

Diabetes: An Issue of Increasing Public Health Importance

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Overview

Diabetes is the single leading cause of end-stage renal disease, non-traumatic amputations, and adult blindness in the United States and is a major cause of death. Nearly 21 million Americans are diabetic, and another 41 million are considered pre-diabetic. There are three main types of diabetes: Type 1 (insulin-dependent), Type 2 (insulin-resistant), and gestational diabetes. Type 2 diabetes is the most common, with 90-95% of diabetics ill with this type.

Type 1 diabetes is considered an autoimmune disease where insulin-producing beta cells produced in the pancreas are attacked by the immune system. This results in little or no insulin production in the body. Symptoms of Type 1 diabetes include increased hunger, thirst and urination, weight loss, blurred vision and fatigue.

In contrast, Type 2 diabetes is characterized by insulin resistance. While the pancreas is producing enough insulin, the body cannot use the insulin properly. Eventually, this leads to decreased insulin production by the pancreas. Symptoms of Type 2 diabetes are similar to those of Type 1 diabetes, however the onset is much more gradual.

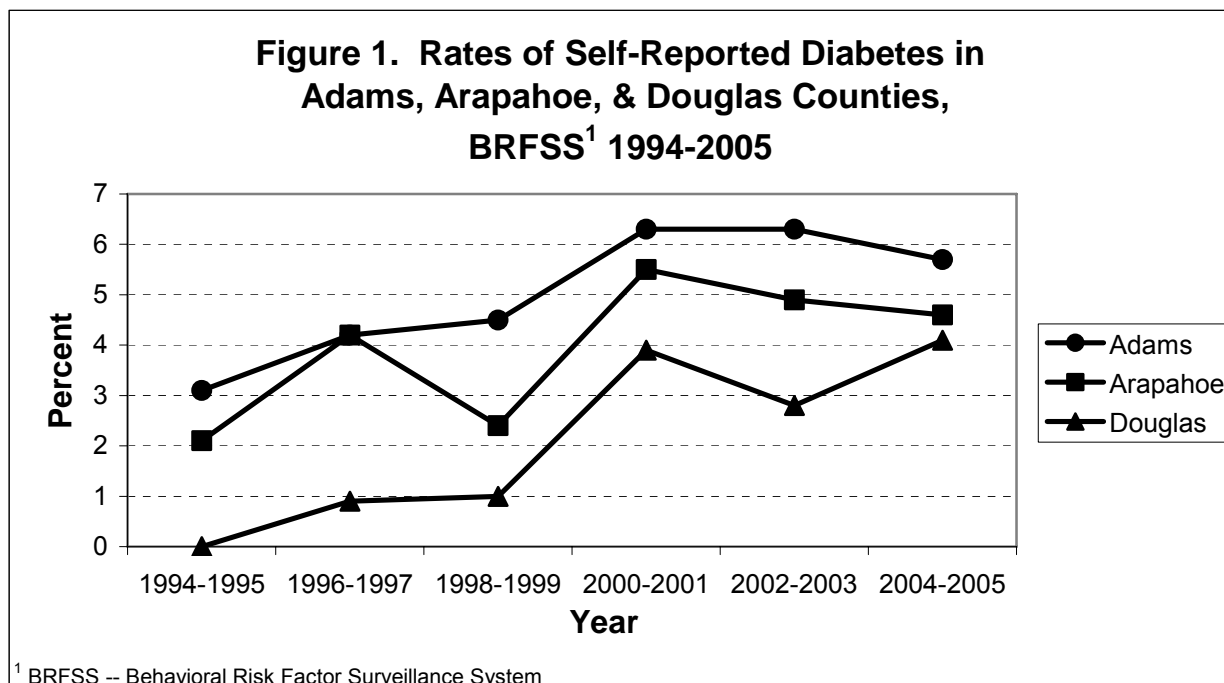
Gestational diabetes is high blood glucose levels diagnosed during pregnancy. Diet management and/or treatment is sometimes required during pregnancy, but most women's glucose levels return to normal after pregnancy. However, up to 50% of women who experience gestational diabetes develop Type 2 diabetes later in life.

