Although the infant mortality rate (IMR) has steadily declined in the United States since the early 1900s, the rate varies among racial/ethnic populations.¹ A goal of the national health objectives for 2010 is to eliminate racial/ethnic health disparities (U.S. Department of Health and Human Services, unpublished data, 1999). Historically, IMRs among American Indians and Alaskan Natives (AI/AN) have been high.² In addition, IMRs have varied among AI/AN populations.³ To determine recent trends in infant mortality among Northwest AI/AN, the Northwest Portland Area Indian Health Board (NPAIHB) analyzed annual IMRs among AI/AN in Idaho, Oregon, and Washington. In addition, because sudden infant death syndrome (SIDS) is the major contributor to excess infant mortality in Northwest AI/AN,⁴ NPAIHB analyzed SIDS rates to determine whether the decline in SIDS rates in the United States also was occurring among Northwest AI/AN. This report summarizes the results of this analysis and documents dramatic decreases in both SIDS and non-SIDS infant mortality.

Annual vital statistics data for 1985-1996 were analyzed from the state health departments of Idaho, Oregon, and Washington and from CDC. Numerators for IMRs were all resident deaths for which the decedent was aged <365 days and for which the death certificate was linked to a birth certificate on which the race of the mother was AI/AN, regardless of whether the death occurred in the same calendar year as the birth. Denominators for IMRs were all resident live-born infants for each year for which the race of the mother on the birth certificate was AI/AN. Comparison rates for SIDS and overall infant mortality for all other races (non-AI/AN) were calculated by subtracting the AI/AN births and infant deaths annually for each state from the all-races totals obtained from CDC. Hispanic ethnicity was not considered in the analysis. Annual rate changes were compared with combined rates for 1985-1988, 1989-1992, and 1993-1996. These periods were selected for comparison because of the introduction in 1993 of several programmatic initiatives that might have influenced IMRs among Northwest AI/AN. Deaths attributed to SIDS were those for which the underlying cause of death was listed as International Classifications of Diseases, Ninth Revision, code 798.0. Statistical analysis was conducted using chi square tests for trends using EpiInfo.⁵

From 1985 through 1996, IMRs and SIDS rates decreased among Northwest AI/AN. In particular, IMRs for Northwest AI/AN decreased from 20.0 per 1000 live-born infants during 1985-1988 to 7.7 during 1993-1996, a rate difference of 12.3 per 1000 population. During the same period, SIDS mortality rates decreased from 8.9 to 3.0, a rate difference of 5.9. Approximately half (48.0%) of the decline in AI/AN IMRs was attributable to the decline in SIDS.

For the same three time periods, IMRs and SIDS rates also decreased for non-AI/AN in Idaho, Oregon, and Washington. For non-AI/AN, IMR declined from 9.6 during 1985-1988 to 6.3 during 1993-1996, a rate difference of 3.3, and the SIDS rate decreased from 2.5 to 1.4, a rate difference of 1.1. Approximately one third of the decrease in infant mortality in non-AI/AN resulted from the decline in SIDS.

Annual SIDS rates and overall IMRs decreased substantially for both AI/AN and non-AI/AN during the study period. IMRs for Northwest AI/AN are approaching that for non-AI/AN in the same states. The small increase in deaths attributed to SIDS in 1996 did not differ significantly from the trend.

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CDC Editorial Note: The findings in this report document a dramatic decline in IMR among Northwest AI/AN during 1985-1996. Decreases in both SIDS and non-SIDS cases were observed across each of the last two time periods, but decreases were greatest during 1993-1996. The decline in SIDS among Northwest AI/AN is consistent with, but of a greater magnitude than, the substantial decreases in SIDS nationally that have been attributed to the success of the national Back to Sleep campaign.⁷

