DELAWARE
2019
BEHAVIORAL RISK FACTOR SURVEY

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Executive summary

The 2019 Delaware Behavioral Risk Analysis Survey (BRFS) surveyed 3,897 Delaware adults aged 18 and older. This study uses the weighting variable offered by the U.S. Centers for Disease Control and Prevention (CDC) to generalize the prevalence rates and population of chronic diseases and behavioral risk factors. Analysis results and future BRFS recommendations are listed as below.

▪ **Key findings**

1. For health condition, 81.1 percent of Delaware adults positively describe their health condition. This rate (81.1 percent) is the same with the U.S. rate (aggregated data from states) and slightly lower than Delaware's rate (82.7 percent) in 2018.

2. For physical and mental health status, six in ten (60.1 percent) of Delaware adults report their physical health good during the past 30 days; also, six in ten (59.6 percent) Delaware adults report their mental health good during the past 30 days.

3. For health care coverage, 89.1 percent of Delaware adults have coverage. A statistically significant difference presents among races. While non-Hispanic groups have coverage rates above 90 percent (White: 93.2 percent, Black: 90.0 percent, other non-Hispanic race: 97.1 percent), less than half (49.6 percent) Hispanic adults have coverage.

4. The three most widely prevalent chronic diseases are hypertension, high blood cholesterol, and arthritis, at 36.3 percent, 31.2 percent, and 27.4 percent, respectively.

5. The 2019 BRFS observes the low prevalence rate of high blood pressure (HBP) among Hispanics. It also reveals that Hispanics are less likely to check their blood pressure. However, the HBP checking question focuses on behavior outside the healthcare professional's office or at home. HBP checking with health professionals should be considered as a future BRFS question.

6. The cholesterol checking behavior also reflects a statistically significant difference among Hispanics compared to Blacks and Whites. Overall, 68.8 percent of the Hispanics report that they had their cholesterol checked within the past five years, compared to 85.7 percent of Whites, and 84.8 percent of Blacks.

7. The diabetes prevalence rate in Delaware keeps rising, from 9.7 percent in 2011 to 12.8 percent in 2019.

8. For smoking, 15.0 percent of Delaware adults smoke. About 1.7 percent of Delaware adults currently use e-cigarettes every day.

9. For alcohol consumption, respondents with higher household incomes are more likely to engage in heavy drinking. About one in three (29.5 percent) of Delawareans 18 to 24 years old engage in binge drinking.

10. For physical activities, nearly seven in ten Delaware adults (67.8 percent) report they have engaged in physical activities in the past month. About 45.7 percent meet aerobic recommendations and 32.6 percent meet muscle strengthening recommendations.

11. Delaware adults consume more vegetables than fruits. About 66.7 percent respondents eat vegetables at least once a day and the percentage of fruit intake falls to 53.9 percent.

12. Flu shot immunization rate is 37.5 percent. Flu vaccination rates increase with age.

13. Hispanic respondents have statistically significantly lower pneumonia vaccination rates (16.2 percent) than White (38.6 percent) and Black respondents (39.2 percent).

14. Around 37.5 percent of Delaware adults have been tested for HIV. Black adults report a statistically significant greater testing rate (64.7 percent) than White (38.0 percent) and Hispanic adults (38.6 percent).

15. For Adverse Childhood Experiences (ACEs), the highest (34.8 percent) ACE in Delaware is "a parent swore at you once or more than once." The second highest (28.7 percent) ACE is ""a parent physically hurt you in any way once or more than once."

16. For family planning, birth control pills (27.8 percent) and male condoms (27.5 percent) are the major methods to keep Delaware females less than 49 years old from getting pregnant.

17. For LGBT+, Delaware has a slightly greater percentage of respondents who identify as LGBT+ compared to the nation. In detail, 5.3 percent of Delaware male adults consider themselves as gay or bisexual (4.5 percent in the U.S.). Around 5.8 percent of Delaware female adults consider themselves as lesbian, gay, or bisexual (5.5 percent in the U.S.). The transgender percentage is 0.9 percent in Delaware and 0.5 percent in the nation.

▪ **Recommendations for future BRFS**

1. Whites, Blacks, and Hispanics are three racial groups fully discussed in this report. In the 2019 survey, because Delaware does not have a sufficient Asian or AIAN (American Indian/Alaskan) sample to stratify, the 2019 BRFS classifies race into White, Black, Hispanic, Other race only, and Multiracial. For the future strategies to collect information from minor races and ethnicities are needed in order to accurately represent and measure these smaller racial groups.

2. More public health outreach and education to the Hispanics is in need. The Hispanic population shows statistically significant low rates of health status, health care coverage, HBP prevalence, cholesterol checking behavior, and pneumonia vaccination rates.

3. The Adverse Childhood Experiences (ACEs) is included in Delaware's BRFS for the first time. It records traumatic events that occur in childhood (0-17 years) that are related to chronic health problems, mental illness, and substance misuse in adulthood. Researchers could use ACEs data to design related policies and actions that may help others in the future.

1. Introduction

The COVID-19 pandemic emphasized the importance of public health data collection and public health practice. The Behavioral Risk Factor Surveillance System (BRFSS) provides publicly available data for scientific analysis[1] and decision making, which is a benefit for understanding the impact of COVID-19. The U.S. Centers for Disease Control and Prevention (CDC) started the BRFSS in 1984 to collect public health data in order to improve policymaking decisions and budget allocation. The BRFSS annually survey the U.S. adult population, ages 18 and older, about health-related risk behaviors, chronic health conditions, and use of preventive services. The BRFSS now collects data in all U.S. states, the District of Columbia, and three U.S. territories. With more than 400,000 adult interviews each year, BRFSS is the largest continuously conducted health survey system in the world (CDC, 2020a).

The BRFSS in Delaware is named the Behavioral Risk Factor Survey (BRFS), which started in 1990. The Delaware Department of Health and Social Services, Division of Public Health (DPH) partners with the CDC on behalf of the BRFS, with the CDC provides funding and basic data analysis (Delaware Department of Health and Social Services, 2021a). The 2019 BRFS sample size is 3,897 adults aged 18 and older. Survey results help both public and private health providers plan health programs as well as track program goals (Delaware Department of Health and Social Services, 2021b).

This report is structured as follows: Section 2 contains the data and methodology for the 2019 BRFS. Section 3 reports the results of health condition and healthcare access and explores the behavioral risk factors. Section 4 is the conclusion. The objective of this report is to translate statistics into evidence-based information to formulate better health policy recommendations.

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[1] For example, Razzaghi et.al. used BRFSS and U.S. Census population data to estimate county-level prevalence of selected underlying medical conditions associated with increased risk for severe COVID-19 illness in the U.S. For full report, see https://www.cdc.gov/mmwr/volumes/69/wr/mm6929a1.htm?s_cid=mm6929a1_w

2. Data and methodology

2.1 Data sources

This report analyzes the 2019 BRFS data, using raw survey data that records the actual responses of each respondent before any adjustment is made. The supplemental (calculated) dataset and analytical report is also used in this study to allow for a more comprehensive analysis. Data sources include CDC's primary data analysis results, and the DPH's (DHSS) BRFS data reports and presentations.

2.2 Data structure

The BRFSS has three types of questions: (1) the core component, consisting of the fixed core, rotating core, and emerging core, (2) optional modules, and (3) state-added questions. The CDC designed the core component and optional modules. The fixed core is a standard set of questions asked by all states, including questions regarding demographic characteristics and health behaviors, such as tobacco use and seatbelt use. The rotating core has two distinct sets of questions, each asked in alternating years by all states. In the year that rotating core questions are not used, they are supported as optional modules. The emerging core is a set of questions that typically focus on late-breaking issues. The state-chosen optional modules are also designed by the CDC and are adopted by individual states (CDC, 2020b).

Table 1 presents the structure of Delaware's 2019 BRFS questionnaire. In the 2019 survey, the state optional modules cover questions of home/self-measured blood pressure, adverse childhood experience, family planning, and sexual orientation and gender identity. The state-added question is related to tobacco use and family planning.

Since each state has the opportunity to select modules and adjust the questionnaire annually, questions in the 2019 BRFS may or may not be implemented every year. Some questions (e.g., health status, chronic health conditions, and alcohol consumption) are asked in every year's BRFS while other questions (e.g., breast/cervical cancer screening, drinking and driving, and falls) are asked every other year. Table 2 summarizes the questions selected in BRFS from 2011 to 2019. For the 2019 BRFS, Adverse Childhood Experience (ACE) and home/self-measured blood pressure are included in the BRFS for the first time.

In addition to a single year (i.e., 2019) data, this study also uses data/reports from 2011 to 2018 for comparisons and trend analysis. The BRFS data collection, structure, and weighting methodology changed in 2011 to allow the addition of data collection by cellular telephones, as to better generalize samples to the population. Aligned with the changes, this study examines and compares data collected after 2011.

Table 1: Delaware 2019 Questionnaire Structure

Core Sections

Section 1	Health Status
Section 2	Healthy Days – Health-Related Quality of Life
Section 3	Health Care Access
Section 4	Hypertension Awareness
Section 5	Cholesterol Awareness
Section 6	Chronic Health Conditions
Module 1	Pre-Diabetes
Section 6	Chronic Health Conditions, Continued
Module 2	Diabetes
Section 7	Arthritis
Section 8	Demographics
Section 9	Tobacco Use
DE State-Added 1	Tobacco Use
Section 10	Alcohol Consumption
Section 11	Exercise (Physical Activity)
Section 12	Fruits and Vegetables
Section 13	Immunization
Section 14	HIV/AIDS

Optional Modules

Module 16	Home/ Self-measured Blood Pressure
Module 22	Adverse Childhood Experience
Module 23	Family Planning
DE State-Added 2	Family Planning
Module 29	Sexual Orientation and Gender Identity

Source: (Delaware Department of Health and Social Services, 2018).

Table 2: Core Sections and Optional Modules (2011-2019)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Adult Human Papilloma Virus (HPV)	●	●		●					
Adverse Childhood Experience									●
Alcohol Consumption	●	●	●	●	●	●	●	●	●
Arthritis									●
Arthritis Burden	●		●		●		●		
Breast/Cervical Cancer Screening	●	●		●		●		●	
Cancer Survivorship								●	
Cholesterol Awareness	●		●				●		●
Chronic Health Conditions	●	●	●	●	●	●	●	●	●
Cognitive Decline						●			
Colorectal Cancer Screening	●	●	●	●		●		●	
Demographics	●	●	●	●	●	●	●	●	●
Diabetes	●	●	●	●	●	●	●	●	●
Disability	●	●							
Drinking and Driving		●		●		●		●	
E-Cigarettes						●	●	●	
Exercise (Physical Activity)	●	●	●	●	●	●	●	●	●
Excess Sun Explore								●	
Falls		●		●		●		●	
Fruits and Vegetables	●	●	●		●		●		●
Health Status	●	●	●	●	●	●	●	●	●
Healthy Days	●	●	●	●	●	●	●	●	●
Health Care Access	●	●	●	●	●	●	●	●	●
Heroin and Opioids								●	
HIV/AIDS	●	●	●	●	●	●	●	●	●
Home/ Self-measured Blood Pressure									●
Hypertension Awareness	●		●		●		●		●
Immunization	●	●	●	●	●	●	●	●	●
Inadequate Sleep			●	●		●		●	
Industry and Occupation								●	
Lung Cancer Screening								●	

Table 2: Core Sections and Optional Modules (2011-2019)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Oral Health		●		●		●		●	
Other Tobacco Products				●					
Other Tobacco Use			●						
Pre-Diabetes	●	●	●	●		●	●		●
Preconception Health/ Family Planning							●	●	●
Prostate Cancer Screening	●	●	●	●	●	●		●	
Prostate Cancer Screening Decision Making		●	●		●				
Random Child Selection	●								
Seatbelt Use	●	●	●	●	●	●	●	●	
Sexual Orientation/ Gender Identity				●	●	●	●	●	●
Sexual Assault							●		
Social Context					●				
State-Added Tobacco Questions	●	●	●						
Sugar Sweetened Beverages	●	●				●	●		
Tobacco Use	●	●	●	●	●	●	●	●	●

Note:

1. This table includes questions for core sections and optional modules and lists all sections/modules in alphabetical order.
2. The "chronic health conditions" section includes diverse types of diseases in different years. For example, the 2018 BRFS does not include hypertension and cholesterol, which are included in the 2019 BRFS.
3. Source: This study compiled information from (Delaware Department of Health and Social Services, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010).

2.3 Data analysis

This study generalizes the prevalence rates and estimated population from a sample (n= 3,897), using the weighting variable "_LLCPWT." The CDC uses weighting methodology comprised of design weight and raking[2]. Design weight adjusts the unequal probability of sample selection, caused by gender, age group, race/ethnicity, education, marital status, tenure, and housing type. Raking (or "iterative proportional fitting") adjusts demographic differences between those persons who are sampled and the population they represent (CDC, 2019a). Therefore, rate and estimated population reported in this study is weighted to the variation in the respondents' probability of selection, disproportionate selection of population subgroups relative to the state's population distribution (CDC, 2018a).

