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Diabetes Risk Assessment through the Behavioral Risk Factor Surveillance System (BRFSS) Using Questions from the Diabetes Risk Test Tool

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Background

Burden of Diabetes

Burden of Diabetes

- Kansas Prevalence: 7.3% in 2007
8.1% in 2008
- Undiagnosed or unrecognized diabetes: 40% in adults ≥ 20 years
- \$174 billion in direct & indirect costs in 2007

Diabetes Prevention

- Diabetes incidence can be reduced with lifestyle intervention or Metformin



Background

Diabetes Detection Initiative

Diabetes Detection Initiative

- Pilot Program for Select Screening of Persons at High Risk for Diabetes
- Funded by DHHS, Office of Public Health & Science
- 10 pilot sites, including Wichita-Sedgwick County
- Implemented in 2003-2004
- Social marketing approach
 - Use of Media Channels
 - Geo-demographic segmentation
 - Promotion

Background Diabetes Risk Test



DIABETES DETECTION INITIATIVE

DIABETES. YOU COULD BE AT RISK TAKE THE TEST—KNOW YOUR SCORE!

Diabetes means your blood sugar (glucose) is too high. How would you know? Are you often thirsty, hungry, or tired? Do you urinate often? Do you have sores that heal slowly, tingling in your feet, or blurry eyesight? Even without these signs, you could still have diabetes.

Diabetes is a serious disease. It can cause heart attack or stroke, blindness, kidney failure, or loss of feet or legs. But diabetes can be controlled. You can reduce or avoid these health problems. Take the first step. Find out if you are at high risk.

Know your risk of having diabetes now. Answer those quick questions. For each Yes answer, add the number of points listed. All No answers are 0 points.

| Question | Yes | No |
|--|-----|----|
| Are you a woman who has had a baby weighing more than 9 pounds at birth? | 1 | 0 |
| Do you have a sister or brother with diabetes? | 1 | 0 |
| Do you have a parent with diabetes? | 1 | 0 |
| Find your height on the chart. Do you weigh as much as or more than the weight listed for your height? (See chart on back) | 5 | 0 |
| Are you under 65 years old and get little or no exercise in a typical day? | 5 | 0 |
| Are you between 45 and 64 years old? | 5 | 0 |
| Are you 65 years old or older? | 9 | 0 |
| Add Your Score | | |

These questions are from the American Diabetes Association's on-line "Diabetes Risk Test" (<http://www.diabetes.org/info/risktest.jsp>).

Diabetes Detection Initiative
Finding the Undiagnosed



At Risk Weight Chart

| Height | Weight (Pounds) | Height | Weight (Pounds) |
|--------|-----------------|--------|-----------------|
| 4'10 | 129 | 5'8 | 177 |
| 4'11 | 133 | 5'9 | 182 |
| 5'0 | 138 | 5'10 | 188 |
| 5'1 | 143 | 5'11 | 193 |
| 5'2 | 147 | 6'0 | 199 |
| 5'3 | 152 | 6'1 | 204 |
| 5'4 | 157 | 6'2 | 210 |
| 5'5 | 162 | 6'3 | 216 |
| 5'6 | 167 | 6'4 | 221 |
| 5'7 | 172 | | |

Know Your Score

| If you scored ... | then your risk is ... |
|-------------------|---|
| 10 or more points | High for having diabetes now. Please bring this form to your health care provider soon. If you don't have insurance and can't afford a visit to your provider, contact your local health department. |
| 3 to 9 points | Probably low for having diabetes now. Keep your risk low. If you're overweight, lose weight. Be active most days, and don't use tobacco. Eat low-fat meals with fruits, vegetables, and whole-grain foods. If you have high cholesterol or high blood pressure, talk to your health care provider about your risk for diabetes. |

I Scored 10 or More How Can I Get Tested for Diabetes?

| If you have ... | then do this ... |
|--|---|
| Individual or group private health insurance | See your health care provider. If you don't have a provider, ask your insurance company about providers who take your insurance. Deductibles and co-pays will apply. |
| Medicaid | See your health care provider. If you don't have a provider, contact a state Medicaid office or contact your local health department. |
| Medicare | See your health care provider. Medicare will pay the cost if the provider has a reason for testing. If you don't have a provider, contact your local health department. |
| No insurance | Contact your local health department for more information about where you could be tested or call your local health clinic. |

For more information, contact the Department of Health and Human Services, National Diabetes Education Program at 1-800-438-5383 or online at www.ndep.nih.gov.





