



Health Indicator Profiles (HIPs) Methods



The findings from the 2019 Community Health Needs Assessment (CHNA) were further analyzed to better understand the health and well-being needs of the community. Data on the most salient health issues are provided in a series of topic-specific tables and figures, detailed for the county's adult population age 18 years and older. Estimates are also provided by gender, race/ethnicity, age, education, and household income. Key results and findings are highlighted throughout each of the HIPs.

Data used to compile each of the HIPs are derived from several sources and include the following:

1. 2016 Cottage Health Community Health Needs Assessment Survey
2. 2019 Cottage Health Community Health Needs Assessment Survey
3. 2018 California BRFSS Survey and/or other national and regional benchmarks
4. 2019 Cottage Health Community Health Needs Assessment Listening Tour

HIPs topics were selected by Cottage Health in consultation with local service providers and other key stakeholders.

The 2019 Santa Barbara HIPs provide a snapshot of the County's health in terms of physical, mental, and social conditions, comparing the county's health in 2019 to both the 2016 Santa Barbara County's CHNA estimates and to the 2018 California BRFSS estimates. If state estimates were not available, national or regional estimates were used when available and appropriate. The process for how each HIP is constructed and how the information can be interpreted is described below.

1. HIPs include information about the importance of the health indicator as it relates to overall health and wellbeing. Indicators are defined in both terms of the survey questions asked of each participant and also in how responses were coded.

2. Each HIP includes information describing the health indicator across demographic groups, and where possible, compares the 2019 Santa Barbara County estimates to both the 2016 county estimates as well as to the California state BRFSS estimates (CDC). If Healthy People 2020 goals are available, comparisons are made between national benchmarks and the estimates derived from the 2016 and 2019 Santa Barbara County CHNAs as well as to state BRFSS estimates. In absence of a 2020 Healthy People goal, we identify national or regional estimates to help provide context in interpreting Santa Barbara County CHNA estimates.

In the table at right, a “^” symbol next to an estimate indicates the estimate is statistically different from the benchmark, meaning the difference is likely real and not due to chance. For example, all three overall estimates for 2016 CHNA, 2019 CHNA, and 2018 BRFSS in the table below are significantly below the Healthy People benchmark target of 24.4%. Note that the following symbol “†” in the table below indicates that an estimate is unreliable and should be interpreted with caution. An unreliable estimate is generally the result of too few observations for the given sub-population.

Excessive alcohol use, such as binge drinking, can increase the risk of various health problems like liver diseases and cancer.¹ Binge drinking can also lead to injuries from automobile accidents as well as injuries from interpersonal violence.²

Findings from the 2019 Santa Barbara County CHNA

Measure

Binge drinking was defined as four or more drinks consumed on one occasion for women and five or more drinks consumed on one occasion for men within the past 30 days. *U.S. Dietary Guidelines for Americans* recommends alcohol be consumed in moderation, if at all, and provides further guidelines based on sex and age. Alcohol is not recommended for those under legal drinking age.³

DEFINITION

Binge drinking: Four or more drinks on one occasion for women; five or more drinks on one occasion for men