This report presents the confidence intervals (C.I.) for each prevalence rate estimate. The C.I. reflects the range of variation in the estimation. The 95 percent C.I. means that if a survey were to be conducted 100 times, 95 of the responses would lie within that C.I. range (Delaware Health and Social Services, 2021). This study computes C.I. of the prevalence rate by un-weighted sample data, which represents the actual responses of each respondent. A wide confidence interval reflects a large amount of variability or imprecision. A narrow confidence interval reflects little variability and high precision (CDC, 2013a). Additionally, if the C.I. between two estimates does not overlap, this indicates a statistically significant difference (Delaware Health and Social Services, 2021). For example, Table 3 shows the percentage of good or better health conditions among males and females. The difference between male and female is not statistically significant because the C.I. overlap.

Table 3: Subjective Evaluations of General Health as Good or Better Health			
	Wt. %	95% C.I.	Est. Pop.
Male	80.3	[78.2, 82.4]	297,367
Female	81.8	[80.0, 83.6]	330,655

Source: This study.

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[2] For detailed information, see https://www.cdc.gov/brfss/annual_data/2017/pdf/weighting-2017-508.pdf

The most significant change in the 2019 BRFS analysis is the race groups. In the previous BRFS analysis, race is categorized in six sub-groups, i.e., White (non-Hispanic), Black (non-Hispanic), Asian (non-Hispanic), American Indian/Alaskan Native (non- Hispanic), Hispanic, and Other race (non-Hispanic). Because Delaware does not have a big enough Asian or AIAN sample to stratify by those race categories, the 2019 BRFS adopts another race variable (i.e., _RACE_G1) that classifies race into White (non-Hispanic), Black (non-Hispanic), Hispanic, Other race only (non-Hispanic), and Multiracial (non-Hispanic). The weighted sample distribution based on race is: White-62.9 percent, Black-20.6 percent, Hispanic-8.1 percent, Other race only- 5.1 percent, Multiracial- 1.0 percent, Don't know/Not sure/Refused component question-2.2 percent.

3. Results

3.1 Health Status

This segment analyzes Section 1 ("Health Status") of the 2019 BRFS questionnaire. For the question "Would you say that in general your health is," respondents could select answer options including excellent, very good, good, fair, poor, don't know/not sure, and refused.

Delaware residents have a similar view of their health status as that of respondents across the United States. Nationally, 81.1 percent of respondents describe their health as "excellent," "very good," and "good." Around 18.8 percent describe it as "fair" or "poor." In Delaware, 81.1 percent of respondents describe their health positively and 18.7 percent describe it as "fair" or worse (Table 4).

Table 4: Health Status in Delaware and the U.S.	Delaware	U. S.
	Wt. %	Wt. %
Excellent	17.6	17.4
Very good	31.5	31.4
Good	32.0	32.3
Fair	15.1	14.1
Poor	3.6	4.7
Don't know/Not sure	0.1	0.2
Refused	0.1	0.1

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Self-assessment of health tends to decline with age; however, senior respondents still have a high rate of positive health description. Under the age of 55, more than 80 percent of Delaware residents believe their health is "good" or better. At the age group of 55 to 64 and the group of 65 and older, the rate is 76.3 percent.

A slightly larger share of women views their health positively compared to men – by a difference of 1.5 percentage points. The divides between socio-economic status are larger than those of gender or age. Individuals with higher levels of educational attainment and higher household income tend to evaluate their health more positively than those with less education or lower household earnings. For example, 55.4 percent of Delaware adults without a high school diploma describe their overall health as "good" or better, while 91.0 percent of those with a college or technical school degree rate their health positively. The difference is 35.6 percentage points, meaning the C.I. indicates a statistical difference exists between these two groups.

In a similar pattern, only 62.1 percent of respondents with an annual household income less than $15,000 evaluate their health positively, but 90.2 percent of individuals with annual household earnings above $50,000 do so. A gap of 28.1 percentage points exists among the lowest and the highest household income groups.

Statistically significant differences exist among races. Around 83.5 percent of White and 77.4 percent of Black respondents report "good" or better health. A much lower portion of Hispanic Delaware adults rate their health positively, only 68.3 percent of respondents reporting "good" or better health.

Table 5: Subjective Evaluations of General Health

	"Good" or better health			"Poor" or "Fair" health		
	Wt. %	95% C.I.	Est. Pop.	Wt. %	95% C.I.	Est. Pop.
Total	81.1	[79.7, 82.5]	628,023	18.7	[16.0, 21.4]	144,801
AGE						
18-24	87.5	[83.0, 91.8]	76,537	12.5	[0.3, 24.8]	10,925
25-34	83.2	[79.4, 87.0]	106,152	16.8	[8.0, 25.6]	21,482
35-44	85.7	[82.3, 89.1]	98,718	14.1	[5.6, 22.6]	16,247
45-54	83.0	[79.7, 86.3]	99,035	16.9	[10.0, 23.8]	20,110
55-64	76.3	[72.9, 79.7]	103,349	23.2	[17.3, 29.1]	31,500
65 or older	76.3	[73.7, 78.9]	144,231	23.6	[18.9, 28.3]	44,537
GENDER						
Male	80.3	[78.2, 82.4]	297,367	19.3	[15.1, 23.5]	71,498
Female	81.8	[80.0, 83.6]	330,655	18.1	[14.5, 21.7]	73,303
RACE-ETHNICITY						
White, Non-Hispanic	83.5	[81.9, 85.1]	406,998	16.4	[13.1, 19.7]	79,963
Black, Non-Hispanic	77.4	[73.2, 81.6]	123,547	22.6	[14.9, 30.3]	36,084
Hispanic	68.3	[63.2, 73.4]	43,069	30.0	[21.9, 38.1]	18,891
Other race only, Non-Hispanic	89.0	[83.3, 94.7]	34,969	11.0	[0, 22.2]	4,331
Multiracial, Non-Hispanic	86.1	[77.6, 94.6]	6,971	13.9	[0, 31.4]	1,127
EDUCATION						
< High School	55.4	[49.0, 61.8]	46,697	43.6	[36.2, 51.0]	36,750
High School	79.9	[77.1, 82.7]	196,554	19.9	[14.9, 30.3]	49,025
> High School and < College/Technical School	82.2	[79.5, 84.9]	180,729	17.7	[12.4, 23.0]	38,978
College/Technical School	91.0	[89.4, 92.6]	200,025	8.9	[4.5, 13.3]	19,547
Don't know/not sure/missing	88.9	[75.1, 100]	4,018	11.1	[0, 36.2]	500
HOUSEHOLD INCOME						
Less than $15,000	62.1	[54.8, 69.4]	29377	37.9	[29.4, 46.4]	17,917
$15,000-$24,999	70.0	[65.0, 75.0]	58559	29.9	[22.8, 37.0]	24,984
$25,000-$34,999	71.6	[65.6, 77.6]	38339	28.4	[18.3, 38.5]	15,202
$35,000-$49,999	78.0	[73.4, 82.6]	63765	21.2	[12.5, 29.9]	17,349
$50,000 or more	90.2	[88.7, 91.7]	310420	9.7	[5.0, 14.4]	33,396
Don't know/not sure/missing	77.8	[74.6, 81.0]	127562	21.9	[15.8, 28.0]	35,954

Note:
1. C.I. (95%) = Confidence Interval at 95 percent probability level, based on un-weighted data. C.I. lower range is reported as "0" if the calculated results are negative due to a small sample.
2. Prevalence is weighted by _LLCPWT.

3. For prevalence rate, denominator includes respondents with "do not know/refused/missing" responses.
4. Source: This study.

3.2 Healthy Days (health-related quality of life)

In addition to general health status, the BRFS also asks the respondent to report on their physical and mental health. The questions are: (1) Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good? (2) Now thinking about your mental health, which includes stress, depression, and problems with emotion, for how many days during the past 30 days was your mental health not good?

Table 6 and Table 7 shows the computed physical and mental health status. During the past month, the majority of Delaware adults felt good physically (60.1 percent) and mentally (59.6 percent). However, more than one in ten Delaware adults did not feel good for more than half of the time. In more detail, 12.1 percent of the respondents had more than 14 days not physically good and 13.1 percent did not feel good mentally.

Table 6: Computed physical health status

	Delaware Wt. %	U.S. Wt. %
Zero days when physical health not good	60.1	61.7
1-13 days when physical health not good	24.7	23.7
14+ days when physical health not good	12.1	12.3
Don't know/Refused/Missing	3.2	2.4

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 7: Computed mental health status

	Delaware Wt. %	U.S. Wt. %
Zero days when mental health not good	59.6	60.5
1-13 days when mental health not good	24.6	24.1
14+ days when mental health not good	13.1	13.3
Don't know/Refused/Missing	2.7	2.1

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 8: Physical and Mental Health Status

	14+ days when physical health not good			14+ days when mental health not good		
	Wt. %	95% C.I.	Est. Pop.	Wt. %	95% C.I.	Est. Pop.
Total	12.1	[9.4, 14.8]	93,586	13.1	[10.1, 16.1]	101,462
AGE						
18-24	5.9	[0, 17.4]	5,187	24.9	[13.0, 36.8]	21,827
25-34	9.2	[0, 19.4]	11,760	15.4	[6.2, 24.6]	19,713
35-44	8.6	[0.8, 16.4]	9,868	14.8	[6.8, 22.8]	17,049
45-54	12.2	[5.3, 19.1]	14,601	11.4	[4.8, 18.0]	13,631
55-64	16.5	[10.4, 22.6]	22,301	10.7	[4.2, 17.2]	14,487
65 or older	15.8	[11.0, 20.6]	29,869	7.8	[2.9, 12.7]	14,756
GENDER						
Male	11.2	[0.7,15.4]	41,579	10.7	[6.0, 15.4]	39,578
Female	12.9	[9.3, 16.5]	52,006	15.3	[11.3, 19.3]	61,884
RACE-ETHNICITY						
White, Non-Hispanic	13.0	[9.7, 16.3]	63,382	14.3	[10.5, 18.1]	69,853
Black, Non-Hispanic	11.4	[3.7, 19.1]	18,259	10.3	[2.2, 18.4]	16,395
Hispanic	10.6	[1.9, 19.3]	6,695	10.1	[1.5, 18.7]	6,390
Other race only, Non-Hispanic	3.5	[0, 13.1]	1,363	10.6	[0, 24.8]	4,155
Multiracial, Non-Hispanic	13.3	[0, 33.4]	1,079	19.2	[0, 38.5]	1,558
EDUCATION						
< High School	20.1	[11.4, 28.8]	16,929	18.9	[8.9, 28.9]	15,964
High School	13.3	[8.1,18.5]	32,758	13.6	[8.2, 19.0]	33,424
> High School and < College/Technical School	13.2	[7.9, 18.5]	28,956	16.4	[10.2, 22.6]	35,967
College/Technical School	6.7	[2.6, 10.8]	14,726	6.8	[2.2, 11.4]	14,974
Don't know/not sure/missing	4.8	[0, 25.7]	216	25.1	[0, 63.1]	1,132
HOUSEHOLD INCOME						
Less than $15,000	27.3	[18.2, 36.4]	12,929	20.9	[11.4, 30.4]	9,880
$15,000-$24,999	18.6	[11.2, 26.0]	15,523	23.0	[14.2, 31.8]	19,250
$25,000-$34,999	19.1	[8.6, 29.6]	10,250	19.2	[8.4, 30.0]	10,268
$35,000-$49,999	11.9	[2.7, 21.1]	9,696	16.3	[6.1, 26.5]	13,332
$50,000 or more	7.8	[3.3, 12.3]	26,912	8.6	[3.7, 13.5]	29,687
Don't know/not sure/missing	11.1	[5.4, 16.8]	18,276	11.6	[4.9, 18.3]	19,045

Note: Same with Table 5.

3.3 Health Care Access

The 2019 BRFS collects Delaware adults' health care coverage (including health insurance, prepaid plans, and government plans), health care provider, medical affordability, and routine checkup.

About 89.1 percent of Delaware adults aged 18 and above have health care coverage, slightly higher than the national average (86.5 percent). However, when only considering adults aged 18 to 64 years old, the coverage rate drops to 64.3 percent in Delaware and 64.5 percent in the United States. A large portion (26.0 percent in Delaware and 23.2 percent in the nation) of respondents in the 18-64 group answered "don't know, not sure, refused, or missing" to the health coverage information.

Table 9: Health Care Coverage in Delaware and the U.S.

	Age 18 and above		Age 18 to 64	
	Delaware Wt. %	U.S. Wt. %	Delaware Wt. %	U.S. Wt. %
Yes	89.1	86.5	64.3	64.5
No	10.4	12.9	9.7	12.3
Don't know/Not sure/ Refused/Missing	0.5	0.6	26.0	23.2

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 10 reports the health care coverage across demographic characteristics. In Delaware, more females (90.6 percent) than males (87.4 percent) have health care coverage. The senior respondents have higher coverage rate.

A statistically significant difference presents among races. While non-Hispanic groups have coverage rates above 90 percent (White: 93.2 percent, Black: 90.0 percent, other non-Hispanic race: 97.1 percent), less than half (49.6 percent) of Hispanic adults have coverage.

Social economic status also influences health care coverage. The coverage rate increases with higher educational attainment and household income. About 61.0 percent of adults without a high school diploma have health coverage. The rate increases to 97.6 percent among those who have a college or technical school degree. Similarly, 73.7 percent of adults with household earnings below $15,000 have health care coverage, compared to 94.9 percent of adults in households with $50,000 or more.

