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# Delaying Diabetes in the Native American Population

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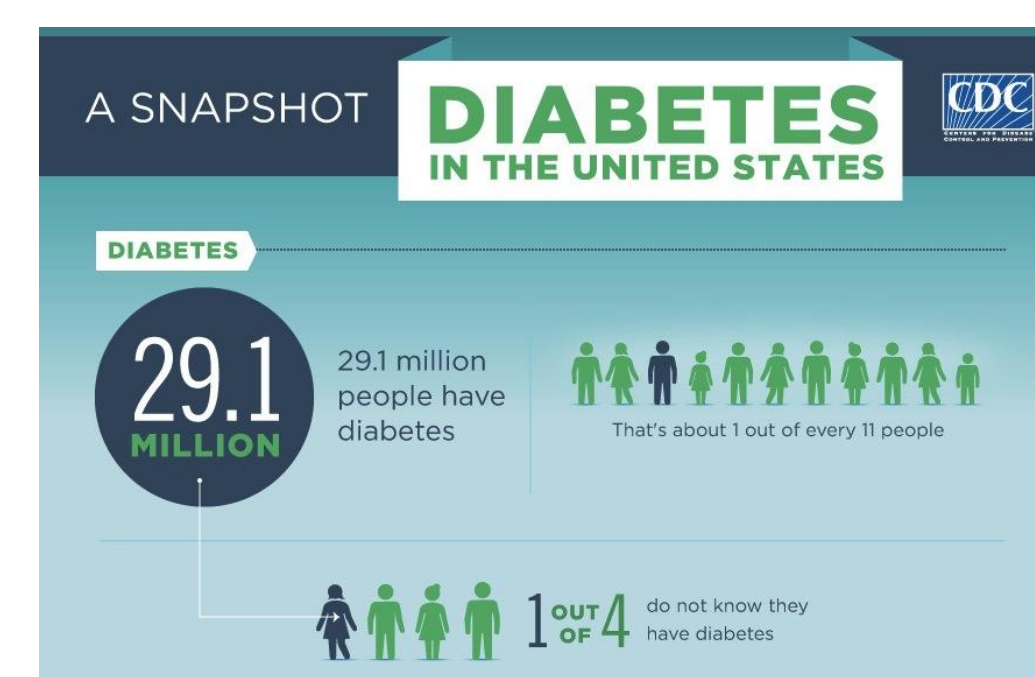
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## Abstract

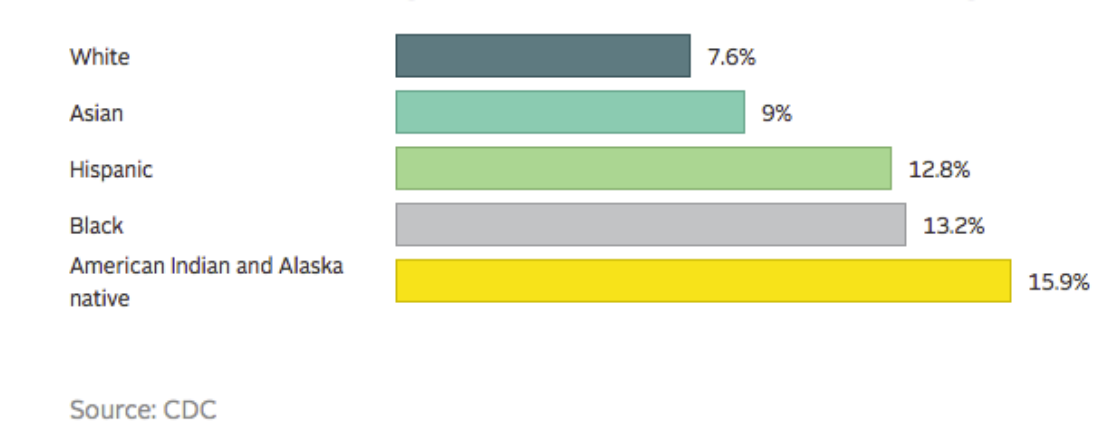
Diabetes is a debilitating disease process caused by the body's inability to control blood glucose levels. With over 30 million diabetics in the United States and another 85 million prediabetics, the effects of this disease are wide-spread and far-reaching. Native American/Alaska Native populations have a nearly two-fold increase in prevalence of diabetes when compared to non-native populations. Risk factors for diabetes in all populations include modifiable risks such as obesity, diet, and physical inactivity as well as non-modifiable factors such as age, family history, and ethnicity. Studies have shown that early identification of symptoms, coupled with proper and intentional treatment can delay the onset of diabetes. The purpose of this project is to determine the efficacy of currently recognized best-practice therapies in Native American patients and to identify barriers to successful implementation of such practices in the Native American population. A thorough review of the available literature shows that research of this topic specific to the Native American population is lacking. However, evidence suggests that the broad, general population recommendations made by the American Diabetes Association in their Standards of Medical Care in Diabetes (2018) will be equally effective in the Native American population when applied objectively. It is also recognized that Native Americans face additional barriers in the effort to identify and treat diabetes. These include geographic, economic, and social factors that inhibit treatment efficacy and ultimately lead to increased morbidity in this population.

