Indicator:	**Current Cigarette Smoking (E1)**
Domain:	Tobacco, Alcohol, and Substance Use
Sub-domain:	Smoking
Demographic group:	Women aged 18-44 years.
Data resource:	Behavioral Risk Factor Surveillance Survey (BRFSS). http://www.cdc.gov/BRFSS
Data availability:	Core item – available in all states annually.
Numerator:	Women aged 18-44 years who reported that they smoked ≥ 100 cigarettes in their lifetime and currently smoke every day or some days.
Denominator:	Women aged 18-44 years who reported that they currently smoke either every day, some days, or not at all, or reported that they had not smoked ≥ 100 cigarettes in their lifetime (excluding unknowns and refusals).
Measures of frequency:	Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage).
Period of case definition:	Current.
Significance:	Smoking is the most preventable cause of morbidity and mortality in the United States, yet more than 140,000 women die each year from smoking related causes.[1] Women of reproductive age (18-44 years) who smoke risk adverse pregnancy outcomes, including difficulty conceiving, infertility, spontaneous abortion, prematurity, premature rupture of membranes, low birth weight, neonatal mortality, stillbirth, and sudden infant death syndrome (SIDS), as well as adverse health consequences for themselves.[2,3] Recent studies have found an increase in genetic mutations in fetuses of women who quit smoking during pregnancy, usually when they found out they were pregnant.[4] Because only 20% of women who smoke are able to quit successfully during pregnancy, the Centers for Disease Control and Prevention (CDC) recommend smoking cessation prior to pregnancy.[5] Furthermore, the Clinical Work Group of the Select Panel on Preconception Care workgroup recommends that all childbearing aged women be screened for

	tobacco use.[6] Interventions should be provided to tobacco users to include counseling about the benefits of not smoking before, during, and after pregnancy, a discussion of medications, and referral to intensive services that aid individuals attempting to stop smoking.[6]
Limitations of indicator:	The indicator does not convey the frequency of using cigarettes or the lifetime or current amount of cigarettes smoked, which may affect maternal and infant health outcomes. Indicator does not measure intent to quit smoking or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among non-smokers. Only women who smoked at least 100 cigarettes in their entire lives are asked about current smoking. Therefore, the numerator excludes women who began to smoke relatively recently, although this is likely a small number. Multiple studies have indicated high reliability for BRFSS smoking status data.[7] Although few studies have been conducted to assess the validity of BRFSS smoking data, research of other research studies using similar smoking status questions suggests that the prevalence of current smoking is moderately valid.[7]
Related Healthy People 2010 Objective(s):	27-1a. Reduce cigarette smoking by adults 18 and older. Target: 12%.

References:

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Indicator:	**Cigarette Smoking Before Pregnancy (E2)**
Domain:	Tobacco, Alcohol, and Substance Use
Sub-domain:	Smoking
Demographic group:	Women aged 18-44 years having a recent live birth.
Data resource:	Pregnancy Risk Assessment Monitoring System (PRAMS) http://www.cdc.gov/prams
Data availability:	Core item – available in all PRAMS states annually
Numerator:	Respondents aged 18-44 years who reported that they had smoked at least 100 cigarettes in the past 2 years and that they smoked any number of cigarettes, including < 1 cigarette, on an average day during the 3 months before they got pregnant with their most recent live born infant.
Denominator:	Respondents aged 18-44 years who reported the number of cigarettes they smoked on an average day in the 3 months before they got pregnant with their most recent live born infant, including none, as well as those who reported that they had not smoked any cigarettes in the past 2 years (excluding unknowns and refusals).
Measures of frequency:	Crude annual prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage).
Period of case definition:	Three months before the pregnancy resulting in the most recent live birth.
Significance:	Smoking before and during pregnancy is the most preventable known cause of illness and death among mothers and infants and has been strongly associated with low birthweight, small size for gestational age, preterm birth, as well as spontaneous abortion, stillbirth, SIDS and increased risk for various birth defects.[1, 2] Compared to non-smokers, women who smoked during pregnancy were about twice as likely to have premature rupture of membranes, placental abruption and placenta previa.[1] According to 2004 PRAMS data collected from 26 reporting areas, the mean prevalence of pre-pregnancy tobacco use was 23.2%; 45% of these women reported quitting during pregnancy, yet over 50% of them relapsed within six months after delivery.[3] Because nicotine is

