CHAPTER 5

HEALTH BEHAVIORS

INTRODUCTION

The things we put into and do with our bodies affect our health. What we eat, whether we exercise, wear seat belts, use substances like tobacco and alcohol, and our sexual health all directly promote or inhibit healthy living. A healthy diet and frequent exercise can help our bodies work as well as possible, while excessive eating, drinking, and substance use can lead to serious health conditions. These are called health behaviors.

Our health behaviors are not always determined by a choice to be healthy or unhealthy. In particular, the places we live, learn, work, and play, as well as our social and economic circumstances and exposure to trauma often dictate our opportunities to make healthy choices.

- **SOCIAL AND ECONOMIC FACTORS** – Individuals with low incomes and long work hours may have less time to prepare meals at home and less time to participate in physical activities. Their stress levels or history of trauma may make them more likely to use substances like alcohol or tobacco. Advertisers of unhealthy foods or products target low-income communities and people of color. People with higher levels of education may have more knowledge and access to information about safe sexual practices, healthy eating, and the dangers of tobacco use.
- **PHYSICAL ENVIRONMENT** – People in rural areas and low-income communities may be far from a grocery store that sells healthy foods. Their communities may lack formal facilities for exercise, or the roads and public spaces may not be safe to move around in.

The HNC 2030 health indicators chosen for the health behaviors topic area represent a range of issues and impact a variety of communities. Multiple indicators – drug overdose deaths and HIV diagnosis rates - highlight some issues, like injection drug use. Some indicators are not health behaviors themselves but are representative of a behavior. Most notable in this category are the teen birth and HIV diagnosis rates. Both are related to safe sexual practices, which we lack high quality data to evaluate at the population level. For each health indicator, this report also includes recommended evidence-informed policies and practices to address that indicator of interest. We recommend community coalitions use multi-sector partnerships to pursue all the strategies recommended.

Read an example below of how the opportunities to make healthy choices can impact an individual's ability to achieve health and well-being.[BB]

Opportunities to Make Healthy Choices - Chris's Experience

Chris grew up in an urban area with two loving parents. They had to work long hours to support Chris and his three brothers and sisters. When the family bought groceries, they tried to get the most for their dollar, but always picked out the kids' favorite sugary drinks because it was an inexpensive way to provide them with something they enjoyed. With both his parents' long hours, the family didn't prepare fresh meals at home, preferring fast food. Their neighborhood wasn't very safe, so Chris's parents encouraged the kids to stay indoors when they came home from school and they didn't get much physical activity. Chris and his siblings are all overweight. The school Chris attended didn't provide robust sex education, so when he became sexually active with his girlfriend, they didn't understand the risks for pregnancy. Chris and his girlfriend became parents at the age of 17. Chris now supports his small family working long hours at multiple minimum wage jobs without benefits. The baby's health care is covered by Medicaid but Chris and his girlfriend go without health insurance because they cannot afford it. He feels his smoking and drinking habits help him relax and relieve stress.

[BB] *Examples are of hypothetical scenarios commonly faced by individuals with health-related social needs.*

HEALTH INDICATORS:

10 DRUG OVERDOSE DEATHS

Decrease Drug Overdose Deaths

11 TOBACCO USE

Decrease Tobacco Use

12 EXCESSIVE DRINKING

Decrease Excessive Drinking

13 SUGAR-SWEETENED BEVERAGE CONSUMPTION

Reduce Overweight and Obesity

14 HIV DIAGNOSIS RATE

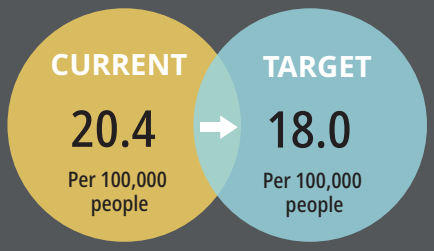
Improved Sexual Health

15 TEEN BIRTH RATE

Improved Sexual Health

HEALTH INDICATOR 10: DRUG OVERDOSE DEATHS

DESIRED RESULT: DECREASE DRUG OVERDOSE DEATHS



DEFINITION

Number of persons who die as a result of drug poisoning per 100,000 population

DETAILS

Age-adjusted; Includes deaths of any intent: unintentional, suicide, homicide, and undetermined; Includes medications and drugs like heroin, natural opioid analgesics and semisynthetic opioids, methadone, other synthetic opioid analgesics, benzodiazepines, cocaine, and psychostimulants with abuse potential

NC OVERDOSE DEATH RATE (2018)

20.4 per 100,000 people

2030 TARGET

18.0 per 100,000 people

RANGE AMONG NC COUNTIES (AVERAGE 2014-18)

6.2 – 40.9 per 100,000 people

RANK AMONG STATES

32nd*

DATA SOURCE

NC State Center for Health Statistics, Vital Statistics

STATE PLANS WITH SIMILAR INDICATORS

North Carolina Opioid Action Plan[CC]

*Rank of 1st for state with lowest drug overdose death rate

Rationale for Selection:

As in other states, North Carolina has experienced a sharp increase in the number of drug overdose deaths over the last decade, largely due to the opioid epidemic. Substance Use Disorder has devastating impacts on the life of the people who experience it, their families, and their communities.[CC]

Context

Substance use disorders (SUDs) are chronic or recurrent conditions that, like other chronic illnesses, require ongoing care and treatment for individuals to regain health and maintain recovery. As with any chronic disease, prevention, identification, treatment, and recovery services and supports are essential to ensuring positive health outcomes. Effective treatments for SUDs and underlying mental and physical health problems exist; however, access to services and supports for SUDs varies greatly across the state.

Having a SUD affects an individual's relationships with family and friends, ability to attend school or work, their overall physical and mental health, and may lead to problems with the legal system. In addition to increases in drug overdoses, the opioid epidemic has had devastating consequences including the spread of HIV and hepatitis B and C and increased rates of child maltreatment and entry into foster care as more and more parents and other relatives develop and struggle with SUDs.[86,87]

There are a number of reasons the opioid epidemic has garnered so much attention. Across the nation, drug overdose deaths have skyrocketed, making it a leading cause of death due to injury in the United States, accounting for more than 70,000 deaths in 2017, surpassing the number of traffic fatalities.[88,89] In addition, many people who suffer a fatal opioid overdose initially received prescription opioids from a health care provider to treat pain, and their use progressed to opioid use disorder.[90] Heavy marketing of these drugs to physicians by pharmaceutical companies, as well as emphasis on the use of pain scales, led to overprescribing. Those trends, as well as the increasing availability of cheap heroin and fentanyl, led to a rapid explosion in drug overdose deaths.

In North Carolina, the drug overdose death rate in 2018 was 20.4 per 100,000 people.[DD,EE] While prescription opioids drove the increase in overdose deaths originally and they are still a significant contributor to this epidemic, in North Carolina heroin and other synthetic narcotics (like illicitly manufactured fentanyl and its analogues) are now involved in over 70% of opioid overdose deaths.[91]

The skyrocketing rates over the past two decades highlight the immense need for better prevention and identification of SUDs and access to effective treatment and recovery services and supports. In 2018, North Carolina saw its first decline in opioid overdose deaths. Whether that trend continues will depend on several factors (see Levers for Change on next page).