## Introduction

- Diabetes is a major factor in the overall health of the U.S. population and its prevalence continues to rise.

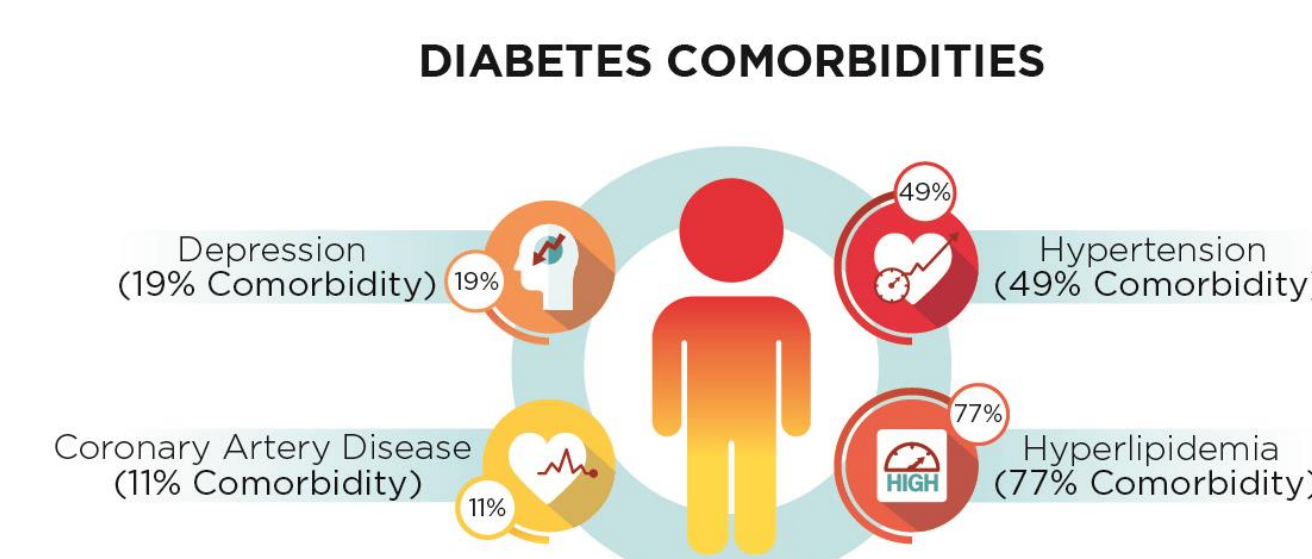


### Percent of people 20 and older