Table 10: Health Care Access (Age 18 and above)

	Wt. %	95% C.I.	Est. Pop.
Total	89.1	[88.1, 90.1]	689,670
AGE			
18-24	85.0	[79.9, 90.1]	74,410
25-34	78.4	[73.8, 83.0]	100,113
35-44	85.0	[81.4, 88.6]	97,947
45-54	90.9	[88.5, 93.3]	108,522
55-64	92.8	[90.9, 94.7]	125,701
65 and over	96.8	[95.8, 97.8]	182,977
GENDER			
Male	87.4	[85.7, 89.1]	323,368
Female	90.6	[89.3, 91.9]	366,302
RACE-ETHNICITY			
White, Non-Hispanic	93.2	[92.2, 94.2]	454,113
Black, Non-Hispanic	90.0	[87.2, 92.8]	143,701
Hispanic	49.6	[42.9, 56.3]	31,233
Other race only, Non-Hispanic	97.1	[94.3, 99.9]	38,143
Multiracial, Non-Hispanic	88.4	[80.8, 96.0]	7,157
EDUCATION			
< High School	61.0	[54.6, 67.4]	51,388
High School	88.9	[86.9, 90.9]	218,646
> High School and < College/Technical School	91.5	[89.7, 93.3]	201,191
College/Technical School	97.6	[96.8, 98.4]	214,567
Don't know/not sure/missing	85.8	[70.5, 100]	3,877
HOUSEHOLD INCOME			
Less than $15,000	73.7	[67.9, 79.5]	34,853
$15,000-$24,999	80.4	[76.5, 84.3]	67,277
$25,000-$34,999	85.3	[80.9, 89.7]	45,647
$35,000-$49,999	87.8	[84.4, 91.2]	71,800
$50,000 or more	94.9	[93.8, 96.0]	326,398
Don't know/not sure/missing	87.6	[85.2, 90.0]	143,694

Note: Same with Table 5.

3.4 Chronic Health Conditions

The CDC defines chronic diseases as "conditions that last one year or more and require ongoing medical attention or limit activities of daily living or both." Six in ten adults in the US have a chronic disease and four in ten adults have two or more. Chronic diseases are the leading causes of death and disability in the US. They are also the key contributors to the country's $3.5 trillion in annual healthcare costs (CDC, 2020d).

The chronic health condition section is a core component of the Delaware BRFS. Thirteen types of chronic diseases (i.e., hypertension, high blood cholesterol, angina, arthritis, asthma, chronic obstructive pulmonary disease (COPD), depressive disorder, diabetes, heart attack, kidney disease, stroke, skin cancer, and other types of cancer) were surveyed in 2019. Figure 1 presents Delaware adults' chronic disease prevalence rate in 2019.

Figure 1
BRFS 2019 Chronic disease prevalence in Delaware
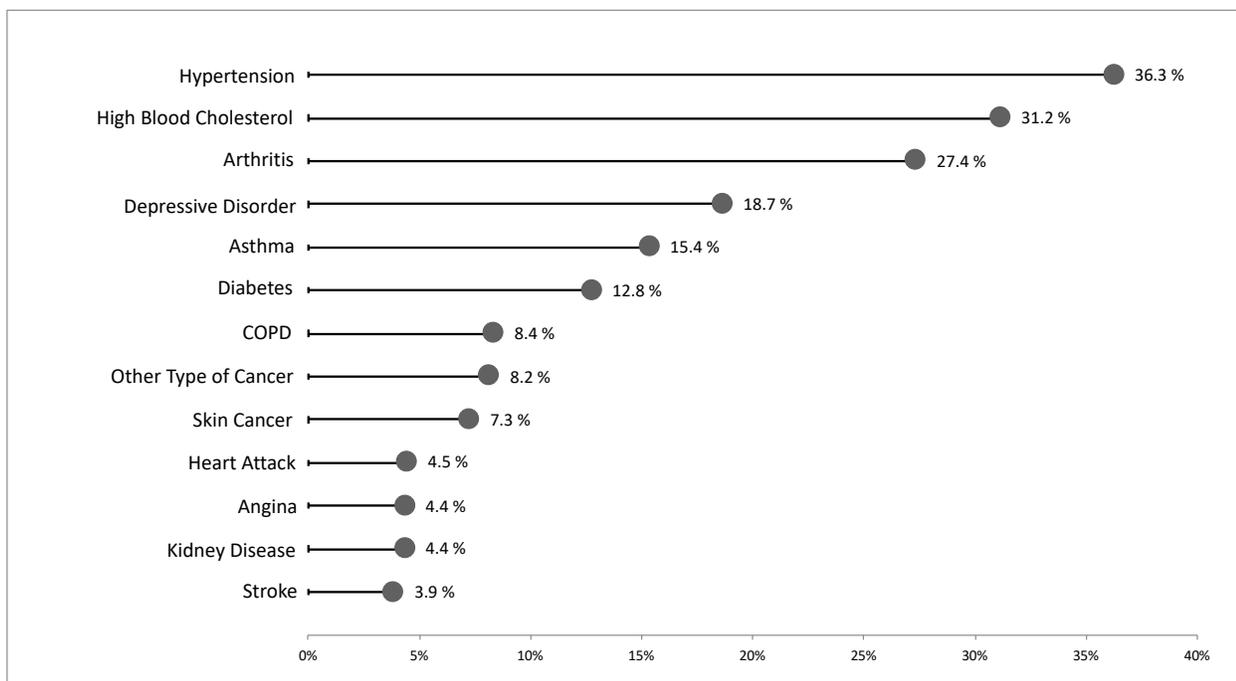
Source: This study.

Table 11 lists the prevalence rates and the estimated population of chronic conditions in Delaware based on the 2019 BRFS. The chronic disease prevalence in Delaware shares a similar pattern with that of the U.S. (aggregated data from states). Hypertension, high blood cholesterol, and arthritis are the three most widely prevalent chronic diseases in Delaware, as well as in the entire nation (arthritis is the top chronic disease in the U.S.). Specifically, the hypertension

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prevalence rate is 36.3 percent in Delaware and 32.5 percent in the U.S.; the high blood cholesterol rate is 31.2 percent in Delaware and 30.9 percent in the U.S.; and the arthritis rate is 27.4 percent in Delaware and 33.4 percent in the U.S.

Table 11: Chronic Disease Prevalence

| | Delaware | | | U.S. |
	Wt. %	95% C.I.	Est. Pop.	Wt. %
Angina	4.4	[1.6, 7.2]	34,032	3.9
Arthritis	27.4	[25.0, 29.8]	211,903	33.4
Asthma	15.4	[12.4, 18.4]	119,346	14.5
Chronic Obstructive Pulmonary Disease	8.4	[5.6, 11.2]	65,033	6.6
Depressive Disorder	18.7	[15.8, 21.6]	144,694	18.7
Diabetes	12.8	[10.0, 15.6]	98,778	11.1
Heart Attack	4.5	[1.8, 7.2]	34,737	4.2
High Blood Cholesterol	31.2	[28.8, 33.6]	241,460	30.9
Hypertension	36.3	[33.9, 38.7]	280,967	32.5
Kidney Disease	4.4	[1.5, 7.3]	33,829	3.1
Other Type of Cancer	8.2	[5.5, 10.9]	63,254	7.1
Skin Cancer	7.3	[4.7, 9.9]	56,733	6.4
Stroke	3.9	[1.2, 6.6]	30,584	3.4

Note:

1. Prevalence percentages and estimated population are weighted to population characteristics, using variable "_LLCPWT" computed by the CDC.

2. The denominator includes respondents with "do not know/refused/missing" responses.

3. Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

3.5 Hypertension Awareness

High blood pressure (HBP), also known as hypertension, is the most prevalent chronic disease in Delaware in 2019. Around 36.3 percent of adults have been told to have HBP by doctors, nurses, or other health professionals. In other words, more than 1 in 3 Delaware adults have been diagnosed with HBP. The hypertension prevalence rate kept high according to previous surveys[3] —34.8 percent in 2011, 35.6 percent in 2013, 34.5 percent in 2015, 34.8 percent in 2017, and 36.3 in 2019 (Delaware Department of Health and Social Services, 2021a, 2021b). About 28.2 percent of Delaware adults are currently taking prescription medicine for their high blood pressure.

Table 12 presents the hypertension awareness across demographic characteristics. As expected, HBP is most prevalent among senior populations. Nearly sixty percent (60.9 percent) of Delaware adults over 65 report being diagnosed with HBP. More males (38.9 percent) than females (33.9 percent) are told by a doctor or a health professional that they have HBP. However, the difference in prevalence rates between gender are not statistically significant.

While educational attainment overall shows less correlation to HBP, the data shows the lowest prevalence rate (30.4 percent) among the highest education group. HBP occurs more frequently among those living in a household with lower income, although data shows no statistically significant difference. About 44.4 percent of adults with household earnings below $15,000 have been diagnosed with HBP, compared to 33.6 percent of adults in households with incomes of $50,000 or more.

A statistically significant difference is presented among racial and ethnic groups. While White (38.6 percent) and Black (42.0 percent) adults have similar high prevalence rates, Hispanic adults report less than half of that prevalence rate (15.5 percent). In other words, Delaware Hispanic's HBP condition is significantly better. The 2013, 2015, and 2017 BRFS also reflect a similar pattern (Delaware Health Tracker, 2019). Other non-Hispanic race also shows significant lower prevalence rate (21.8 percent) compared to White and Black.

The 2019 BRFS added an optional module to survey home/self-measured blood pressure behavior. Four questions are asked in this module: (1) Has your doctor, nurse, or other health professional recommended you check your blood pressure outside of the office or at home? (2) Do you regularly check your blood pressure outside of your healthcare professional's office or at home? (3) Do you take it mostly at home or on a machine at a pharmacy, grocery or similar location? (4) How do you share your blood pressure numbers that you collected with your health professional? Is it mostly by telephone, other methods such as emails, internet portal or fax, or in person?

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[3] The BRFS includes hypertension awareness modules in odd-numbered years.

Table 13 to Table 16 list the optional module survey results. About 21.6 percent of the respondents were recommended to check their blood pressure outside the healthcare professional's office or at home. Around 23.1 percent of the respondents check their blood pressure regularly. Most respondents check at home (17.3 percent) and share the information with their health professional in person.

For the actual blood pressure checking behavior there is some disparity amongst racial groups. Among the respondents who regularly check their blood pressure (n=1,015), the majority are White (69.4 percent). For Hispanic respondents, only 13.1 percent of them regularly check their blood pressure. About 86.7 percent of Hispanic do not regularly check. For other races, the regular check rate is around 30 percent (White is 30.6 percent; Black is 31.1 percent; other non-Hispanic is 27.2 percent).

Above findings align with other organizations' observations. The American Medical Group Foundation found a lower rate (i.e., 25 percent) of Hispanics with HBP (American Medical Group Foundation, 2019). However, in relation to other races, Hispanics are more likely unaware of their HBP, and the HBP data in Hispanics is lacking (American Medical Group Foundation, 2019; Campos and Rodriguez, 2019). The 2019 BRFS observes the low HBP prevalence rate among Hispanics. It also reveals that the Hispanics are less often to check their blood pressure. However, the HBP checking question focus on behavior outside the healthcare professional's office or at home. HBP checking with health professionals should be considered for inclusion in future BRFS[4].

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[4] An example of a follow up question for cholesterol awareness is: About how long has it been since you last had your blood cholesterol checked? A similar question could be designed for hypertension awareness in future BRFS.

Table 12: Hypertension Awareness

	(Ever been told) have high blood pressure		
	Weighted %	95% CI	Est. Pop.
Total	36.3	[33.9, 38.7]	280,966
AGE			
18-24	10.1	[0, 21.9]	8,888
25-34	16.5	[7.0, 26.9]	21,118
35-44	19.6	[11.7, 27.5]	22,549
45-54	38.6	[32.2, 45.0]	46,057
55-64	49.7	[44.6, 54.8]	67,295
65 and over	60.9	[57.5, 64.3]	115,059
GENDER			
Male	38.9	[35.4, 42.4]	144,129
Female	33.9	[30.7, 37.1]	136,837
RACE-ETHNICITY			
White, Non-Hispanic	38.6	[35.8, 41.4]	188,274
Black, Non-Hispanic	42.0	[35.9, 48.1]	67,020
Hispanic	15.5	[7.7, 23.3]	9,742
Other race only, Non-Hispanic	21.8	[10.5, 33.1]	8,552
Multiracial, Non-Hispanic	27.8	[10.6, 45.0]	2,248
EDUCATION			
< High School	35.2	[27.3, 43.1]	29,706
High School	39.7	[35.2, 44.2]	97,525
> High School and < College/Technical School	39.1	[34.4, 43.8]	85,931
College/Technical School	30.4	[26.5, 34.3]	66,759
Don't know/not sure/missing	23.1	[0, 54.3]	1,045
HOUSEHOLD INCOME			
Less than $15,000	44.4	[35.8, 53.0]	20,984
$15,000-$24,999	37.5	[30.8, 44.2]	31,365
$25,000-$34,999	39.7	[31.4, 48.0]	21,254
$35,000-$49,999	39.4	[32.4, 46.4]	32,198
$50,000 or more	33.6	[29.8, 37.4]	115,743
Don't know/not sure/missing	36.2	[31.0, 41.4]	59,424

Note: Same with Table 5.