highly addictive, tobacco cessation can be difficult. Some studies have shown that tobacco use during early pregnancy can be harmful to both the fetus and the infant later in life with increased risk resulting from progressive levels of cigarette consumption.[4-9] Therefore, women who quit smoking before pregnancy can significantly reduce their risk for adverse birth and infant outcomes. The Clinical Work Group of the Select Panel on Preconception Care workgroup recommends that all childbearing aged women be screened for tobacco use.[10] Interventions should be provided to tobacco users to include counseling about the benefits of not smoking before, during, and after pregnancy, a discussion of medications, and referral to intensive services that aid individuals attempting to stop smoking.[10]

Limitations of indicator: Women who smoked earlier than 3 months preconception though not during the 3 months preconception, and women who began smoking post-survey (interconception) are not represented.

Related Healthy People 2010 Objective(s): 16-17. Increase abstinence from alcohol, cigarettes, and illicit drugs among pregnant women. Target for cigarette smoking: 99%.

27-1a. Reduce cigarette smoking by adults 18 and older. Target: 12%.

References:

1. Smoking prevalence among women of reproductive age—United States, 2006. MMWR. August 8, 2008; 57(31); 849-852. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5731a2.htm
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Indicator:	**Heavy Drinking (E3)**
Domain:	Tobacco, Alcohol, and Substance Use
Sub-domain:	Alcohol
Demographic group:	Women aged 18-44 years.
Data resource:	Behavioral Risk Factor Surveillance System (BRFSS) http://www.cdc.gov/BRFSS/
Data availability:	Core item – available in all states annually.
Numerator:	Women aged 18-44 years who reported having an average of more than 1 drink per day on the days they drank alcohol during the previous 30 days.
Denominator:	Women aged 18-44 years who reported the average number of drinks they had, including zero, on the days they drank alcohol as well as those who reported having had no drinks during the past 30 days (excluding unknowns and refusals).
Measures of frequency:	Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage).
Period of case definition:	Previous 30 days.
Significance:	Heavy alcohol use before pregnancy is predictive of continued use during pregnancy.[1] CDC analysis of 2002 Behavioral Risk Factor Surveillance System (BRFSS) data for women aged 18 – 44 indicated that the prevalence of frequent drinking (7 or more drinks in a week or binge drinking) was 13.2% for all women of childbearing age overall (including pregnant women) and 13.1% for women who might become pregnant.[2] Alcohol consumption during pregnancy is associated with spontaneous abortions, birth defects, and developmental disorders, many of which occur early in gestation before the woman is aware that she is pregnant.[2] Frequent or heavy alcohol use during pregnancy, especially in the first few weeks after conception, is associated with fetal alcohol syndrome (FAS), which is characterized by impaired growth and mental retardation in the infant.[3] Even though a dose-response relationship has been observed between prenatal alcohol consumption and effects on the fetus, no amount of alcohol

consumption during pregnancy is known to be safe.[2, 4] Therefore current medical guidelines, including the recommendations of the US Surgeon General and the American Academy of Pediatrics (AAP), advise against any alcohol use around the time of conception and throughout pregnancy.[5, 6] Furthermore, the Clinical Work Group of the Select Panel on Preconception Care workgroup recommends all childbearing aged women be screened for alcohol use and provided with information regarding potential adverse health outcomes including the negative effects of alcohol consumption during pregnancy.[7] In addition, women who exhibit signs of alcohol dependence or misuse should be directed to support programs that would assist them to achieve long-term cessation of alcohol use and be advised to delay any future pregnancies until they are able to abstain from alcohol use .[7]

Limitations of indicator:

The indicator does not convey the specific amount of alcohol consumed. Analysis for this indicator requires use of a calculated variable named _RFDRWM3. Details on the calculation of this variable can be found at http://ftp.cdc.gov/pub/data/brfss/calcvar_07.rtf. BRFSS estimates of alcohol consumption are similar to those found in other studies.[8] Although reliability of BRFSS alcohol consumption and binge drinking questions have been shown to be high, there may be reporting inconsistencies among heavy alcohol users. However, since BRFSS data appear to underestimate the prevalence of heavy drinkers, the validity of these data are considered to be moderate.