with diabetes, by race and ethnicity



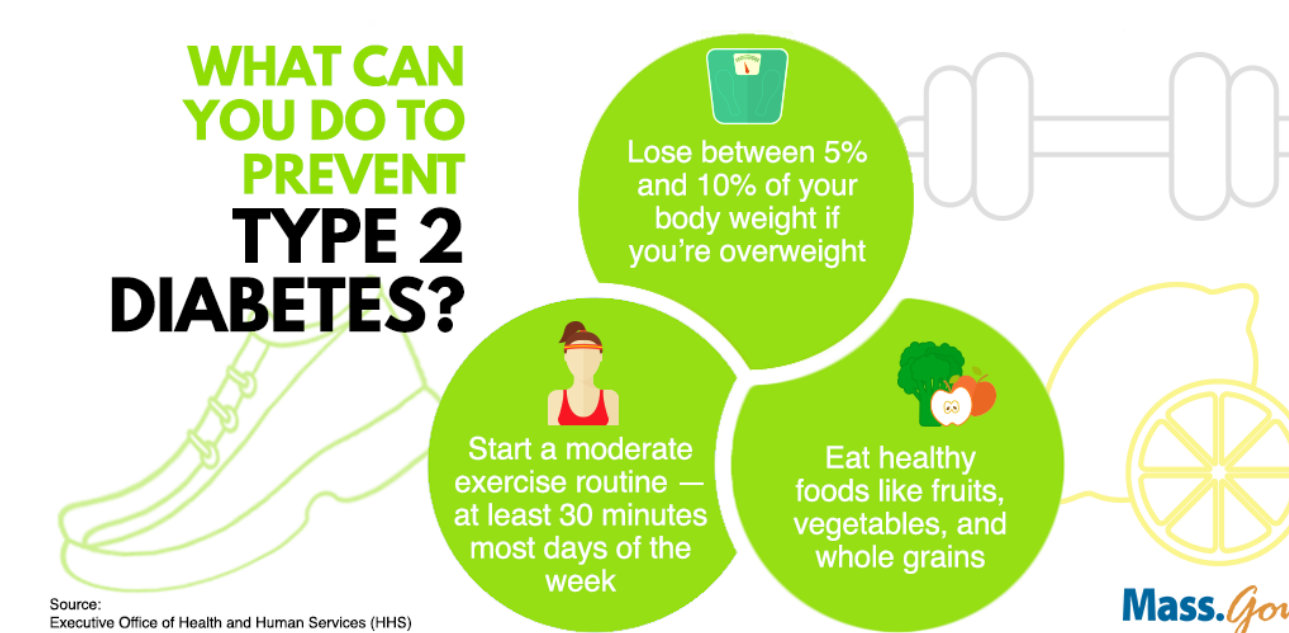
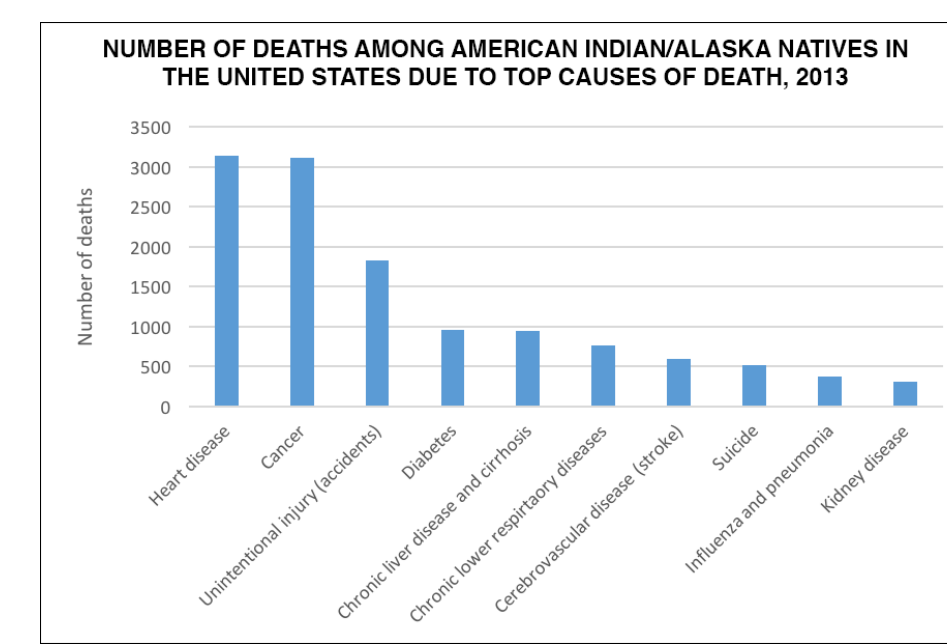
- Native Americans have a greater chance of having diabetes than any other racial group.

