

Life Course Indicator: Adolescent Use of Alcohol

The Life Course Metrics Project

As MCH programs begin to develop new programming guided by a life course framework, measures are needed to determine the success of their approaches. In response to the need for standardized metrics for the life course approach, AMCHP launched a project designed to identify and promote a set of indicators that can be used to measure progress using the life course approach to improve maternal and child health. This project was funded with support from the [W.K. Kellogg Foundation](#).

Using an RFA process, AMCHP selected seven state teams, Florida, Iowa, Louisiana, Massachusetts, Michigan, Nebraska and North Carolina, to propose, screen, select and develop potential life course indicators across four domains: Capacity, Outcomes, Services, and Risk. The first round of indicators, proposed both by the teams and members of the public included 413 indicators for consideration. The teams distilled the 413 proposed indicators down to 104 indicators that were written up according to three data and five life course criteria for final selection.

In June of 2013, state teams selected 59 indicators for the final set. The indicators were put out for public comment in July 2013, and the final set was released in the Fall of 2013.

Basic Indicator Information

Name of indicator: Adolescent Use of Alcohol (LC-24)

Brief description: Percent of adolescents using alcohol during the past 30 days

Indicator category: Family Well-being

Indicator domain: Risk/Outcome

Numerator: Number of adolescents aged 12 to 17 years reported use of alcohol during the past 30 days

Denominator: Total National Survey on Drug Use and Health survey respondents ages 12-17 years old

Potential modifiers: Race/ethnicity, sex, parental drug use

Data source: National Survey on Drug Use and Health (NSDUH), Substance Abuse and Mental Health Services Administration (SAMHSA)

Notes on calculation: None

Similar measures in other indicator sets: Preconception Health Indicator E5; HP 2020 focus area SA-2.3; Maternal Infant and Early Childhood Home Visiting (MIECHV) Benchmark Area Improved Maternal and Newborn Health: Parental use of alcohol, tobacco, or illicit drugs; Chronic Disease Indicator

Life Course Criteria

Introduction

In 2012, the rate of current alcohol use among youth aged 12 to 17 was 12.9 percent (7), which is a higher rate of use than any other drug including tobacco (22). Adolescent alcohol use is associated with common sources of morbidity and mortality in youth including motor vehicle crashes and other accidental injuries and fatalities, depression, suicide, and interpersonal violence (11, 16). Evidence also shows initiation of alcohol use in early adolescence has consequences throughout the life course including hindered physical and mental development and propensity for substance use, abuse, and dependence in adulthood (20, 23). Alcohol use among adolescents is concerning not just due to the direct associated health effects but also due to the increased likelihood for other risk taking behaviors such as risky sexual activity and use of tobacco and other drugs (15, 16). Brookmeyer and Henrich (2009) found alcohol was a present factor in risk taking behaviors in adolescents including delinquency and sexual risk behaviors (15). Thus, delaying onset of alcohol use may have a positive effect on other important adolescent risk taking behavior (15).

Implications for equity

Rates of past-month alcohol use vary by race/ethnicity. The 2012 NSDUH showed rates of current alcohol use were lowest for Asian youth (4.9 percent) and highest for non-Hispanic White youth (14.6 percent) (7). Current alcohol use rates for other racial/ethnic groups include 9.3 percent for non-Hispanic Black youth, 10.0 percent for American Indian/Alaskan Native youth, 11.7 percent for multiracial youth, and 12.8 percent for Hispanics (7).

Risk of current alcohol use in adolescents increases with age. National results from the 2013 Youth Risk Behavior Survey (YRBS) show 24.4 percent of U.S. ninth graders drank alcohol on a least one day during the past 30 days before the survey, compared to 30.9 percent of 10th graders, 39.2 percent of 11th graders, and 46.8 percent of 12th graders (9). While rates of past month drinking are currently comparable between high school males (34.4 percent) and high school females (35.5 percent), problem use of alcohol such as binge drinking has historically had a higher prevalence among males (9,11). However, underage female binge drinking practices are increasingly similar to underage male binge drinking practices, which puts young females at an increasing risk of alcohol-related problems, including sexual violence (11).