Background

Diabetes Risk Test

Data Elements

- History of delivery of a macrosomic infant
- Sibling with diabetes
- Parent with diabetes
- BMI
- Exercise
- Age



Background

Diabetes Risk Test

Diabetes Risk Test (DRT)

- Initial Screening based on Paper & Pencil DRT
 - Sensitivity 69-78%
 - Specificity 50%
- For the DDI, specificity was improved by combining the DRT score with other data
 - random glucose reading
 - postprandial time
 - other variables

Background

Study Questions

- Can the Behavioral Risk Factor Surveillance System (BRFSS) be used to assess diabetes risk for a population by adding questions from a standard pre-screening questionnaire?
- What proportion of the Kansas population is at risk for diabetes?



Background

Kansas BRFSS

- Population-based surveillance system for health conditions and risk behaviors in Kansas
- Random digit dialed telephone survey of non-institutionalized Kansas adults (18 years & older) residing in a private residence with a landline telephone
- Split Survey Methodology
- New (non-core) questions related to the DRT were added in an optional module on one arm
- Data from 2006-2008 combined

Methods

Existing BRFSS Questions

What is your age?

About how much do you weight without shoes?

About how tall are you without shoes?

No physical activity (or zero minutes):

- Now, thinking about the [moderate/vigorous] activities you do [fill in “when you are not working” if “employed” or “self-employed”] in a usual week, do you do moderate activities for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate?
- How many days per week do you do these moderate activities for at least 10 minutes at a time?

Methods

Added BRFSS Questions

Which of the following family members, if any, have been told by a doctor that they have diabetes? Include only blood relatives. Do not include adoptive or those related only by marriage. [Mark all that apply]

- | | | | |
|---|----------|---|-----------------------|
| 1 | Mother | 5 | No One |
| 2 | Father | 7 | Do not know/ Not sure |
| 3 | Brothers | 9 | Refused |
| 4 | Sisters | | |

Have you had a baby weighing more than 9 pounds at birth? [female only]

- | | | | |
|---|-----|---|-----------------------|
| 1 | Yes | 7 | Do not know/ Not sure |
| 2 | No | 9 | Refused |