Healthy People 2010 has recognized diabetes as an important national health issue and has dedicated 17 objectives to diabetes itself, with at least 13 others devoted to diabetes-associated diseases and complications. Although diabetes is a well known health issue, it continues to be under-diagnosed and go untreated in millions of Americans.

Diabetes in Colorado

Department (TCHD) region, the prevalence rates of self-reported diabetes among adults have more than doubled in over the past ten years (Figure 1). In Colorado, approximately 221,000 individuals are currently diagnosed with diabetes. It is estimated that an additional 92,000 adults with diabetes are undiagnosed.





Diagnosing Diabetes and Pre-Diabetes

The fasting plasma glucose (FPG) test is the preferred method for diagnosing diabetes. A blood glucose level of ≥ 126 mg/dL after an 8-hour fast is indicative of diabetes. Diabetes can also be diagnosed using an oral glucose tolerance test (OGTT). A blood glucose level of ≥ 200 mg/dL 2 hours after drinking water with 75mg of dissolved glucose is also indicative of diabetes (Figure 2).

People with pre-diabetes have blood glucose levels that are above normal, but not yet high enough for a diagnosis of diabetes. Fasting plasma glucose levels of 110-125 mg/dL and OGTT blood glucose levels of 140-199 mg/dL may indicate pre-diabetes (Figure 2).

Pre-diabetes confers an increased risk of developing Type 2 diabetes, heart disease and stroke. Pre-diabetes is of increasing concern in the US. According to the Department of Health and Human Services (HHS), approximately 54 million US adults had the condition in 2002. Risk factors for pre-diabetes are listed in Table 1. Once diagnosed with pre-diabetes, however, a lot can be done to prevent or delay diabetes. Studies have shown that diet and exercise can significantly lower the incidence.

Diabetes Health Disparities

In the TCHD population, approximately 17% are Hispanic and 5% are African American. In some cities within the TCHD region, such as Commerce City and Aurora, the Hispanic population is as high as 52.9% and the African American populations is as high as 13.4%, respectively.

It is especially important, then, that providers treating these communities be aware that, according to the Centers for Disease Control and Prevention, African Americans and Hispanics nationwide are nearly twice as likely to have diabetes as non-Hispanic whites of similar age, and also have higher rates of certain diabetes-related complications such as renal disease. Within the state of Colorado, the diabetes death rate among both Hispanics and African Americans has been found to be double the state average. Research also suggests that one-third or more of African American and Hispanic diabetics are undiagnosed, leading to poor glycemic control and higher rates of complications and death.