A number of community- and family-level factors are associated with adolescent alcohol use including parental education attainment and parental substance use, perceived availability of alcohol, community norms favoring alcohol use, and other social circumstances surrounding adolescent life such as social networks, poverty and peer groups (2, 8). Adolescent behaviors are influenced by people in their environment such as family members and peers (10). There is evidence that adolescents who perceive greater support for alcohol consumption among their peers, community, and parents are more likely to engage in alcohol consumption and alcohol-related behavior (10). Youth who have parents who binge drink are twice as likely to binge drink themselves and to be classified as alcohol dependent than youth who have parents that do not engage in binge drinking (11). Increased likelihood of alcohol use and problem alcohol use in youth with parents who exhibit problem use of alcohol may not just be due to perceived norms in youth but also genetics, cultural values, and drinking practices prevalent in their communities (11).

Public health impact

Alcohol is the most popular substance of abuse among adolescents in the United States and leads to negative health and social effects on adolescents, their families, and their communities (11). Each year, alcohol is involved in the death of approximately 4,700 U.S. youth, which reduces the life span of these youth by an average of 60 years (11). Youth drinking is a factor in numerous costly health and social issues including motor vehicle accidents, suicide, violence, unintentional injuries (the leading cause of death in U.S. adolescents), brain impairment, risky sexual activity, academic problems, alcohol poisoning, and future alcohol dependence (11). Adolescents typically consume alcohol at less frequent intervals than adults; however, they are more likely than adults to partake in binge drinking, which increases their risk for negative health consequences (11).

Alcohol use increases the likelihood an adolescent driver will be involved in a motor vehicle crash, which is the largest contributor to unintentional injury in youth, and in 2010 4.1 percent of 16 year olds and 7.6 percent of 17 year olds reported driving under the influence of alcohol in the past year (11, 24). In 2010, 22 percent of drivers aged 15 to 20 killed in motor vehicle crashes had been using alcohol (25).

Engaging in sexual behaviors that increase the risk of unplanned pregnancies and contracting sexually transmitted diseases (STDs) is associated with adolescent use of alcohol (4, 11). Reducing alcohol use by adolescents may have the potential to reduce sexual and other risk taking behaviors (15). Risky sexual behaviors that are associated with alcohol use in adolescents include unwanted, unintended, and unprotected sexual activity, as well as sex with multiple partners (11). Adolescent girls also are more likely than adult women to drink alcohol during pregnancy (13), which increases their risk for miscarriage and still birth, and puts their offspring at an increased risk for a wide range of disabilities known as fetal alcohol spectrum disorders (FASDs)(12, 14).

Reducing the use of alcohol among adolescents age 12 to 17 years could reduce the burden of emergency department visits. In 2009, there were 54,726 emergency department visits by adolescents aged 12 to 17 caused by alcohol alone, another 22,192 emergency department visits by this age group resulted from alcohol combined with other drug use (3).

Adolescent alcohol use increases the risk of alcohol dependency in adulthood which can influence community and society at large. A study by Grant and Dawson found 40 percent of people who began using alcohol before age 13 were diagnosed as alcohol dependent at a later time in their lives while only 16.6 percent of people who began drinking alcohol at age 18 were classified as alcohol dependent (16).