Table 13: Question 1: Has your doctor, nurse, or other health professional recommended you check your blood pressure outside of the office or at home?

	Delaware Wt. %
Yes	21.6
No	58.3
Don't know/Not sure	0.2
Refused	0.1
Not asked or missing	19.7

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 14: Question 2: Do you regularly check your blood pressure outside of your healthcare professional's office or at home?

	Delaware Wt. %
Yes	23.1
No	57.0
Don't know/Not sure	0.1
Not asked or missing	19.8

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 15: Question 3: Do you take it mostly at home or on a machine at a pharmacy, grocery or similar location?

	Delaware Wt. %
At home	17.3
On a machine at a pharmacy grocery or similar location	5.4
Do not check it	0.2
Don't know/Not sure	0.2
Not asked or missing	76.9

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 16: Question 4: How do you share your blood pressure numbers that you collected with your health professional? Is it mostly by telephone, other methods such as emails, internet portal or fax, or in person?

	Delaware Wt. %
Telephone	1.3
Other methods such as email, internet portal, or fax, or	1.3
In person	16.2
Do not share information	4.1
Don't know / Not sure	0.1
Refused	0.1
Not asked or missing	76.9

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

3.6 Cholesterol Awareness

High blood cholesterol (HBC) is the second-highest chronic disease that Delaware adults are aware of. Nearly 35 percent (35.4 percent, estimated 241,459 population) of adults have been told they have HBC, and 64.0 percent of them currently take high cholesterol medicine. The U.S. aggregated prevalence rate is 30.9 percent. HBC is a major risk factor for heart disease, the leading cause of death in the U.S., and the fifth leading cause of strokes (CDC, 2019b). However, high cholesterol presents no symptoms, so many people are unaware of their HBC (CDC, 2019b).

HBC incidence is most closely associated with age. More than half (53.9 percent) of Delaware adults above 65 years old have ever been identified with HBC. The rate is 42.8 percent for the age group of 55 to 64, and 36.8 percent for the age group of 45 to 54. Males have a higher HBC prevalence rate (34.9 percent) than females (32.2 percent), but the difference is statistically indistinguishable. Socio-economic status also reveals no statistically significant difference among groups, neither for education nor household income.

There is a racial/ethnic difference in the prevalence of HBC between Hispanics and other groups, although not reach statistically significant. The prevalence rate of HBC is 24.3 percent for Hispanics, 30.5 percent for Blacks, and 36.7 percent for Whites. Similar to hypertension, the HBC prevalence rate in Hispanics is lower than Whites and Blacks.

The 2019 BRFS includes questions related to HBC checking. Among Delaware adults, 86.4 percent report that they had their cholesterol checked within the past five years. More female (86.0 percent) checked HBC in the past five year than male (82.0 percent) and the difference is statistically significant.

The cholesterol checking behavior also reflects a statistically significant difference among Hispanics to Blacks and Whites. Overall, 68.8 percent of the Hispanics report that they had their cholesterol checked within the past five years, compared to 85.7 percent of Whites, and 84.8 percent of Blacks. It might be fair to surmise that the lack of checking is likely to contribute to the comparatively low prevalence rate in Hispanics.

Age and education are also related to the likelihood of having one's blood cholesterol checked. About six in ten (64.4 percent) adults between the ages of 18 and 24 have had their blood cholesterol checked in the previous five years. The share increases with age and reaches 94.3 percent for those aged 65 years and older. Unsurprisingly, the percentage of individuals diagnosed with HBC after cholesterol checking also increases with age. Nearly half (53.9 percent) of respondents 65 years and older are diagnosed with HBC.

Table 17: Cholesterol Awareness

	(Ever been told) blood cholesterol is high		
	Weighted %	95% CI	Est. Pop.
Total	35.4	[32.9, 37.9]	241,459
AGE			
18-24	12.6	[0, 26.2]	8,996
25-34	13.4	[3.8, 23.0]	14,466
35-44	16.1	[8.1, 24.1]	16,875
45-54	36.8	[30.3, 43.3]	42,922
55-64	42.8	[37.5, 48.1]	56,884
65 and over	53.9	[50.1, 57.7]	101,316
GENDER			
Male	34.9	[31.2, 38.6]	118,740
Female	32.2	[28.8, 35.6]	122,719
RACE-ETHNICITY			
White, Non-Hispanic	36.7	[33.8, 39.6]	168,163
Black, Non-Hispanic	30.5	[23.4, 37.6]	46,080
Hispanic	24.3	[15.6, 33.0]	12,636
Other race only, Non-Hispanic	16.7	[5.0, 28.4]	6,219
Multiracial, Non-Hispanic	32.0	[12.5, 51.5]	2,422
EDUCATION			
< High School	34.2	[25.9, 42.5]	25,659
High School	36.5	[31.8, 41.2]	83,407
> High School and < College/Technical School	32.7	[27.6, 37.8]	66,217
College/Technical School	30.7	[26.8, 34.6]	64,959
Don't know/not sure/missing	31.2	[0, 71.8]	1,218
HOUSEHOLD INCOME			
Less than $15,000	33.1	[24.2, 42.0]	14,488
$15,000-$24,999	40.2	[33.1, 47.3]	30,763
$25,000-$34,999	33.4	[24.5, 42.3]	16,636
$35,000-$49,999	34.9	[27.5, 42.3]	27,096
$50,000 or more	31.6	[27.7, 35.5]	102,204
Don't know/not sure/missing	33.4	[27.7, 39.1]	50,273

Note: Same with Table 5.

Table 18: Cholesterol Check

	Cholesterol checked within past five years		
	Weighted %	95% CI	Est. Pop.
Total	86.4	[85.2, 87.6]	651,219
AGE			
18-24	64.4	[56.4, 72.4]	56,435
25-34	69.5	[64.3, 74.7]	88,756
35-44	80.5	[76.5, 84.5]	92,754
45-54	90.6	[88.2, 93.0]	108,106
55-64	93.6	[91.8, 95.4]	126,827
65 and over	94.3	[93.0, 95.6]	178,341
GENDER			
Male	82.0	[80.0, 84.0]	303,630
Female	86.0	[84.4, 87.6]	347,589
RACE-ETHNICITY			
White, Non-Hispanic	85.7	[84.3, 87.1]	417,494
Black, Non-Hispanic	84.8	[81.5, 88.1]	135,467
Hispanic	68.8	[63.7, 73.9]	43,360
Other race only, Non-Hispanic	88.4	[82.9, 93.9]	34,734
Multiracial, Non-Hispanic	78.4	[67.9, 88.9]	6,351
EDUCATION			
< High School	72.2	[67.2, 77.2]	60,840
High School	84.4	[82.0, 86.8]	207,384
> High School and < College/Technical School	83.2	[80.6, 85.8]	182,954
College/Technical School	89.8	[88.2, 91.4]	197,474
Don't know/not sure/missing	56.8	[33.3, 80.3]	2,567
HOUSEHOLD INCOME			
Less than $15,000	79.0	[73.8, 84.2]	37,351
$15,000-$24,999	78.6	[74.6, 82.6]	65,735
$25,000-$34,999	86.7	[82.6, 90.8]	46,436
$35,000-$49,999	86.3	[82.7, 89.9]	70,591
$50,000 or more	86.7	[84.9, 88.5]	298,235
Don't know/not sure/missing	81.0	[78.0, 84.00]	132,870

Note: Same with Table 5.

3.7 Arthritis

Arthritis is a way of describing more than 100 types of joint diseases. Arthritis can cause symptoms like pain, aching, or stiffness in or around a joint. Over 50 million Americans have arthritis, making it the number one cause of disability (Arthritis Foundation, 2021).

Arthritis is one of the thirteen chronic health conditions that are included in the BRFS every year. The burden caused by arthritis is surveyed in odd-numbered years, covering questions related to the degree that usual activities, work, and social activities are limited due to arthritis.

In 2019, around one-third (33.4 percent) of Delaware adults had been diagnosed with arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia. The prevalence rate is much higher than the rate in the U.S. as a whole (24.9 percent). In fact, the rate is also higher than the 2018 BRFS survey result for Delaware adults, which was 25.2 percent.

As would be expected, arthritis is most strongly associated with age. While only 3.8 percent of the 18-24 age group reported having been diagnosed with arthritis, the prevalence rate increases to about 27.1 percent of the 45-54 age group; 39.7 percent among the 55-64 age group; and 50.5 percent among the age group of those 65 and older.

Females have a significantly higher prevalence rate of arthritis (32.2 percent) than males (22.0 percent). White adults have a higher prevalence rate (31.5 percent) than Black adults (26.3 percent). Similar to the observations of hypertension awareness, Hispanics have a lower prevalence rate of arthritis (6.9 percent). For Hispanics, the rate of 6.9 percent is nearly half, compared to the previous year's survey result, which was 13.7 percent.

Higher educational attainment causes lower rate in arthritis prevalence, although with no statistically significant differences. Arthritis affects those with lower household incomes. Among individuals with a household income of less than $15,000, 38.0 percent have been diagnosed with arthritis or a related condition. This share declines steadily with each wealthier income group. The share drops to 24.0 percent of the households with incomes of $50,000 or greater.

As arthritis is the third top chronic disease in Delaware, more detailed information is surveyed in the 2019 BRFS, exploring respondents' physical activity or exercise to alleviate arthritis or joint symptoms, educational courses for managing arthritis problems, activity limitation, work days impact, and the level of joint pain during the past 30 days.

Around 10.9 percent of Delaware adults have been told they have arthritis and have limited usual activities; around 8.1 percent have been told they have arthritis and have limited work. About 20 percent of Delaware adults were told by a doctor to use physical activity or exercise for arthritis or joint symptoms. Around 4.3 percent of Delaware adults have taken a class

in managing arthritis or joint symptoms. During the past 30 days, of respondents who answered the pain level question (27.4 percent of the total respondents for the 2019 BRFS), 14.2 percent of them have level 5 pain, 11.4 percent is level 8 pain, and 11.0 percent is level 3 pain (a scale of 0 to 10 where 0 is no pain and 10 is pain or aching as bad as it can be).

Table 19: Arthritis

	(Ever been told) have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?		
	Wt. %	95% C.I.	Est. Pop.
Total	33.4	[30.8, 36.0]	211,904
AGE			
18-24	3.8	[0, 16.3]	3,295
25-34	8.2	[0, 17.4]	10,473
35-44	14.3	[6.4, 22.2]	16,511
45-54	27.1	[20.6, 33.6]	32,287
55-64	39.7	[34.4, 45.0]	53,844
65 and over	50.5	[46.7, 54.3]	95,494
GENDER			
Male	22.0	[18.2,25.8]	81,582
Female	32.2	[29.0, 35.4]	130,322
RACE-ETHNICITY			
White, Non-Hispanic	31.5	[28.7, 34.3]	153,509
Black, Non-Hispanic	26.3	[19.4, 33.2]	41,961
Hispanic	6.9	[0, 14.6]	4,360
Other race only, Non-Hispanic	11.6	[0.5, 22.7]	4,559
Multiracial, Non-Hispanic	16.8	[0, 33.6]	1,362
EDUCATION			
< High School	31.4	[23.2, 39.6]	26,441
High School	28.9	[24.3, 33.5]	71,174
> High School and < College/Technical School	28.8	[23.9, 33.7]	63,391
College/Technical School	22.8	[19.0, 26.6]	50,033
Don't know/not sure/missing	19.1	[0, 46.3]	863
HOUSEHOLD INCOME			
Less than $15,000	38.0	[29.6, 46.4]	17,989
$15,000-$24,999	31.6	[24.7, 38.5]	26,401
$25,000-$34,999	29.6	[20.6, 38.6]	15,849
$35,000-$49,999	29.7	[22.2, 37.2]	24,270
$50,000 or more	24.0	[20.2, 27.8]	82,600
Don't know/not sure/missing	27.3	[22.0, 32.6]	44,794

Note: Same with Table 5.

3.8 Diabetes

Diabetes is a chronic, progressive disease that affects how a body turns dietary glucose into energy. People with diabetes have elevated blood glucose levels (high blood sugar) within their bloodstream, which can damage nerves, blood vessels, and organs. Diabetes also increases the risk for other serious health problems, such as heart disease, vision loss, and kidney disease. While there is no cure for diabetes, the condition is controllable with effective management strategies (CDC, 2020e; Delaware Department of Health and Social Services, 2019).

There are three major types of diabetes: type 1, type 2, and gestational diabetes. Type 1 diabetes is typically diagnosed in children, teens, and young adults, whose pancreas is not making insulin or making very little. Insulin is a hormone that allows people's cells to use glucose from the food and helps control the levels of blood sugar. Approximately 5-10 percent of people with diabetes have type 1. Type 1 diabetes is caused by an autoimmune reaction (the body attacks itself by mistake) and in some cases, may be genetic. Type 1 diabetes is not preventable based on current knowledge, but can be managed by controlling blood sugar and living a healthy lifestyle (CDC, 2020f).

Type 2 diabetes is more common than type 1 —approximately 90-95 percent of people with diabetes have type 2. Type 2 diabetes often develops in people over 45, but is becoming more common in teens and youth. The cause of type 2 diabetes is "insulin resistance", in which the pancreas makes insulin, but cells do not respond normally to the hormone. Type 2 diabetes symptoms often develop over many years and may be unnoticed for a long time. Having one's blood sugar tested and being knowledgeable about the risk factors for type 2 diabetes are strategies to prevent the disease. Similarly to type 1, type 2 diabetes is also manageable through diet and lifestyle modifications, as well as insulin or other injectable medications (CDC, 2019c).

