rights, 2003). They found that IHS, despite funding increases, still operates with an estimated 59 percent of what it needs to provide adequate care (US Commission on Civil Rights, 2003). In addition to indirect racism leading to a lack of access to adequate healthcare, trauma and exclusion due to racism can lead to increased stress, contributing to psychological distress, depression, anxiety, physical health, and high blood pressure (Walters, 2002). The amount of control individuals have over their own lives and work environments, integration into family and social networks, and access to social support all impact the amount of stress individuals experience over their lifetimes. Feelings of "powerlessness"," lack of control," and "exclusion" all lead to increased individual stress (Burgess, Johnston, Bowman, & Whitehead, 2005; Devitt, Tsey, & and Hall, 2001). Research in biology and medicine suggests that chronic, low-level stress over an individual's lifetime leads to an overproduction of stress-mediating hormones, the cumulative effect of which is known as "allostatic load." This research suggests that long term, low level stress such as that caused by cultural change, historic trauma, and racism is likely to have long-term health effects, particularly in relation to chronic diseases such as cardiovascular disease, hypertension, and diabetes (Devitt, Tsey, & and Hall, 2001). Long term stress and racism may also be linked to an increase in behaviors which increase health risk, including smoking and substance abuse, limited use of screening programs such as mammography, and non-adherence to medical recommendations from clinicians (Brondolo, Gallo, & Myers, 2009).

SOCIAL DETERMINANTS ASSOCIATED WITH TYPE 2 DIABETES AND OBESITY

With this theoretical foundation for understanding social determinants of health, it is important to see how they play out in the lives of Native American children, youth, and families experiencing Type 2 diabetes and obesity. Diabetes affects 29 million Americans, including 15% of the American Indian adult population (Centers for Disease Control and Prevention, 2014). Current research suggests that type 2 diabetes accounts for approximately 90% to 95% of diabetes cases (Raphael, Anstice, Raine, McGannon, & Rizvi, 2003; Centers for Disease Control and Prevention, 2014).



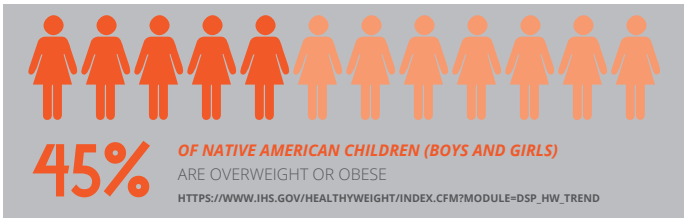
This chronic illness has become an increasing problem in recent years, particularly for Native American youth. American Indians and Alaskan Natives ages 10-20 had the highest risk of developing type 2 diabetes when compared with other ethnic groups (Centers for Disease Control and Prevention, 2014). A 2002 study using Indian Health Service data demonstrated that the number of Native American youth diagnosed with diabetes increased by 71% and prevalence increased by 46% between 1990 and 1998; prevalence in the general population increased by only 14% (Acton, Rios Burrows, Moore, Querec, Geiss, & and Engelgau, 2002).

BOTH DIABETES AND OBESITY ARE DISPROPORTIONATELY ASSOCIATED WITH LOW-INCOME STATUS, AN ISSUE WITH WHICH MANY NATIVE AMERICAN COMMUNITIES STRUGGLE (RAPHAEL, ANSTICE, RAINE, MCGANNON, & RIZVI, 2003; STORY, 1999).

Obesity, an associated chronic health problem, is also disproportionately affecting Native American youth and children. In the NHANES II study, American Indian children had significantly higher BMI's for nearly every age and sex group compared with reference populations; 39% of Native American children were overweight or obese compared with 15% for all other races combined (Story, 1999). Similarly, the Urban Indian Health Commission found in 2007 that urban American Indian youth were two to three times as likely as their peers in the general population to either be obese or at risk of becoming obese (Urban Indian Health Commission , 2007).