Table 1. Percentage of adults who are binge drinkers by demographics

	2016 Santa Barbara CHNA	2019 Santa Barbara CHNA	2018 California BRFSS	2020 Healthy People Target
	% (95% CI)	% (95% CI)	% (95% CI)	
Overall	16.7 (14.0, 19.3) [^]	16.7 (13.2, 20.2) [^]	16.0 (15.1, 16.9) [^]	24.4
Male	22.4 (18.1, 26.7)	24.2 (18.3, 30.0)	21.9 (20.5, 23.3) [^]	
Female	11.4 (8.2, 14.5) [^]	9.2 (5.6, 12.9) [^]	10.4 (9.3, 11.4) [^]	
Hispanic	16.7 (12.5-20.9) [^]	16.3 (10.9, 21.7) [^]	17.2 (15.7, 18.7) [^]	
Non-Hispanic White	15.7 (12.2-19.2) [^]	17.8 (12.7, 23.0) [^]	15.4 (14.3, 16.5) [^]	
Other	24.4 (13.0-35.9)	15.2 (2.8, 27.5) [†]	NA	
Age 18-44	24.0 (19.2, 28.7)	23.4 (17.3, 29.5)	22.7 (21.3, 24.2) [^]	
Age 45-64	12.6 (9.3, 15.9) [^]	13.4 (8.6, 18.1) [^]	13.2 (11.9, 14.6) [^]	
Age 65+	3.9 (2.1, 5.7) [^]	3.8 (0.8, 6.8) ^{^†}	3.7 (2.9, 4.5) [^]	
< High School	11.1 (5.2, 16.9) [^]	8.0 (2.0, 14.0) ^{^†}	13.3 (11.3, 15.3) [^]	
High School Grad	19.3 (12.2, 26.3)	19.5 (10.9, 28.1)	17.3 (15.3, 19.3) [^]	
Some College	17.2 (12.6, 21.7) [^]	19.9 (13.1, 26.6)	17.1 (15.4, 18.9) [^]	
College Grad	18.1 (13.6, 22.5) [^]	16.5 (10.6, 22.3) [^]	15.4 (14.1, 16.7) [^]	
<\$35,000	15.1 (10.7, 19.5) [^]	16.8 (10.9, 22.7) [^]	14.8 (13.3, 16.2) [^]	
\$35,000-\$74,999	20.9 (14.8, 27.0)	13.2 (5.7, 20.7) [^]	17.1 (15.2, 19.0) [^]	
\$75,000 or Greater	19.3 (14.3, 24.3) [^]	17.5 (11.8, 23.2) [^]	19.2 (17.6, 20.8) [^]	

[^] Significant difference between estimate and Healthy People 2020 target
[†] Unreliable estimate (Relative Standard Error >0.3)

3. Health disparities for each indicator are identified and tested for statistical significance. To determine if a comparison is statistically significant, we calculate a 95% confidence interval around each estimate. The table above contains percentage estimates and 95% confidence intervals. Percentage estimates are labeled “%”; all percentages have been weighted (adjusted). An accurate sense of the health of Santa Barbara County’s adult residents requires an understanding of the confidence intervals, which are labeled “CI.” A CI is “the range within which the true magnitude of effect lies with a certain degree of assurance.” (Hennekens)

Here is an example:

The data above indicate in 2019 that 16.7% of Santa Barbara County adult residents said they have had 4 or 5 alcoholic beverages on one occasion in the past 30 days, which constitutes binge drinking; the confidence interval is (13.2, 20.2). This means that if we drew 100 samples of the same size, 95 of those 100 samples would produce the true proportion of Santa Barbara County residents who are binge drinkers. Confidence intervals help us determine if there is a statistical difference between two groups of people or two timepoints for a given health indicator.

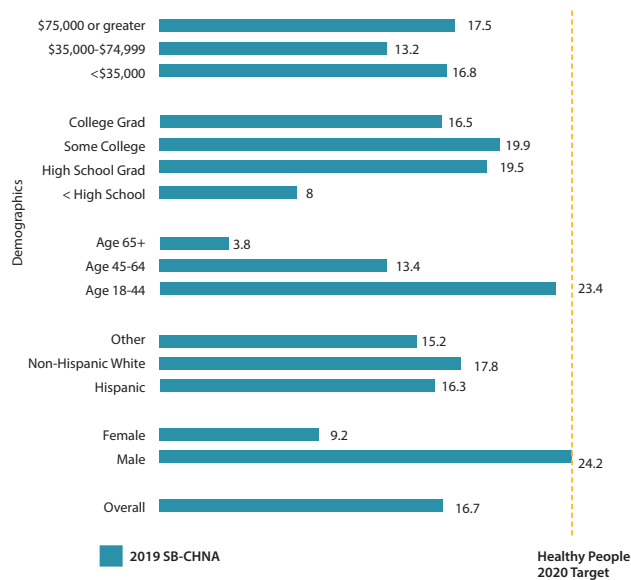
Continuing with the binge drinking example:

According to the data, 24.2% of male Santa Barbara County residents are binge drinkers; the CI is 18.3, 30.0%. Also, in the same year 9.2% of female residents are binge drinkers; the CI is 5.6-12.9%. Because the confidence intervals do not overlap, we can say with 95% confidence that significantly more male residents are binge drinkers than female residents. Furthermore, because the male CI includes the Healthy People 2020 benchmark (i.e., 24.4% is included in the interval 18.3, 30.0%), we cannot say that males are significantly below the national benchmark; however, for females we can say that they are below the national benchmark, as 24.4% is not included in the 95% CI of 5.6-12.9%.

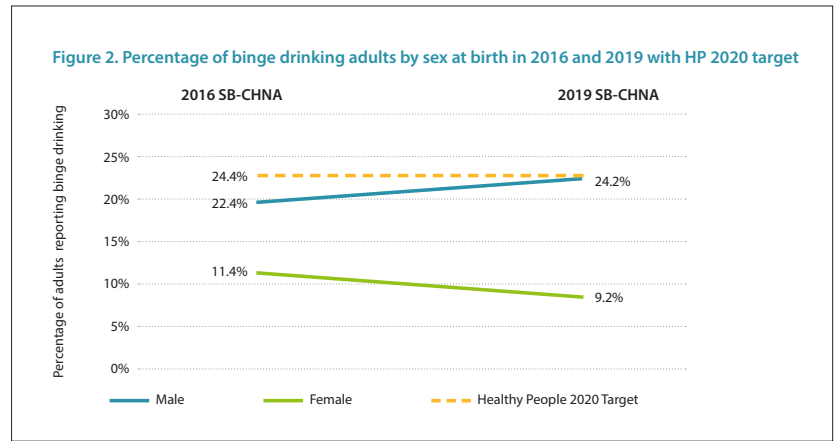
4. Based on a series of comparisons, health disparities and priority subgroups are identified and depicted for each HIP, as seen below in the orange text box. The horizontal bar chart depicts how each demographic subgroup compares to one another as well as to the benchmark, in this example the benchmark is from Healthy People 2020 as indicated by the vertical line at 24.4%. For binge drinking, every demographic group is below the benchmark; however males and those age 18-44 are at greatest risk for being over the benchmark and thus are included in the priority sub-groups.

Most impacted demographic subgroups include males, adults aged 18-44 years old, those with some college education, and those with household incomes at or above \$75,000 (see figures below).

Figure 1. 2019 Percentage of adults that are binge drinkers by demographic group



5. To further explore differences between sub-populations and/or demographic groups, figures are presented to illustrate how disparities are changing over time in the county. In the figure below, we can observe a widening of the binge drinking disparity between genders. In 2016 there was an 11-point gap between males and females and in 2019 that gap has increased to a 15-point gap.



6. Finally, for a deeper dive, correlation models (Logistic Regressions) are run to highlight the relationship each health indicator has to the other health indicators. For example, to better understand what factors are related to self-reported “Binge Drinking” and possibly provide targets for intervention, we conducted a correlation analysis to identify which health indicators are most associated with binge drinking. Twenty-two health indicators (including self-reported poor or fair health, serious mental illness, poor mental health days, depression, anxiety, Adverse Childhood Experiences, resilience, access to health care provider, cost as a barrier to health care, Medicaid, health insurance, unemployment status, physical inactivity, obesity, diabetes, cardiovascular disease, stroke, cancer, binge drinking, smoking, and housing and food insecurity) were investigated to determine which were most correlated with reporting binge drinking.

7. The process to determine which health indicators correlated with which other health indicators was conducted in 3 steps.