- Co-morbid conditions complicate treatment plans and increase the debilitating effects of diabetes.



## Statement of the Problem

- Today, more than one in six Native Americans is diabetic. Given the prevalence of the disease in this population, special attention must be given to better understand the disease process and to identify barriers that deter patients from receiving optimal diabetic care.
- Diabetes has been among the top 10 causes of death for the Native American population since the 1970s. (McLaughlin, 2010).
- The ADA promotes lifestyle management (which includes self-management education and support, medical nutrition therapy, physical activity, smoking cessation counseling, and psychosocial care) as a fundamental aspect of diabetes care.



The benefits of blood glucose management through lifestyle modification therapies are clinically proven (Powers, et al. 2015).

- Native Americans are disadvantaged in the healthcare system due to disparities in healthcare financing, access to care, and quality of care. (Lillie-Blanton and Roubideaux, 2005).
- Delayed diagnosis and intervention leads to increased morbidity as damage from hyperglycemia impacts delicate tissues of the eyes, kidneys and other microvasculature.



## Research Questions

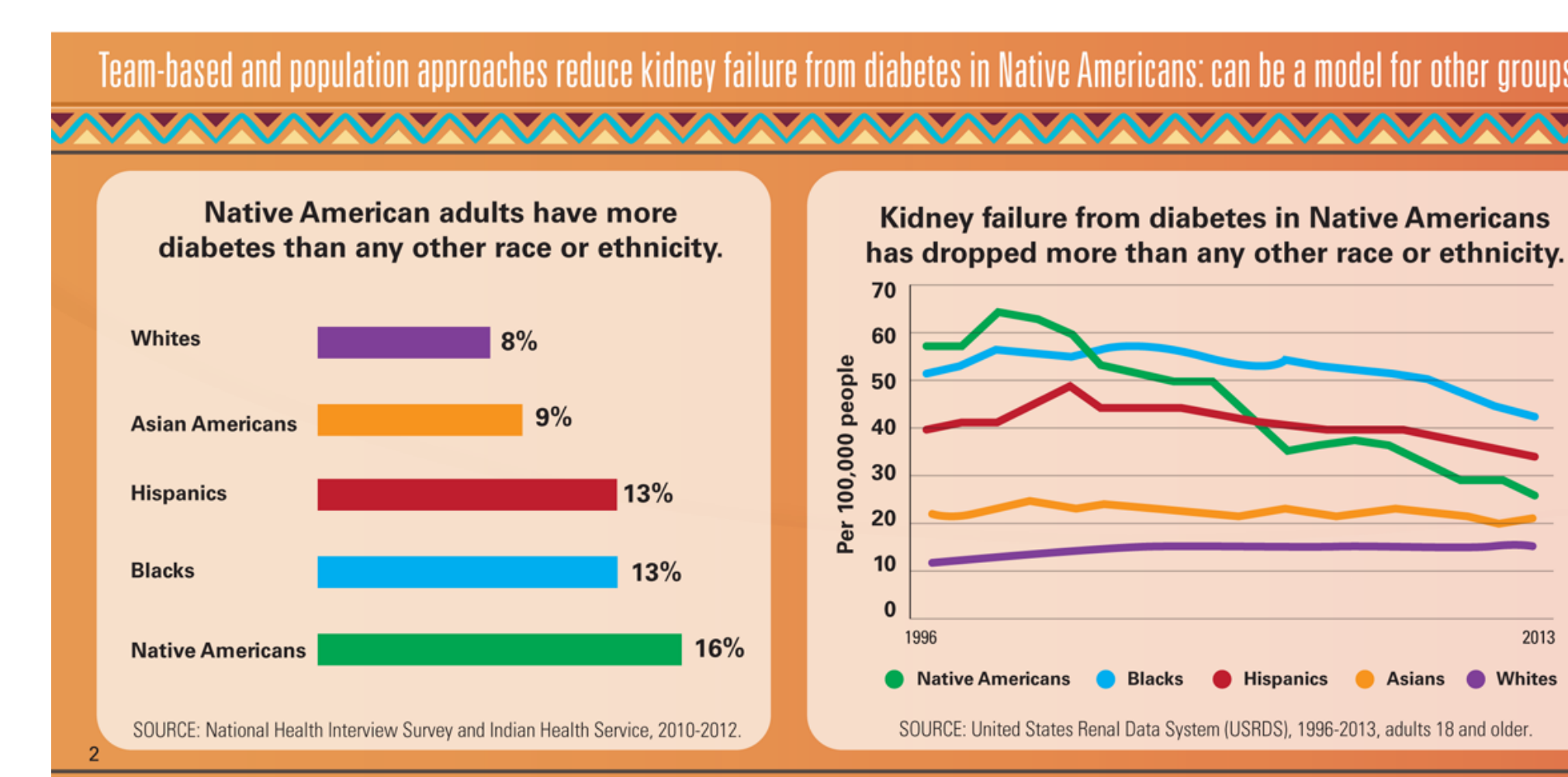
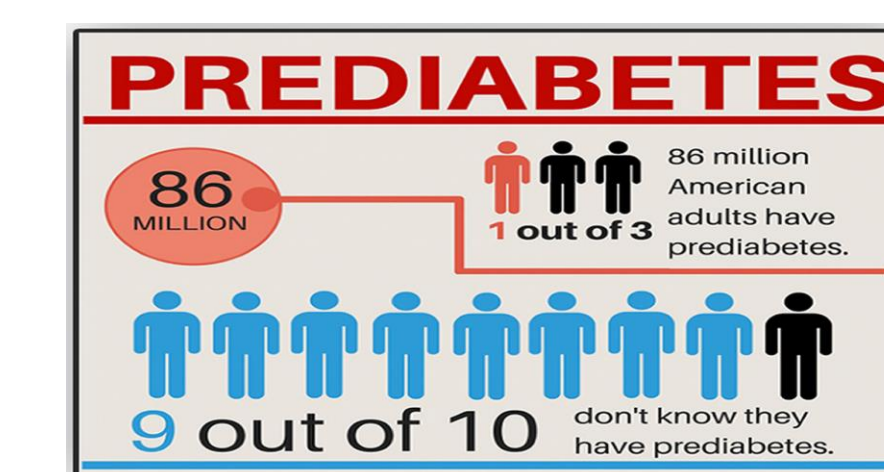
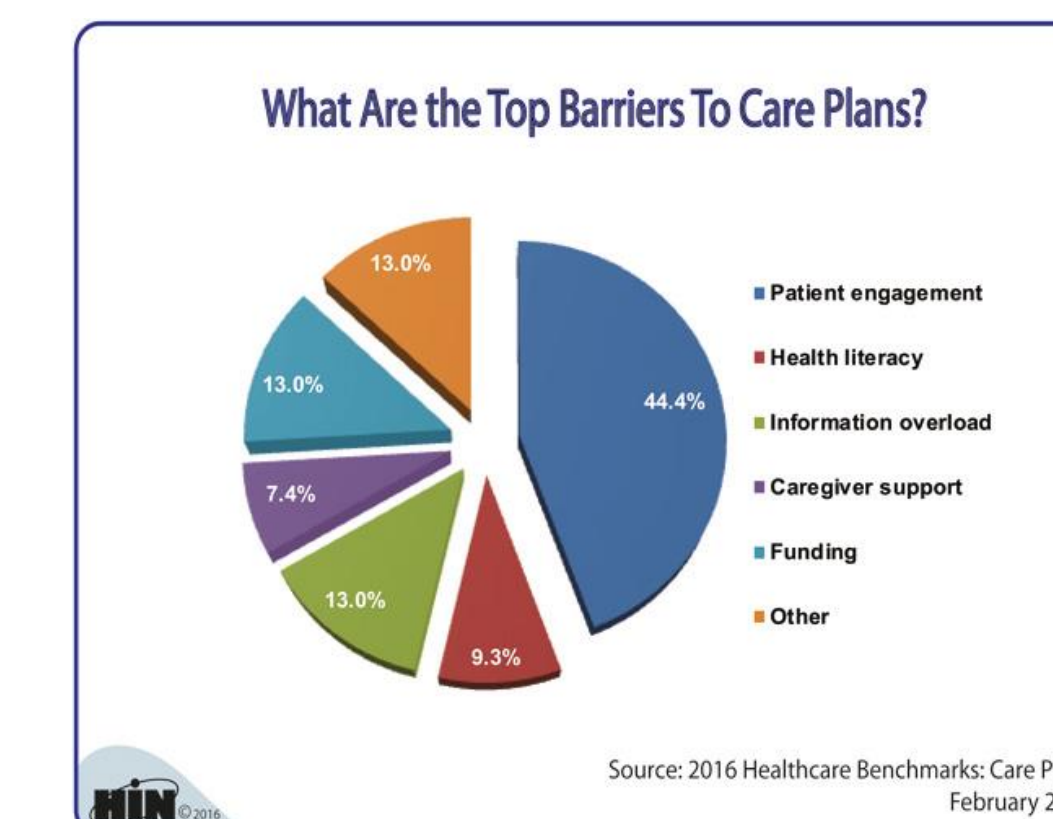
- In Native American patients, can lifestyle and pharmacologic interventions, prior to the onset of diabetes, improve glucose tolerance?
- Are there additional benefits of combined therapy with metformin and lifestyle modifications that could improve the quality of life for these patients?
- Are there identifiable barriers to successful treatment of prediabetes and diabetes in the Native American population?