Gestational diabetes develops in pregnant women who did not have diabetes before pregnancy. Gestational diabetes may lead to problems for the pregnant woman and the baby, such as high blood pressure or low blood sugar for the mother, or an extra-large baby. Gestational diabetes can often be controlled through healthy eating, regular exercise, or, if needed, taking insulin (CDC, 2020g).

According to CDC, the number of adults diagnosed with diabetes has more than doubled in the past 20 years, as the population has aged and become more overweight or obese (CDC, 2020h). In 2019, over 1 in 10 Americans have diabetes (CDC, 2020c). Table 20 lists adult diabetes rates in Delaware and the U.S. since 2011. The rate of diagnosed diabetes in Delaware is slightly

higher than that of the U.S. Also, the diabetes prevalence rate[5] in Delaware keeps rising, from 9.7 percent in 2011 to 12.8 percent in 2019.

Table 20: Adult Diabetes Prevalence in Delaware and the U.S.		
	Delaware	U.S.
	Wt. %	Wt. %
2011	9.7	9.8
2012	9.6	10.2
2013	11.1	10.3
2014	11.1	10.5
2015	11.5	10.5
2016	10.6	10.8
2017	11.3	10.9
2018	11.9	11.4
2019	12.8	11.1

Source: 1. Delaware data: (Delaware Department of Health and Social Services, 2021c). 2. U.S. data: This study compiles data from 2011-2019 BRFSS Codebooks (CDC, 2012, 2013b, 2014, 2015, 2016a, 2017a, 2018b, 2019d, 2020c).

In 2019, 12.8 percent of Delaware adults reported having either type 1 or type 2 diabetes. Diabetes becomes more prevalent with age. Only 0.9 percent of 18–24-year-olds have diabetes, but the prevalence rises to 12.6 percent among adults age 45-54; 18.0 percent among adults age 55-64; and 24.8 percent among those 65 and older. There is no statistically significant difference between rates of diabetes in men (13.9 percent) and women (11.7 percent).

No significant differences exist among race groups in Delaware: 11.9 percent of White adults and 17.5 percent of Black adults reported having diabetes in 2019. The diabetes rate is 10.6 percent for Hispanic adults and 11.4 percent for other non-Hispanic races.

There is not a statistically significant difference in diabetes rates between adults with different socio-economic statuses. However, adults without high school diploma or household incomes less than $15,000 show higher prevalence rates than that of other groups.

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[5] Including type 1 and type 2 diabetes but excluding gestational diabetes.

Table 21: Diabetes

| | (Ever been told) have diabetes? | | |
	Wt. %	95% C.I.	Est. Pop.
Total	12.8	[10.0, 15.6]	98,778
AGE			
18-24	0.9	[0, 14.0]	803
25-34	2.7	[0, 11.5]	3,383
35-44	7.2	[0, 16.4]	8,306
45-54	12.6	[5.2, 20.0]	15,018
55-64	18.0	[11.7, 24.3]	24,353
65 and over	24.8	[19.9, 29.7]	46,915
GENDER			
Male	13.9	[9.8, 18.0]	51,509
Female	11.7	[8.0, 15.4]	47,269
RACE-ETHNICITY			
White, Non-Hispanic	11.9	[8.6, 15.2]	58,156
Black, Non-Hispanic	17.5	[9.7, 25.3]	27,894
Hispanic	10.6	[2.6, 18.6]	6,671
Other race only, Non-Hispanic	11.4	[0, 23.0]	4,470
Multiracial, Non-Hispanic	5.0	[0, 19.2]	408
EDUCATION			
< High School	19.9	[11.3, 28.5]	16,779
High School	14.0	[8.8, 19.2]	34,451
> High School and < College/Technical School	12.5	[6.9, 18.1]	27,509
College/Technical School	9.0	[4.6, 13.4]	19,818
Don't know/not sure/missing	4.9	[0, 26.1]	221
HOUSEHOLD INCOME			
Less than $15,000	21.1	[11.6, 30.6]	9,964
$15,000-$24,999	15.0	[7.3, 22.7]	12,529
$25,000-$34,999	13.1	[3.7, 22.5]	7,008
$35,000-$49,999	15.5	[6.9, 24.1]	12,670
$50,000 or more	10.2	[5.9, 14.5]	35,203
Don't know/not sure/missing	13.1	[6.6, 19.6]	21,403

Note: Same with Table 5.

In addition to prevalence rates, the 2019 BRFS also provides information about compliance with recommendations for people with diabetes. Table 22 listed the compliance rate of each action taken by respondents with diabetes. Among them, 85.6 percent had seen a health professional[6] for their diabetes in the past 12 months; 88.6 percent had received an "A-one-C"[7] test in the past 12 months; 71.4 percent had an eye exam in which their pupils were dilated in the past year; 20.8 percent diabetes has affected their eyes or that they had retinopathy; 74.4 percent had a health professional check their feet for any sores or irritations in the past 12 months; 47.6 had daily feet check for sores or irritations by a family member or friend; 60.8 percent monitored their blood glucose (or sugar) every day; 49.8 percent have taken a course or class in self-managing their diabetes; and 34.8 percent are now taking insulin.

Table 22: Percentage of Delaware Adults Aged 18 or Older with Diagnosed Diabetes who Reported Receiving Recommended Preventive Care Practices

	Delaware Wt. %	U.S. Wt. %
1. See health professional for diabetes in the past 12 months	85.6	86.7
2. One or more A-one-C tests in the past 12 months	88.6	85.2
3. Dilated eye exam in the past year	71.4	70.1
4. Diabetes has affected eyes	20.6	18.2
5. Foot check for sores/irritations by health professional in the past 12 months	74.4	74.1
6. Foot check for sores/irritations by a family member or friend daily	47.6	54.3
7. Daily self-monitoring of blood glucose	60.8	57.4
8. Ever attended diabetes self-management class	49.8	53.3
9. Now take insulin	34.8	33.4

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

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[6] Including a doctor, nurse, or other health professional.
[7] "A-one-C" is a test which measures the average level of blood sugar over the past three months.

3.9 Pre-Diabetes

Prediabetes is a serious health condition where blood sugar levels are higher than normal, but not high enough yet to be diagnosed as diabetes. Prediabetes increases risk of developing type 2 diabetes, heart disease, and stroke (CDC, 2020i). According to the CDC, approximately 88 million American adults—1 in 3—have prediabetes but more than 84% of people with prediabetes don't know they have it (CDC, 2020i).

The 2019 BRFS includes two questions asked specifically to respondents who are not diagnosed with diabetes. One is the testing behavior and another is the diagnoses of prediabetes. Survey results show that nearly six in ten (57.2 percent) Delaware adults had a test for high blood sugar or diabetes within the past three years and an estimated 75,189 Delaware adults (11.7 %) have prediabetes.

Table 23: Had a test for high blood sugar or diabetes in the past three years?

	Delaware Wt. %	U.S. Wt. %
Yes	57.2	53.9
No	40.2	41.7
Don't know/ Not sure	2.6	4.3
Refused	0.0	0.1

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 24: Ever been told by a doctor or other health professional that you have pre-diabetes or borderline diabetes?

	Delaware Wt. %	U.S. Wt. %
Yes	11.7	10.8
Yes, during pregnancy	1.1	1.2
No	86.9	87.4
Don't know/ Not sure	0.3	0.5
Refused	0.0	0.1

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

3.10 Behavioral Risk Factors

The BRFS gathers respondent's health risk behaviors to better understand correlations between behaviors and health conditions. Risk behaviors may cause or be highly related to the development of certain diseases. For example, smokers are more likely than nonsmokers to develop lung cancer (CDC, 2020j). Excessive alcohol use causes both short-term (e.g. injuries) and long-term (e.g. high blood pressure) effects. In addition to behaviors which bring negative impact on health, the BRFS also records positive behaviors that enhance one's health (e.g. exercise) or reduce injuries and death (e.g. seat belt use). The 2019 BRFS covers six behavioral risk factors, including tobacco use, alcohol consumption, immunization, exercise (physical activity), fruits and vegetables, and HIV/AIDS.

3.11 Tobacco and e-cigarettes

Cigarette smoking is the leading preventable cause of death in the U.S., which leads to more than 480,000 deaths each year. Smoking causes 90 percent of all lung cancer deaths and 80 percent of all deaths from chronic obstructive pulmonary disease (COPD). Smoking also causes a greater risk for diseases that affect the heart and blood vessels (cardiovascular disease) and diminishes overall health (CDC, 2020k).

In Delaware, 15.0 percent of adults smoke. Greater percentages of smokers are in the 25-34 (20.3 percent) age group. Socio-economic factors are likely correlated to smoking behavior. Individuals of lower education and lower income levels present higher smoking rates. Specifically, 22.8 percent of adults without high school diplomas are smokers compared to 5.3 percent of college graduates, showing a gap of 17.5 percentage points. Individuals with lower household incomes are also more likely to smoke. Nearly thirty percent (29.4 percent) of individuals with a household income of less than $15,000 engage in smoking, while the percentage declines to 10.6 percent of those with household incomes of $50,000 or more.

The 2019 BRFS includes five state-added questions related to tobacco use. The first is to measure current use of little cigars, cigarillos, or regular cigars. The second and the third questions asks about the use of e-cigarette or other electronic "vaping" product in the past and currently. The fourth question measures the use of pipe or hookah. The fifth question asks if smoking is allowed in respondents' homes.

According to the survey results, 1.0 percent of Delaware adults currently smoke little cigars, cigarillos, or regular cigars every day. About 21.1 percent of Delaware adults have used an e-cigarette or other electronic vaping product at least once in their entire life. About 1.7 percent of Delaware adults now use e-cigarette every day; 3.1 percent use them some days. For all Delaware adults, only 4.3 percent allow smoking in their home.

Table 25: State-added question 1_1: Do you currently smoke little cigars, cigarillos, or regular cigars every day, some days, or not at all?

| | Delaware |
	Wt. %
Every day	1.0
Some days	3.1
Not at all	85.8
Refused	0.2
Not asked or missing	9.9
Total	100

Source: This study.

Table 26: State-added question 1_2: Have you ever used an e-cigarette or other electronic "vaping" product, even just one time, in your entire life?

	Delaware Wt. %
Yes	21.1
No	68.4
Don't know/ not sure	0.1
Refused	0.2
Not asked or missing	10.3
Total	100

Source: This study.

Table 27: State-added question 1_3: Do you now use e-cigarettes or other electronic vaping products every day, some days, or not at all?

	Delaware Wt. %
Every day	1.7
Some days	3.1
Not at all	16.2
Not asked or missing	78.9
Total	100

Source: This study.

Table 28: State-added question 1_4: Do you currently smoke any kind of pipe or hookah every day, some days, or not at all?

	Delaware Wt. %
Every day	0.8
Some days	1.4
Not at all	18.8
Don't know/ not sure	0.1
Not asked or missing	78.9
Total	100

Source: This study.

Table 29: State-added question 1_5: Do you allow any smoking in your home?

	Delaware Wt. %
Yes	4.3
No	16.1
Sometimes or in some places	0.6
Not asked or missing	79.0
Total	100

Source: This study.

Table 30: Tobacco Use

| | Current tobacco use* | | |
	Wt. %	95% C.I.	Est. Pop.
Total	15.0	[12.0, 18.0]	115,925
AGE			
18-24	15.0	[1.8, 28.2]	13,161
25-34	20.3	[11.7, 28.9]	25,953
35-44	16.1	[8.4, 23.8]	18,542
45-54	15.4	[7.9, 22.9]	18,342
55-64	15.9	[9.6, 22.2]	21,483
65 and over	9.8	[4.3, 15.3]	18,445
GENDER			
Male	14.8	[10.3, 19.3]	54,941
Female	15.1	[10.9, 19.3]	60,984
RACE-ETHNICITY			
White, Non-Hispanic	16.0	[12.3, 19.7]	78,042
Black, Non-Hispanic	15.7	[7.2, 24.2]	25,084
Hispanic	7.8	[0, 16.9]	4,888
Other race only, Non-Hispanic	10.3	[0, 24.3]	4,043
Multiracial, Non-Hispanic	20.3	[0.6, 40.0]	1,642
EDUCATION			
< High School	22.8	[13.2, 32.4]	19,234
High School	21.9	[16.3, 27.5]	53,887
> High School and < College/Technical School	13.9	[8.4, 19.4]	30,634
College/Technical School	5.3	[0.6, 10.0]	11,650
Don't know/not sure/missing	11.5	[0, 42.8]	522
HOUSEHOLD INCOME			
Less than $15,000	29.4	[18.9, 39.9]	13,920
$15,000-$24,999	23.0	[14.9, 31.1]	19,234
$25,000-$34,999	18.6	[7.8, 29.4]	9,933
$35,000-$49,999	20.8	[11.2, 30.4]	17,032
$50,000 or more	10.6	[5.6, 15.6]	36,454
Don't know/not sure/missing	11.8	[5.2, 18.4]	19,352

* Respondents who reported having smoked at least 100 cigarettes in their lifetime and currently smoke (i.e., smokes every day or smokes some days).
Notes: Same with Table 5.