Given these findings, it is important to understand the social determinants and risk factors related to the development of diabetes and obesity in both adults and children, especially for Native Americans and indigenous peoples. Risk factors early in life include childhood obesity, a family history of type 2 diabetes, high and low birth weights, formula feeding, and gestational diabetes (Moore, 2010; Barker, Hales, Fall, Phipps, & and Clark, 1993). Both diabetes and obesity are disproportionately associated with low-income status, an issue with which many Native American communities struggle (Raphael, Anstice, Raine, McGannon, & Rizvi, 2003; Story, 1999). Income inequalities cause a "cluster" effect that produces excess risk through three main mechanisms: "deprivation of [material goods and access to services], excessive stress, and the adoption of health-threatening behaviors" (Benzeval, 1995; Raphael, Anstice, Raine, McGannon, & Rizvi, 2003). Other determinants related to type 2 diabetes and obesity include lack of access to medical care, safe spaces to exercise, and the ability to purchase high quality, nutritious foods. Many Native Americans live long distances from grocery stores

in "food deserts", leading to a lower quality of overall nutrition (Story, 1999). Forced cultural change and assimilation are associated determinants as well. These forced changes have led to groups abandoning traditional agricultural practices and food production and lower participation in traditional activities such as hunting and gathering (Story, 1999). Like other individuals with lower income status, they may also lack access to doctors, leading to difficulty not only with prevention but with receiving an early enough diagnosis for lifestyle interventions to have an impact (Raphael et al., 2003).



Although lack of exercise and poor diet play a role in the development of obesity and type 2 diabetes across all age groups, these factors are particularly likely to impact children. Several studies have shown higher than average sedentary behaviors among Native American youth compared to children of other races (Gray & Smith, 2003; Fontvieille, Dwyer, & Ravussin, 2002). Similarly, a 2009 New Mexico Middle School Youth Risk and Resiliency Survey found that 20% of the Native students indicated that they had no days with 60 minutes of physical activity and nearly 30% indicated they watch 3 or more hours of TV on an average school day (English, 2012). Encouragingly, however, other studies are showing promising improvements in the physical activity of Native children. When analyzing the responses of Native parents on measures of their children's health and wellbeing, researchers with the National Survey of Children's Health have found that approximately 50% of American Indian/Alaska Native 10- to 17-year-olds participated in sports teams or took sports lessons during the previous year and they participated in at least 20 minutes of moderate to vigorous physical activity 4.8 days per week, which is not statistically significantly different that children of other races (US Department of Health and Human Services, 2013).

The ability to engage in physical activity and maintain a healthy weight is partially dependent upon access a safe places to play and exercise. The US Department of Health and Human Services demonstrated in a 2005 report that a lack of built environment appropriate for safe physical activity increases risk of obesity and type 2 diabetes (US Department of Health and Human Services, 2005). Unfortunately, Native American children often find themselves with few options in their communities. Studies have found that Native American youth in low-income urban communities have fewer resources such as parks, YMCA clubs, and recreational centers, leading to increased levels of childhood obesity (Gordon-Larsen, Nelson, & Page, 2006). And 2007 US DHHS study found that many Native communities lack facilities, equipment and trained physical education staff to provide opportunities for safe physical activity (Halpern, 2007).

Finally, in addition to diet and exercise, increased stress negatively impacts children and adults. Chronic stress is linked to the development of type 2 diabetes and is common amongst individuals who struggle with unemployment, workplace related stress, food and housing insecurity, and the chronic stress of "exclusion" from minority status or feelings of lack of control over their own lives, all issues which may pertain to current Native American peoples (Raphael, Anstice, Raine, McGannon, & Rizvi, 2003; Devitt, Tsey, & and Hall, 2001; Story, 1999). Additionally, chronic stress can lead to behaviors such as substance abuse, smoking, poor meal planning, and low physical activity, all of which impact on the development of diabetes (Raphael et al., 2003)

Study Objectives and Research Questions

NATIVE STRONG OBJECTIVES

We have three objectives for the Native Strong Social Determinants of Health research project. The first is to examine the root causes of childhood obesity and type 2 diabetes among Native American's through the lens of social determinants of health in order to empower tribal and off-reservation communities to address the social and economic conditions underpinning these health disparities, and to provide non-native philanthropies and policy advocates with a better understanding of health from a Native/Indigenous perspective. Through this research, we will better illustrate the unique health challenges faced by Native children and their families.

