

Introduction:

Chairman Dorgan, my name is Melvina McCabe, I am a Navajo physician working as an academician at the University of New Mexico School of Medicine Department of Family Medicine in Albuquerque, NM. I am also the current President of the Association of American Indian Physicians whose offices are based in Oklahoma City, Oklahoma. I am honored to testify today and grateful that you have invited me and grateful to the committee as a whole for considering the testimony.

Diabetes is truly a crisis in Indian Country. The crisis is all-encompassing, affecting not only the physical health of our Indian Nations, but also impacting the mind and the spirit. As one of our own stated: "when the spirit is in pain, what does it matter if you take your medication or take a walk?"(1). I will present the statistical data and research findings and community intervention activities on diabetes in Indian country.

Statistical Data:

According to CDC data, in 2005, the age-adjusted prevalence rate of diabetes in American Indians/Alaska Natives (AI/AN) was 16.5% compared to the non-Hispanic white rate of 6.6% and was highest for all underrepresented populations. Of note is the considerable geographic variation: Alaska Native adults with a rate of 6% and southern Arizona adults with a rate of 29.3%. AI/AN's have the highest prevalence rate of diabetes in all age and gender categories compared to the white and other underrepresented populations. The IHS data on AI/AN children and young people, between 1990-2009, reveals a 161% increase in Type 2 DM in those age <15. A significant risk factor for diabetes is obesity. AI/AN youth, in particular, were more obese when compared to the US general population (2). AI/AN with diabetes had higher rates of HTN, renal failure, lower-extremity amputations, and cardiovascular disease than the general US population with diabetes (3). Diabetes and the coexisting morbidities continue to plague our AI/AN people and, in particular, diabetes is now affecting those very dear to us, our children and young people.

What Works:

The lifestyle interventions of weight loss and exercise remain the mainstay in diabetes prevention and cardiovascular risk reduction. For every kg of weight lost, there is a 16% decrease in diabetes risk. The development of new diabetes medications is not to be minimized, but lifestyle interventions are key.

- The Diabetes Prevention Program bore out these key interventions (4). The study revealed a 58% reduction in diabetes incidence with the intensive lifestyle intervention group, a 31% reduction in the Metformin group compared to placebo. The interventions were exercise, weight loss, availability of a coach, and behavior modification.
- A promising trend in diabetes outcomes is noted with the implementation of the Indian Health Service Special Diabetes Program for Indians. After 1998, community walking and running programs increased from 20% to 92%; community exercise programs increased from 16% to 69%; school age physical activity programs increased from 9% to 69%; tribally defined interventions in reduction in TV watching increased from 25 to 35%, and weight management programs for children increased from 8% to 72% (5). The improvement in clinical interventions were a reduction of the A1C from 11% to 7.9% between 1996-2009, reduction in mean LDL cholesterol by 20%, and reduction in proteinuria by 32%.
- The Journey to Native Youth Health project is a collaborative, community-based participatory approach partnership between the Montana Rocky Boy and Crow Indian reservations and the University of Montana for preventing risk factors associated with diabetes in Native youth, age 10-14 years old. The early findings from this study strongly suggests this intervention favorably impacts diabetes risk factors in Native youth by increasing moderate to vigorous activity and increasing

caloric output compared to the control group (conversation with Blakely, PI; June 28, 2010)). Based on these findings, a full-scale trial has been submitted for funding and will be the first trial utilizing the DPP intervention specifically for Native Youth. Senator Tester, this would be exciting news for your state.