3.12 Alcohol consumption

Excessive alcohol use[8] causes both short-term and long-term health risks. Short-term impacts include injuries, violent behaviors, alcohol poisoning, risky sexual behaviors, miscarriage and stillbirth or fetal alcohol spectrum disorders (FASDs) among pregnant women. Long-term impacts include high blood pressure, heart disease, stroke, liver disease, and digestive problems. Various types of cancer (breast, mouth, throat, esophagus, liver, and colon) are also related to alcohol consumption. In addition to physical diseases, excessive alcohol use can lead to mental health problems (i.e., depression and anxiety), learning and memory problems, and social problems (e.g., family problems) (CDC, 2020l).

Heavy drinking for adult men is defined as consuming more than 14 drinks per week. For adult women, it is defined as having more than 7 drinks per week. A drink is defined as a twelve-ounce beer, a five-ounce glass of wine, or a drink with one shot of liquor. Binge drinking is defined as having five or more drinks on one occasion for males, and having four or more drinks on one occasion for females.

Unlike many other health behaviors, the respondents with higher household incomes are more likely to engage in heavy drinking. The rate of heavy drinking is highest (i.e., 8.8 percent) in the top income group. Similar trends can also be seen with binge drinking. The binge drinking rate is 21.1 percent in the highest income group. The percentage is higher than that of other income groups. The strongest demographic association with binge drinking is age. Binge drinking is more common in teens and youth. About one in three (29.5 percent) 18- to 24-year-olds and one in four (25.6 percent) 25–34-year-olds in Delaware engage in binge drinking. The rate steadily falls throughout middle age and dips to only 5.2 percent among the elderly. Similar age patterns for binge drinking are shown nationwide (CDC, 2019e).

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[8] Excessive drinking includes binge drinking, heavy drinking, and any drinking by pregnant women or people younger than age 21.

Table 31: Alcohol Use

	Heavy drinking*			Binge drinking^		
	Wt. %	95% C.I.	Est. Pop.	Wt. %	95% C.I.	Est. Pop.
Total	6.7	[3.4, 10.0]	51,686	15.7	[12.5, 18.9]	121,427
AGE						
18-24	12.0	[0, 24.0]	10,501	29.5	[18.5, 40.5]	25,881
25-34	6.6	[0, 16.3]	8,369	25.6	[17.0, 34.2]	32,611
35-44	6.6	[0, 15.2]	7,644	16.4	[8.6, 24.2]	18,858
45-54	6.7	[0, 15.6]	7,947	14.4	[6.9, 21.9]	17,192
55-64	6.4	[0, 13.5]	8,646	12.6	[5.6, 19.6]	17,007
65 and over	4.5	[0, 9.7]	8,578	5.2	[0, 10.5]	9,880
GENDER						
Male	6.7	[1.8, 11.6]	24,764	20.2	[15.6, 24.8]	74,589
Female	6.7	[2.2, 11.2]	26,922	11.6	[7.1, 16.1]	46,838
RACE-ETHNICITY						
White, Non-Hispanic	7.8	[3.8, 11.8]	37,958	17.7	[13.6, 21.8]	86,461
Black, Non-Hispanic	5.3	[0, 16.3]	8,406	12.6	[3.3, 21.9]	20,064
Hispanic	3.2	[0, 12.4]	1,991	11.6	[3.7, 19.5]	7,326
Other race only, Non-Hispanic	2.7	[0, 15.7]	1,047	9.9	[0, 23.7]	3,898
Multiracial, Non-Hispanic	16.2	[0, 43.5]	1,309	29.3	[6.3, 52.3]	2,374
EDUCATION						
< High School	3.6	[0, 14.6]	3,026	9.7	[0.4, 19.0]	8,168
High School	6.8	[0.3, 13.3]	16,653	15.7	[9.4, 22.0]	38,711
> High School and < College/Technical School	10.2	[3.0, 17.4]	22,474	18.5	[11.9, 25.1]	40,704
College/Technical School	4.3	[0, 8.6]	9,534	15.2	[10.1, 20.3]	33,414
Don't know/not sure/missing	0.0	--	0	9.5	[0, 42.7]	431
HOUSEHOLD INCOME						
Less than $15,000	7.3	[0, 23.4]	3,470	16.3	[4.6, 28.0]	7,706
$15,000-$24,999	5.5	[0, 15.3]	4,587	12.6	[3.5, 21.7]	10,509
$25,000-$34,999	6.0	[0, 17.3]	3,194	12.9	[2.2, 23.6]	6,905
$35,000-$49,999	5.3	[0, 14.3]	4,368	13.2	[3.7, 22.7]	10,760
$50,000 or more	8.8	[3.9, 13.7]	30,215	21.1	[16.2, 26.0]	72,457
Don't know/not sure/missing	3.6	[0, 11.6]	5,852	8.0	[0.4, 15.6]	13,090

* Adult men having more than fourteen drinks per week and adult women having more than seven drinks per week.
^ Respondents who reported they did drink in the past 30 days and had five or more drinks on one or more occasions in the past month. Males having five or more drinks on one occasion, females having four or more drinks on one occasion.
Notes: Same with Table 5.

3.13 Exercise (physical activity)

Exercise (physical activity) in the BRFS refers to exercise, recreation, or physical activities other than regular job duties. Examples include running, calisthenics, golf, gardening, or walking for exercise. In general, physically active people live longer and face lower risks for heart disease, stroke, type 2 diabetes, depression, and some cancers (CDC, 2017b). The 2019 BRFS surveys respondents' physical activities or exercise habits during the past month of interviewing.

About seven in ten Delaware adults (67.8 percent) report that they have participated in physical activities in the past month. Nationally, 73.5 percent of individuals participated in physical activities or exercise other than what is required of their regular job in the past month (CDC, 2020c).

Physical activity has different patterns among demographic characteristics as well as social-economic status. Young adults are more active than senior adults. Around eight in ten (77.0 percent) young adults exercised in the past month of interviewing, while the percentage decreases to 59.6 percent in the age group of 65 and older. More males (69.4 percent) engage in physical activity than females (66.4 percent). A statistically significant difference exists between the two genders. Regarding race, Whites (70.6 percent) are more physically active than Blacks (61.1 percent) and Hispanics (57.5 percent). For socio-economic status, high education level (81.3 percent in the group of college/technical school degree), and high income (77.8 percent in the group of $50,000 or more household income) individuals report having engaged in physical exercise.

The BRFS also surveys the time and frequency of activity and compares respondents' reports to the recommended guidelines. The recommendation for aerobic activity is doing at least 150 minutes (or vigorous equivalent) of physical activity a week. The muscle strengthening recommendation is defined as the frequency of strengthening activity per week, divided by one thousand. The index needs to be equal or greater than two (i.e., times per week for strengthening activity/1000 >= 2). About 45.7 percent of Delaware adults meet recommendations for aerobic conditioning; 32.6 percent meet the muscle strengthening recommendation. The gender gap is statistically significant in muscle strengthening. Around 37.8 percent of males meet the recommendations while 27.3 females do.

Table 32: Exercise (Physical Activity)

	Had physical activity or exercise during the past 30 days other than their regular job		
	Wt. %	95% C.I.	Est. Pop.
Total	67.8	[66.0, 69.6]	525,239
AGE			
18-24	77.0	[78.6, 87.9]	67,466
25-34	69.8	[74.2, 82.3]	89,146
35-44	72.8	[69.8, 77.9]	83,950
45-54	66.8	[72.8, 79.6]	79,711
55-64	68.1	[66.0, 72.5]	92,285
65 and over	59.6	[62.1, 67.5]	112,681
GENDER			
Male	69.4	[74.6, 78.6]	256,703
Female	66.4	[67.9, 71.9]	268,536
RACE-ETHNICITY			
White, Non-Hispanic	70.6	[73.6, 76.9]	344,030
Black, Non-Hispanic	61.1	[63.8, 72.3]	97,645
Hispanic	57.5	[71.9, 87.1]	36,232
Other race only, Non-Hispanic	73.8	[68.2, 90.6]	28,992
Multiracial, Non-Hispanic	67.8	[59.2, 69.5]	5,495
EDUCATION			
< High School	50.0	[53.7, 65.2]	42,162
High School	61.3	[62.2, 68.4]	150,644
> High School and < College/Technical School	68.4	[72.7, 78.1]	150,495
College/Technical School	81.3	[83.3, 86.9]	178,781
Don't know/not sure/missing	69.9	[25.4, 76.0]	3,157
HOUSEHOLD INCOME			
Less than $15,000	55.9	[52.2, 65.3]	26,454
$15,000-$24,999	58.6	[53.8, 62.9]	49,064
$25,000-$34,999	65.2	[60.0, 71.6]	34,899
$35,000-$49,999	70.7	[66.1, 75.2]	57,798
$50,000 or more	77.8	[82.9, 86.3]	267,828
Don't know/not sure/missing	54.4	[63.4, 70.6]	89,195

Notes: Same with Table 5.

Table 33: Exercise (Physical Activity)

	Meet aerobic recommendations*			Meet muscle strengthening recommendations**		
	Wt. %	95% CI	Est. Pop.	Wt. %	95% CI	Est. Pop.
Total	45.7	[43.4, 48.0]	348,292	32.6	[30.0, 35.2]	250,093
AGE						
18-24	52.4	[43.5, 61.3]	45,873	38.5	[29.1, 47.9]	33,698
25-34	41.9	[34.6, 49.2]	53,523	31.3	[23.8, 38.8]	39,990
35-44	44.9	[38.2, 51.6]	51,755	37.4	[30.1,44.7]	43,106
45-54	42.2	[36.4, 48.0]	50,372	26.1	[19.7, 32.5]	31,125
55-64	44.6	[39.5, 49.7]	60,479	29.9	[24.1, 35.7]	40,470
65 and over	45.6	[41.7, 49.5]	86,290	32.6	[28.2, 37.0]	61,704
GENDER						
Male	45.7	[42.3, 49.1]	168,960	37.8	[34.0, 41.6]	139,856
Female	44.4	[41.2, 47.6]	179,332	27.3	[23.9, 30.7]	110,237
RACE-ETHNICITY						
White, Non-Hispanic	49.5	[46.8, 52.2]	241,341	33.7	[30.6, 36.8]	164,000
Black, Non-Hispanic	36.2	[28.6, 43.8]	57,857	32.2	[24.7, 39.7]	51,351
Hispanic	35.8	[28.2, 43.4]	22,578	26.3	[18.3, 34.3]	16,544
Other race only, Non-Hispanic	41.3	[28.6, 54.0]	16,215	23.5	[10.5, 36.5]	9,243
Multiracial, Non-Hispanic	44.7	[28.2, 61.2]	3,620	46.3	[28.5, 64.1]	3,747
EDUCATION						
< High School	31.8	[23.0, 40.6]	26,840	25.0	[16.1, 33.9]	21,093
High School	40.4	[35.8, 45.0]	99,238	29.5	[24.5, 34.5]	72,599
> High School and < College/Technical School	47.6	[42.9, 52.3]	104,646	33.7	[28.5, 38.9]	74,005
College/Technical School	53.0	[49.5, 56.5]	116,562	36.7	[32.6, 40.8]	80,645
Don't know/not sure/missing	22.3	[0, 63.1]	1,006	38.8	[5.0, 72.6]	1,752
HOUSEHOLD INCOME						
Less than $15,000	37.5	[28.1, 46.9]	17,757	35.1	[25.7, 44.5]	16,584
$15,000-$24,999	42.8	[35.9, 49.7]	35,830	28.5	[21.1, 35.9]	23,872
$25,000-$34,999	44.4	[35.4, 53.4]	23,780	28.9	[19.4, 38.4]	15,474
$35,000-$49,999	46.8	[39.6, 54.0]	38,229	37.5	[29.6, 45.4]	30,640
$50,000 or more	52.1	[48.8, 55.4]	179,289	36.0	[32.1, 39.9]	123,966
Don't know/not sure/missing	32.6	[27.2, 38.0]	53,407	24.1	[18.4, 29.8]	39,557

* Respondents who reported doing 150+ minute (or vigorous equivalent) of physical activity.

** Respondents who reported doing enough physical activity to meet the strengthening recommendation (times per week for strengthening activity/1000 >= 2).

Note: Same with Table 5.

3.14 Fruits and vegetables

A diet rich in vegetables and fruits can bring positive effects on blood sugar, as well as lower blood pressure, reduce the risk of heart diseases and stroke, prevent some types of cancer, and lower risks of eye and digestive problems (Harvard School of Public Health, 2012). However, only one in ten adults consumed enough fruits or vegetables[9] in the U.S. (CDC, 2016b).

The 2019 BRFS survey asked how often during the previous 30 days the respondent consumed a variety of foods and beverages: fruits (fresh, frozen or canned fruit), 100% fruit juice, green leafy, lettuce salad, other vegetables, fried potatoes, other kind of potatoes, and sweet potatoes. These responses are combined to calculate the share of individual who intake vegetables and fruits regularly.

Delaware adults consume more vegetables than fruits. About 66.7 percent respondents eat vegetables at least once a day and the percentage for fruit intake falls to 53.9 percent. Fruit and vegetable consumption have no statistical differences among age groups or among race-ethnicity groups.

However, there are statistically significant differences by gender in vegetable consumption. More female (70.2 percent) than male (62.7 percent) respondents have at least one serving of vegetables per day. For fruit consumption, females (57.5 percent) also consume more than males (50.0 percent) and the difference is statistically significant as well.