Disparities

Drug overdose death rates have increased across all segments of the population. Overall, men die from drug overdoses at much higher rates than women, and adults aged 25-55 years suffer fatal overdose at higher rates than younger and older adults.[88] White and American Indian populations had the highest drug overdose death rates in 2018 at 26.4 and 32.6 per 100,000, respectively, followed by African Americans at 12.9 per 100,000 (**Figure 19**).[FF]

[CC] *North Carolina Department of Health and Human Services. North Carolina Opioid Action Plan 2.0. June 2019. https://www.ncdhhs.gov/about/department-initiatives/opioid-epidemic/north-carolinas-opioid-action-plan*

[DD] *The most recent national data available for comparison is from 2017, when the national average for drug overdose deaths was 21.7 per 100,000 people compared to 22.2 per 100,00 people in North Carolina (CDC, Drug Poisoning Mortality in the United States, 1999-2017, https://www.cdc.gov/nchs/data-visualization/drug-poisoning-mortality/index.htm).*

[EE] *Analysis of Vital Statistics records by the North Carolina State Center for Health Statistics*

FIGURE 18

Drug overdose death rates across populations in North Carolina and distance to 2030 target

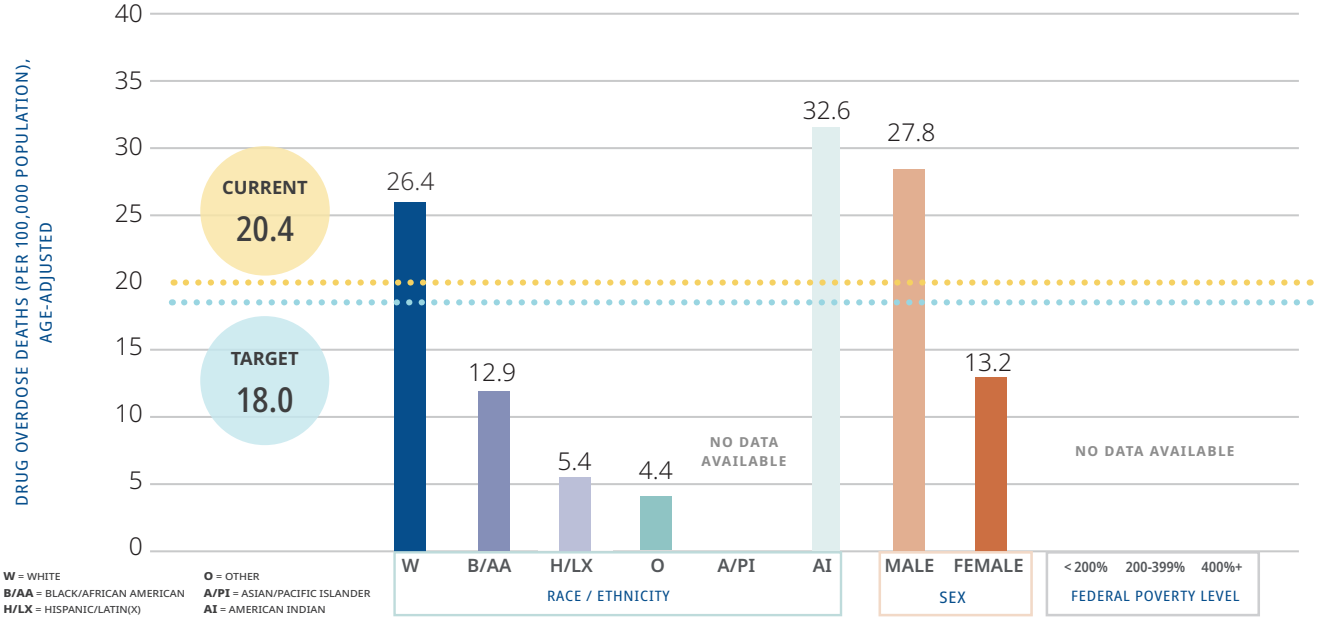
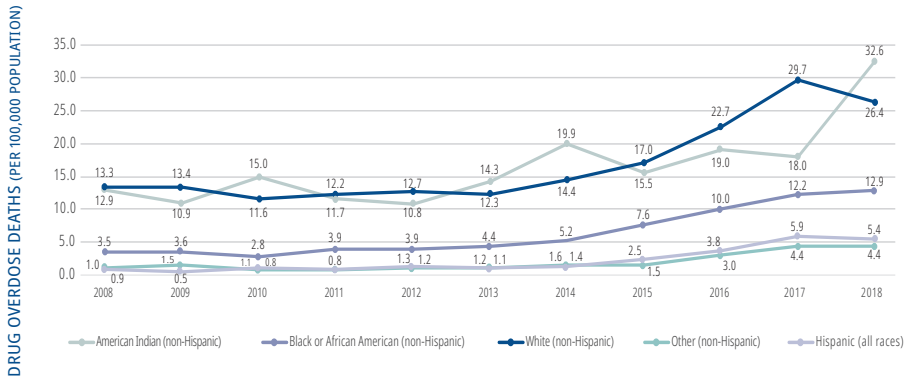


FIGURE 19

Drug Overdose Death Rate in North Carolina from 2008-2018, by Race/Ethnicity



Source: North Carolina State Center for Health Statistics analysis of Vital Statistics.

2030 Target and Potential for Change

The HNC 2030 group reviewed data across several years and a forecasted value for North Carolina based on historical data to develop a target for drug overdose deaths. The group chose 18.0 deaths per 100,000 people as the target for 2030. This would reflect a reversal of the increasing death rate and a return to a rate similar to that of 2016 (17.6 per 100,000). Although this would still reflect a much higher rate than the low of the previous decade (8.5 per 100,000 in 2010), it would signal an important shift in the struggle to end a growing epidemic.

Levers for Change

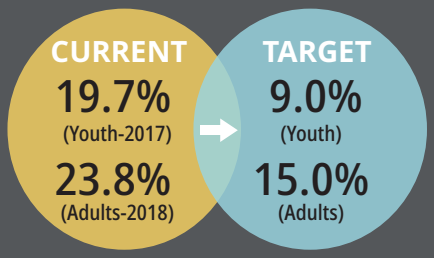
(NC Opioid Action Plan 2.0, 2019; America's Health Rankings, Drug Deaths, 2018)

- Reduce the supply of prescription and illicit opioids
- Avert future opioid addiction by supporting youth and families
- Address the needs of justice-involved populations
- Increase distribution of naloxone
- Implement needle exchange programs
- Improve access to drug treatment programs, including medication-assisted treatment
- Implement broader use of NC Controlled Substance Reporting System by health care providers and pharmacies
- Increase training for health care providers on safe prescribing practices
- Adopt and support payment of evidenced-based interventions that prevent opioid prescribing
- Support policies that decriminalize and promote treatment of substance use disorder

[FF] *Analysis of Vital Statistics records by the North Carolina State Center for Health Statistics.*

HEALTH INDICATOR 11: TOBACCO USE

DESIRED RESULT: DECREASE TOBACCO USE



DEFINITION

Percent of youth and adults reporting current use of e-cigarettes, cigarettes, cigars, smokeless tobacco, pipes, and/or hookah

DETAILS

Youth (middle and high school students) and adults measured separately

NC TOBACCO USE

19.7% of Youth (2017)
23.8% of Adults (2018)

2030 TARGET

9.0% of Youth
15.0% of Adults

RANGE AMONG NC COUNTIES

Not available

RANK AMONG STATES

Not available

DATA SOURCE

Youth: NC Department of Public Health, Tobacco Prevention and Control Branch, NC Youth Tobacco Survey

Adult: NC State Center for Health Statistics, Behavioral Risk Factor Surveillance System (BRFSS)

STATE PLANS WITH SIMILAR INDICATORS

Not Applicable

Rationale for Selection:

Tobacco use remains the leading preventable cause of early death and disease in North Carolina and the nation. Tobacco use and secondhand smoke exposure are responsible for multiple causes of preventable morbidity and mortality in North Carolina. While combustible cigarette use has decreased among North Carolina's youth, prevalence among adults has declined only slightly, and there are major disparities of tobacco-attributable disease and death among population groups. E-cigarette use among young people has become epidemic in North Carolina and the nation and poses a public health threat.