## Literature Review

- Several specific therapies have shown benefit toward reducing the incidence and effects of type II diabetes. These include limited diabetic education, intensive and non-intensive lifestyle modification programs (Powers, et al. 2015), metformin therapy (Ramachandran, et al. 2006), and more recently, newer antidiabetic medications such as DPP-4 inhibitors (Dicker, 2011).
- Although much of the available literature is not specific to the Native American population, evidence is suggestive of similar benefits in all patients with impaired glucose tolerance.
- Genetic, behavioral and socio-economic factors have been implicated in the development of diabetes in the Native American population, despite availability of effective therapies.

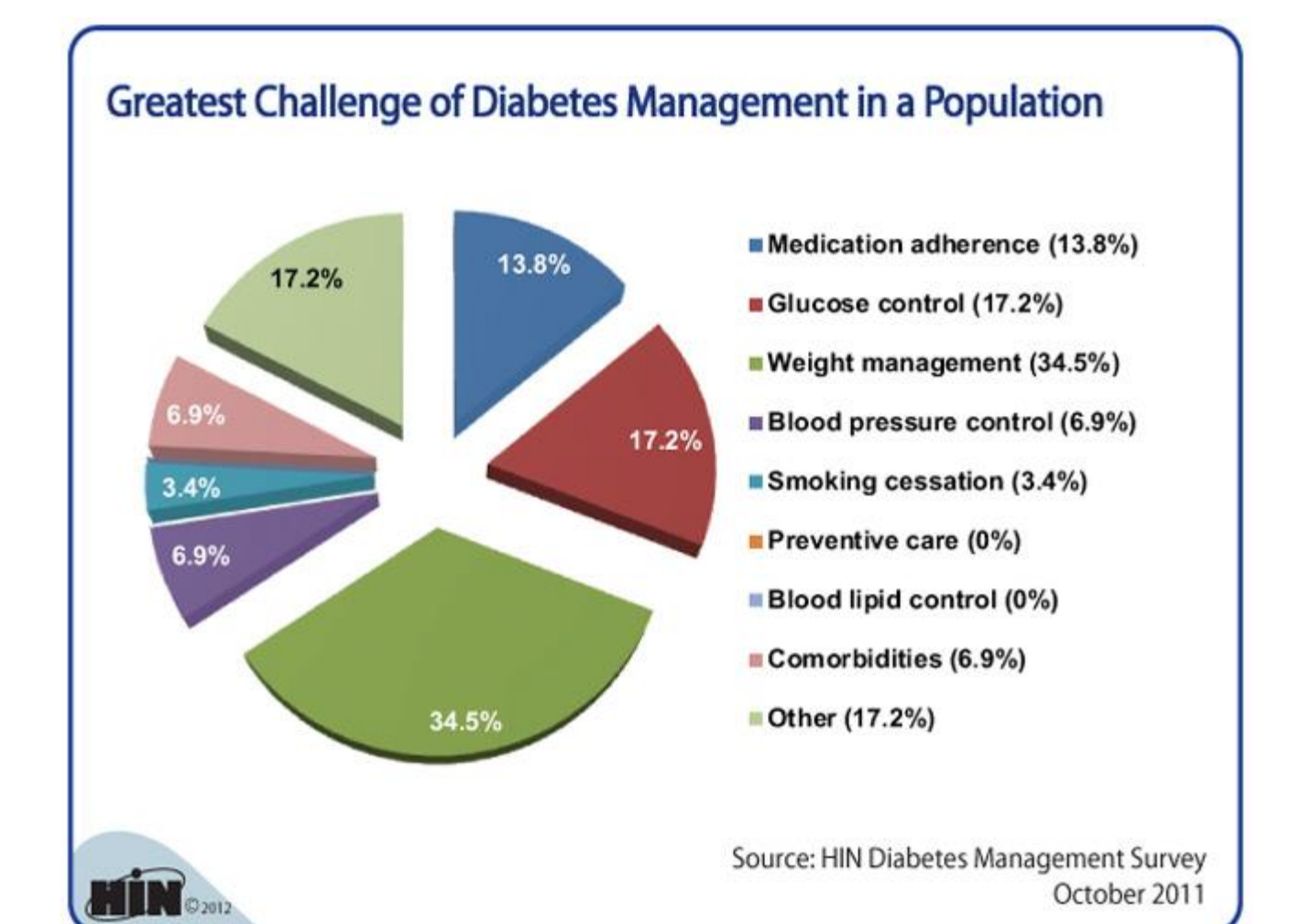
## Discussion

- Given the prevalence of diabetes in the Native American population, special attention must be given to identify barriers that deter patients from receiving optimal care.
- Research must be focused on finding opportunities to identify and treat patients before the onset of diabetes.
- Team-based approaches have been successfully implemented, specifically in the Native American population through Indian Health Services programs, showing significant benefit in reducing the burden of diabetes in selected groups.



## Applicability to Clinical Practice

- Native American patients will benefit from the general population guidelines recommended in the ADA Standards of Medical Care in Diabetes.
- Social context must be recognized when attempting to design programs and care plans for these patients.
- Identifying barriers to care will be a priority for all clinicians working in rural primary care.
- A patient/provider relationship built on a foundation of trust will be paramount for successful treatment of diabetes and pre-diabetes.
