



FACT SHEET

Change in Selected Connecticut Health Indicators from 2011-2014: Results from the Connecticut Behavioral Risk Factor Surveillance System (CT BRFSS)

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Background and Significance

Modifiable risk and protective factors affect the onset of complex chronic conditions such as diabetes, high blood pressure, and cancer, as well as later events such as hospitalizations, disability, and death. Reduced risk behaviors and increased protective factors in the population are indicators of improved health. This report shows the change from 2011 through 2014 among Connecticut adults for obesity, flu and pneumococcal vaccination, heavy and binge drinking, cigarette smoking, and health care coverage. The report also shows the change from 2011 through 2014 for children who were ever being breastfed, as well as childhood obesity. Definitions of these health indicators appear in the **Methods** section.

Results

Significant increases from years 2011 to 2014 in Connecticut (Figure 1A) were observed for the following health indicators:

Obesity among adults ($p < 0.05$), with a steady annual increase from 24.5% in year 2011 to 26.3% in year 2014 (Table I), representing a three-year increase of 1.8% of the adult population in Connecticut. This represents an increase of 50,000 residents over a four-year period, with a total of 740,000 obese residents in year 2014. Adult obesity prevention initiatives within the Connecticut Department of Public Health (DPH) are funded by the Preventive Health and Health Services Block Grant, which supports community policy and environmental obesity prevention strategies. In addition, the State Public Health Actions Grant funds chronic disease prevention initiatives, a portion of which is dedicated to improving environmental factors that promote health in the community. Community-based strategies to increase access to healthier foods and to improve physical activity opportunities are among the initiatives that may contribute to the reduction of adult obesity. In addition, the Connecticut State Innovation Model (SIM) initiative is working to reward improvements in obesity measurements and provide counseling in the primary care setting, as well as conducting strategic planning to address the social and behavioral determinants of obesity [1].

KEY POINTS

Analysis of selected health indicators in Connecticut was conducted for years 2011 through 2014.

Significant improvements occurred in the state for:

- **Healthcare coverage, in which the uninsured among 18-64 year olds dropped to a low of 10.6%.**
- **Breastfeeding rates among children increased to a high of 73.3%;**
- **Vaccination coverage against seasonal flu among older adults increased to 64.6%;**
- **Cigarette smoking among all adults decreased to 15.4%; and**
- **Alcohol binge* drinking among all adults decreased to 15.9%.**

More work is needed to reduce heavy* alcohol drinking and obesity among all Connecticut adults, and to increase pneumococcal vaccination coverage among older adults.

See **Methods section on page 5 for definitions of alcohol binge and heavy drinking.*

Vaccination against seasonal flu among adults at least 65 years old ($p < 0.01$), which can be attributed to a significant increase from 59.5% in year 2012 to 63.6% in year 2013 (**Figure 1B**; $p < 0.01$). In year 2014, 64.7% of residents at least 65 years old were vaccinated against seasonal flu (**Table I**), representing 370,000 adults in this age group. This change is consistent with a similar increasing trend observed across the previous decade [2,3]. The recent increased availability of the vaccine by pharmacies across the state may help to explain this improvement.

Children who were ever breastfed ($p < 0.001$), which can be attributed to a significant increase from 67.8% in year 2012 to 74.4% in year 2013 (**Figure 1B**; $p < 0.001$). In year 2014, 73.3%, or roughly half a million, children in the state had ever been breastfed (**Table I**). During this time period, the number of Baby-Friendly hospitals in Connecticut more than doubled [4]. Also, in year 2013, DPH received additional grant funding to implement strategies that support breastfeeding in the state [5].

Table I
Percent Prevalence of Selected Health Indicators, Connecticut, 2011-2014
Connecticut Behavioral Risk Factor Surveillance System (CT BRFSS)

Health Indicator	2011	2012	2013	2014
Adult Obesity (18 years and older)	24.5%	25.6%	25.0%	26.3%
Flu Vaccine in Past Year (65 years and older)	60.2%	59.5%	63.6%	64.7%
Ever Had Pneumonia Vaccine (65 years and older)	71.0%	67.6%	67.8%	70.6%
Heavy Drinking (18 years and older)	6.6%	6.5%	6.3%	5.7%
Current Cigarette Smoking (18 years and older)	17.1%	16.0%	15.5%	15.4%
Binge Drinking (18 years and older)	17.9%	17.5%	18.2%	15.9%
No Health Care Coverage (18-64 years old)	14.8%	12.8%	12.3%	10.6%
Child Ever Breastfed (0-17 years old)	66.6%	67.8%	74.4%	73.3%
Child Obesity (2-17 years old)	15.7%	16.8%	14.6%	16.6%

See **Methods** section on page 5 for definitions.