Socio-economic status is a strong predictor of vegetable consumption. For example, the share of adults who eat vegetables daily is 77.8 percent with college/technical school degrees and 50.4 percent of those who did not finish high school. Household income also reveals a similar pattern. About half (52.1 percent) of individuals with less than $15,000 household income eat vegetables daily, while 77.1 percent of adults with $50,000 or more household income do so – a gap of 25 percentage points. For fruit consumption, higher education and income levels have a greater percentage of respondents that consume fruit per day, although the gap is smaller than for vegetables consumption.

Overall, vegetables and fruits consumption are greater among those who are females, highly education, and have a high income in Delaware. The differences are more obvious in vegetable than in fruits consumption.

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[9] *The 2015–2020 Dietary Guidelines for Americans* recommend that Americans adults should consume 1.5–2.0 cup equivalents of fruits and 2.0–3.0 cups of vegetables per day (Lee-Kwan, 2017).

Table 34: Consuming Fruits and Vegetables

	Consumed fruit one or more times per day			Consumed vegetables one or more times per day		
	Wt. %	95% C.I.	Est. Pop.	Wt. %	95% C.I.	Est. Pop.
Total	53.9	[51.8, 56.0]	417,507	66.7	[64.9, 68.5]	516,187
AGE						
18-24	54.2	[45.7, 62.7]	47,512	61.8	[53.9, 69.7]	54,108
25-34	50.0	[43.5, 56.5]	63,850	60.7	[54.8, 66.6]	77,425
35-44	54.3	[48.3, 60.3]	62,541	67.0	[61.8, 72.2]	77,190
45-54	51.8	[46.3, 57.3]	61,840	69.5	[65.1, 73.9]	82,942
55-64	51.1	[46.3, 55.9]	69,176	70.1	[66.3, 73.9]	94,953
65 and over	59.6	[56.2, 63.0]	112,588	68.5	[65.5, 71.4]	129,568
GENDER						
Male	50.0	[46.7, 53.3]	185,097	62.7	[59.9, 65.5]	232,221
Female	57.5	[54.8, 60.2]	232,411	70.2	[67.9, 72.5]	283,966
RACE-ETHNICITY						
White, Non-Hispanic	55.0	[52.5, 57.5]	268,181	71.0	[69.0, 73.0]	345,937
Black, Non-Hispanic	47.0	[40.7, 53.3]	75,063	59.6	[54.0, 65.2]	95,222
Hispanic	56.5	[50.3, 62.7]	35,618	46.5	[39.8, 53.2]	29,329
Other race only, Non-Hispanic	65.4	[55.5, 75.3]	25,694	78.6	[70.8, 86.4]	30,908
Multiracial, Non-Hispanic	41.2	[26.1, 56.3]	3,337	59.7	[46.4, 73.0]	4,838
EDUCATION						
< High School	44.4	[37.5, 51.3]	37,397	50.4	[43.3, 57.5]	42,507
High School	49.1	[44.9, 53.3]	120,793	60.3	[56.6, 64.0]	148,372
> High School and < College/Technical School	56.9	[52.7, 61.1]	125,094	69.2	[65.7, 72.7]	152,199
College/Technical School	60.0	[56.8, 63.2]	131,897	77.8	[75.4, 80.2]	171,019
Don't know/not sure/missing	51.5	[18.8, 84.2]	2,326	46.3	[15.4, 77.2]	2,090
HOUSEHOLD INCOME						
Less than $15,000	52.9	[45.2, 60.6]	25,028	52.1	[44.5, 59.7]	24,655
$15,000-$24,999	52.9	[46.8, 59.0]	44,286	61.4	[55.9, 66.9]	51,350
$25,000-$34,999	50.2	[42.4, 58.0]	26,866	71.6	[65.5, 77.7]	38,345
$35,000-$49,999	55.6	[49.1, 62.1]	45,488	69.2	[63.9, 74.5]	56,598
$50,000 or more	58.9	[55.8, 62.0]	202,761	77.1	[74.8, 79.4]	265,301
Don't know/not sure/missing	44.6	[39.7, 49.5]	73,078	48.7	[44.1, 53.3]	79,938

Note: Same with Table 5.

3.15 Immunization

Immunizations can prevent infectious diseases. The 2019 BRFS includes three types of immunizations: the flu shot (or nose sprayed flu vaccine and Fluzone Intradermal vaccine), the pneumococcal vaccine, and the tetanus shot. Questions about place of flu shot taking were added in the 2019 BRFS.

The rates of Delaware adults receiving flu shots (37.5 percent) is less than the national rates (42.4 percent), the rate of tetanus shot in Delaware (64.3 percent) is slightly higher than the national rates (63.1 percent), and the rate of pneumonia vaccination in Delaware (30.5 percent) is slightly lower than the national rate (31.2 percent).

Table 35: Immunization in Delaware and the U.S.		
	Delaware	U. S.
	Wt. %	Wt. %
Flu shot/spray during the past 12 months	37.5	42.4
Tetanus shot in the past 10 years	64.3	63.1
Pneumonia vaccine	30.5	31.2

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

About 37.5 percent of Delaware adults received the flu vaccine in 2019. Flu vaccination rates increase along with age groups. The rate is 26.2 percent of the 18-24 age group and increases to 39.6 percent of the 45-54 age group, 50.2 percent of the 55-64 age group, and is statistically significantly higher in the age group of 65 and over (63.4 percent). More females (48.4 percent) get the flu shot than males (38.2 percent), and more White adults (47.8 percent) than Black adults (34.4 percent) report receiving the shot. Flu vaccination also varies by education attainment. Respondents with higher educational achievement are more likely to get the flu vaccine.

Although the vaccination rate of pneumonia varies by gender, race, and socio-economic status, the most noticeable difference occurs among the elderly population. The pneumonia vaccine rate is 72.8 percent in the 65 and over group. It is also noteworthy that Hispanic respondents have statistically significantly lower pneumonia vaccination rates (16.2 percent) than White (38.6 percent) and Black respondents (39.2 percent).

The rates of tetanus shot in the past 10 years reveal no statistically significant differences among age, gender, race, and socio-economic status. Table 37 is the survey results that respondents replied "yes" to this question, including "Yes, received Tdap," "Yes, received tetanus shot, but no Tdap," and "Yes, received tetanus shot but not sure what type."

Table 36: Immunizations

	Flu shot/spray in past 12 months			Ever had pneumonia vaccine		
	Wt. %	95% C.I.	Est. Pop.	Wt. %	95% C.I.	Est. Pop.
Total	37.5	[35.1, 39.9]	290,614	30.5	[28.0, 33.0]	136,212
AGE						
18-24	26.2	[15.0, 37.4]	19,842	34.8	[22.3,47.3]	26,311
25-34	30.1	[21.5, 38.7]	32,508	19.2	[9.4, 29.0]	20,471
35-44	34.2	[26.1, 42.3]	32,892	17.2	[7.8, 26.6]	16,459
45-54	39.6	[33.1, 46.1]	41,012	20.8	[13.2, 28.4]	21,255
55-64	50.2	[44.9, 55.5]	59,595	27.1	[21.0, 33.2]	32,182
65 and over	63.4	[60.0, 66.8]	104,765	72.8	[69.8, 75.8]	119,535
GENDER						
Male	38.2	[34.5, 41.9]	121,535	32.5	[28.6, 36.4]	102,815
Female	48.4	[45.2, 51.6]	169,079	38.4	[35.0, 41.8]	133,397
RACE-ETHNICITY						
White, Non-Hispanic	47.8	[45.0, 50.6]	204,692	38.6	[35.7, 41.5]	164,554
Black, Non-Hispanic	34.4	[27.0, 41.8]	45,922	39.2	[31.6, 46.8]	51,916
Hispanic	37.8	[29.2, 46.4]	19,008	16.2	[7.4, 25.0]	8,064
Other race only, Non-Hispanic	34.2	[20.5, 47.9]	12,182	20.2	[6.7, 33.7]	6,946
Multiracial, Non-Hispanic	29.0	[11.2, 46.8]	1,851	17.7	[0, 35.8]	1,117
EDUCATION						
< High School	41.1	[32.7, 49.5]	28,528	33.1	[23.6, 42.6]	22,849
High School	36.9	[32.0, 41.8]	75,819	34.7	[29.8, 39.6]	70,907
> High School and < College/Technical School	43.0	[38.1, 47.9]	82,019	40.5	[35.4, 45.6]	76,847
College/Technical School	52.2	[48.5, 55.9]	103,212	33.2	[29.2, 37.2]	65,136
Don't know/not sure/missing	29.0	[0, 62.6]	1,036	13.3	[0, 46.6]	473
HOUSEHOLD INCOME						
Less than $15,000	41.6	[31.9, 51.3]	16,748	35.5	[26.1, 44.9]	14,170
$15,000-$24,999	35.0	[27.7, 42.3]	25,328	36.5	[29.6, 43.4]	26,201
$25,000-$34,999	33.7	[24.9, 42.5]	15,937	38.1	[29.1, 47.1]	18,017
$35,000-$49,999	51.5	[44.5, 58.5]	37,655	41.1	[33.6, 48.6]	29,975
$50,000 or more	46.7	[43.2, 50.2]	146,908	33.3	[29.3, 37.3]	103,944
Don't know/no sure/missing	40.2	[34.6, 45.8]	48,037	37.1	[31.3, 42.9]	43,905

Notes: Same with Table 5.

Table 37: Immunizations (Cont.)

	Have you received a tetanus shot in the past 10 years?		
	Wt. %	95% C.I.	Est. Pop.
Total	64.3	[62.3, 66.3]	427,251
AGE			
18-24	73.7	[66.6, 80.8]	55,752
25-34	65.3	[59.2, 71.4]	70,136
35-44	63.3	[57.4, 69.2]	60,662
45-54	66.6	[61.6, 71.6]	68,243
55-64	63.9	[59.5, 68.3]	75,965
65 and over	58.7	[55.0, 62.4]	96,493
GENDER			
Male	65.4	[62.4, 68.4]	207,702
Female	63.3	[60.5, 66.1]	219,549
RACE-ETHNICITY			
White, Non-Hispanic	66.7	[64.3, 69.1]	284,747
Black, Non-Hispanic	60.9	[54.6, 67.2]	80,390
Hispanic	62.4	[55.8, 69.0]	31,056
Other race only, Non-Hispanic	56.7	[45.1, 68.3]	20,186
Multiracial, Non-Hispanic	60.7	[45.9, 75.5]	3,838
EDUCATION			
< High School	55.2	[47.7, 62.7]	38,128
High School	63.4	[59.3, 67.5]	129,672
> High School and < College/Technical School	67.0	[63.0, 71.0]	127,607
College/Technical School	66.0	[62.8, 69.2]	130,005
Don't know/not sure/missing	51.5	[16.9, 86.1]	1,838
HOUSEHOLD INCOME			
Less than $15,000	54.1	[45.5, 62.7]	21,613
$15,000-$24,999	57.2	[51.0, 63.4]	41,310
$25,000-$34,999	60.2	[52.5, 67.9]	28,463
$35,000-$49,999	70.0	[64.1, 75.9]	50,999
$50,000 or more	69.0	[66.1, 71.9]	216,131
Don't know/not sure/missing	57.8	[52.7, 62.9]	68,736

Note: Same with Table 5.

3.16 HIV/AIDS

HIV stands for human immunodeficiency virus. HIV weakens a person's immune system by destroying cells that fight disease and infection. With proper medical care, HIV can be controlled, but no effective cure exists (CDC, 2020m). An estimated 1.1 million people in the U.S. have HIV, including about 162,500 people who are unaware of their infection. For people with undiagnosed HIV, testing is the first step in maintaining a healthy life and reducing the spread of HIV (CDC, 2020n). The 2019 BRFS surveys the incidence of HIV testing, which includes testing fluid from one's mouth, but does not count tests as part of a blood donation.

Around 37.5 percent of Delaware adults have been tested for HIV, which is lower than the national rate (41.3 percent). Regarding age, the oldest age groups report the lowest testing rates. It is 18.9 percent for age group of 65 and older. With race-ethnicity, Black adults report a statistically significant greater testing rate (64.7 percent) than White (38.0 percent) and Hispanic adults (38.6 percent). Gender and socio-economic conditions make no statistically significant difference for HIV test rate.

In addition to the HIV testing behavior, 2019 BRFS also lists five "high risk situations". If any of the following situations applied to the respondent, the respondent should answer "yes", but do not need to indicate which one. The situations include:

- You have injected any drug other than those prescribed for you in the past year.
- You have been treated for a sexually transmitted disease or STD in the past year.
- You have given or received money or drugs in exchange for sex in the past year.
- You had anal sex without a condom in the past year.
- You had four or more sex partners in the past year.

Around 6.3 percent of respondents report that at least one of these situations apply to them. The U.S. percentage is also 6.7 percent (CDC, 2020c).

