



Department of Health and Social Services
William H. Hogan, MSW, Commissioner

Division of Public Health
Ward Hurlburt, MD, MPH, CMO/Director

Editors:
Joe McLaughlin, MD, MPH
Louisa Castrodale, DVM, MPH

3601 C Street, Suite 540
Anchorage, AK 99503 <http://www.epi.Alaska.gov>

Local (907) 269-8000
24 Hour Emergency 1-800-478-0084

Bulletin No. 13 May 10, 2010

Pre-Diabetes and Blood Glucose Testing in Alaska, 2008

Background

Pre-diabetes occurs when blood glucose is elevated (indicated by a fasting plasma glucose level between 100–125 mg/dL), but not high enough to warrant a diabetes diagnosis.¹ Pre-diabetes is highly correlated with a subsequent diabetes diagnosis within 5 years,² and is an independent risk factor for heart disease.³ Obesity is a significant risk factor for both pre-diabetes and diabetes. Patients with pre-diabetes can prevent or substantially delay diabetes onset by increasing physical activity and losing weight.²

Since 2008, the Alaska Behavioral Risk Factor Surveillance System (AK BRFSS)⁴ has asked Alaskans who do not report having been diagnosed with diabetes to report whether they have (a) been diagnosed with pre-diabetes, and (b) received a blood glucose test during the previous 3 years. This *Bulletin* provides the summary results of these AK BRFSS questions.

Methods

Data from the 2008 AK BRFSS were used to estimate the number and prevalence of cases of pre-diabetes and frequency of blood glucose testing among adult Alaskans. The following demographic variables were selected for bi-variate analyses based on their descriptive utility and/or their relevance to health care access: age, sex, race, body mass index (BMI), employment status, income, and education. Crude percentages and 95% confidence intervals were used to identify significant differences between subgroups of Alaskans with pre-diabetes.

Results

In 2008, 7.9% of adult Alaskans who participated in the AK BRFSS reported having been diagnosed with pre-diabetes. The proportion of persons who reported having been diagnosed with pre-diabetes was significantly lower for those in the 18–44 year age-group than for those in each of the other age-groups (Figure). No significant differences were identified in reported pre-diabetes diagnosis rates by sex, race, or access to care.

Adults who reported having been diagnosed with pre-diabetes were more likely than those who reported not having this diagnosis to also report having had blood glucose testing in the previous 3 years (88.0% vs. 51.5%, respectively).

Obese adults were significantly more likely to report having been diagnosed with pre-diabetes than adults in the other BMI categories (Figure). However, 35% of obese adults had *not* received a blood glucose test in the previous 3 years; among those:

- 76% had health insurance;
- 72% were employed;
- 70% were White;

- 60% were aged 18–44 years;
- 53% had a high school diploma or higher education;
- 50% had annual incomes of \geq \$50,000; and
- 48% lived in the Anchorage/Mat-Su AK BRFSS region.

Discussion

These results indicate that many adult Alaskans have pre-diabetes, putting them at increased risk for developing diabetes and other serious health conditions. Many more Alaskans are likely to have pre-diabetes than reported here—clinical data from the 2005–2006 National Health and Nutrition Examination Survey indicate that 30% of US adults aged \geq 20 years have pre-diabetes.⁵

Many Alaskans with an elevated BMI have not had a blood glucose test and are not aware of their current diabetes status and health risks. Our results indicate that this group is quite diverse, with characteristics that do not necessarily match a typical diabetes risk profile. For example, most were young, White and earned middle-income wages. Because pre-diabetes and diabetes are often symptom-free, undiagnosed patients typically expect they are disease-free if they feel well.

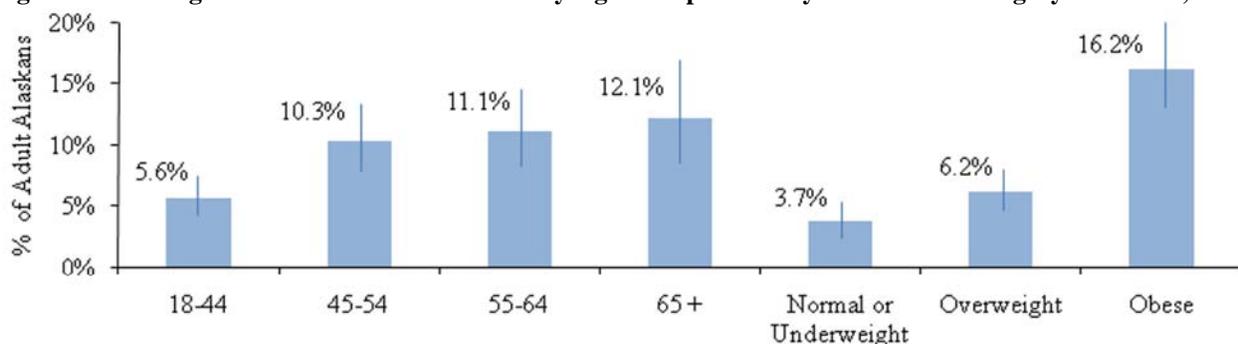
Recommendations

1. Health care providers should routinely ask patients to assess their own pre-diabetes risk using a screening questionnaire.⁶
2. Health care providers should suggest blood glucose tests to patients with pre-diabetes risk factors and communicate test results and their implications to patients, even if the result is normal.
3. Health care providers should encourage patients with pre-diabetes to lose at least 5–7% of their weight and to engage in at least 150 minutes of moderate intensity physical activity weekly.² Weight loss and physical activity support resources for patients should be offered, if available and appropriate.

References

1. ADA. Classification and diagnosis of diabetes mellitus. *Diabetes Care* 2010;33(S1):s62-9.
2. DPP Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Eng J Med* 2002;346(6):393-403.
3. DPP Research Group. Effect of progression from impaired glucose tolerance to diabetes on cardiovascular risk factors and its amelioration by lifestyle and metformin intervention. *Diabetes Care* 2009;32(4):726-32.
4. The AK BRFSS provides statewide representative data for all adults in Alaska. Information about its methodology is available at: <http://www.hss.state.ak.us/dph/chronic/hsl/brfss/method.htm>.
5. Cowie CC, Rust KF, et al. Full accounting of diabetes and pre-diabetes in the US population in 1988-1994 and 2005-2006. *Diabetes Care* 2009;32(2):287-94.
6. Alaska DHSS. Pre-diabetes are you at risk? Available at: http://www.hss.state.ak.us/dph/chronic/diabetes/data/Pre-diabetes_flyer.pdf

Figure. Percentage of Adults with Pre-Diabetes by Age Group and Body Mass Index Category — Alaska, 2008



(Contributed by Gail Stolz, Barbara Stillwater, and Charles Utermohle; Section of Chronic Disease Prevention and Health Promotion.)