Context

Cigarette smoking is responsible for 14,200 North Carolina deaths per year – that is 1 of every 5 deaths in our state.[92] For each death, 30 more people are sick or live with a disability because of tobacco use.[93] North Carolina's direct medical costs from smoking are $3.81 billion each year, including $931 million in Medicaid costs[92], and the estimated annual health care costs from secondhand smoke are $293 million.[94] In addition, smoking costs North Carolina $4.2 billion in productivity losses each year.[92]

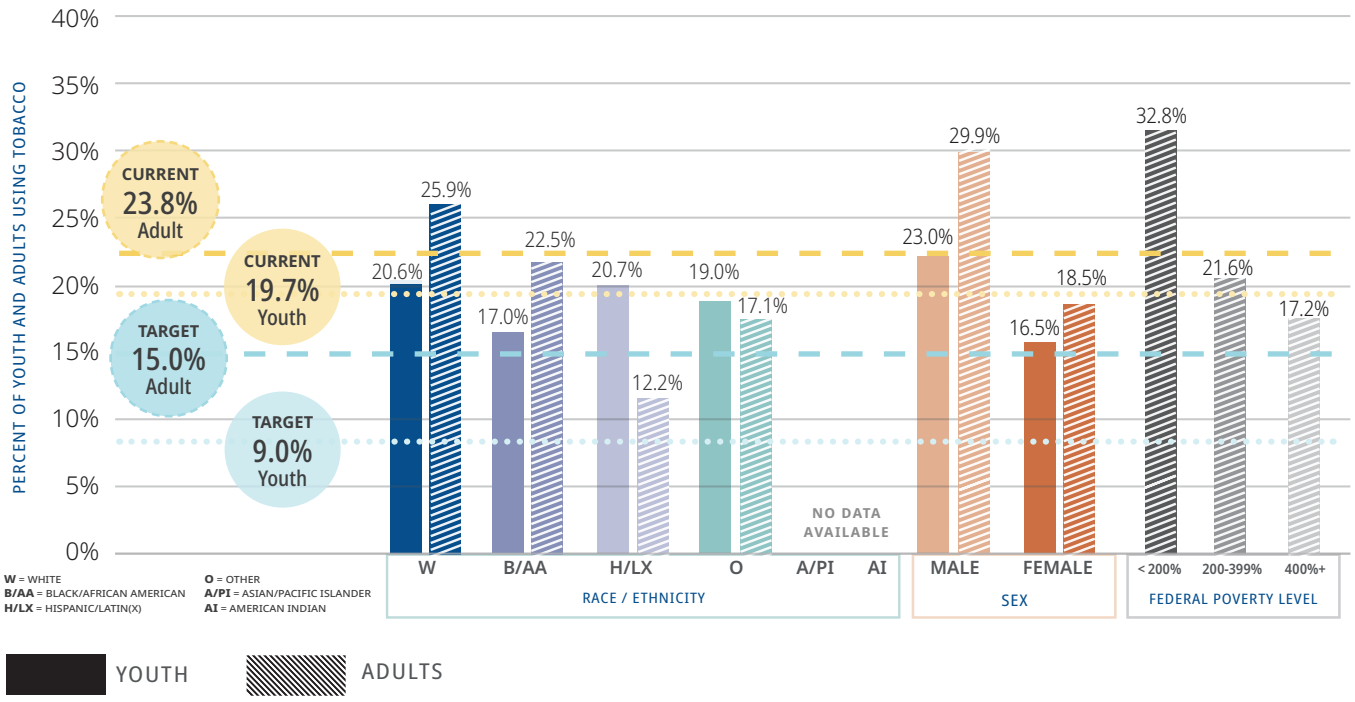
"Cigarette smoking is responsible for 14,200 North Carolina deaths per year – that is 1 of every 5 deaths in our state.[92] For each death, 30 more people are sick or live with a disability because of tobacco use."

The combined tobacco use prevalence among high school and middle school students is 19.7%. While cigarette smoking has declined among North Carolina's young people, there has been an increase in tobacco use overall, particularly among high schoolers. Cigarette smoking among high school students has decreased from 15.5% in 2011 to 8.9% in 2017, yet use of any tobacco products among high school students increased from 25.8% in 2011 to 28.8% in 2017. This increase reflects the rising use of emerging tobacco products, including electronic cigarettes. Between 2011 and 2017, electronic cigarette use among high school students increased 893%, from 1.7% to 16.9%. In 2018, 23.8% of adults in North Carolina used at least one type of tobacco product every day or some days. While cigarette smoking had been declining among adults in North Carolina from 21.8% in 2011 to 17.5% in 2018, the recent trends are concerning, with 24.0% using a single tobacco product and an additional 3.9% reporting the use of multiple tobacco products. In 2018, 4.3% of adults smoked cigars or cigarillos (little cigars) during the past 30 days, 5.1% of adults used electronic cigarettes every day or some days, and 4.7% used chewing tobacco or snuff every day or some days.[95]

Secondhand smoke is an independent risk factor for lung cancer, coronary heart disease, and stroke, as well as an increased risk for low birth weight babies, sudden infant death syndrome, and lower respiratory illness in children. In 2018, 9.6% of North Carolinians were exposed to secondhand smoke in the workplace, which makes young people more likely to start using tobacco and makes it more difficult for people of all ages to quit using tobacco.

FIGURE 20

Tobacco use across populations in North Carolina and distance to 2030 target



Disparities

Tobacco use varies among racial, income, geographic, and other demographic groups.[96] Low-income persons, those with lower levels of educational attainment, persons with mental illness and substance use disorders, and those who are unemployed smoke at higher rates than other groups.[96] American Indians have a higher prevalence of smoking than any other racial or ethnic group, yet African American tobacco users die from tobacco-related causes at higher rates than any other racial or ethnic group.[96] LGBTQ individuals are more likely to be smokers than their heterosexual counterparts.[96] Tobacco use is more common in rural areas than urban areas.[96]

2030 Target and Potential for Change

The HNC 2030 group reviewed data across several years and populations, targets for the national Healthy People 2030 efforts, and a forecasted value for North Carolina based on historical data. The group chose to mirror the Healthy People 2030 targets with an HNC 2030 target of 9.0% for youth and 15.0% for adults reporting tobacco use. Public knowledge and concern over e-cigarettes are growing. Public attention paired with past lessons from successfully reducing cigarette smoking, are encouraging signs of the potential for reducing overall tobacco use.

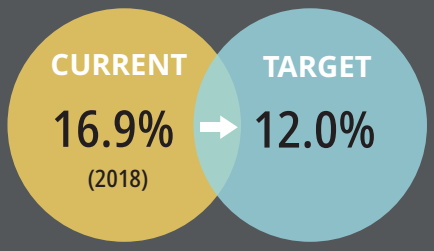
Levers for Change

(CDC, Tobacco Control Interventions, 2017, US Surgeon General 2018)

- Fund comprehensive state tobacco control programs to the levels recommended by the CDC
- Implement high-impact media campaigns that warn people about the dangers of tobacco use
- Implement strategies to curb tobacco product advertising and marketing that are appealing to young people
- Raise the price of tobacco products through a tobacco tax
- Raise the the age of tobacco product sales to 21
- License tobacco retailers
- Implement state and local tobacco-free and smoke-free air policies that include e-cigarettes
- Remove state preemption of local government regulations on the sale, promotion, distribution and display of tobacco products
- Restrict the sales of flavored tobacco products
- Increase access to standard-of-care tobacco use treatment

HEALTH INDICATOR 12: EXCESSIVE DRINKING

DESIRED RESULT: DECREASE EXCESSIVE DRINKING



DEFINITION

Percent of adults reporting binge or heavy drinking

DETAILS

Binge drinking = having 4+ (women all ages/men age 65+) or 5+ (men under age 65) drinks on one occasion in the past 30 days;

Heavy drinking = having 8+ (women all ages/men age 65+) or 15+ (men under age 65) drinks per week in the past 30 days

NC EXCESSIVE DRINKING (2018)

16.9% of adults

2030 TARGET

12.0% of adults

RANGE AMONG NC COUNTIES

Not available

RANK AMONG STATES

14th*

DATA SOURCE

NC State Center for Health Statistics, Behavioral Risk Factor Surveillance System (BRFSS)

STATE PLANS WITH SIMILAR INDICATORS

Not Applicable

*Rank of 1st for state with lowest levels of excessive drinking

Rationale for Selection:

Excessive drinking, a major cause of morbidity and mortality across the United States, has significant impacts on individuals, families, communities, and state and local economies. Alcohol is the third leading cause of preventable deaths in North Carolina.

