

Prevalence of Prediabetes— New Hampshire, 2011–2013 Data Brief / May 2016



Background

In 2011 and 2013 (combined), 6.2% of adults in New Hampshire reported having been told they have prediabetes.

Prediabetes describes a state of high blood glucose that is higher than normal but not at a level to be classified as diabetes. Prediabetes is identified or diagnosed by a laboratory test that measures blood glucose (i.e., fasting glucose, oral glucose tolerance, or hemoglobin A1c test). Based on laboratory testing, the National Health and Nutrition Examination Survey estimated that 36% of Americans 18 years or older had prediabetes (1). Adults at risk for prediabetes might be unaware that they have it because they have not been tested.

Risk factors for prediabetes include: age 45 years or older; being overweight; being physically active less than three times per week; having a parent or sibling with diabetes; being African American, American Indian, Asian American, or Hispanic; having a history of high blood pressure or high cholesterol; and, having a history of diabetes during pregnancy.

Key findings in this data brief

- Prediabetes prevalence was 50% higher in non-whites than in whites.
- Prediabetes prevalence was higher in lowest household incomes.
- Prediabetes prevalence was twice as common in overweight adults.

Prediabetes is thought to be a sign of early problems in insulin production or insulin resistance and is a risk factor for type 2 diabetes. The U.S. Centers for Disease Control and

Prevention (CDC) reports that up to 30% of people with prediabetes develop type 2 diabetes within five years (2).

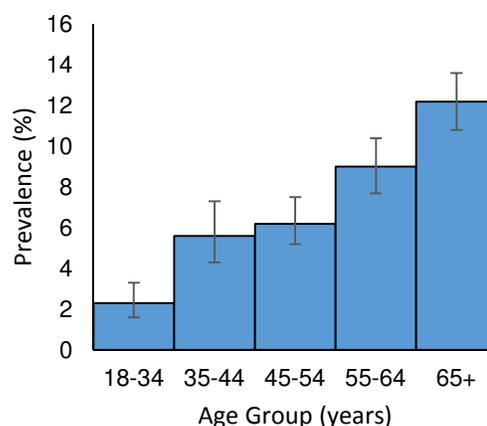
This report describes the prevalence of prediabetes and associated conditions among adults without diabetes in New Hampshire from the NH Behavioral Risk Factor Surveillance System (NH BRFSS).

Prediabetes and Demographic Factors

Prediabetes was more than five times higher in New Hampshire adults age 65 years and older than those age 18–34 years.

The prevalence of prediabetes in New Hampshire was higher among older age groups, increasing from 2.3%, 95% CI [1.6, 3.3], among persons 18–34 years old; 5.6%, 95% CI [4.3, 7.3], among persons 35–44 years old, 6.2%, 95% CI [5.2, 7.5], among persons 45–54 years old; 9.0%, 95% CI [7.7, 10.4] among persons 55–64 years old; and 12.2%, 95% [10.8, 13.6] among those 65 years or older (Figure 1).

Figure 1. Crude prevalence of prediabetes in NH adults by age group: NH BRFSS, 2011 and 2013 (combined)

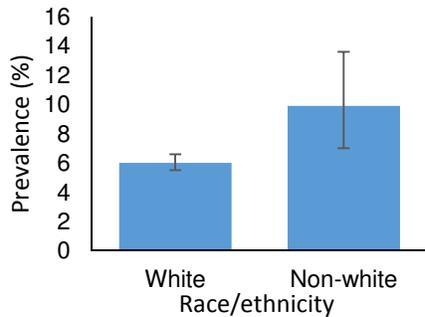


Source: New Hampshire Behavioral Risk Factor Surveillance System, 2011–2013

Prediabetes was more than 50% higher among racial or ethnic minorities.

The prevalence of prediabetes was significantly higher among non-whites and Hispanics (9.9%, 95% CI [7.0, 13.6]) than whites (6.0%, 95% CI [5.5, 6.6]) (Figure 2).

Figure 2. Age-adjusted prevalence of prediabetes in NH adults by race/ethnicity: NH BRFSS, 2011 and 2013 (combined)



Source: New Hampshire Behavioral Risk Factor Surveillance System, 2011–2013

Prediabetes was 60% more common in persons reporting lower household incomes compared with higher household incomes.

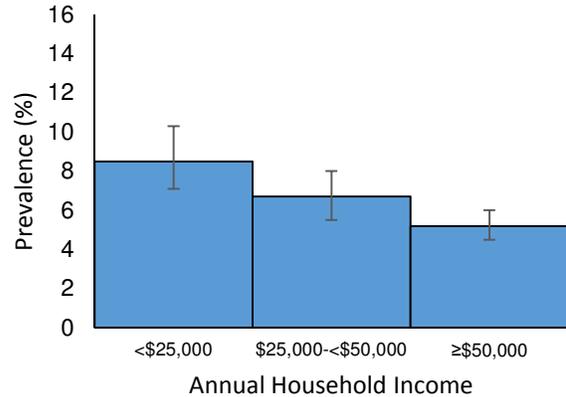
Prediabetes prevalence was 8.5%, 95% CI [7.1, 10.3], among persons reporting an annual household income of <\$25,000, 6.7%, 95% CI [5.5, 8.0], among those with a household income of \$25,000–<\$50,000, and 5.2%, 95% CI [4.5, 6.0], among those with a household income of ≥\$50,000 (Figure 3).