The second objective is to analyze the current infrastructure for collecting data on early onset type 2 diabetes, childhood obesity and their associated SDOH determinants and indicators among Native American children and youth. The third objective investigates the issues and gaps in data collection and access/dissemination.

To meet these objectives, our efforts will focus on three research questions:

- Which social determinants of health are most explanatory of the health realities faced by Native American children and youth with Type 2 diabetes and obesity?
- What is the health status of Native American children and youth with Type 2 diabetes and obesity, as described through the lens of SDOH indicators?
- Which public data are available for this population at the tribal, state, and national levels? What are the limitations of data for this population? What are our recommendations for improving data collection for Native American populations and access to such data?

INDICATOR TABLES | 2015

NATIVE STRONG

PROXIMAL INDICATORS

- Participation in physical activity
- Childhood/youth overweight and obesity
- Consumption of healthy foods
- Tobacco/Alcohol/Drug use among teens
- Breastfeeding rates
- Access to safe areas to play, exercise
- Housing conditions
- Access to early education
- Reading/Math proficiency
- Graduation Rates
- Access to healthy foods Child hunger rates
- Poverty/Socioeconomic status
- Family Income
- Parental employment
- Percentage of Children qualifying for free or reduced lunch

INTERMEDIATE INDICATORS

- 638 or Direct Service tribe
- Exposure to domestic violence
- Unstable living conditions
- Access to cultural activities

DISTAL INDICATORS

- Historical trauma
- Racism and Social Exclusion
- Self-Determination/Life Control

STUDY DESIGN

Our study will be conducted through a literature review and, as appropriate and available, secondary data analysis of publicly held data sets pertinent to our investigation. It will utilize the social determinants of health model to examine the indicators related to the development of type 2 diabetes and obesity among Native American children and youth. This model, as discussed at length above, will be child and youth centric, as the NB3 Foundation programs are targeted to this population. Our model will include the concepts of life course, relevant health behaviors, and proximal, intermediate and distal indicators (Reading and Wean 2009). Categorizing the indicators in such a way will also allow us to incorporate a needed discussion of indigenous and non-quantitative indicators such as historical trauma and self-determination, both of which have been shown to have a significant impact on the health and wellbeing of indigenous and Native peoples.

We have already identified a set of indicators that are most strongly correlated with the development of diabetes and obesity among children and adults. We conducted this research through examining the literature on social determinants of health, using key word searches on Google Scholar and PubMed. These searches included "social determinants of health and diabetes", "social determinants of health and obesity", "social determinants of health and Native American", "social determinants of health and American Indian", "indigenous social determinants of health", "social determinants of health models." We prioritized those indicators identified in the literature as having a strong correlation to the development of obesity and type 2 diabetes among Native and non-native populations.

We also evaluated the indicators in light of the following questions:

- What are the NB3 Foundation's priorities with respect to data?
- What type of data should be considered: qualitative, quantitative or a composite?
- Is the indicator age, racially and culturally appropriate?

Knowing the program and NB3 Foundation's focus on children and youth, we gave priority to those indicators that have been studied in relation to children and youth or would be relevant in early childhood through young adulthood. The NB3 Foundation has also expressed a priority on access to healthy food and participation in physical activity;

PRELIMINARY LIST OF DATA SOURCES

CHILD/YOUTH HEALTH BEHAVIORS	National YRRS survey; State YRBS survey through tribal epidemiology centers; KidsCount
PHYSICAL ENVIRONMENT	Housing-National Native American Housing Survey (Dec 2014); Census
EDUCATION	Digest of Education Statistics, Census, KidsCount, state education departments
FOOD INSECURITY	Census; KidsCount; state health and human services departments, NM YRBS
POVERTY/SOCIOECONOMIC STATUS	Census
ACCESS TO HEALTHCARE	IHS; Tribal epidemiology centers
CHILD WELFARE	State departments of human services; US Administration for Children and Families

therefore, some of our indicators are related to these priorities. Our indicators will also be a composite of quantitative and qualitative analysis in order to incorporate distal indicators such as historical trauma and self-determination.