Leverage or realign resources

A range of evidence-based alcohol use prevention programs and policies exist as interventions through schools, extracurricular activities, families, and communities.. Schools are an important partner to engage in preventing alcohol use in adolescents due to the continuous and intensive contact schools have with this population. School-based alcohol prevention programs are typically targeted towards middle school and high school aged youth as rates of drinking initiation peak between grades seven to 11 (11). The SAMHSA National Registry of Evidence-based Programs and Practices contains a number of alcohol use prevention programs designed for schools (18). Youth extracurricular activities also can be used to prevent alcohol use. These programs may be structured as alternative programs, designed to engage youth in more positive activities than substance use such as sports, or peer programs, designed to teach social and life skills that empower youth to refuse alcohol and drugs (19). Reviews of these types of programs have shown peer programs to be overall more effective than alternative programs, but that alternative programs have higher success with high-risk youth (19).

Where family factors including parent-child relationships, parental involvement, family communication, and discipline methods can significantly impact adolescent alcohol use, family-centered interventions also are critical for improvement in this indicator (19). A review of family centered programs found that well-integrated programs that address entire families and not only parents or adolescents alone are more successful in improving adolescent substance use and abuse (, 5).

Community-level changes to affect this indicator could be impacted by media campaigns, enforcement of underage alcohol sale restrictions, and other policies and regulations that restrict access and availability to alcohol (19). Overall, when interventions targeting changes in individual level behaviors are accompanied by community and policy level changes, greater impact on the use of alcohol in adolescents is shown (6). Comprehensive approaches that incorporate families, schools, and communities may be more effective than focusing on one area of influence (19). Project Northland is a middle school-based alcohol intervention in northeastern Minnesota designed to delay onset of alcohol use, reduce alcohol use in students who already drink, and limit alcohol-related problems in young drinkers (17). Although it is based in schools, Project Northland also incorporates community, peer, and family components (17). An evaluation of Project Northland found students' weekly drinking was 30 percent less in those that had received the intervention compared with those who had not been a part of Project Northland (17).

Predict an individual's health and wellness and/or that of their offspring

Adolescents who consume alcohol are at a higher risk for a wide range of physical, mental, and social problems including physical illnesses, suicide, interpersonal violence, unplanned or unwanted sexual activity, physical and sexual assault, abuse of other drugs, disruption of normal growth and development, academic problems, and alcohol poisoning (11, 22). The risks of these issues increase in youth who participate in binge drinking (22). Adolescence is a key period of development for an individual, and heavy alcohol use during this time period may have adverse effects on normal physical development and brain functioning resulting in long-term consequences (11, 20, 22). Adolescents who engage in heavy

alcohol use may have decreased ability in planning, memory, speeded processing, attention, and spatial operation, all of that could lead to academic disadvantage (11).

Youth who use alcohol are at a higher risk for accidental injury and death (21). Alcohol is involved in nearly half of all motor vehicle crashes among adolescents 15 to 19 and a quarter of 15 to 19 year old fatally injured drivers are under the influence of alcohol (21). Alcohol also increases risk of other causes of unintentional injury and death in adolescents by impairing judgment and ability to perform tasks, and through exacerbation of injury severity. Alcohol increases risk of bicycle and pedestrian accidents and is involved in nearly 40 percent of all adolescent drowning instances (21).

Early age of alcohol use initiation is a predictor of future alcohol dependence or alcohol abuse later in life (11). Furthermore, adolescents who use illicit drugs often have a history of alcohol use (23). Twin studies have provided evidence that the association between early alcohol use initiation and future alcohol and drug use, abuse and dependence goes beyond genetics and family environment (23). Evidence supports delaying the onset of drinking alcohol will decrease an individual's risk of lifetime alcohol dependence and other drug use disorders (23).

Data Criteria

Data availability

Data on adolescents using alcohol and any illicit drugs during the past 30 days is captured through the administration of the NSDUH funded by SAMHSA, an agency of the U.S. Department of Health and Human Services (HHS). The NSDUH is a nationwide survey administered annually since 1971 and involves interviews with randomly selected individuals aged 12 and older across all 50 states in the United States and District of Columbia.

