DIABETES IN AMERICAN INDIANS AND ALASKA NATIVES: ARE WE MAKING PROGRESS?

Yvette Roubideaux, M.D., M.P.H.  
Director, Policy Research Center  
National Congress of American Indians  

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Quick poll

• How many of you think we have made great progress?

• How many of you think we still have more to do?

• How many of you think that diabetes is still a significant crisis in our communities?
Overview

• What does the research and data say about progress?

• What does the research tell us about possible next steps?
Data helps tell the story

- **1960s - 1970s** – evidence of an epidemic of diabetes in AIANs
- **1980s** – IHS National Diabetes Program surveillance
- **1990s** – urgent need for intervention
  - **Bad news**
    - Data were showing ominous trends – rising prevalence
  - **Good news**
    - In the general population, first research studies that showed that it was possible to reduce complications of diabetes with better blood glucose control
    - Promising research on diabetes prevention in progress
Diabetes related mortality rates

- At that point in the 1990s...

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**Chart 4.46**

*Age-Adjusted Diabetes Mellitus Death Rates*

The age-adjusted diabetes mellitus death rate for American Indians and Alaska Natives varied between 28.1 and 35.0 between 1972-1974 and 1990-1992. In 1991-1993, it rose to 31.7 and in 1994-1996 to 46.4. The 1994-1996 rate is 3.5 times the U.S. All Races rate of 13.3 for 1995. This is the highest U.S. rate since 1974, when the rate was 13.2. These Indian rates have been adjusted for miscoding of Indian race on death certificates.

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**Per 100,000 Population**

- American Indians & Alaska Natives, Adjusted
- American Indians & Alaska Natives, Actual
- U.S. All Races

**Calendar Year**

Special Diabetes Program for Indians (SDPI)

- Balanced Budget Act of 1997
- $150 million/year
- Grants to prevent and treat diabetes in AIANs
- Administered by the Indian Health Service
- IHS, Tribal, urban Indian health program grantees
- > 300 Community directed projects since 1998
- 66 Demonstration projects added in 2004
- Tribal Leaders Diabetes Committee
- Intensive Evaluation
Special Diabetes Program for Indians (SDPI)

• Increased access to quality diabetes care

• Implementation of evidence-based practices

• Local cultural adaptation
Outcomes - increased access to services

**Table 3. Percent of SDPI Community-Directed Programs Reporting Diabetes Services**

<table>
<thead>
<tr>
<th>INTERVENTION</th>
<th>1997¹</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes clinical teams</td>
<td>30%</td>
<td>96%</td>
</tr>
<tr>
<td>Diabetes patient registries</td>
<td>34%</td>
<td>98%</td>
</tr>
<tr>
<td>Nutrition services for adults</td>
<td>39%</td>
<td>93%</td>
</tr>
<tr>
<td>Access to registered dietitians</td>
<td>37%</td>
<td>79%</td>
</tr>
<tr>
<td>Access to physical activity specialists</td>
<td>8%</td>
<td>74%</td>
</tr>
<tr>
<td>Access to culturally tailored diabetes education materials</td>
<td>36%</td>
<td>97%</td>
</tr>
<tr>
<td>Adult weight management programs</td>
<td>19%</td>
<td>78%</td>
</tr>
<tr>
<td>Nutrition services for children and youth</td>
<td>65%</td>
<td>84%</td>
</tr>
<tr>
<td>Community-based physical activity programs for children and youth</td>
<td>13%</td>
<td>80%</td>
</tr>
<tr>
<td>Physical activity programs for school-age youth</td>
<td>9%</td>
<td>80%</td>
</tr>
</tbody>
</table>

¹ Baseline = before SDPI funding was available  
Source: Evaluation of the SDPI Community-Directed Diabetes Program, 2013
Outcomes - better glucose control

Mean A1C
1997-2014

IHS Division of Diabetes Treatment and Prevention
Outcomes - decreased complications

Kidney failure from diabetes in Native Americans has dropped more than any other race or ethnicity.

SOURCE: United States Renal Data System (USRDS), 1996-2013, adults 18 and older.

CDC Vital Signs, January 2017
Outcomes - Medicare cost savings

- ASPE Issue Brief, May 10, 2019

- Estimated Medicare cost savings due to decrease in end stage kidney disease in AIANs from 2006 to 2013

- Used two scenarios
  - AIAN rate did not decrease and was at the same rate as Whites
  - AIAN rate did not decrease and stayed at the AIAN rate in 2000
  - Estimate of savings attributable to SDPI
Outcomes - Medicare cost savings

Medicare Cost Estimates if no decrease in AIAN ESRD from 2006 - 2013

- ESRD same as White rate: 520.4 millions
- ESRD same as AIAN in 2000: 435.9 millions

Percent attributable to SDPI for the two scenarios: 100%

ASPE Issue Brief, May 10, 2019
Outcomes - Medicare cost savings

Medicare Cost Savings Estimates if no decrease in AIAN ESRD from 2006 - 2013

Percent attributable to SDPI for the two scenarios
- 100%
- 80%
- 60%
- 40%
Outcomes - Prevalence stopped increasing

Figure 1: Age-adjusted* prevalence of diagnosed diabetes in AI/AN and US populations