With these considerations, we chose a set of indicators that incorporate the proximal/intermediate/distal construct utilized by Reading and Wein as well as those indicators that would be relevant and have an impact on children and youth. We also included relevant health behavior indicators to provide personal health context for our findings. Tables 1-3 (page 29) contain our final selection of determinants for the study.

While we anticipate, based on an initial survey of available data, that we will provide data on one or more of the indicators under each determinant, it is possible that finding appropriate data for each indicator may be more difficult than anticipated. In that event, we will revise our indicator list to include a more readily available indicator and data source at that time. A further discussion of the limitations to our research is included below.

For each of these indicators, we will identify and utilize publically held data sets and academic literature to collect data, and endeavor to utilize data from multiple geographic levels—tribal, state, and national, focusing on the five states where the majority of Native Strong grant recipients reside (Arizona, New Mexico, Oklahoma, Minnesota, and Wisconsin) and the tribes within them.

Additionally, we will consider the following questions during our data selection in order to ensure that the data source is reliable, statistically valid for our population, and available for future updates.

- Is the data resource appropriate for addressing the study questions?
- Are the key variables needed to conduct the study available in the data source?
- Is the population we are interested in included in the data source? Are the data for the population we are interested in complete?
- Is the data source valid or has other quality assessments been applied to the data source?
- Is the data source respected and well utilized?
- Is the data source updated periodically to enable the NB3 Foundation to update its research in the future?

After an initial survey of data sources available that meet these criteria, we have compiled a preliminary

list of data sources (page 31) that we will utilize during our research. This list is by no means exhaustive and more may be added as we become aware of new data sets during the course of our data collection.