Related Healthy People 2010 Objective(s):

26-13. Reduce the proportion of adults who exceed guidelines for low-risk drinking. Target: 50%. Exceeding the guidelines for females is drinking more than 7 drinks per week or binge drinking (4 or more drinks per occasion).

References:

1. Centers for Disease Control and Prevention. Alcohol use among women of childbearing age—United States 1991-1999. MMWR April 5 2002. 51(13); 273-6. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5113a2.htm
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5. Surgeon General's advisory on alcohol use in pregnancy (2005, February 21). http://www.surgeongeneral.gov/pressreleases/sg02222005.html.
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Indicator:	**Binge Drinking (E4)**
Domain:	Tobacco, Alcohol, and Substance Use
Sub-domain:	Alcohol
Demographic group:	Women aged 18-44 years.
Data resource:	Behavioral Risk Factor Surveillance System (BRFSS) http://www.cdc.gov/BRFSS/
Data availability:	Core item – available in all states annually.
Numerator:	Women aged 18-44 years who reported they had 4 or more drinks on one or more occasions during the previous 30 days.
Denominator:	Women aged 18-44 years who reported the number of times they had 4 or more drinks on any occasion, including zero times as well as those who reported having had no drinks during the past 30 days (excluding unknowns and refusals).
Measures of frequency:	Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage).
Period of case definition:	Previous 30 days.
Significance	Preconception drinking is highly predictive of alcohol use during pregnancy, which is associated with adverse birth and infant outcomes.[1] The most severe outcomes, such as Fetal Alcohol Syndrome (FAS), characterized by impaired growth and mental retardation in the infant, seem to result from frequent and heavy drinking, especially binge drinking, during early pregnancy (3-8 weeks post-conception).[2] Because the US Surgeon General has determined that no amount of alcohol consumption during pregnancy is known to be safe, current medical guidelines advise against any alcohol use around the time of conception and throughout pregnancy.[2, 3] CDC analysis of 2002 Behavioral Risk Factor Surveillance System (BRFSS) data for women aged 18 – 44 indicated that the prevalence of binge drinking was 12.4% both for all women of childbearing age overall and for those who might become pregnant.[4] The Clinical Work Group of the Select Panel on Preconception Care workgroup recommends all childbearing aged women be screened for alcohol use and provided with

information regarding potential adverse health outcomes including the negative effects of alcohol consumption during pregnancy.[5] In addition, women who exhibit signs of alcohol dependence or misuse should be directed to support programs that would assist them to achieve long-term cessation of alcohol use and be advised to delay any future pregnancies until they are able to abstain from alcohol use .[5]

Limitations of indicator:

The indicator does not convey the specific amount of alcohol consumed. CDC's and National Institute on Alcohol Abuse and Alcoholism's definition of binge drinking is that the blood alcohol level used to categorize drinking as binge drinking is generally reached for women if they drink 4 or more drinks within about 2 hours.[6] The indicator uses "on one occasion" rather than within 2 hours. Since an "occasion" is open to interpretation, it might include women who considered an occasion to be longer than 2 hours and will therefore be included when they do not meet the "definition". A definition of "a drink" is not included in this question, although it is included in a preceding BRFSS question. Therefore what "a drink" consists of (e.g., a sip, several sips, etc.) may not be interpreted the same way by all women. BRFSS estimates of alcohol consumption are similar to those found in other studies.[7] Reliability of BRFSS alcohol consumption and binge drinking questions have been shown to be high and the validity is considered to be moderate. Analysis for this indicator requires use of a calculated variable named _RFBING4. Details on the calculation of this variable can be found at http://ftp.cdc.gov/pub/data/brfss/calcvar_07.rtf.

Related Healthy People 2010 objective(s):

26-11c. Reduce the proportion of adults (those 18 years and older) engaging in binge drinking of alcoholic beverages during the past month. Target: 6%.