Figure 2. Diabetes Diagnosis Decision Pathway

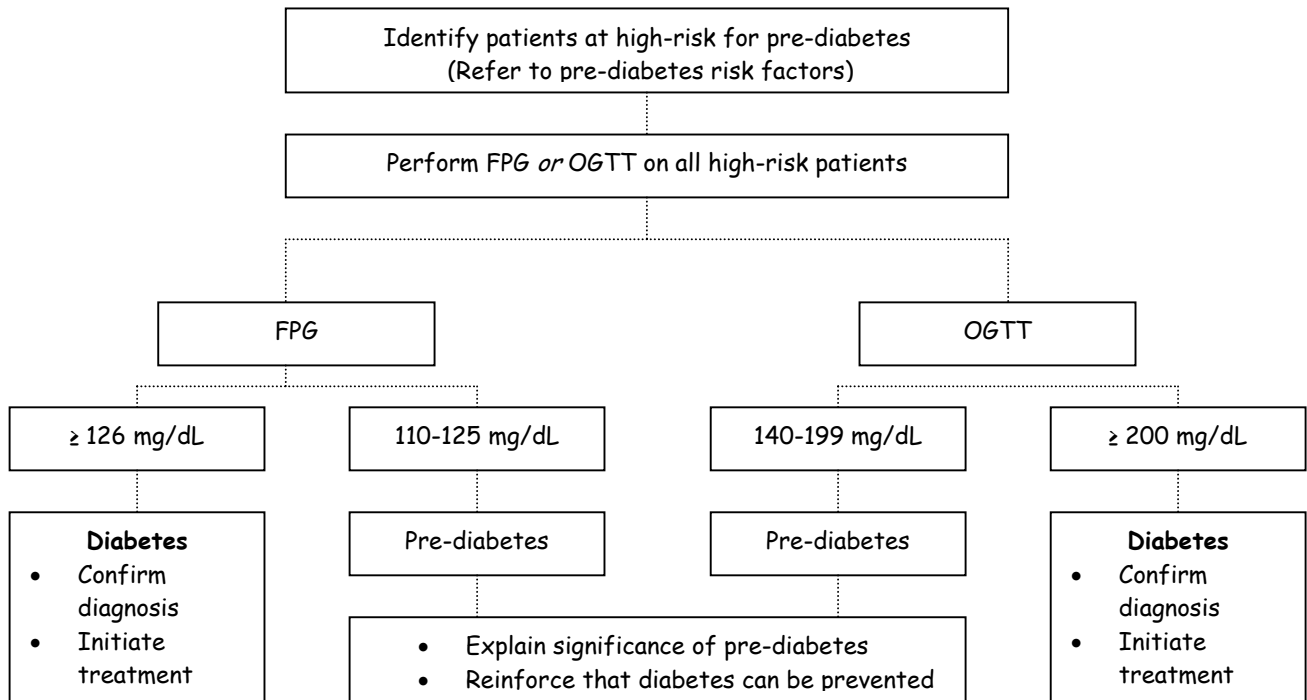


Table 1. Risk Factors for Pre-Diabetes

- **Increased age**
- **Overweight** (BMI ≥ 25)
- **Hypertension** (>140/90 mm/Hg)
- **Abnormal lipid levels** (Triglyceride levels ≥ 250 mg/dL; HDL <40mg/dL for women and <50 mg/dL for men)
- **Ethnicity** (African American, American Indians, Asian American, Hispanic or Pacific Islander heritage)
- **History of gestational diabetes** (or gave birth to at least one baby ≥9 pounds)
- **Inactive lifestyle** (exercise < 3 times per week)

Where do we go from here?

Diabetes prevalence in the United States is likely to continue increasing. Not only is a large percentage of the population aging, a fast-growing part of the population is made up of Hispanics and other minority groups. Additionally, Americans are increasingly sedentary and overweight. The CDC projects that the prevalence of diabetes in the US could increase by 165% by the year 2050.

To combat this rise, early detection and prevention are key. Several prevention programs have been initiated by HHS, CDC and the National Institutes of Health (NIH) to increase education and diagnosis. The National Diabetes Education Program has launched a program called “Small Steps, Big Rewards” which offers healthcare providers a toolkit for diagnosing pre-diabetes and diabetes and information about treating patients with diabetes. The Diabetes Detection Initiative (DDI) was also begun in 10 sites around the country to focus on community-based education, risk-assessment and diagnosis.

As part of its comprehensive CVD screening program, TCHD offers FPG screening for uninsured and underinsured women, ages 40-64, who live within the TCHD jurisdiction. Please contact the *Peak Wellness* program at TCHD at (303) 255-6258 for more information.

Other Resources

Centers for Disease Control and Prevention

<http://www.cdc.gov/diabetes/>

National Institutes of Health

--National Diabetes Education Program <http://ndep.nih.gov>

--National Diabetes Information Clearinghouse <http://diabetes.niddk.nih.gov>

American Diabetes Association

www.diabetes.org

A list of notifiable diseases in Colorado is available at: <http://www.cdphe.state.co.us/dc/Medlist.pdf>. Please know that upon receiving a report of any of these diseases, the public health department is likely to contact your patient to assess exposure and put appropriate control measures into place.