The prevalence of prediabetes did not significantly vary by sex, county or city of residence, or education level (appendix).

Prediabetes, Body Weight, and Physical Activity

Prediabetes was more than twice more common among overweight persons than among normal-weight or underweight persons, and more common in persons reporting less than 150 minutes of physical activity each week.

Figure 3. Age-adjusted prevalence of prediabetes in NH adults by income: NH BRFSS, 2011 and 2013 (combined)

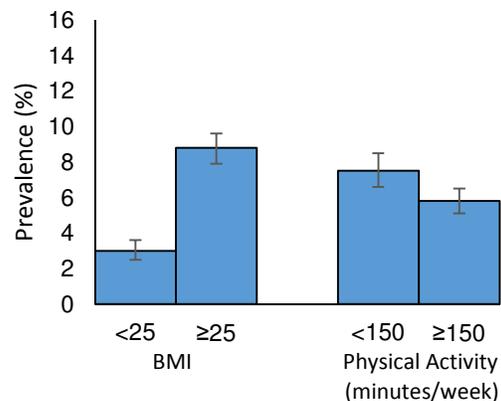


Source: New Hampshire Behavioral Risk Factor Surveillance System, 2011–2013

Among persons with a body mass index (BMI) of 25 or higher, the prevalence of prediabetes was 8.8%, 95% CI [7.9, 9.6], compared with persons with a BMI of less than 25, where the prevalence of prediabetes was 3.0%, [95% CI 2.5, 3.6] (Figure 4).

Among persons reporting 150 minutes or more of physical activity each week, the prevalence of prediabetes was 5.8%, 95% CI [5.1, 6.5], but the prevalence among persons reporting less than 150 minutes of physical activity each week was 7.5%, 95% CI [6.6, 8.5] (Figure 4).

Figure 4. Crude prevalence of prediabetes in NH adults by BMI¹ and Physical Activity: NH BRFSS, 2011 and 2013 (combined)



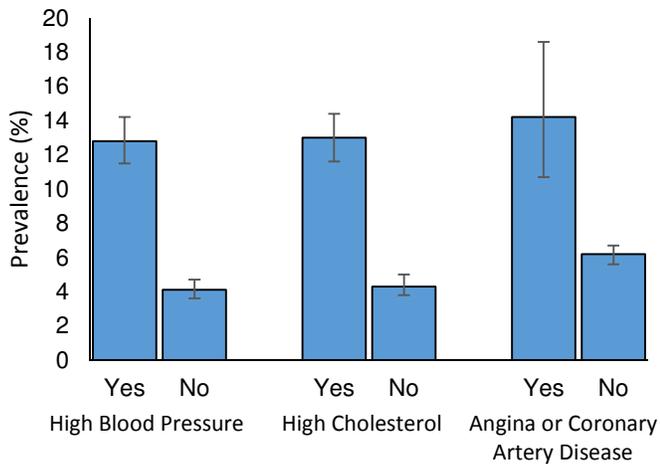
¹BMI = Body Mass Index, calculated from self-reported height and weight. Source: New Hampshire Behavioral Risk Factor Surveillance System, 2011–2013

Prediabetes and Select Clinical Factors

Prediabetes was three times higher among persons with a history of high blood pressure or high cholesterol, and two times higher among persons with heart disease.

The prevalence of prediabetes was higher among persons with a history of high blood pressure (12.8%, 95% CI [11.5, 14.2]) compared with those with no history (4.1%, 95% CI [3.6, 4.7]). The prevalence of prediabetes was higher among persons with a history of high cholesterol (13.0%, 95% CI [11.6, 14.4]) compared with those with no history (4.3%, 95% CI [3.8, 5.0]). The prevalence of prediabetes among persons with a history of angina or coronary heart disease was 14.2% (95% CI [10.7, 18.6]) compared with 6.2% (95% CI [5.6, 6.7]) among those with no history (Figure 5).