Context

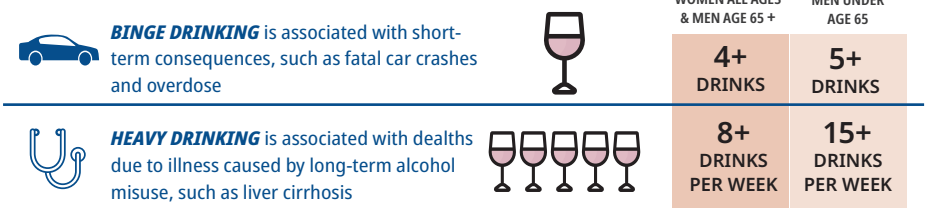
> "Alcohol-related death ranked third among preventable deaths in the state, accounting for an estimated 4,000 deaths in 2017."

Alcoholic beverages, while legal for those over the age of 21, can have serious health impacts and can lead to premature death if not consumed in moderation.[97] In North Carolina, 16.9% of adults use alcohol in an unsafe way, either by binge drinking or exceeding recommended low risk levels.[98] Alcohol-related death ranked third among preventable deaths in the state, accounting for an estimated 4,000 deaths in 2017.[99] Survey data from the last few years show a rise in excessive drinking from 14.1% in 2014 to 16.0% in 2018.[98] Excessive alcohol use places a significant burden on individuals, families, communities, health systems, and the state itself in the form of poor health outcomes, lost productivity, and increased risk of violent and criminal behavior. All told, excessive drinking costs North Carolina more than $7 billion per year— primarily in lost productivity.[99,100]

Excessive alcohol consumption[JJ] is linked to heath conditions such as liver disease, hypertension, cardiopulmonary disease, cancers, mental health conditions, alcohol poisoning, and sexually transmitted infections.[97,101] It is also connected with suicide, unintended pregnancy, pregnancy complications, fetal alcohol spectrum disorder, and sudden infant death syndrome.[101] Additionally, excessive drinking contributes to increased rates of domestic violence and child maltreatment, increased risk of motor vehicle accidents, and negatively impacts employment and educational attainment and income potential.[100]

FIGURE 21

Definition and Impacts of Binge and Heavy Drinking



Source: NC DHHS Alcohol Data Dashboard

Disparities

Excessive drinking rates vary across subpopulations. Almost two times as many men report excessive drinking compared to women, and most binge drinking is found in persons aged 18-44 (**Figure 22**).[97,95] Across racial groups, whites, Hispanics, and persons who identify as multiracial are more likely to drink excessively than African Americans.[95,97] Individuals with higher incomes report higher rates of excessive drinking than those with lower incomes, with individuals making $75,000 or more reporting excessive drinking at 23.5% compared to 17.7% for individuals making $25-$49,999.[98]

[JJ]Excessive drinking habits and alcohol dependence may coexist but can also be independent of one another; 9 in 10 adults who drink excessively are not alcohol-dependent. (NCDHHS, Alcohol & the Public's Health in NC).

FIGURE 22

Excessive drinking across populations in North Carolina and distance to 2030 target

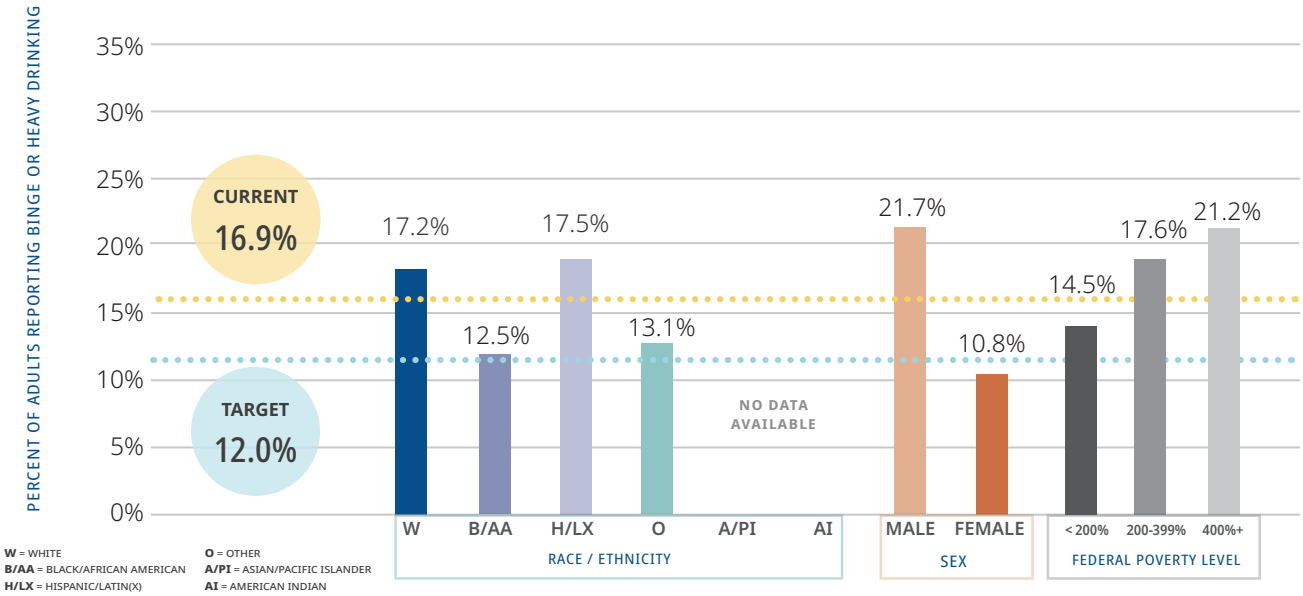
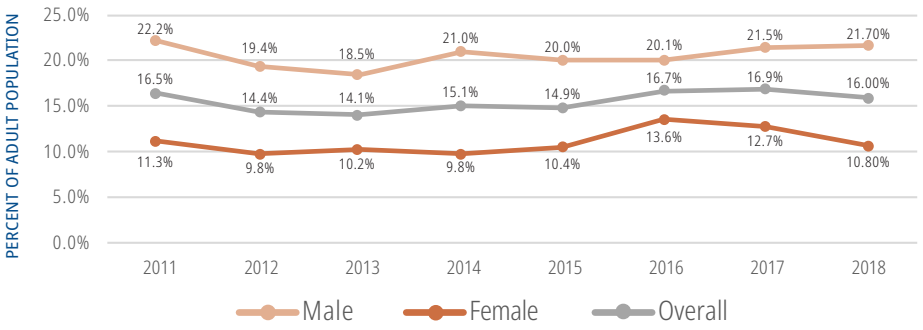


FIGURE 23

Excessive Drinking in North Carolina, by Sex, 2012-2018



Source. North Carolina State Center for Health Statistics analysis of Behavioral Risk Factor Surveillance System

2030 Target and Potential for Change

The HNC 2030 group reviewed data across several years and a forecasted value for North Carolina based on historical data to develop a target for excessive drinking. The group chose to set a target for 2030 of 12.0% of adults reporting binge or heavy drinking. This would reflect a reversal of the increasing trend over the past several years, with a low in 2014 of 14.1%. Focused decreases for men will facilitate achieving this goal.