STEP 1: Using a sample of 1,588 which included both a probability and non-probability sample, an unweighted multivariate logistic regression was run which included all 22 indicators as independent variables and the target indicator as the dependent variable (e.g., in this case the dependent variable is binge drinking).

Step 2: All independent variables significantly associated with the dependent variable ($p < .05$) in step one were then run in the probability sample only ($n=897$) using weighted observations. This allows us to test whether or not the significant relationships between health indicators are generalizable to all of Santa Barbara County or only significant for just the sample of participants that took part in the survey.

STEP 3: All independent variables significantly or marginally associated with the dependent variable ($p < .10$) in step two were run again in the probability sample, but this time controlling for age, gender, race/ethnicity, and education. Controlling for these variables let us test whether or not the relationship between health indicators in a result are applicable to the entire population or if the correlation is only relevant for a specific sub-population (e.g., males or younger adults age 18-44).

8. The results of the correlation analysis are presented in the figure and table below. The figure below shows the percentage of those with diabetes, serious mental illness, current smokers, and those with a history of cancer who are currently binge drinkers. These are presented against overall county and state estimates. Whereas 16-17% of the adults in the county and state overall report binge drinking, only 1.4% of those with diabetes and 6.2% with a history of cancer report binge drinking. Conversely, those reporting serious mental illness or being a current smoker have much higher percentages of binge drinking at 34% and 38.6% respectively.

9. In order test if the relationships between indicators are statistically significant, a table of odds ratios and their 95% confidence intervals are presented. The odds of reporting being a binge drinker if you are a current smoker are 5.5 times greater or 450% higher than if you are not a current smoker. An odds ratio of 1 means there is no difference in the odds between groups. An odds ratio of < 1 means that the odds are decreased. For example, the odds ratio of reporting binge drinking if you also reported a history of cancer compared to those not reporting a history is 0.3. This means that those with a history of cancer have a lower odds of reporting binge drinking when compared to those without a history of cancer. The magnitude of the difference can be calculated as is $1 - OR$ or $1 - 0.3$ which is 0.7 or 70%. To determine if the odds ratio is statistically significant, the confidence interval must not contain 1. If the confidence interval does not contain 1, the relationship is statistically significant using a 95% CI.

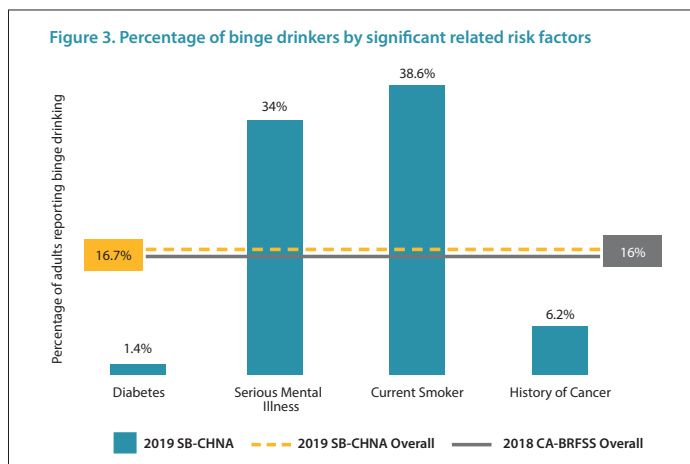


Table 2. Odds ratio estimates for binge drinking by significant related risk factors

Significant related risk factor	Point estimate	95% confidence limits	
Current Smoker	5.5	2.6	11.5
Has Serious Mental Illness	3.7	1.3	9.8
History of Cancer	0.3	0.1	1.4
Has Diabetes	0.0	0.0	0.4

Note: The degrees of freedom in computing the confidence limits is 659.