- Effective diabetes management conveys a host of benefits to the patient, their families and society.
- In a relationship of trust, providers can educate patients on the disease process, complications and best practices to improve outcomes.



## References

- Dicker, D. (2011) DPP-4 inhibitors. *Diabetes Care*, 34 (Supplement 2) S276-S278; <https://doi.org/10.2337/dc11-s229>
- Lillie-Blanton, M., & Roubideaux, Y. (2005). Understanding and addressing the health care needs of American Indians and Alaska Natives. *American Journal of Public Health*, 95(5), 759-61. <https://dx.doi.org/10.2105/AJPH.2005.063230>
- McLaughlin, S. (2010). Traditions and diabetes prevention: A healthy path for native Americans. *Diabetes Spectrum*, 23(4): 272-277. <https://doi.org/10.2337/diaspect.23.4.272>
- Ramachandran, A., Snehalatha, C., Mary, S., Mukesh, B., Bhaskar, A.D. & Vijay, V. (2006). The Indian Diabetes Prevention Program shows that lifestyle modification and metformin prevent type 2 diabetes in Asian Indian subjects with impaired glucose tolerance. *Diabetologia*, 49: 289. <https://dx.doi.org/10.1007/s00125-005-0097-z>
- Powers, M., Bardsley, J., Cypress, M., Duker, P., Funnell, M., Hess Fische, A., Maryniuk, M., Siminerio, L., & Vivian, E. (2015). Diabetes self-management education and support in type 2 diabetes: A joint position statement of the american diabetes association, the american association of diabetes educators, and the academy of nutrition and dietetics. *Journal of the Academy of Nutrition and Dietetics*, 115(8), 1323-1334. <https://doi.org/10.1016/j.jand.2015.05.012>
- [www.cdc.gov/diabetes/prevention/index.htm](http://www.cdc.gov/diabetes/prevention/index.htm)

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