Methods

DRT *Scoring System*

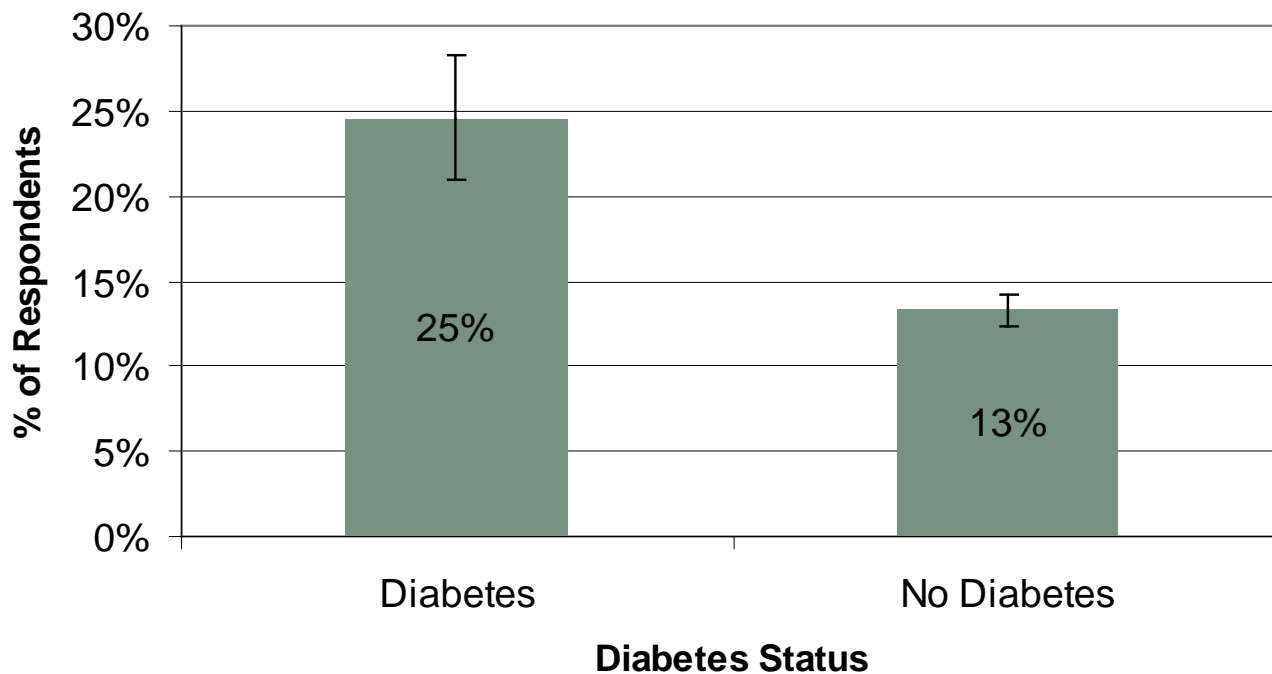
| Item | Points |
|---|--------|
| Woman who delivered a macrosomic (≥ 9 pounds) infant | 1 |
| At least one sibling with diabetes | 1 |
| At least one parent with diabetes | 1 |
| BMI 27 or higher | 5 |
| Younger than 65 and little or no exercise in the past month | 5 |
| Age 45-65 | 5 |
| Age 65 and older | 9 |

Score 3 to 9 → “Low risk”

Score 10 or higher → “High risk”