Listening Tour Methods for Health Indicator Profiles

In 2019, Cottage Health conducted a Listening Tour focused on behavioral health, the broad range of needs in the areas of mental health (i.e., severe and persistent disorders as well as mild-to-moderate conditions) and substance use (i.e., drugs and/or alcohol). The Listening Tour invited participants to share their input on root causes of behavioral health challenges, as well as the barriers and facilitators to accessing behavioral healthcare. The Listening Tour was designed to engage and amplify the voices of those who are medically underserved, low-income residents, youth, and members from Latinx and LGBTQI+ communities.

The Listening Tour team conducted seven semi-structured interviews with key stakeholders and twenty-three focus groups with participants who are part of the internal Cottage Health team, service providers, community leaders, and community members. All interviews and focus groups were audio-recorded and transcribed.

The transcripts of focus groups and interviews were analyzed using computer-assisted qualitative data analysis software, NVivo 12. A full report on the Listening Tour findings is available in the 2019 CHNA Report. Next, a second phase of analysis was undertaken to examine the findings from the Listening Tour as they relate to key health indicators selected by Cottage Health. The corpus of qualitative data was re-analyzed using a new codebook formulated to capture Listening Tour discussions about health indicators, such as: binge drinking, smoking, cost as a barrier to healthcare, insurance status, access to healthcare provider, food insecurity, housing insecurity, anxiety, depression, serious mental illness, ACEs, and resilience.

The result of this analysis is a report of Listening Tour findings that highlights the lived experience of Santa Barbara County residents' behavioral health concerns as they relate to the selected health indicators. Notably, these findings demonstrate how the participants' concerns about behavioral health are inextricably tied to health indicators that point to individual-level behaviors (e.g., binge drinking and smoking) and wider structural issues at the policy level (e.g., housing insecurity and food insecurity). The results of the Listening Tour are well-situated to inform inclusive, multicultural, and effective programs and policies that improve access to and quality of behavioral healthcare and support community well-being in Santa Barbara County.

Glossary

Confidence Interval (CI): A CI is "the range within which the true magnitude of effect lies with a certain degree of assurance." (Hennekens, 1987)

Statistical significance: "Statistical significance relates to how likely the observed effect is due to chance (ie, random error due to sampling) instead of a "true" difference between treatments or groups. Random error is the part of the study that cannot be predicted, i.e., that part attributable to chance." (Skelly, 2011)

Logistic Regression: "One use of logistic regression is to estimate the probability that an event will occur or that a patient will have a particular outcome using information or characteristics that are thought to be related to or influence such events. Logistic regression can show which of the various factors being assessed has the strongest association with an outcome and provides a measure of the magnitude of the potential influence. It also has the ability to "adjust" for confounding factors, ie, factors that are associated with both other predictor variables and the outcome, so the measure of the influence of the predictor of interest is not distorted by the effect of the confounder." (Tolles, 2016)

Weighted estimate: An estimate that has been weighted. "Weighting adjusts the poll data in an attempt to ensure that the sample more accurately reflects the characteristics of the population from which it was drawn and to which an inference will be made. Weighting is used to adjust the relative contribution of the respondents, but it does not involve any changes to the actual answers to survey questions." (AAPOR, 2007)

References

Centers for Disease Control and Prevention. (2015a). *Behavioral Risk Factor Surveillance System* [Online database]. Retrieved from <http://www.cdc.gov/brfss>

Hennekens, C. H., & Buring, J. E. (1987). *Epidemiology in medicine*. Boston-Toronto: Little Brown and Company

Skelly A. C. (2011). Probability, proof, and clinical significance. *Evidence-based spine-care journal*, 2(4), 9–11. <https://doi.org/10.1055/s-0031-1274751>

Tolles, M. (2016). Logistic Regression: Relating Patient Characteristics to Outcomes. *JAMA : the Journal of the American Medical Association*, 316(5), 533–534. <https://doi.org/10.1001/jama.2016.7653>

American Association for Public Opinion Research, AAPOR (2007). Weighting. <https://www.aapor.org/Education-Resources/For-Researchers/Poll-Survey-FAQ/Weighting.aspx> Accessed online 10/1/2013