Figure 5. Crude prevalence of prediabetes in NH adults by self-reported cardiovascular risk factors: NH BRFSS, 2011 and 2013 (combined)



Source: *New Hampshire Behavioral Risk Factor Surveillance System, 2011–2013*

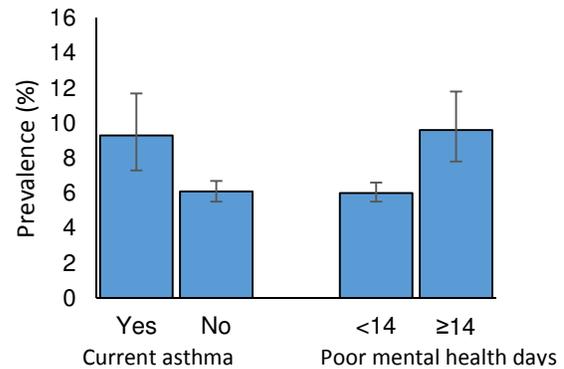
Prediabetes was higher among persons reporting having asthma.

The prevalence of prediabetes among persons with current asthma was 9.3%, 95% CI [7.3, 11.7] compared with 6.1%, 95% [5.5, 6.7] among those without current asthma (Figure 6).

Prediabetes was higher among persons reporting more days in the past month when their mental health was not good.

Among persons reporting 14 or more days of poor mental health in the past 30 days, prediabetes prevalence was 9.6%, 95% CI [7.8, 11.8]. Among persons reporting less than 14 days of poor mental health in the past 30 days, prediabetes prevalence was 6.0, 95% CI [5.5, 6.6] (Figure 6).

Figure 6. Crude prevalence of prediabetes in NH adults by self-reported current asthma or poor mental health days¹: NH BRFSS, 2011 and 2013 (combined)



¹Respondents were asked number of days in past 30 where mental health was not good.

Source: *New Hampshire Behavioral Risk Factor Surveillance System, 2011–2013*

Prediabetes was higher among persons reporting having health care insurance.

Among persons reporting they had health care insurance, the prevalence of prediabetes was 6.7%, 95% CI [6.1, 7.3], compared with 4.9%, 95% CI [3.7, 6.5] among those without health insurance ($P < 0.05$).

Conclusions

An estimated 60,000 adults in New Hampshire have been told that they have prediabetes, a risk factor for diabetes. Because prediabetes requires a laboratory test, more New Hampshire adults might have prediabetes than know it. For example, based on laboratory testing, the

National Health and Nutrition Examination Survey estimated that 36% of Americans 18 years or older had prediabetes (1).

Similar to patterns nationwide, prediabetes among New Hampshire adults was associated with increasing age, non-white or Hispanic racial or ethnic groups, higher BMI, and lower physical activity levels. Prediabetes was also associated with various comorbidities. However, this analysis did not control for access to health care among those with comorbidities, and persons with access to health care might be more likely to be both tested for prediabetes and diagnosed with a comorbidity.

Data Notes: The New Hampshire Behavioral Risk Factor Surveillance System (NH BRFSS) is an annual, random digit-dial survey of non-institutionalized New Hampshire adults. Cell-phone users have been included since 2011. Questions about prediabetes were asked in 2011 and 2013. Data from 2011 and 2013 were combined to increase statistical power. Respondents reporting a history of diabetes were excluded. Analysis used SAS-callable SUDAAN® to account for complex survey design. Estimates might differ from those reported by CDC because state-specific weights were used to calculate prevalence at the sub-state level. For consistency, the same weights were used for the entire analysis. Chi-square test was performed for estimates with overlapping confidence intervals; *P* value of <.05 was considered to be statistically significant. Results were verified using R.

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References:

1. Bullard KM, et. al. *Diabetes Care*. 2013. 36(8):2286-93.
2. CDC. Prediabetes. www.cdc.gov/diabetes/basics/prediabetes.html [Accessed April 21, 2016].

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Appendix. Age-adjusted prevalence of prediabetes in NH adults by sex, county or city of residence, and education level: NH BRFSS, 2011 and 2013 (combined)

	Prevalence (%)	95% CI ¹
<i>Sex</i>		
Female	6.5	[5.8, 7.3]
Male	5.9	[5.1, 6.8]
<i>County or City²</i>		
Belknap	5.7	[3.9, 8.3]
Carroll	5.1	[3.7, 7.1]
Cheshire	7.9	[6.0, 10.3]
Coos	4.3	[2.6, 7.0]
Grafton	7.2	[4.8, 10.6]
Hillsborough ³	6.1	[4.9, 7.6]
Manchester	6.3	[4.6, 8.6]
Nashua	7.3	[5.0, 10.6]
Merrimack	5.5	[4.3, 7.1]
Rockingham	6.0	[4.8, 7.4]
Strafford	6.7	[5.2, 8.6]
Sullivan	5.1	[3.6, 7.2]
<i>Education Level</i>		
Did not graduate H.S. ⁴	7.7	[5.0, 11.8]
H.S. graduate	7.0	[6.1, 8.1]
Some college	6.4	[5.4, 7.6]
College graduate	5.0	[4.3, 5.8]

¹CI = confidence interval; ²County or city-level estimates are not statistically different from the state-wide estimate; ³Excludes Manchester and Nashua; ⁴H.S. = High School.

Source: *New Hampshire Behavioral Risk Factor Surveillance System, 2011–2013*

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