Significant decreases from years 2011 to 2014 in Connecticut (Figure 1A) were observed for the following indicators:

Cigarette smoking ($p < 0.05$), with a steady annual decrease from 17.1% in year 2011 to 15.4% in year 2014, representing a three-year smoking decrease of 1.7% among adults in Connecticut. In year 2014, nearly 50,000 fewer residents in Connecticut smoked cigarettes, relative to year 2011. In year 2014, 15.4% (or more than 430,000) of adult residents were current cigarette smokers (**Table I**). While there has been a significant reduction in the rate of cigarette smoking among Connecticut adults, the prevalence of e-cigarette use, also known as vaping, is increasing (*B. Walsh, personal communication*). Connecticut has several initiatives that are focused on reducing tobacco use, including the Connecticut QuitLine through DPH [6], and the Rewards-to-Quit program through the Connecticut Department of Social Services [7]. In addition, the SIM initiative is promoting tobacco screening and cessation counseling as a quality measure for value-based payment [1].

Alcohol binge drinking ($p < 0.05$), which can be attributed to a significant decrease from 18.2% in year 2013 to 15.9% in year 2014 (**Figure 1B**). Across the entire time period from years 2011 to 2014, nearly 60,000 fewer residents in the state engaged in binge drinking, though in year 2014, over 430,000 residents were binge drinkers (15.9%; **Table I**). Binge drinking is largely associated with younger ages [8], which are among the primary targets of federally funded grants. Over the past decade, the Connecticut Department of Mental Health & Addiction Services has implemented evidence-based strategies that address the problem of underage drinking (*C. Meredith, personal communication*).

No health care coverage among adults 18-64 years old ($p < 0.001$), representing a three-year decrease from years 2011 to 2014 of 4.2% adult residents, or nearly 120,000 fewer residents without coverage. This three-year decrease in adults without health care coverage can be attributed to a significant decrease from 14.8% to 12.8% in years 2011 to 2012 ($p < 0.05$), as well as a significant decrease from 12.3% to 10.6% in years 2013 to 2014 ($p < 0.05$) (**Figure 1B**). Estimates for adults in this higher risk age group are consistent with the estimate of insurance coverage among residents for all ages, which dropped to 3.8% in year 2013 [9]. This steadily decreasing change in the uninsured, which may reflect the combined impact of expanded Medicaid eligibility and access to health care coverage under the Affordable Care Act, is consistent with a priority within DPH to increase coverage to 95.8% by year 2020 [10]. With higher levels of insured within the state, Connecticut is working to transform the state health care payment system in a way that simultaneously improves both individual health care quality and smart healthcare spending [11]. In year 2014, nearly 220,000 residents in this age group did not have health care coverage (10.6%; **Table I**).

No significant increase or decrease from years 2011 to 2014 in Connecticut (Figure 1A) was observed for:

Pneumococcal vaccination among adults at least 65 years of age, although a significant decrease in vaccination coverage was observed from year 2011 to year 2012 ($p < 0.05$), from 71.0% to 67.6% (**Figure 1B**). On average, 69.3% of adults in this age group reported having the vaccine (**Table I**), representing 400,000 state residents. These statistics at the state level are similar to that nationwide, where only 60% of older adults have received the pneumococcal vaccine [12].

Heavy alcohol drinking, despite a steady yet insignificant decrease in prevalence from 6.6% in year 2011 to 5.7% in year 2014 (**Figure 1B**). On average, 6.3% of adults reported drinking heavily (**Table I**), representing nearly 180,000 Connecticut residents. Heavy drinking behavior is not limited to younger adults, but occurs across all ages [13].

Obesity among children, in which the average percent prevalence was 15.9% (**Table I**), representing 70,000 children. Grants that fund childhood obesity prevention initiatives within DPH include the State Public Health Actions Grant fund, of which a portion is dedicated to promoting health in preschools and schools. The state Supplemental Nutrition Assistance Program - Education (SNAP-Ed) provides nutrition education to preschool children, and the Connecticut Special Supplemental Nutrition Program for Women, Infants and Children program (WIC) provides nutritional services to children up to five years of age. These strategies aim to instill healthy behaviors in children.