The indicator is based on the length of time since the survey respondent last drank an alcoholic beverage “within the past 30 days” as one of the response options. The NSDUH uses multistage area probability sampling for each of the 50 states and the District of Columbia and oversamples youth and young adults who represent three major age groups of 12 to 17 years, 18 to 25 years, and 26 years or older. The NSDUH data is available for download through the SAMHSA Substance Abuse and Mental Health Data Archive (SAMHDA) (samhsa.gov/data/) and is readily available to any MCH program in the country. This website provides links to the public-use data files as well as restricted-use data files that list information on use of some illicit drugs. The SAMHDA website also allows users to generate quick tables for the target age group of 12-17 years and allows for required variable searches across the different years of data.

Data quality

A reliability study was conducted for the NSDUH in 2006 by the Office of Applied Studies of SAMHSA, based on a directive of the federal government's Office of Management and Budget to evaluate the quality of federally funded surveys. The reliability study was conducted on a subsample of the main study by administering a second interview in addition to the interview conducted for the main study. A total of 3,136 interviews were completed and they were done five to 15 days after the initial interview for the main study. The interview for the reliability study followed the same procedure for data collection as the main study. The study found perfect reliability for indicators that measure lifetime substance use, as well as substantial reliability for substance dependence and abuse indicators.

NSDUH is the primary source of statistical information on the use of illegal drugs by the U.S. population. Prior to 2002, the NSDUH was called the National Household Survey on Drug Abuse (NHSDA) with the first round of surveys being conducted in early 1970s with 3,000 respondents. As the data collected through this survey gained importance, the Office of National Drug Control Policy advocated for expansion of the sample in the early 1980s for tracking data about illicit drug use. Also, a series of studies were conducted to evaluate the survey methods and questionnaire that lead to the redesign of the survey in 1994. Following this redesign of the survey, SAMHSA pursued the use of a newly emerging data collection technology, audio computer-assisted self-interviewing (ACASI), simultaneously with new sampling design to produce state-level estimates from survey responses. Since this initial redesign, there has been routine evaluation of the survey methodology and periodic improvements of the survey design and implementation.

The measure is utilized by the HHS Health Resources and Services Administration, and the Maternal and Child Health Bureau for their Child Health USA report (1).

Simplicity of indicator

The indicator is widely used by many federal and state agencies and other organizations interested in the use of tobacco, alcohol, illicit drugs (including non-medical use of prescription drugs), and mental health in the United States. The indicator is used by HHS Health Resources and Services Administration, and the Maternal and Child Health Bureau for their Child Health USA report (1). The data for the indicator are readily available, and the numerator and denominator for this indicator are simple. Adolescent use of alcohol is a common focus area among professionals and communities and one that community members can understand.

Numerous government, national, and community groups use this indicator for advocacy or improving public health programs. The White House Office of National Drug Control Policy uses NSDUH data to track progress toward goals in the National Drug Control Strategy. SAMHSA prepares statistical reports on substance use patterns and trends and uses the data to identify populations and geographic areas with particular substance abuse problems so federal resources can be used efficiently for prevention and treatment programs. The Partnership for a Drug-Free America uses NSDUH data to design media advertising campaigns for the prevention of substance use and abuse. Based on the trends and patterns of substance use evident in the data, the National Institute on Drug Abuse develops research programs targeted toward populations and types of drug use problems where the need is greatest. University-based researchers use NSDUH data to conduct research on important substance use issues, such as the risk and protective factors associated with substance use, personal and societal consequences of substance use, and the impact of policy decisions for dealing with the substance abuse problem. Substance abuse agencies at the state and local levels use NSDUH data to assess the potential need for treatment services and to design programs that fit the needs of populations served. State and local health departments use NSDUH data to assess area substance use problems and to develop appropriate funding strategies and prevention measures. The U.S. Department of Education uses the data to inform drug use prevention and education programs and provide educational materials for teachers and administrators. The U.S. Department of Transportation uses NSDUH data on driving after alcohol and illicit drug use to develop prevention programs and materials on impaired driving.

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