LIMITATIONS OF THIS STUDY

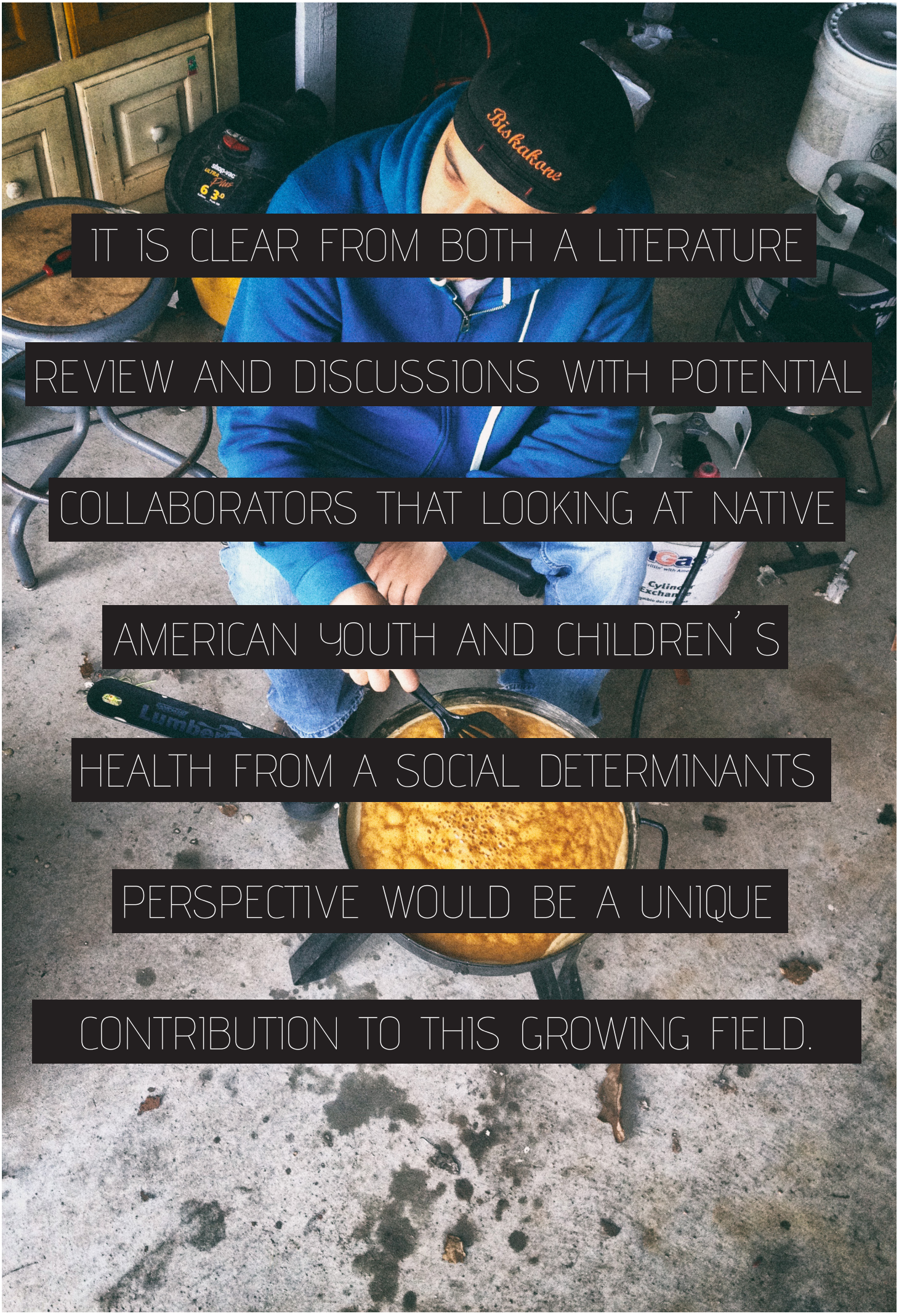
The most significant limitation we face in this research is the lack of available data specifically on Native American populations. Due to the relatively small size of the American Indian and Alaska Native populations in the US, these groups are rarely included in a large enough proportion within a sample to produce valid and useful statistics for their population. Indeed, the studies that include Native Americans in a significant enough proportion are few and far between; the decennial Census and American Community Survey (5-year estimates only) being the most well-known.
It will be a significant challenge to find data sets that include Native Americans within the study population, however, the list of data sources provided in the previous section all contain valid statistics for Native American/American Indian populations.
A related limitation concerns the inherent challenges associated with utilizing qualitative studies. Many of the studies reviewed and cited in this protocol use qualitative research methods. These methods are completely valid, appropriate and useful for doing research among tribal or indigenous communities; they contribute to the greater understanding of the unique social and cultural dynamics of a particular community and add additional evidence to that body of research. Moreover, they provide direction to understanding the issues and concepts in relationship to another population. However, study findings derived from qualitative methodologies may not be statistically valid for all populations and therefore cannot be universally applied; this arises from issues related to, among others, small sample size, the potential for the results to be influenced by researcher biases and idiosyncrasies, the findings being unique for the population studied, and the difficulty to maintain, assess, and demonstrate study rigor. This is the nature of many studies with the Native Americans and indigenous populations; we acknowledge these limitations and work with them.

Expected Outcomes of Study and Dissemination of Results and Publication

It is clear from both a literature review and discussions with potential collaborators that looking at Native American youth and children's health from a social determinants perspective would be a unique contribution to this growing field. Moreover, this research would provide foundations and policy advocates with a better understanding of health from a Native/Indigenous perspective and the unique health challenges faced by Native children and their families.

Using this paper as the framework for our research, we intend to compile the data on our social determinants of health indicators and publish several briefing and issue papers. These papers will be available on the NB3 Foundation website and in other forms with the goal of educating the community, foundations, Tribal Leaders, advocates and policy makers. These papers will include:

- Five (5) state (NM, AZ, OK, MN, WI) fact sheets, 1-1.5 pages, on the tribes within each state, state level data and appropriate social determinant indicators.
- Six (6) fact sheets, 1-2 pages, on specific SDOH indicators and how they apply in Indian Country, including examples of statewide, tribal and national data.
- Summary report of our findings


IT IS CLEAR FROM BOTH A LITERATURE
REVIEW AND DISCUSSIONS WITH POTENTIAL
COLLABORATORS THAT LOOKING AT NATIVE
AMERICAN YOUTH AND CHILDREN'S
HEALTH FROM A SOCIAL DETERMINANTS
PERSPECTIVE WOULD BE A UNIQUE
CONTRIBUTION TO THIS GROWING FIELD.

NATIVE STRONG
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