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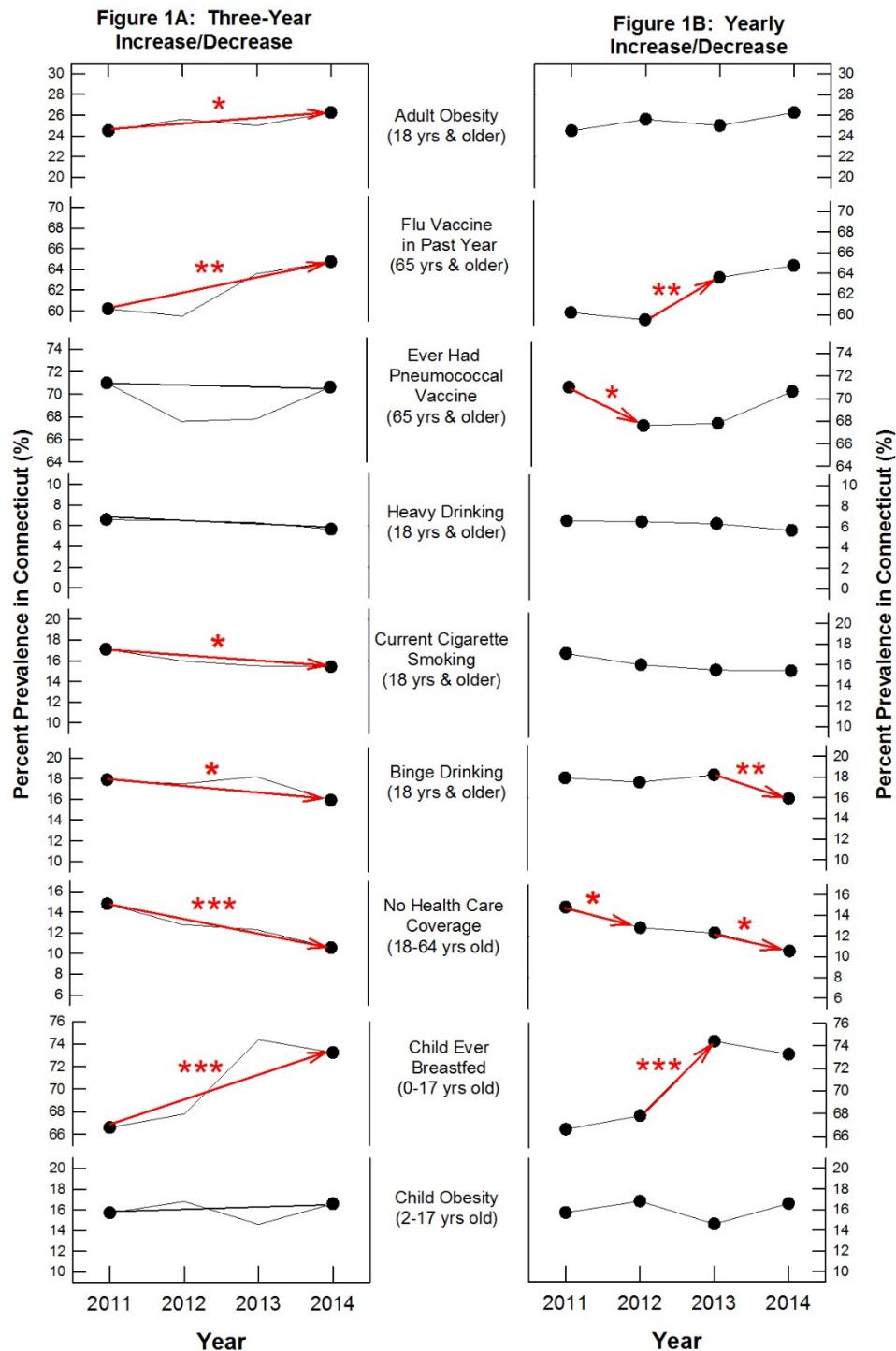
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Figure 1: Change in Selected Health Indicators, CT BRFSS 2011-2014



Estimated percent prevalence values for selected health indicators are shown for years 2011 and 2014 (Figure 1A), and for years 2011, 2012, 2013, and 2014 (Figure 1B), with circles.

Three-year change from years 2011 to 2014 (Figure 1A) and annual change from years 2011-2012, 2012-2013, and 2013-2014 (Figure 1B), are shown with lines.

See [Methods](#) section for definitions of health indicators.