Table 38: HIV Testing

| | Have ever been tested for HIV | | |
| | Do not count tests as part of a blood donation | | |
	Wt. %	95% C.I.	Est. Pop.
Total	37.5	[38.5, 43.1]	290,683
AGE			
18-24	43.5	[33.0, 54.0]	32,483
25-34	54.4	[47.7, 61.1]	57,156
35-44	64.3	[58.5, 70.1]	60,837
45-54	62.8	[57.5, 68.1]	63,602
55-64	39.0	[33.4, 44.6]	45,748
65 and over	18.9	[13.8, 24.0]	30,857
GENDER			
Male	42.5	[38.5, 46.5]	132,943
Female	46.0	[42.6, 49.4]	157,740
RACE-ETHNICITY			
White, Non-Hispanic	38.0	[34.7, 41.3]	160,142
Black, Non-Hispanic	64.7	[58.8, 70.6]	84,654
Hispanic	38.6	[31.3, 45.9]	19,058
Other race only, Non-Hispanic	47.2	[33.8, 60.6]	15,853
Multiracial, Non-Hispanic	67.8	[54.0, 81.6]	4,277
EDUCATION			
< High School	38.3	[29.9, 46.7]	25,928
High School	44.1	[38.9, 49.3]	89,638
> High School and < College/Technical School	45.7	[40.5, 50.9]	85,026
College/Technical School	45.3	[41.1, 49.5]	88,438
Don't know/not sure/missing	46.2	[11.7, 80.7]	1,651
HOUSEHOLD INCOME			
Less than $15,000	54.6	[46.0, 63.2]	21,014
$15,000-$24,999	48.1	[40.8, 54.4]	34,476
$25,000-$34,999	43.9	[34.5, 53.3]	20,632
$35,000-$49,999	46.9	[38.9, 54.9]	34,092
$50,000 or more	45.8	[41.9, 49.7]	142,176
Don't know/not sure/missing	33.3	[26.7, 39.9]	38,293

Notes: Same with Table 5.

3.17 Adverse Childhood Experience

Adverse Childhood Experiences (ACEs) are potentially traumatic events that occur in childhood (0-17 years). For example, experiencing violence, abuse, or neglect. ACEs are common. About 61 percent of adults surveyed across 25 states reported that they had experienced at least one type of ACE, and nearly 1 in 6 reported they had experienced four or more types of ACEs. ACEs are related to chronic health problems, mental illness, and substance misuse in adulthood. ACEs also bring negatively impact education and job opportunities. However, ACEs can be prevented (CDC, 2020o).

The 2019 BRFS is the first time that Delaware BRFS includes the ACEs module. This module has eleven questions related to childhood experiences. This information will allow policymakers and data users to better understand problems that may occur early in life and may help others in the future. All respondents need to answer these questions based on the time period before they were 18 years of age. Table 39 lists the survey results.

Among the eleven ACEs surveyed in the 2019 BRFS, the highest prevalent experience is "a parent swore at you once or more than once." Nearly 34.8 percent of Delaware adults had the experience before 18 years old. The second highest prevalent ACE is "a parent physically hurt you in any way once or more than once," 28.7 percent of Delaware adults had this experience. Both ACEs show higher rates compared to the U.S. percentage, which are 30.9 percent and 22.6 percent, respectively. Other ACEs rates in Delaware are either lower or similar to the U.S. rates.

Table 39: Adverse childhood experience in Delaware and the U.S.

	Delaware Wt. %	U.S. Wt. %
1. Live with anyone depressed, mentally ill, or suicidal	17.1	18.8
2. Live with a problem drinker/alcoholic	23.3	24.4
3. Live with anyone who used illegal drugs or abused prescriptions	12.3	12.0
4. Live with anyone who served time in prison or jail	8.8	9.5
5. Parents were divorced/separated	27.3	30.1
6. Parents beat each other up once or more than once	17.6	17.0
7. A parent physically hurt you in any way once or more than once	28.7	22.6
8. A parent swore at you once or more than once	34.8	30.9
9. Anyone touched you sexually once or more than once	9.9	11.6
10. Anyone made you touch them sexually once or more than once	8.1	8.7
11. Anyone forced you to have sex once or more than once	4.7	5.1

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

3.18 Family planning

The 2019 BRFS includes a set of four questions asked to collect respondents' thoughts and experiences with family planning. If the respondent is female and greater than 49 years of age, or if the respondent is male, they do not need to answer these questions. The 2019 BRFS also has state-added question for family planning, asking respondents' feel about having a child now or sometime in the future.

For the first question "Did you do anything to keep from getting pregnant?", 18.1 percent of respondents answered, revealing that 10.4 percent of Delaware respondents took action to avoid getting pregnant the last time that they had sex. The main methods of contraception are birth control pills (used by 27.8 percent of respondents) and male condoms (used by 27.5 percent of respondents). "Other reasons" is the main reason reported for not adopting contraceptive methods. When asked about the prospect of having a child, 51.4 percent of respondents don't want to have children; 22.5 percent of respondents are unable to have children/hysterectomy; 15.3 percent of respondents want to have children with specific timeframe; while 10.9 percent of respondents do want to have children but are not sure when.[10]

Table 40: Question 1: Did you do anything to keep from getting pregnant?		
	Delaware	U.S.
	Wt. %	Wt. %
Yes	57.4	54.0
No	33.9	35.9
No partner/not sextually active	5.7	6.0
Same sex partner	1.5	0.9
Don't know/Not sure	0.3	0.7
Refused	1.2	2.4

Note: No response (not asked or missing) rate for this question is 81.9 percent.
Source: This study.

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[10] This section presents valid percentage, which excludes the "not asked or missing" (no response) data.

Table 41: Question 2: What did you do to keep You from getting pregnant?

	Delaware Wt. %	U.S. Wt. %
Birth control pills, any kind	27.8	25.3
Male condoms	27.5	28.4
Female sterilization (ex. Tubal ligation, Essure, Adiana)	6.9	8.2
Male sterilization (vasectomy)	5.9	7.3
IUD, type unknown	5.6	7.0

Note: No response (not asked or missing) rate for this question is 89.7 percent.
Source: This study.

Table 42: Question 3: What was the main reason for not doing anything to keep you from getting pregnant?

	Delaware Wt. %	U.S. Wt. %
Other reasons*	25.1	16.2
You want a pregnancy	14.4	13.1
You had tubes tied (sterilization)	12.8	16.4
Don't think you or your partner can get pregnant (infertile or too old)	7.7	12.8
You had a hysterectomy	7.4	10.3

Note: No response (not asked or missing) rate for this question is 93.9 percent.
*other reasons include respondents who chose "other reasons" and chose reasons other than reasons listed in the table (including but not limited to religious reasons, you are currently breast-feeding etc.).
Source: This study.

Table 43: State-added question 2_1: How do you feel about having a child now or sometime in the future? Would you say...

	Delaware Wt. %
You don't want to have one	51.4
You do want to have one, less than 12 months from now	3.8
You do want to have one, between 12 months & less than 2 years from now	3.3
You do want to have one, between 2 years & less than 5 years from now	5.3
You do want to have one, five or more years from now	2.9
You do want to have one, but you are not sure when	10.9
Unable to have children/hysterectomy	22.5

Note: No response (not asked or missing) rate for this question is 26.6 percent.
Source: This study.

3.19 Sexual orientation and gender identity

The 2019 BRFS collects data regarding sexual orientation and gender identity for the purpose of better understanding the health and health care needs of the lesbian, gay, bisexual, and transgender communities (LGBT+). Two questions are asked: first, which of the following best represents how you think of yourself? If the respondent is male (SEX=1), the three main answer options are: 1-Gay, 2-Straight, or 3-Bisexual. If the respondent is female (SEX=2), the three main answer options are: 1-Lesbian or Gay, 2-Straight, or 3-Bisexual. The second question is: Do you consider yourself to be transgender?

Table 44 and Table 45 shows the percentages of LGBT populations in Delaware and in the United States. Delaware has a greater percentage of respondents who identify as LGBT+ than the percentage in the nation. In detail, 3.2 percent of Delaware male adults consider themselves as gay; 2.1 percent as bisexual. Around 1.6 percent of Delaware female adults consider themselves as lesbian or gay and 4.2 percent as bisexual. The transgender percentage is 0.9 percent in Delaware and 0.5 percent in the nation (Table 46).

Table 44: Sexual Orientation in Delaware and the U.S. (Male)

	Delaware Wt. %	U.S. Wt. %
Gay	3.2	2.4
Straight or Heterosexual	92.1	91.3
Bisexual	2.1	2.1
Something else	0.4	1.3
I don't know the answer	0.6	1.6
Refused	1.6	1.5

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 45: Sexual Orientation in Delaware and the U.S. (Female)

	Delaware Wt. %	U.S. Wt. %
Lesbian or Gay	1.6	1.3
Straight or Heterosexual	90.1	88.4
Bisexual	4.2	4.2
Something else	1.6	1.6
I don't know the answer	1.0	2.6
Refused	1.4	1.9

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

Table 46: Self-considered Transgender in Delaware and the U.S.

	Delaware Wt. %	U.S. Wt. %
Yes, Transgender, male to female	0.5	0.2
Yes, Transgender, female to male	0.1	0.2
Yes, Transgender, gender nonconforming	0.3	0.1
No	97.7	98.1
Don't know/Not Sure	0.9	0.7
Refused	0.5	0.7

Source: 1. Delaware data: This study. 2. U.S. data: (CDC, 2020c).

4. Conclusion

The Behavioral Risk Analysis Survey (BRFS) offers a means of gathering empirical data and meaningful insights into the public health of Delaware's adult population. By understanding Delawareans' health conditions, health habits, and behavioral risks in relation to that of the general U.S. population, policymakers and health professionals can make better informed decisions about the specific health care needs of the state. Additionally, information gathered through Delaware's BRFS is utilized by several national health organizations, such as the U.S. Centers for Disease Control and Prevention (CDC), which provides valuable long-term data.

Healthcare access proves to be a key finding and significant issue in Delaware, relatively consistent with nationwide results, and is often affected by race, socioeconomic status, and educational attainment. The 2019 BRFS found that Hispanic adults have statistically significant lower coverage, compare to White, Black, and Other non-Hispanics. Also, Medicare[11] might play a significant role in health care access. When considering adults aged 18 to 64 years old, the coverage rate drops to 64.3 percent. Access to healthcare can greatly influence one's health condition, making it a crucial topic to study and improve through public policy and government attention and assistance.

Chronic disease is a core component of the Delaware BRFS, with thirteen types of chronic disease being surveyed in 2019. Hypertension, high blood cholesterol, and arthritis are the top three most widely prevalent chronic diseases in Delaware, as well as in the entire nation (arthritis is the top chronic disease in the U.S.).

For behavioral risk factors, the 2019 BRFS surveys tobacco use, alcohol consumption, exercise, fruits and vegetables consumption, immunization, and HIV/AIDS. For tobacco use, 15.0 percent of Delaware adults smoke and 1.7 percent Delaware adults currently use e-cigarettes every day. For alcohol consumption, respondents with higher household incomes are more likely to engage in heavy drinking. For physical activity, 67.8 percent Delaware adults report they have engaged in physical activity in the past month. Delaware adults consume more vegetables than fruits. For immunization, flu shot immunization rate is 37.5 percent. Flu vaccination rates increase along with age groups. Around 37.5 percent of Delaware adults have been tested for HIV. Black adults report a statistically significant greater testing rate than White and Hispanic adults.

The BRFS includes opportunities to incorporate optional survey modules deemed relevant to Delaware's population. This method is important in that it allows room to explore and expand upon distinct areas that are particularly of greater concern in Delaware compared to other

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[11] Medicare is a federal insurance program that provides healthcare coverage for Americans 65 and older or under 65 and have a disability.

participating states. This report analyzes the optional modules of home/self-measured blood pressure (analysis is included in the Hypertension Awareness section), adverse childhood experiences, family planning, and sexual orientation and gender identity.

The Adverse Childhood Experiences (ACEs) is included in Delaware's BRFS for the first time. It records traumatic events that occur in childhood (0-17 years) that are related to chronic health problems, mental illness, and substance misuse in adulthood. The 2019 BRFS shows that the highest ACE in Delaware is "a parent swore at you once or more than once" and the second highest ACE is ""a parent physically hurt you in any way once or more than once."

For family planning, 18.1 percent of respondents answered the family planning questions (female under 49 years old) and reveals that 10.4 percent of Delaware respondents took action to avoid getting pregnant the last time that they had sex. The main methods of contraception are birth control pills and male condoms. For LGBT+, Delaware has a greater percentage of respondents who identify as LGBT+ compared to the nation.

The most important finding in the 2019 BRFS is the significant influence of race upon health care access and coverage and chronic health conditions. The Hispanic population shows statistically significant lower rates of health care coverage, HBP prevalence, cholesterol checking behavior, and pneumonia vaccination.

However, the low rate may result from (less often) health checking behavior. For example, the cholesterol checking reflects a statistically significant difference among Hispanics to Blacks and Whites. Overall, 68.8 percent of the Hispanics report that they had their cholesterol checked within the past five years, compared to 85.7 percent of Whites, and 84.8 percent of Blacks. Statistically significant differences also exist among races for pneumonia vaccination. These findings highlight a need for more public health outreach and education to Hispanic communities.

It is also critical to ensure that each demographic is represented accordingly. While the main three racial groups discussed in the BRFS report include Whites, Blacks, and Hispanics, it is important to acknowledge that there are many more races and ethnicities that make up Delaware's population. While it is important to maintain accuracy and not speculate upon data when the samples are limited, it is imperative that efforts are made to expand upon these sample sizes by organizing strategies to collect information from these groups.

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