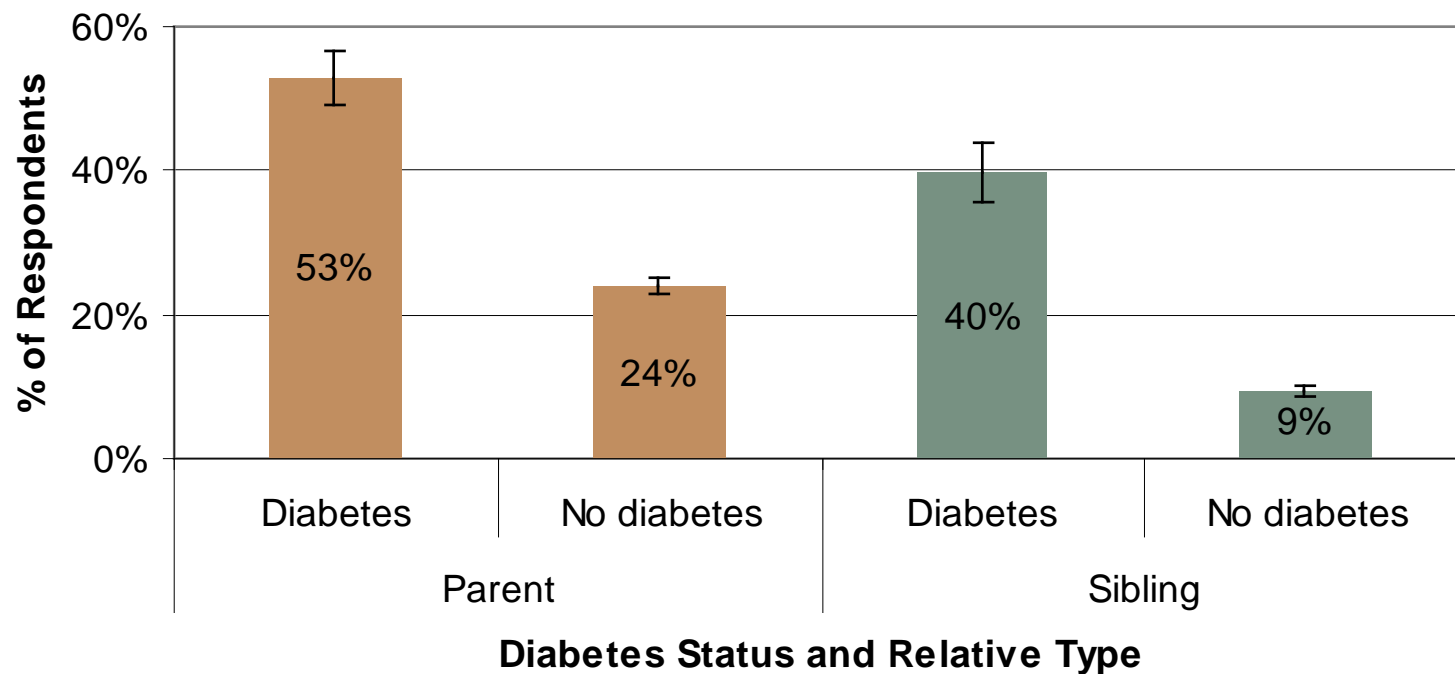
Results

Prevalence of History of Macrosomic Infant by Diabetes Status, 2006-2008 Kansas BRFSS



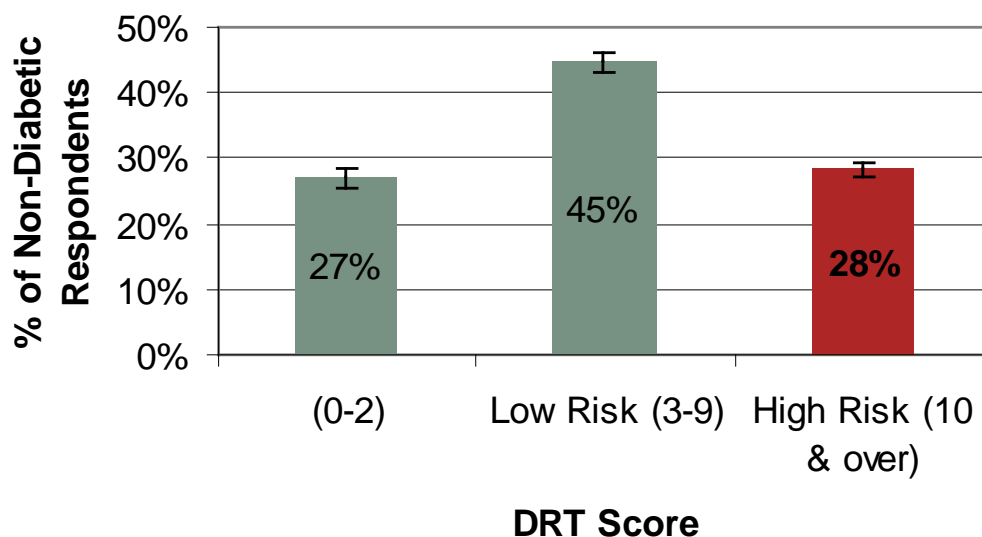
Results

Prevalence of 1st Degree Relative with Diabetes by Diabetes Status, 2006-2008 Kansas BRFSS