Statistically significant changes are shown with red arrows. * - $p < 0.05$; ** - $p < 0.01$; *** $p < 0.001$

Methods

All data were obtained from the Connecticut Behavioral Risk Factor Surveillance System (CT BRFSS), a telephone survey of adult residents 18 years and older in the state that is managed within the Connecticut Department of Public Health, through a cooperative agreement with the U.S Centers for Disease Control and Prevention. Survey questions are used to monitor the health outcomes, behaviors, and attitudes of our adult population. Phone numbers are selected at random by our contractor and citizen-volunteers participate in the survey with anonymous responses. For more information about the CT BRFSS, or to view recent reports, please go to <http://www.ct.gov/dph/BRFSS>. Summary reports for selected health indicators in Connecticut are available [8,13].

Data for health indicators were obtained from self-reported responses, and were selected based on the availability of annual estimates and ability to be modified through intervention strategies. More details for each health indicator are described below.

Adult Obesity: To obtain this measure, a set of two questions were asked, “About how much do you weight without shoes?” and “About how tall are you without shoes?” The body-mass index (BMI) was calculated from these two responses according to the following formula: $(\text{weight})/(\text{height})^2$. Respondents with a BMI of at least 30.0 were determined to be obese.

Flu Vaccine in the Past Year: This measure was determined from positive responses to the question, “There are two ways to get the flu vaccine, one is a shot in the arm and the other is a spray, mist, or drop in the nose called FluMist. During the past 12 months, have you had either a flu shot or flu vaccine that was sprayed in your nose?” The measure was limited to Connecticut residents at least 65 years old.

Ever Had Pneumococcal Vaccine: This measure was determined from positive responses to the question: “A pneumonia shot or pneumococcal vaccine is usually given only once or twice in a person’s lifetime and is different from the flu shot. Have you ever had a pneumonia shot?” The measure was limited to Connecticut residents at least 65 years old.

Heavy Drinking: Among respondents who reported drinking beer, wine, a malt beverage, or liquor at least one day in the past 30 days, male respondents who reported having at least three drinks daily, or women respondents who reported having at least two drinks daily, were categorized as drinking heavily.

Current Cigarette Smoking: Among positive responses to this question, “Have you smoked at least 100 cigarettes in your entire life?” respondents were asked, “Do you now smoke cigarettes every day, some days, or not at all?” Those who responded that they smoke cigarettes at least some days were categorized as currently smoking cigarettes.

Binge Drinking: Among respondents who reported drinking beer, wine, a malt beverage, or liquor at least one day in the past 30 days, male respondents were asked, “Considering all types of alcoholic beverages, how many times during the past 30 days did you have five or more drinks on an occasion.” Female respondents were asked, “Considering all types of alcoholic beverages, how many times during the past 30 days did you have four or more drinks on an occasion.” Those who engaged in the activity at least once were categorized as positive for binge drinking.

No Health Care Coverage: This measure was determined by negative responses to the question, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, government plans such as Medicare, or Indian Health Service?” The measure was limited to adult Connecticut residents less than 65 years old.

Child Ever Breastfed: Among adults who randomly selected a child less than 18 years of age living in the household, positive responses to the question, “Was this child breastfed?” were classified as having ever been breastfed.

Child Obesity: Among adults who randomly selected a child less than 18 years of age living in the household, these four questions were asked, “What is the birth month and year of the child?”, “Is the child a boy or a girl?”, “About how much does the child weigh without shoes?”, and “About how tall is the child without shoes.” The BMI was calculated as described above for adult obesity. Then, the BMI value was compared to standardized growth charts for girls and boys [14]. Children with a BMI greater than the 95th percentile were determined to be obese. The measure was limited to children at least two years old.

Responses of “Don’t Know/Not Sure” and “Refused” were coded as missing. Population-based prevalence estimates were determined for each of the health indicators using SAS (Cary, NC) with the _STSTR stratification variable and _LLCPWT weighting variable, for survey years 2011, 2012, 2013, and 2014 (see **Table I**).

Statistical significance of increases or decreases in prevalence estimates was evaluated over time (see **Figures 1A and 1B**), using one-tailed binomial tests at the $p < 0.05$ (*), $p < 0.01$ (**), and $p < 0.001$ (***) confidence levels, and significant increases or decreases are shown for years 2011 to 2014 (**Figure 1A**), as well as for single years (2011-2012, 2012-2013, and 2013-2014; **Figure 1B**). Significant increases or decreases are shown as red arrows.

Estimates of the magnitude in the population who exhibited the selected risk factors were determined assuming an adult population in year 2014 of 2.8 million, a population of adults at least 65 years old of 660,000, a population of adults 18-64 years old of 2,050,000, a population of children less than 18 years old of 690,000, and a population of children 2-17 years old of 630,000.

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