References:

1. Centers for Disease Control and Prevention. Alcohol use among women of childbearing age—United States 1991-1999. MMWR Apr 5, 2002.51:273-6. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5113a2.htm
2. Centers for Disease control and Prevention. 2002 PRAMS surveillance report: multi-state exhibits. Aug 23, 2006. http://www.cdc.gov/prams/2002PRAMSSurvReport/MultiStateExhibits/Multistates12.htm

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Indicator:	**Alcohol Use Before Pregnancy (E5)**
Domain:	Tobacco, Alcohol, and Substance Use
Sub-domain:	Alcohol
Demographic group:	Women aged 18-44 years who had a recent live birth.
Data resource:	Pregnancy Risk Assessment Monitoring System (PRAMS) http://www.cdc.gov/prams/
Data availability:	Core item – available in all PRAMS states annually.
Numerator:	Respondents aged 18-44 years who reported that they drank any alcoholic beverages during the 3 months before they got pregnant with their most recent live born infant, including those having less than one drink in an average week.
Denominator:	Respondents aged 18-44 years who reported the number of drinks they had in an average week, including none, during the 3 months before they got pregnant with their most recent live born infant as well as those who reported that they did not have any alcoholic drinks in the past 2 years (excluding unknowns and refusals).
Measures of frequency:	Crude annual prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage).
Period of case definition:	Three months before the pregnancy resulting in the most recent live birth.
Significance:	Preconception drinking patterns are highly predictive of alcohol use during pregnancy, which has been associated with adverse birth and infant outcomes, including Fetal Alcohol Syndrome (FAS).[1] The US Surgeon General has determined that no amount of alcohol consumption during pregnancy is known to be safe.[2] Therefore, current medical guidelines advise against any alcohol use throughout pregnancy and around the time of conception, since the effects of alcohol consumption on the fetus may occur before a woman is aware she is pregnant.[2, 3] According to 2004 PRAMS data collected from 26 reporting areas, the mean prevalence of alcohol use during the 3 months prior to the most recent pregnancy was 50.1%.[4] The Clinical Work Group of the Select Panel on Preconception Care workgroup recommends all childbearing aged

	women be screened for alcohol use and provided with information regarding potential adverse health outcomes including the negative effects of alcohol consumption during pregnancy.[5] In addition, women who exhibit signs of alcohol dependence or misuse should be directed to support programs that would assist them to achieve long-term cessation of alcohol use and be advised to delay any future pregnancies until they are able to abstain from alcohol use .[5]
Limitations of indicator:	The indicator does not convey the frequency of drinking or the number of drinks per day or per occasion.
Related Healthy People 2010 Objective(s):	16-17a. Increase abstinence from alcohol, tobacco, and illicit drugs among pregnant women. Target for alcohol: 94%. Although this measure would presumably be applied during pregnancy, drinking patterns before pregnancy tend to continue into early pregnancy.

References:

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Indicator:	**Binge Drinking Before Pregnancy (E6)**
Domain:	Tobacco, Alcohol, and Substance Use
Sub-domain:	Alcohol
Demographic group:	Women aged 18-44 years having a recent live birth.
Data resource:	Pregnancy Risk Assessment Monitoring System (PRAMS) http://www.cdc.gov/prams/
Data availability:	Core item – available in all PRAMS states annually.
Numerator:	Respondents aged 18-44 years who reported that they had 4 or more drinks in one sitting at least once during the 3 months before they got pregnant with their most recent live born infant.
Denominator:	Respondents aged 18-44 years who reported the number of times they drank 4 or more alcoholic drinks (including zero) in one sitting during the 3 months before they got pregnant with their most recent live born infant as well as those who did not have any alcoholic drinks during the 3 months before they got pregnant with their most recent live born infant and those who did not have any alcoholic drinks in the past 2 years (excluding unknowns and refusals).
Measures of frequency:	Crude annual prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage).
Period of case definition:	Three months before the pregnancy resulting in the most recent live birth.
Significance:	Preconception drinking is highly predictive of alcohol use during pregnancy, which has been associated with adverse birth and infant outcomes.[1] The most severe outcomes, such as Fetal Alcohol Syndrome (FAS), which is characterized by impaired growth and mental retardation in the infant, seem to result from frequent and heavy drinking, especially binge drinking, during early pregnancy (3-8 weeks post conception).[2] Because the US Surgeon General has determined that no amount of alcohol consumption during pregnancy is known to be safe, current medical guidelines advise against any alcohol use around the time of conception and throughout pregnancy.[2, 3] Analysis of data from the 15 states that