Results

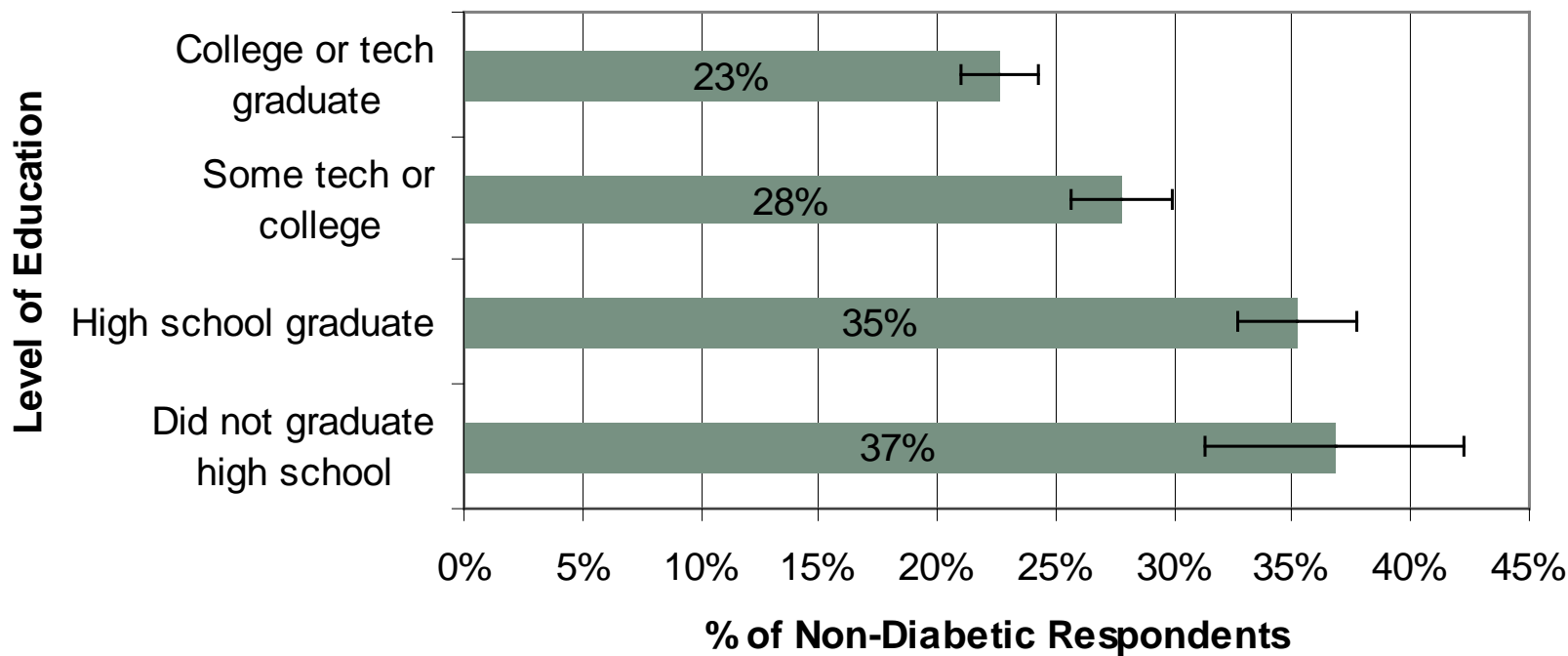
Diabetes Risk Test Scores among Non-Diabetic Respondents, 2006-2008 Kansas BRFSS



More than 1 in 4 adult Kansans 18 years and older without diabetes are at high risk of developing diabetes.