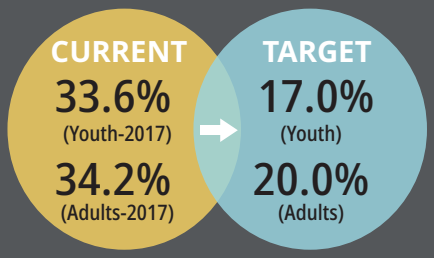
Levers for Change

(America's Health Rankings, Excessive Drinking, 2018; CDC, The Community Guide)

- Support and maintain state-controlled alcohol sales
- Increase alcohol excise taxes
- Reduce density of alcohol retailers
- Reduce the days and hours of alcohol sales
- Screen adults for excessive drinking and conduct brief intervention for those that screen positive
- Hold alcohol retailers liable for intoxicated or underage customers who cause injury to others
- Integrate Screening, Brief Intervention, and Referral to Treatment (SBIRT) into medical settings

HEALTH INDICATOR 13: SUGAR-SWEETENED BEVERAGE CONSUMPTION

DESIRED RESULT: REDUCE OVERWEIGHT AND OBESITY



DEFINITION

Percent of youth and adults reporting consumption of one or more sugar-sweetened beverages (SSBs) per day

DETAILS

Youth (high school students) and adults measured separately; SSBs include non-diet soda, fruit drinks (such as Kool-aid and lemonade), sweet tea, and sports or energy drinks (such as Gatorade and Red Bull)

NC SSB CONSUMPTION (2017)

33.6% of Youth
34.2% of Adults

2030 TARGET

17.0% of Youth
20.0% of Adults

RANGE AMONG NC COUNTIES

Not available

RANK AMONG STATES

Not available

DATA SOURCE

Youth: NC Department of Public Instruction, Youth Risk Behavior Survey (YRBS)

Adult: NC State Center for Health Statistics, Behavioral Risk Factor Surveillance System (BRFSS)

STATE PLANS WITH SIMILAR INDICATORS

Not Applicable

Rationale for Selection:

Obesity continues to be a concern in North Carolina. Sugar-sweetened beverages (SSB) are the leading source of calories and added sugars in the American diet.

Context

Obesity is one of the largest contributors to morbidity and mortality in the United States, for both youth and adults.[102] Across all ages, the rates of obesity continue to rise. For years, efforts to reduce overweight and obesity have largely been focused on physical activity and healthy eating (e.g., fruit and vegetable intake). New efforts are also targeting sugar-sweetened beverage consumption, which is directly linked to obesity, type 2 diabetes, heart disease, and dental problems.[103] Sugar-sweetened beverages (SSBs) are the leading dietary source of added sugar for Americans.[103] Many popular drinks often contain large amounts of added sugar that may not be appreciated by consumers.

> "Sugar-sweetened beverages (SSBs) are the leading dietary source of added sugar for Americans.[103] Many popular drinks often contain large amounts of added sugar that may not be appreciated by consumers."

In North Carolina, more than a third of high school students reported daily consumption of more than one SSB.[KK] For this population, it is estimated that beverages make up a fifth of daily caloric intake.[104] In addition to the connections with chronic nutrition-related conditions and dental problems, studies also show links between excess sugar consumption and attention difficulties.[105]

The CDC's National Center for Chronic Disease Prevention and Health Promotion recommends that adults limit consumption of added sugars to no more than 10% of daily caloric intake.[106] Studies indicate that average sugar intake for adults far outpaces that figure, and that SSBs account for the largest source of added sugar consumption. Approximately 34% of adults consume one or more SSBs a day.[LL]

Disparities

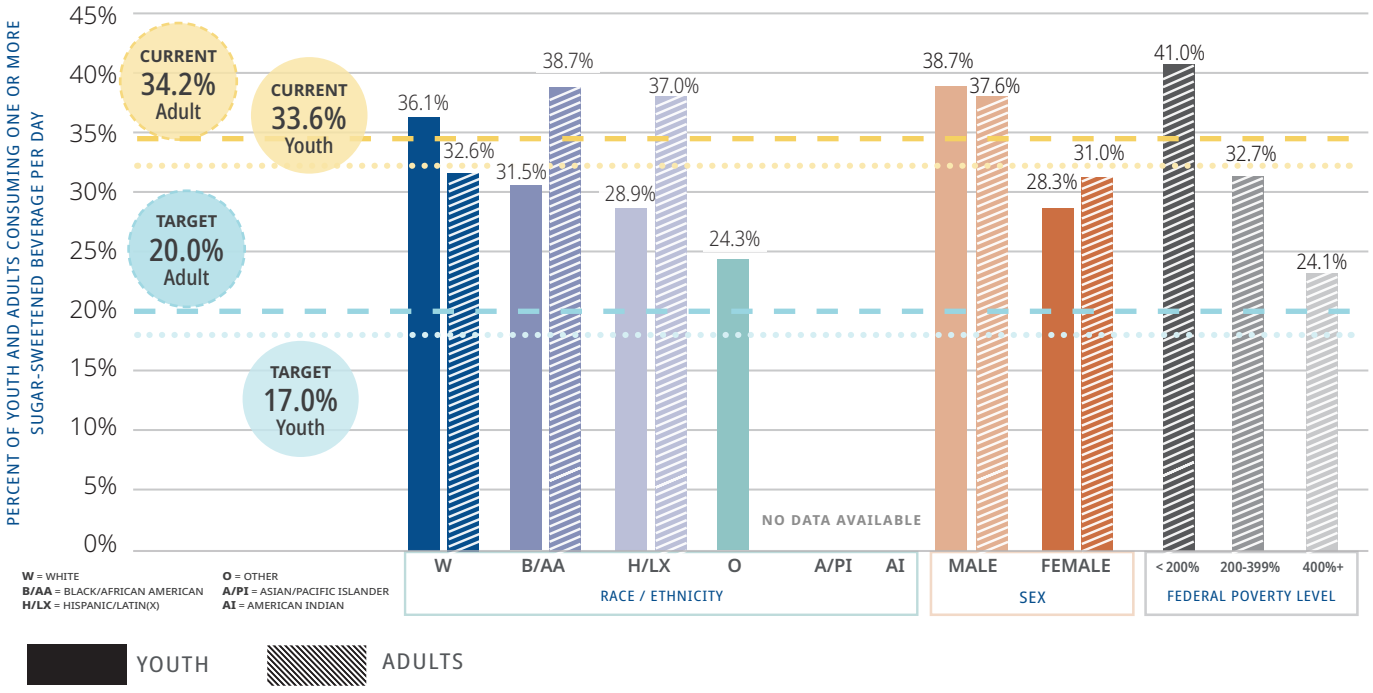
Members of certain populations are more likely to consume SSBs than others. Persons in low-income households, and those with low levels of educational attainment, or whose parents have low levels of educational attainment, have higher odds of consuming multiple SSBs a day.[LL] Additionally, men are more likely to consume more SSBs than women. Across racial groups different factors are associated with likelihood of SSB consumption, including perceptions of tap water safety[107] and marketing of products (particularly to youth of color, as well as low-income populations).[108,109]

[KK] *Analysis of Youth Risk Behavior Surveillance System by the North Carolina Department of Public Instruction.*

[LL] *Analysis of the Behavioral Risk Factor Surveillance System by the North Carolina Department of Health and Human Services State Center for Health Statistics.*

FIGURE 24

Sugar-sweetened beverage consumption across populations in North Carolina and distance to 2030 target



2030 Target and Potential for Change

The HNC 2030 group reviewed current data and discussed the growing attention to SSBs to develop a target for SSB consumption. Due to differences in youth and adult consumption (according to data), the group chose different targets for these age groups, with 17% reporting consumption of one or more SSB per day for youth and 20% for adults as the target for 2030.