For more information please contact your state or local health department:

Tri-County Health Department

(303) 220-9200 / After-hours pager (303) 461-2342

www.tchd.org

Colorado Department of Public Health & Environment, Diabetes Control & Prevention Program

(303) 692-2580

<http://www.cdphe.state.co.us/pp/diabetes/index.html>

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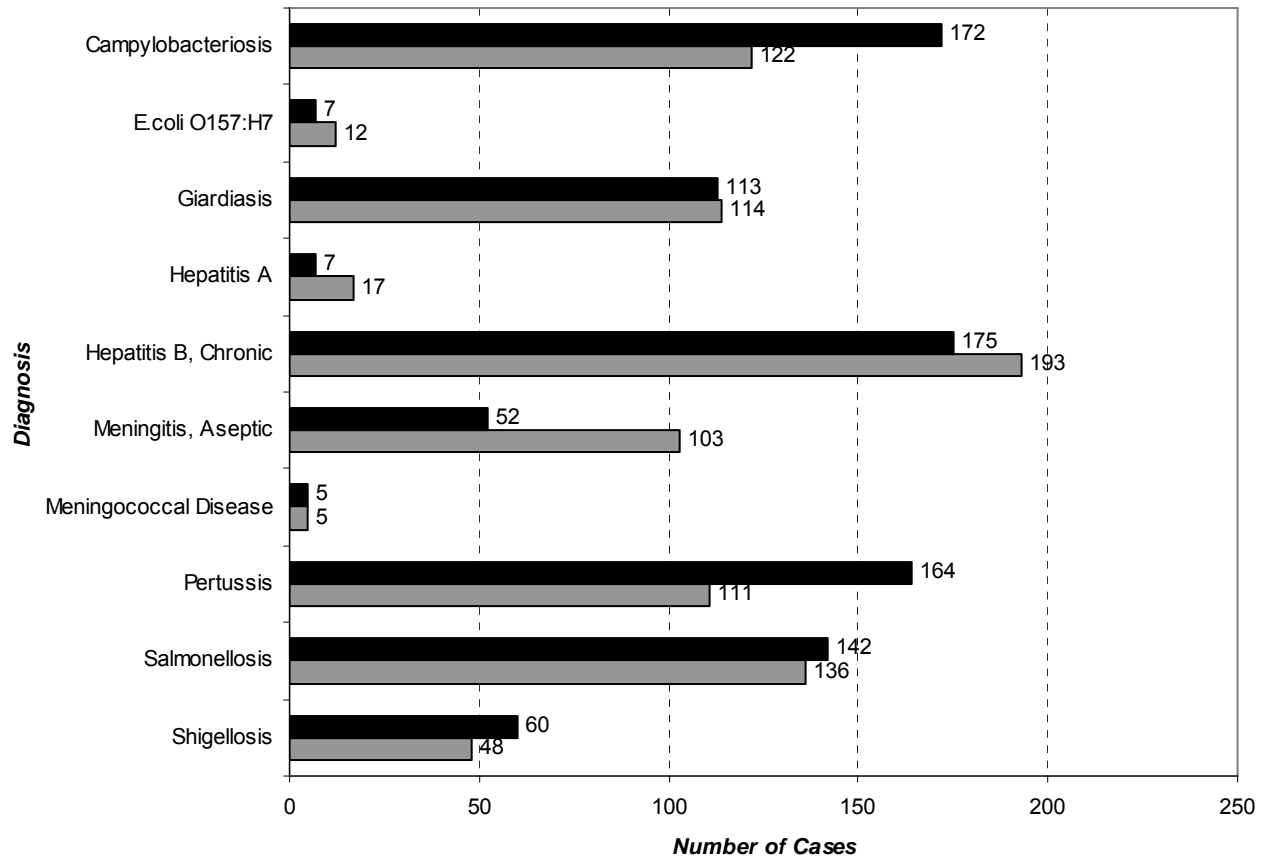
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Selected Diseases by Date of Report Adams, Arapahoe, and Douglas Counties 2006 Year-to-date Through November



■ 5-YR Median YTD ■ 2006 YTD