Multiple factors may have caused the decreases in SIDS and non-SIDS cases among Northwest AI/AN. Important risk factors that have been associated with SIDS include prone sleeping position and exposure to environmental tobacco smoke (ETS). In 1993, to reduce the risk for SIDS among Northwest AI/AN, the Portland Area Indian Health Service (IHS) (covering Idaho, Oregon, and Washington) initiated programs for parental education on nonprone infant sleep position and reduction of infant exposure to ETS. However, many Northwest AI/AN receive part or all of their health-care services outside the IHS health-care delivery system. As a result, the extent that...
Northwest AI/AN were exposed to these IHS programs is uncertain. As early as 1992, there was publicity in the Seattle area about increased risk for SIDS among infants sleeping prone, and in 1994 the national Back to Sleep program began. However, it is unknown whether there were substantial changes in the prevalence of prone sleeping position or exposure to ETS among Northwest AI/AN during the time periods.

Factors that may have helped reduce non-SIDS IMRs among Northwest AI/AN include (1) structured activities by Portland area IHS programs initiated in 1993 to identify and manage high-risk pregnancies, (2) state programs such as the Washington State First Steps Medicaid expansion program for pregnant women and infants, (3) improved access to tertiary care for very low birth weight (<1500 g [<3 lbs, 3 oz]) newborns, and (4) improvements in technology (e.g., introduction of surfactant use in neonatal intensive-care units).

The findings in this report are subject to at least four limitations. First, infant race was defined using the CDC's National Center for Health Statistics definition of race for infant mortality (i.e., for calculation of rates, the infant is assigned the mother's race), which differs from the IHS method (i.e., considering the race of the infant as AI/AN if either the mother or father is AI/AN); thus, these findings cannot be directly compared with published IHS data. Second, determining race for AI/AN from vital statistics data is problematic, however, using linked records as in this analysis can minimize this problem. Third, diagnostic shift could have occurred, resulting in infant deaths that formerly would have been attributed to SIDS being ascribed to other causes. However, this possibility has been examined recently in other populations and was not found to be a substantial factor. Finally, a small number of infant death records could not be linked to a birth certificate and were excluded.

More extensive analysis is needed to determine factors associated with the dramatic decreases in IMRs and SIDS rates among Northwest AI/AN. Further understanding of the protective factors would be useful for developing and implementing programs to reduce infant mortality in other AI/AN populations in which high rates of SIDS and non-SIDS cases have been documented.

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10 available

Preterm Singleton Births—United States, 1989-1996

MMWR. 1999;48:185-189

1 figure, 2 tables omitted

Preterm birth (birth at <37 completed weeks of gestation) is the second leading cause of neonatal mortality in the United States. Preterm birthrates differ by race; in 1996, black infants were 1.8 times more likely than white infants to be preterm. From 1989 through 1996, the overall rate of preterm birth (per 1000 live-born infants) increased 4%, and the rate of multiple births (e.g., twins, triplets, or other higher-order births) increased 19%. Multiple births are associated with preterm births; trends in preterm births independent of the influence of multiple births have not been fully explored. To characterize race- and ethnicity-specific trends in preterm birth independent of multiple births, data from U.S. birth certificates for 1989-1996 were analyzed for singleton births only. This report summarizes the results of this analysis and indicates that although singleton preterm birthrates are stable overall, substantial changes in rates occurred in some racial/ethnic subgroups.

For this report, preterm birth was defined as a live birth occurring at 17-36 completed weeks of gestation and was subgrouped by weeks of gestation: moderately preterm (33-36 weeks), very preterm (29-32 weeks), extremely preterm (20-28 weeks), and ultra preterm (17-19 weeks). Gestational age was determined from information on the birth certificate by one of two methods: (1) the interval between the first day of the mother's last normal menstrual period (LMP) and the date of birth, or (2) a clinical estimate by the birth attendant of gestational age when the month or year of the LMP was missing or when the gestational age based on this date was inconsistent with the infant's birth weight. Approximately 1% of singleton infants were excluded because of missing or implausible estimates of gestational age. Infants were imputed as singletons for the 0.02% of live-born infants for which the number of fetuses in a given pregnancy was unreported. Maternal race and ethnicity were based on self-report and categorized as non-Hispanic white, non-Hispanic black, Hispanic, American Indian/Alaskan Native, or Asian/Pacific Islander. Stratification by gestational age was not performed for American Indians/Alaskan Natives and Asians/Pacific Islanders because the number of preterm births, when broken down into gestational age subgroups, was too small for meaningful analysis.