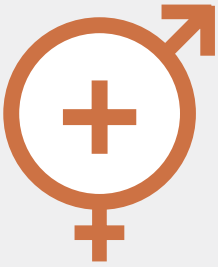
Levers for Change

(ChangeLabSolutions, 2018)

- Tax sugary drinks
- Launch public awareness campaigns
- Work with retailers to improve offerings and create healthier store environments
- Limit sugary drinks through government and private sector procurement policies
- Partner with schools and youth-oriented settings to remove or limit SSBs and their marketing
- Create community coalitions to identify additional community strategies to reduce consumption

IMPROVE SEXUAL HEALTH

Good sexual health practices are important for family planning and prevention of sexually transmitted infections (STIs), both of which affect short- and long-term health and socioeconomic conditions. Diagnosis and treatment of STIs, as well as use of barrier protection during sex, protect against STI transmission. Family planning helps people to plan the timing of pregnancy and the size of their family. In 2017, 43.8% of pregnancies in North Carolina were not intended.[MM,110] Unintended pregnancy is associated with delayed prenatal care, higher incidence of postpartum depression, higher risk of physical abuse, and lower rates of breastfeeding.[111,112] Babies who are born from unintended pregnancy have higher rates of birth defects, low birth weight, and poor mental and physical health during childhood.[113,114] The health and social consequences of unintended pregnancy are greater for teenage mothers and their children.



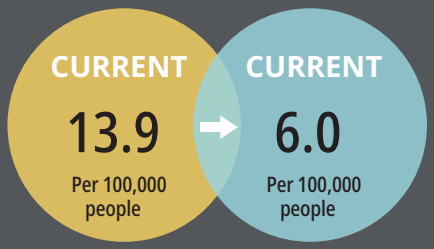
STIs refer to the range of infectious diseases that are transmitted primarily through unprotected sexual activity with an infected person. Most STIs are largely preventable with proper protection such as condoms or vaccination. STIs are widespread, with 42.5% of adults ages 18-59 having human papillomavirus (HPV), the most common STI in the United States.[NN,OO] Some STIs can impact reproductive health, particularly for women; some cause cancers (i.e., HPV), and some cannot be cured (e.g., HIV and herpes).[115,116] North Carolina requires six sexually transmitted STIs to be reported;[PP] the most common include HIV, syphilis, gonorrhea, chlamydia and hepatitis B.[QQ] As for all reportable diseases, cases must be reported to the local health department for surveillance and disease prevention. Some STIs, such as genital herpes and HPV, are not required to be reported to local health departments; for these, data on prevalence come from studies. Rates of infection for some STIs have been increasing, with infections most common among young people and gay and bisexual men. STIs impact different populations at varying rates. Syphilis is most common among men who have sex with men and among younger African American men; however, it is also increasing among women, leading to increases in congenital syphilis infections.[117] Gonorrhea rates are particularly high for young men and women aged 20-24 years and African American and American Indian populations. Gonorrhea and chlamydia rates are highest among people under 29 years of age.[118] The largest race/ethnicity disparity is seen in HIV diagnosis rates, which are nearly ten times higher for African Americans compared to whites due to a variety of socioeconomic and health care access issues.[119]

There are no direct measures available for healthy sexual behaviors, such as contraception or condom use. HNC 2030 members selected two outcome measures to serve as indicators of healthy sexuality: HIV diagnosis rate and teen birth rate.

[MM] "Not intended" is a combination of "unintended" and "was not sure" responses on the North Carolina Pregnancy Risk Assessment Monitoring System Survey.
[NN] https://www.cdc.gov/std/hpv/stdfact-hpv.htm
[OO] HPV vaccination became available in the U.S. in 2006, therefore most adults have not been vaccinated. https://www.kff.org/womens-health-policy/fact-sheet/the-hpv-vaccine-access-and-use-in-the-u-s/
[PP] 10A NCAC 41A .0101
[QQ] Rates of hepatitis C transmission are also collected, however sexual contact is not the primary means of hepatitis C transmission.

HEALTH INDICATOR 14: HIV DIAGNOSIS RATE

DESIRED RESULT: IMPROVE SEXUAL HEALTH



DEFINITION
Number of new HIV diagnoses per 100,000 population

DETAILS
Not Applicable

NC HIV DIAGNOSIS RATE (2018)
13.9 per 100,000 people

2030 TARGET
6.0 per 100,000 people

RANGE AMONG NC COUNTIES
0 - 29.6 per 100,000 people

RANK AMONG STATES
40th*

DATA SOURCE
NC Division of Public Health, Epidemiology Section

STATE PLANS WITH SIMILAR INDICATORS
Not Applicable

*Rank of 1st for state with lowest HIV diagnosis rate

Rationale for Selection:

Human Immunodeficiency Virus (HIV) remains a deadly disease if left untreated. Newly diagnosed HIV infection rates manifest extremely high disparities among men who have sex with men and African Americans. These disparities identify opportunities to improve access to prevention, care and treatment, which can end HIV transmission and associated deaths.[RR]

Context

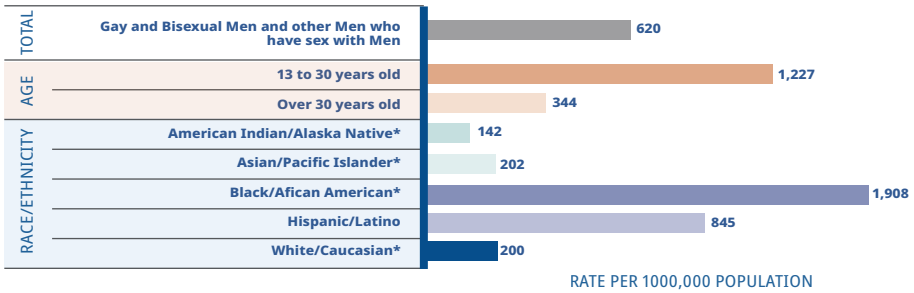
HIV is a virus that affects the immune system's ability to defend itself, with deadly consequences if left untreated. North Carolina's HIV diagnosis rate has been decreasing, and in 2018 the rate was 13.9 per 100,000 people, which is slightly lower than the national rate of 14.6 per 100,000 people.[120] The primary mechanisms through which the virus is spread are sexual contact and injection drug use.[121] Once contracted, the virus can have lifelong physical and psychological impacts, and increases the risk of negative health outcomes such as AIDS, cancer, tuberculosis, and other infectious diseases.[122] Pregnant women living with HIV who are not suppressed on antiretroviral therapy are at risk of passing it to their babies during delivery or breastfeeding.[122,123]

While no cure exists at this time, advances in HIV antiretroviral medications make it possible for persons living with HIV to live largely normal lives and prevent transmission of the virus to others.[122] However, treatment remains expensive, costing an estimated $478,000 for lifelong care.[120] Recent advances have led to the development of pre-exposure prophylaxis (PrEP), a daily medication that reduces the risk of HIV transmission by 99% through sexual contact or 74% through injecting drug use if taken as directed.[124] Expanded access to and use of treatment and prevention medications can control the spread of HIV and drastically reduce diagnosis rates.