	participated in PRAMS from 1996-1999 revealed that 14% of the women surveyed reported binge drinking prior to pregnancy.[4] The Clinical Work Group of the Select Panel on Preconception Care workgroup recommends all childbearing aged women be screened for alcohol use and provided with information regarding potential adverse health outcomes including the negative effects of alcohol consumption during pregnancy.[5] In addition, women who exhibit signs of alcohol dependence or misuse should be directed to support programs that would assist them to achieve long-term cessation of alcohol use and be advised to delay any future pregnancies until they are able to abstain from alcohol use .[5]
Limitations of indicator:	The indicator does not convey when the binge drinking occurred within the 3 months preconception or the specific amount of alcohol consumed.
Related Healthy People 2010 Objective(s):	16-17b. Increase abstinence from alcohol, tobacco, and illicit drug use among pregnant women. Target for binge drinking: 100%. Although this measure would presumably be applied during pregnancy, drinking patterns before pregnancy tend to continue into early pregnancy.

References:

1. Alcohol use among women of childbearing age—United States 1991-1999. MMWR April 5 2002: 51(13): 273-6 http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5113a2.htm
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Indicator:	**Household Cigarette Smoke (E7)**
Domain:	Tobacco, Alcohol, and Substance Use
Sub-domain:	Secondhand Smoke Exposure
Demographic group:	Women aged 18-44 years having a recent live birth.
Data resource:	Pregnancy Risk Assessment Monitoring System (PRAMS). http://www.cdc.gov/PRAMS/
Data availability:	Core item - available in all PRAMS states annually.
Numerator:	Respondents aged 18-44 years who reported that smoking is currently permitted anywhere inside their home or smoking is allowed in some rooms of their home or at some times.
Denominator:	Respondents aged 18-44 years who reported either that smoking is or is not currently allowed in their home (excluding unknowns and refusals).
Measures of frequency:	Crude annual prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage).
Period of case definition:	Current.
Significance:	Even if a woman quits smoking before or during pregnancy to ensure her baby's health, if others smoke around her it may compromise her and her children's health. Between 70% and 90% of non-smokers in the United States are regularly exposed to secondhand smoke.[1] Babies born to mothers who were exposed to secondhand smoke during their pregnancies are 20% more likely to have low birth weight than babies whose mothers were not exposed to secondhand smoke.[2] Babies who are themselves exposed to secondhand smoke after birth are more likely to die of SIDS, and infants and children who experience secondhand smoke exposure are at increased risk for ear infections, bronchitis, asthma and other respiratory tract problems.[2] The CDC recommends counseling women of childbearing age about the risks of exposure to secondhand smoke as an important interconception health promotion measure.[2]
Limitations of indicator:	The indicator does not convey the frequency of cigarette smoking in the home or whether smokers reside in the home, which may

	affect maternal and infant health outcomes. The indicator does not measure other exposures to environmental tobacco smoke. Women who allowed smoking in their home before, during, or shortly after pregnancy, but do not allow it currently, are not captured. It also excludes women who began to allow smoking in their homes after they responded to the survey. Because women respond to the survey at varying times 2-9 months postpartum, the indicator is not generalizable to the population of postpartum women. However, the number of women who change their household rules on smoking may be small.
Related Healthy People 2010 Objective(s):	27-10. Reduce the proportion of nonsmokers exposed to environmental tobacco smoke. Target: 45%.

References:

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2. CDC Fact Sheets. Preventing smoking and exposure to secondhand smoke before, during and after pregnancy. http://www.cdc.gov/NCCdphp/publications/factsheets/Prevention/smoking.htm