From 1989 through 1996, the preterm birthrate (per 1000 live-born infants) among singletons increased 0.3% (from 97.0 to 97.3). Among moderately preterm singleton infants, the birthrate increased 2% (from 74.8 to 76.5). Among very preterm singleton infants, the birthrate decreased 8% (from 14.4 to 13.2) and among extremely preterm infants, decreased 4% (from 7.6 to 7.3). The singleton preterm birthrate increased 8% among non-Hispanic whites but decreased 10% among non-Hispanic blacks, 4% among Hispanics, 3% among American Indians/Alaskan Natives, and 2% among Asians/Pacific Islanders. Among non-Hispanic whites, the moderately preterm birthrate increased 10%, and minor changes were observed in very and extremely preterm birthrates. Among non-Hispanic blacks and Hispanics, the preterm birthrate decreased in the moderately, very, and extremely preterm subgroups.

Maternal factors that may affect observed trends in preterm birthrates were analyzed. The percentage of singleton infants born to women aged ≥35 years...
increased 43% (from 8.4% in 1989 to 12.0% in 1996), the percentage born to women who entered prenatal care during the first trimester increased 8% (from 75.6% to 81.8%), and the percentage born to unmarried women increased 20% (from 27.0% to 32.5%). Similar trends were observed in all racial/ethnic groups.

To control for changes in maternal factors, preterm birthrates were directly standardized for each racial/ethnic group to the combined 1989 and 1996 singleton live birth distributions for maternal age, time of entry into prenatal care, and marital status. After standardization, the change from 1989 to 1996 in the preterm birthrate among non-Hispanic whites was 3.8 per 1000 live-born infants, 37% lower than the crude rate change of 6.0. For other racial/ethnic groups, the standardized rate was lower than the crude rate by 50% among non-Hispanic blacks, 29% among Hispanics, and 78% among American Indians/Alaskan Natives.

In addition to changes in maternal factors, changes in obstetric practices occurred during the study period that may have influenced preterm birthrates. For example, the percentage of singleton infants born to women whose labor was medically induced increased from 9.1% to 17.1%. To determine whether changes in preterm birthrates were independent of the change in induction practices, medically induced births were excluded from the analysis and rates were again standardized for maternal age, marital status, and time of entry into prenatal care. In this restricted group, the standardized preterm birthrate increased 9% among non-Hispanic whites, decreased 4% among non-Hispanic blacks, and changed <2% among Hispanics, American Indians/Alaskan Natives, and Asians/Pacific Islanders.

The proportion of births for which gestational age estimates were based on clinical evaluation increased slightly during the study period (from 3.6% in 1989 to 4.7% in 1996). Because the method of determining gestational age may influence identification of a birth as preterm, an analysis was conducted that excluded births for which gestational age was clinically estimated. The standardized preterm birthrate for the study period increased 6.3% among non-Hispanic whites, decreased 5.0% among non-Hispanic blacks, and changed less than 2% among Hispanics, American Indians/Alaskan Natives, and Asians/Pacific Islanders.

CDC Editorial Note: The findings in this report indicate that preterm birthrates among singletons are stable; however, the overall rate masks differences in trends by race/ethnicity and among gestational age subgroups. The rate for singleton preterm births increased among non-Hispanic whites mainly because of an increase in the birthrate of moderately preterm infants. Among non-Hispanic blacks, the decline in moderately, very, and extremely preterm singleton births was substantial, and more modest declines were observed in overall preterm birthrates for Hispanics, American Indians/Alaskan Natives, and Asians/Pacific Islanders. The increase in singleton preterm birthrates among non-Hispanic whites and the decrease among non-Hispanic blacks are not explained entirely by changes in maternal age distribution, marital status, time of entry into prenatal care, induction rates, or use of clinical estimates of gestational age.