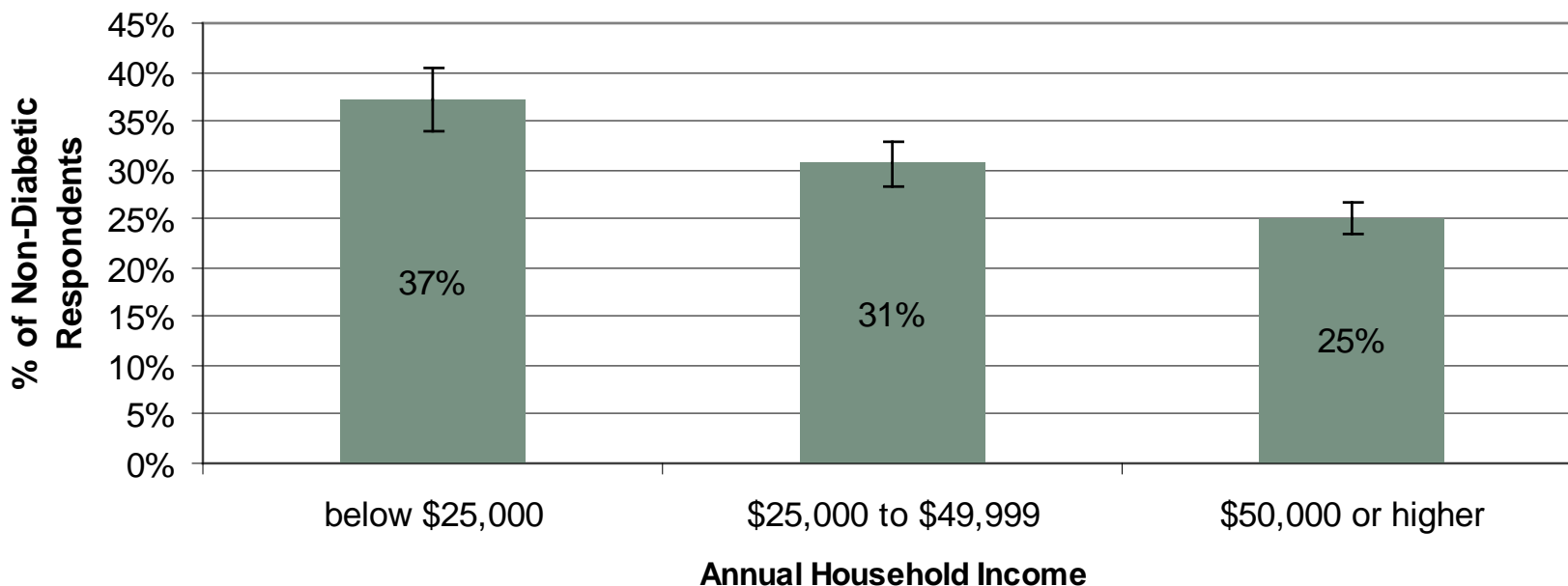
Results

Prevalence of High Risk (DRT 10 or Higher) for Developing Diabetes by Educational Status, 2006-2008 Kansas BRFSS