Individuals may be fearful of being tested or of disclosing their status to friends, family members, and current or future sexual partners due to social stigma surrounding the disease or the exposure risk and the level of social stigma varies by cultural and religious background.[125] People may also be unaware that they have been exposed to or are living with HIV, since individuals can remain asymptomatic for months to years after initial infection.[126]

FIGURE 25

Estimated HIV Infection Rates among Newly Diagnosed Adult and Adolescent (13 years and older) Gay and Bisexual Men and Other Men who have Sex with Men in North Carolina, 2018

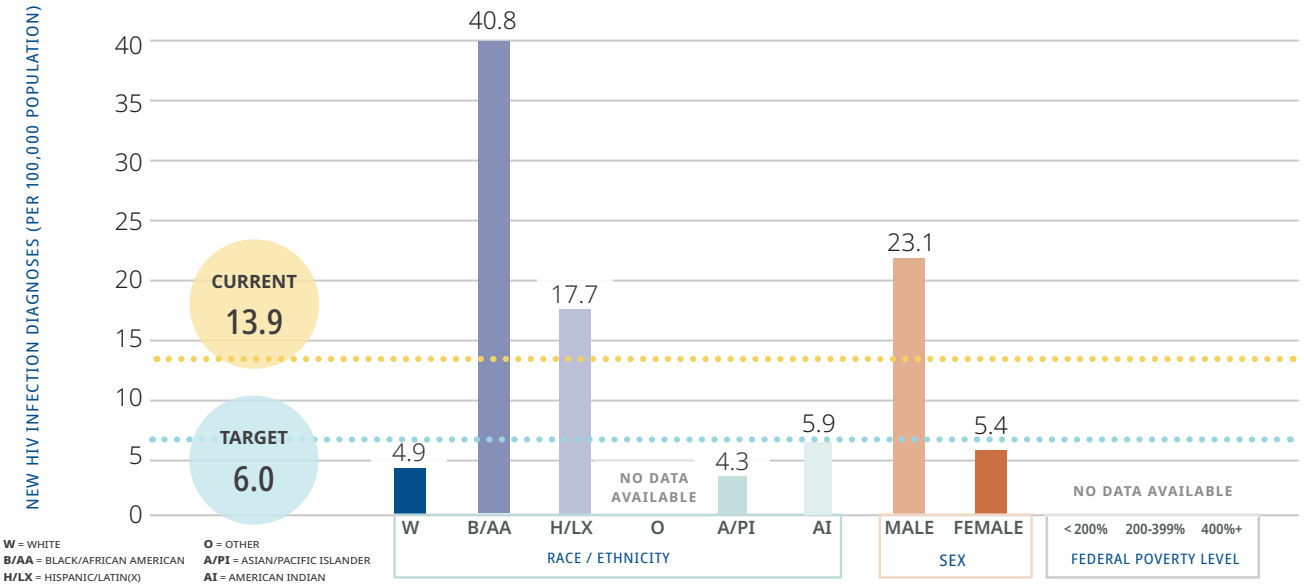


*Non-Hispanic
Source: 2018 North Carolina HIV/STD/Hepatitis Surveillance Report. North Carolina Department of Health and Human Services, Division of Public Health, HIV/STD/Hepatitis Survei llance Unit. https://epi.dph.ncdhhs.gov/cd/stds/figures/factsheet_HIV_2018.pdf

[RR]*It is important to note that the HIV diagnosis rate would decrease with decreased testing, yet that is not an acceptable means to decrease diagnoses. Healthy sexual behaviors, increased testing, and proper treatment are important methods for decreasing transmission of the virus.*

FIGURE 26

HIV rate across populations in North Carolina and distance to 2030 target



Disparities

Despite the overall decrease in HIV diagnosis rate, significant racial/ethnic disparities in HIV diagnosis rates remain, with persons of color making up a disproportionate share of the population diagnosed with HIV annually. In 2018, the HIV diagnosis rates for African American men (68.7 cases per 100,000) and women (15.9 cases per 100, 000) far exceeded that of their white counterparts (8.0 and 2.0 cases per 100,000, respectively).[127] Persons of Hispanic ethnicity also have disparate HIV diagnosis rates (17.7 cases per 100,000) compared to whites (4.9 cases per 100,000).[127] The HIV diagnosis rate among men who have sex with men (MSM) is 155 times that of heterosexual men (MSM: 621.0 per 100,000 in 2018; heterosexual men: 4.0 per 100,000).[127] These two levels of disparity compound for African American MSM, who have estimated diagnosis rates of 1,908.2 per 100,000 compared to 199.7 per 100,00 for white MSM.[127]

HIV disproportionately affects lower-income communities and people without insurance, as well as people with vulnerable or chaotic life situations such as sex workers and incarcerated populations.[128] People living in impoverished areas often have fewer health care and prevention resources, including access to HIV treatment and PrEP, which can increase the potential for HIV transmission.[123]

2030 Target and Potential for Change

The HNC 2030 group reviewed data across several years and populations and a forecasted value for North Carolina based on historical data to develop a target for HIV diagnosis rate. The group chose 6.0 diagnoses per 100,000 people as the target for 2030. Effective HIV treatment and PrEP have the potential to drastically reduce transmission rates into the future. With this fact and the national efforts to end HIV transmission, the group set an aggressive goal. To meet this goal, it is critical that NC reduces disparities in infection rates for African Americans.

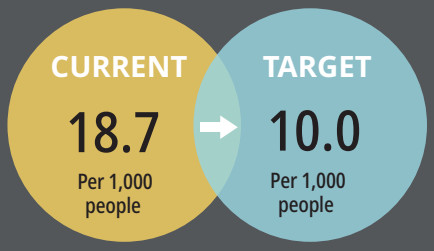
Levers for Change

(CDC, HIV Prevention in the United States, 2015)

- Increase access to PrEP for individuals at high risk for HIV transmission
- Implement interventions that improve access to HIV treatment
- Make testing easy, accessible, and routine
- Ensure people who are diagnosed are linked with appropriate care and receive behavioral interventions and other supports to decrease risk of transmission
- Ensure availability of condoms at health departments and community-based organizations
- Increase Medicaid eligibility

HEALTH INDICATOR 15: TEEN BIRTH RATE

DESIRED RESULT: IMPROVE SEXUAL HEALTH



DEFINITION
Number of births to girls aged 15-19 per 1,000 population

DETAILS
Not Applicable

NC TEEN BIRTH RATE (2018)
18.7 per 1,000

2030 TARGET
10.0 per 1,000

RANGE AMONG NC COUNTIES
3.2 - 41.5 per 1,000

RANK AMONG STATES
23rd* (2017)

DATA SOURCE
NC State Center for Health Statistics, Vital Statistics

STATE PLANS WITH SIMILAR INDICATORS
Not Applicable

*Rank of 1st for state with lowest teen birth rate

Rationale for Selection:

Having a child during one's teenage years is associated with social, health, and financial burdens to the teen parents, their families, and their communities. Teenage mothers are less likely to complete high school and more likely to live in poverty. Children born to teenage parents are less likely to succeed in school, and more likely to drop out of school and be involved in the criminal justice system. Although the teen birth rate in North Carolina has decreased significantly, teen births remain high among American Indian, African American, and Hispanic populations.

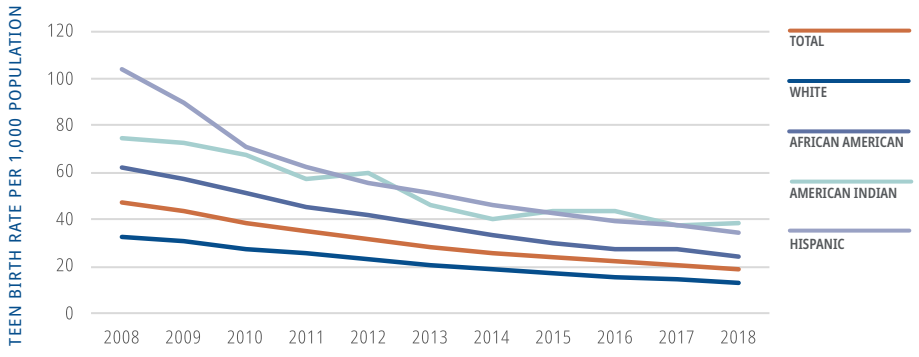
Context

Young mothers and their babies face a host of negative health and economic outcomes. In North Carolina, the teen birth rate in 2018 was 18.7 per 1,000, a figure that exceeds the national rate of 17.4 per 1,000.[110,127] Despite reductions in the rate over the last decade, more than 8,800 mothers under the age of 19 gave birth in 2017.[129] Teenage girls may have underdeveloped reproductive systems and may face higher rates of pregnancy-related morbidity.[130] They are also less likely to receive early prenatal care.[131] From a mental health perspective, teenage mothers are more likely to suffer from psychological trauma associated with pregnancy and may be at higher risk for postpartum depression.[132,131] Babies born to teenage mothers are more likely to have low birth weight, pre-term delivery, and other complications.[131]