Sources:

* 1994 – 2012 data are age ≥20, standardized to 2000 Census; 2015 data are age ≥18, standardized to 2015 Census;
US population includes AI/AN population (0.08% - 2.00%)

The Special Diabetes Program for Indians: Estimates of Medicare Savings. ASPE Issue Brief, May 10, 2019
Outcomes - Mortality rates now decreasing
**SDPI Demonstration Projects**

- **2004** - $27 million a year to translation latest research on diabetes and cardiovascular disease prevention
- **Competitive grant process** – 66 grantees funded (I/T/U)

  - 36 ITU grantees
  - 16 week DPP curriculum

  - 30 ITU grantees
  - CVD risk factor reduction

Collaborative approach
Team based activities
Culturally appropriate strategies
Community activities
Intensive evaluation
Outcomes - Diabetes can be prevented in AIANs

Figure 3. Cumulative Incidence of Diabetes in SDPI DP and NIH DPP

Results
The diabetes incidence rates per year were:
- 11.0 percent for the NIH DPP placebo group
- 6.5 percent for the SDPI DP subgroup
- 4.8 percent for the NIH DPP lifestyle intervention group

Note: Results of NIH DPP and SDPI DP are superimposed in the graph for comparison, but participant characteristics and study design were not identical.

Source:
1) Evaluation of the SDPI Diabetes Prevention Program
2) Diabetes Prevention Research Group, Lancet 2009;374:1677-1686 (Figure 3A)
Great outcomes, but still have disparities
Diabetes

• More common in American Indians and Alaska Natives

Figure 2. Percentage of US Adults Aged 20 or Older with Diagnosed Diabetes, by Racial and Ethnic Group, 2010-2012

- American Indians or Alaska Natives: 15.9%
- Non-Hispanic Blacks: 13.2%
- Hispanics: 12.8%
- Asian Americans: 9.0%
- Non-Hispanic Whites: 7.6%

Outcomes: Mortality rates now decreasing
What does the research tell us about next steps?
Other lessons from the research and data

- **SDPI demonstration project evaluation findings**
  - Attending more DPP curriculum classes associated with lower risk of diabetes, lower blood glucose, weight, and blood pressure (Jiang, 2013)
  - Patients with more case management visits had lower A1c levels and LDL cholesterol levels (Moore, 2014)
  - Participants with lower annual household income had significantly less weight loss, less improvement in physical activity, and less reduction in unhealthy food consumption (Jiang 2015)
  - Participant retention associated with age, physical activity and weight at baseline; retention was better at sites with staff that were older, greater percent female, and greater percent staff that completed graduate or professional school (Manson, 2011)
Other lessons from the research and data

- SDPI Demonstration Project evaluation findings
  - Short sleep duration associated with increased diabetes risk and less weight loss (Nuyujukian, 2016)
  - Distress levels related to unhealthy food choices, more in males (Teufel-Shone, 2018)
  - At baseline, psychological distress and negative family support were linked to greater weight, and cultural spirituality was correlated with lower weight; positive family support predicted greater weight loss during intervention (Dill, 2016)
  - Serious psychological distress was associated with increased A1C and increased BMI (Huyser, 2015)
  - Participant disinterest, barriers to participant transportation, and child/elder care were related to higher risk for retention failure.
  - Participants with greater than 5% weight loss had a 64% lower risk of developing diabetes during the first 6 years of follow up (Jiang, 2018)
Other lessons from the research and data

- Participants with greater than 5% weight loss had a 64% lower risk of developing diabetes during the first 6 years of follow up (Jiang, 2018)
# National Institute on Minority Health and Health Disparities 
## Research Framework

<table>
<thead>
<tr>
<th>Domains of Influence (Over the Lifecourse)</th>
<th>Levels of Influence*</th>
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<tbody>
<tr>
<td>Biological</td>
<td>Individual</td>
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<tr>
<td></td>
<td>Biological Vulnerability and Mechanisms</td>
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<td>Behavioral</td>
<td>Interpersonal</td>
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<td>Caregiver-Child Interaction</td>
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<td>Family Microbiome</td>
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<td>Physical/Built Environment</td>
<td>Community</td>
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<td>Community Illness Exposure</td>
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<td>Herd Immunity</td>
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<td>Sociocultural Environment</td>
<td>Societal</td>
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<td>Sanitation</td>
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<td>Immunization</td>
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<td>Pathogen Exposure</td>
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<td>Health Care System</td>
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<tr>
<td>Health Outcomes</td>
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</tbody>
</table>

*Health Disparity Populations: Race/Ethnicity, Low SES, Rural, Sexual/Gender Minority
Other Fundamental Characteristics: Sex/Gender, Disability, Geographic Region
Call to Action

• The SDPI and other efforts have helped us achieve great progress

• The research and data help see the path forward

• Cannot just rely on the SDPI to eliminate disparities

• Need to address social determinants of health

• Solutions in the community are needed
Contact Information

Yvette Roubideaux, M.D., M.P.H.
Director, Policy Research Center
National Congress of American Indians
1516 P Street, NW
Washington, DC  20005

Phone:  202-466-7767
Email:  yroubideaux@ncai.org
Website:  www.ncai.org/prc
Twitter:  @ncaiprc