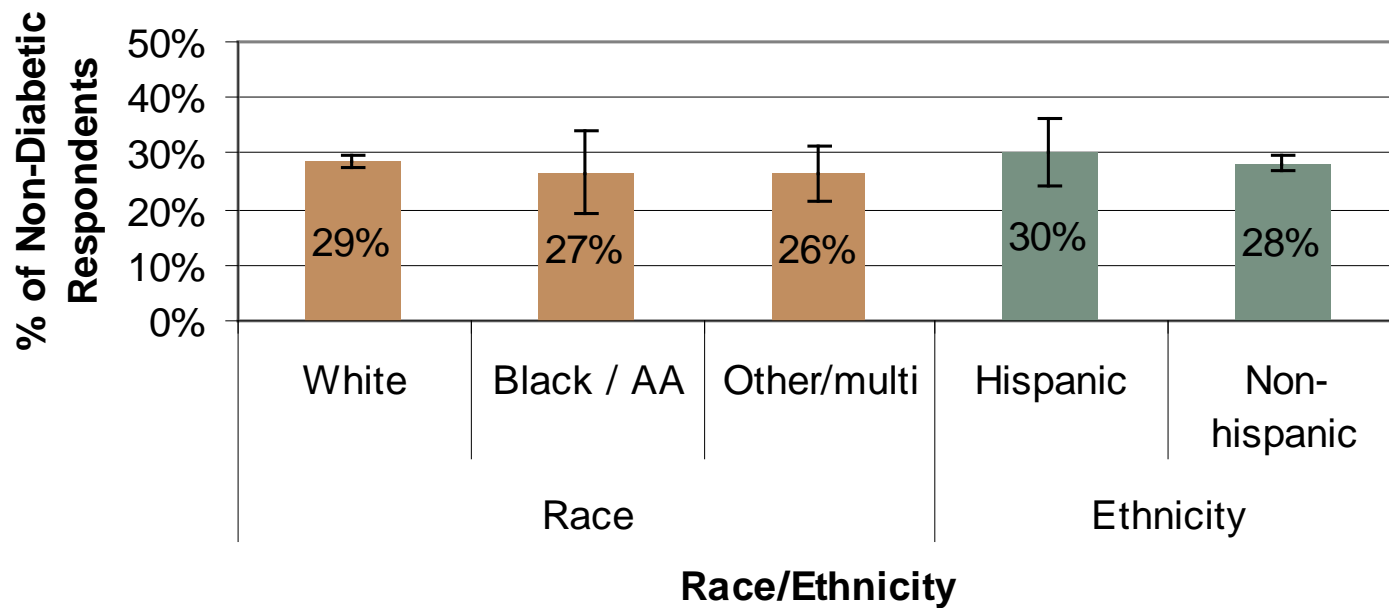
Results

Prevalence of High Risk (DRT 10 or Higher) for Developing Diabetes by Household Income, 2006-2008 Kansas BRFSS



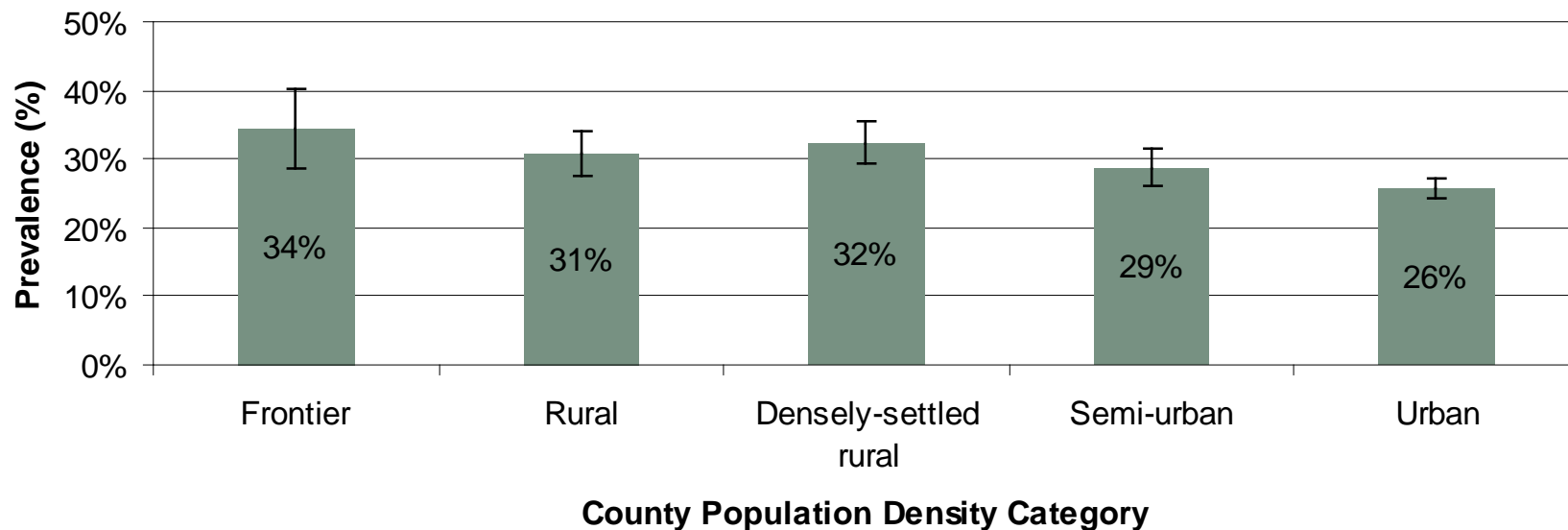
Results

**Prevalence of High Risk (DRT 10 or Higher) for
Developing Diabetes by Race & Ethnicity, 2006-2008
Kansas BRFSS**



Results

Prevalence of High Risk (DRT 10 or Higher) for Developing Diabetes by County Population Density Category, 2006-2008 Kansas BRFSS





Conclusions

- Data on all DRT questions can be collected through the BRFSS
- Information is valuable for understanding the prevalence of being at high risk for developing diabetes
- Disparities exist in different population subgroups
- Useful for planning primary prevention strategies for diabetes in Kansas

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