- The Navajo Nation has adapted the DPP materials for use for Navajo people in their efforts to reduce diabetes. In addition, they have chosen to share with anyone their materials and have conducted training around the US to implement this effective intervention. Senator McCain, your state needs to be congratulated for producing leaders in diabetes reduction efforts and who are willing to share their experience.
- A relatively new medication is the incretin mimetics. Incretins have been shown to increase insulin secretion, but also increase satiety and weight loss. Another addition to our effective medication armamentarium.
- The Pima Indians, since 1990, have experienced a decline in the overall incidence of end-stage renal disease. The authors of this study suggest that while it is not completely clear as to the reason(s) for this, it appears that greater access to diabetes medications may have impacted this change (6).
- The Cheyenne River Sioux used the Medicine Wheel nutrition intervention to demonstrate a positive trend in weight loss and BMI compared to the control group (7).

Other Considerations:

Diabetes is not a solo actor. In order for us to truly define effective interventions, we must address all other variables that affect the rates of diabetes in our communities.

- **Access:** Decreased healthcare access has been identified as a factor contributing to the health disparities in our nation. Access issues in relation to diabetes include but are not limited to distance traveled to health care facilities, availability of medications, health literacy, storage of medications, cultural literacy of the healthcare providers, and language barriers. My sister-in-law travels one hour and 15 minutes, one-way, 5 days a week for dialysis; my brother, who is a private contractor, takes her to her dialysis treatments. This impacts his ability to work and to provide for his family. One can understand the far reaching consequences that lack of access creates.
- **Socio-economic:**
We cannot forget the variables of poverty, Western educational level, and occupation that contribute to the high rates of diabetes or any chronic disease. I have to tell the story of a patient of mine with diabetes and this is not an uncommon scenario. His A1C level was 13, his B/P was 150/90, he weighed 300 lbs, and he had a family to support. After several attempts at controlling his diabetes with our armamentarium, I asked him what was going on in his life. He stated "I have a family to feed". "I fill my prescriptions but instead of taking my medications as directed, I take them twice a week so that they will last longer". "I cannot afford the healthy foods because they are more expensive". He recently suffered a stroke and is now in a nursing facility.
- **Culture:**
Understanding the cultural perspective of diabetes is critical for successful interventions in reducing diabetes risk. Some studies suggest that Indian people may have a fatalistic view of diabetes, young AI/AN diabetics may have a different body image view than the white population.
- **Public Health:**

The role of public health is critical and includes the development of tribal/state/national partnerships, partnered program planning, data collection, and evaluation. All governmental agencies must include American Indian/Alaska Native data sets on diabetes.

- Outside the Box:
 - Identifying measures that would reduce risk of diabetes other than the pre-diabetes state is very important in addressing reduction of risk. The metabolic syndrome which assesses cardiovascular risk might actually be a better measure of diabetes risk than the FBS. The measures are HDL, triglycerides, blood pressure, FBS, and waist circumference.
 - Overall planning for major changes in our society that impact physical activity is important. Examples are: the introduction of the television set, taking physical activity out of school curricula, improved technology that results in a reduction in physical activity.
- Nutrition: Policy makers must be aware that while the majority society may have access to electricity and running water, American Indians and Alaska Natives do not necessarily enjoy these privileges. Without electricity, how do we store our insulin appropriately, how do we store healthy foods such as fresh vegetables, fruits, eggs, milk. In Indian country, canned goods can be a staple because of the lack of electricity.

In closing, the approach to diabetes risk reduction is multifactorial, but the key components still appear to be weight loss and exercise. This is the first time that our communities have success stories in making effective life-style changes by implementing interventions that have been developed by and for the communities. This is a new generation of health role models for our Indian children. Know that we can make the changes necessary in the battle against diabetes. In order for us to maintain and sustain this momentum that we are seeing now in our communities to address diabetes, we are confident that the Congress will continue to support this effort.

References:

1. Arpan J. Health for Native Life. 2002)
2. <http://www.ihs.gov/MedicalPrograms/MCH/M/bfdiabetes.cfm>
3. O'Connell J, etal. Diabetes Care. 2010
4. DPP
5. Acton KJ. Am J Prev Med. 2009
6. Nelson RG. Diabetes Res Clin Pract. 2008)
7. Kattelman KK. J Am Diet Assoc. 2009)