Teenage mothers are more likely to drop out of school and may not attain the same level of education as their childless peers.[131] Thus, they are more likely to work lower-wage jobs and have lower lifetime earning potentials. They are also more susceptible to intimate partner violence and mistreatment by family members, which can compound psychological distress, and negatively impact both their children's lives and their own.[132] Psychological distress associated with birth and interpersonal violence increases the likelihood that teenage mothers will use substances, have repeat pregnancies, and that the children of teenage mothers will suffer depression and other psychological barriers.[132]

FIGURE 27

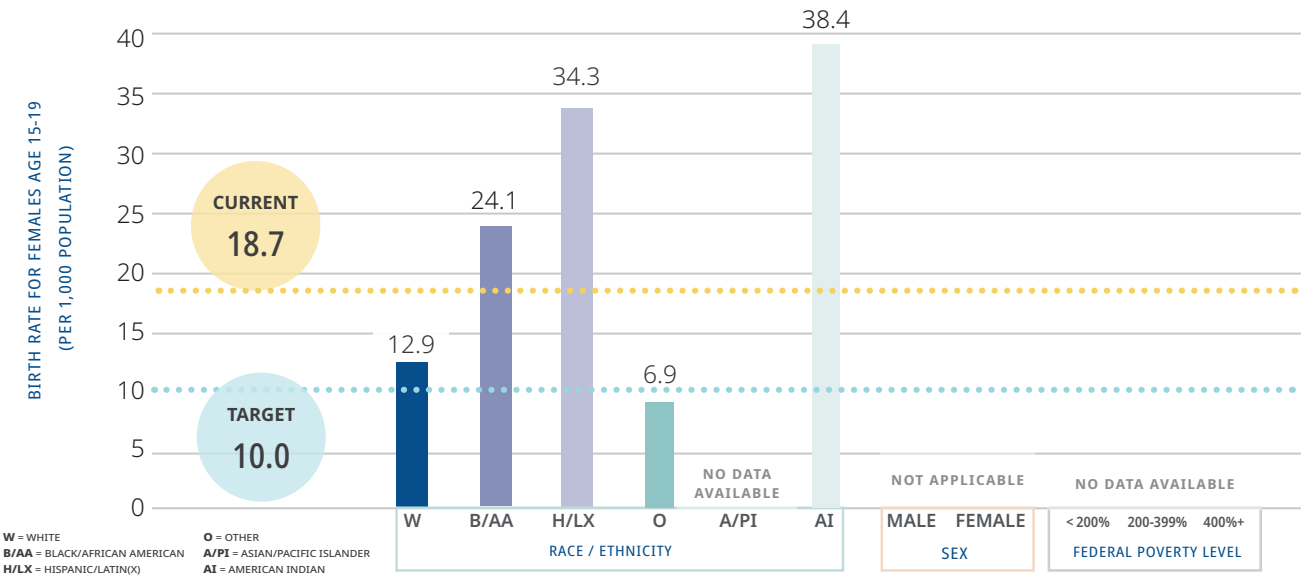
Teen Birth Rate in North Carolina, by Race/Ethnicity, 2008-2018



Source: North Carolina State Center for Health Statistics. Decline in Teen Births in North Carolina, 1996-2015. July 2017. https://schs.dph.ncdhhs.gov/schs/pdf/SB_47_20170726.pdf; Vital Statistics - Pregnancies, Fertility

FIGURE 28

Teen birth rate across populations in North Carolina and distance to 2030 target



Disparities

Income level, childhood trauma, racial identity, and geography all affect the teen birth rate. Girls from low-income families and those in the child welfare system are at higher risk of giving birth as a teenager than their more affluent peers.[133] History of adverse childhood experiences (ACEs) correlates with likelihood of teenage pregnancy and birth, as almost half of teenage mothers have a history of childhood sexual abuse or trauma.[132]

Despite the recent downward trend in the teen birth rate, large disparities remain between racial and ethnic groups. African American, Hispanic, and American Indian girls give birth at rates that are more than two to three times that of white girls (**Figure 28**).[110] These disparities can be traced to persistent racial segregation of neighborhoods that contributes to sharp income inequality, poor economic development, and under-resourced schools associated with lower educational attainment and the number of safe recreational and social opportunities for teens.[134]

Also, rural areas tend to face higher teen birth rates than their metropolitan counterparts. This disparity is particularly acute as the recent improvements in teen birth rates have largely only occurred in metropolitan areas.[134]

2030 Target and Potential for Change

The HNC 2030 group reviewed data across several years, populations, and states and a forecasted value for North Carolina based on historical data to determine a target for 2030. Recent trends show an increasing use of long-acting reversible contraceptives (LARCs), such as intrauterine devices (IUDs) and implants, which are more effective than other forms of birth control, as well as decreases in high school age girls having sexual intercourse (41.4% in 2015, compared to 57.6% in 1995).[135] With the strong downward trends and continued work to decrease rates further, the group chose 10.0 teen births per 1,000 population as the target for 2030. To meet this target, it will be critical to focus on reducing the disparities we see in teen birth rates for American Indians, Hispanics, and African Americans.

Levers for Change

(National Conference of State Legislatures, 2018)

- Increase access to long-acting reversible contraceptives, such as IUDs and implants, as well as condoms
- Ensure access to information and services for youth sexual health
- Examine school sex education policies to ensure they include information on how to avoid teen pregnancy and sexually transmitted infections

DEVELOPMENTAL MEASURES

Below are health behavior measures that the HNC 2030 group feels are important to population health, but do not have reliable or robust data available at this time. A description of the data needed for these measures is listed as "developmental data needs." State and local public health or other entities should consider identifying methods for collecting this data.

Sexual Health

HIV diagnosis was chosen for HNC 2030 as an important indicator of sexual health practices and for the disparities seen in the diagnosis rates of African Americans above other racial groups (**see Page 77**). Yet, this indicator is not the ultimate predictor of safe sex practices across populations and it is not the only sexually transmitted disease with large health impacts.

Both the work group and communities expressed a desire to be able to more comprehensively measure the impact of STIs. A composite measure of STIs is unavailable at this time.

Developmental data needs:

- There is no existing data source for the contraceptive or condom practices of the population. This data would be relevant to contextualize the Teen Birth Rate and HIV Diagnosis indicators chosen for HNC 2030 and would be important in contextualizing issues such as unintended pregnancy and other STI diagnosis rates.
- A composite measure of all reportable STIs would provide a broader picture of the spectrum of sexual health issues across the state of North Carolina. The North Carolina HIV/STD Prevention and Care program within the North Carolina Division of Public Health created a draft composite measure. The measure would evaluate average time to treat across STIs with the reasoning that achieving fast treatment is an effective way to cure and prevent the spread of disease. This composite measure will need peer review and testing in the coming years to prepare for potential future use, however it could be considered for work related to STIs in the coming decades.

Overweight/Obesity

Obesity rates have continued to grow over the past several decades. The state-level data currently available uses self-reported survey data on height and weight, such as the Behavioral Risk Factor Surveillance System (BRFSS) data, to calculate the prevalence of overweight and obesity. While this data may provide an idea of the challenges a population faces with weight, it is not accurate. One study showed that BRFSS underestimates prevalence of obesity by 9.5 percentage points, with even higher inaccuracies among women at a 13.1 percentage point underestimate.[105]

Developmental data needs:

- Weight and height data are routinely collected as part of clinical visits for children. This data provides a much more accurate picture of the obesity rate within the population. The now widespread use of electronic health records could facilitate the collection of this data for the population. The state's NC HealthConnex Health Information Exchange is designed to collect clinical data from all health systems and providers, although all may not currently be connected. State-level population health data is not currently available from NC HealthConnex but should be in the future, which will provide more accurate data across all populations in the state.