The findings in this study are subject to at least three limitations. First, LMP and clinical-based gestational age may be misclassified (e.g., because of imperfect maternal recall, postconception bleeding, delayed ovulation, or intervening early miscarriage); such errors may occur more frequently in some subpopulations, especially at shorter gestations. Second, changes in the reporting of preterm live births with the shortest gestations (ultra preterm) could have affected the preterm birthrates. However, these infants represent a small fraction of total preterm infants and do not contribute substantially to overall trends. Finally, because fetal deaths were not evaluated, the contribution of changes in fetal survival to the increase in preterm birthrates for non-Hispanic whites could not be assessed.

The disparity in preterm birthrates between blacks and whites is decreasing because of an increase in preterm births among non-Hispanic whites and a decrease among non-Hispanic blacks. The racial disparity in singleton preterm birth between non-Hispanic blacks and non-Hispanic whites decreased 17% from 1989 to 1996; however, in 1996, the risk for singleton preterm birth among blacks was still twice that for whites. Although many risk factors for preterm delivery have been identified, specific etiologies are not well characterized. In addition, many potential risk factors for preterm birth, such as urogenital tract infections and history of subfertility or infertility, cannot be examined using the standard certificate of live birth. Additional studies exploring why preterm births are increasing among non-Hispanic whites and decreasing among non-Hispanic blacks may further understanding of how to prevent preterm birth.

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Mass Treatment of Humans Who Drank Unpasteurized Milk From Rabid Cows—Massachusetts, 1996-1998

MMWR. 1999;48:228-229

Rabies is a viral zoonosis that is usually transmitted by the bite of an infected mammal. However, in Massachusetts, two incidents have been reported since 1996 of potential mass exposures to rabies through drinking unpasteurized milk. This report presents the investigations of these two incidents.
Incident 1
On November 12, 1998, the Virology Laboratory of the Massachusetts Department of Public Health (VLMDPH) diagnosed rabies in a 6-year-old Holstein dairy cow from a farm in Worcester County. Further analysis of the cow’s brain tissue with monoclonal antibodies revealed the cow was infected with a variant of the rabies virus associated with raccoons in the eastern United States.

The cow had loss of appetite beginning November 4 and hypersalivation beginning November 6. An intestinal obstruction was suspected initially as the cause of illness. However, the cow became ataxic and aggressive and died on November 8.

The cow had been milked 12 times during the week before death. Milk from the cow had been pooled with milk collected from other cows, and an unpasteurized portion was distributed for human consumption. Public health investigations identified 66 persons who drank unpasteurized milk collected from this dairy during October 23–November 8. All 66 received rabies postexposure prophylaxis (PEP). In addition, five persons received PEP because of exposure to the cow’s saliva during the 15 days preceding her death.

Neither milk nor mammary tissue from the rabid cow was available for examination for the presence of rabies virus.

Incident 2
On November 12, 1996, the VLMDPH diagnosed rabies in a 14-year-old Jersey dairy cow from a different farm in Worcester County. Analysis with monoclonal antibodies revealed the cow was infected with a variant of the rabies virus associated with raccoons in the eastern United States.

The cow developed tenesmus and depression on November 6 and was euthanized on November 10. The cow had been milked during October 26–November 2. An investigation identified 14 persons who drank unpasteurized milk collected from this cow during this period. All 14 persons received PEP. In addition, four persons received PEP because of exposure to the rabid cow’s saliva during the 15 days preceding her death.

CDC Editorial Note: Management of mass human exposures to rabid animals requires public health officials to balance knowledge of rabies epidemiology, risk for transmission, and pathogenesis with the perceived risk for death among exposed persons. Because of the nearly 100% case-fatality ratio of human rabies and the virtually complete effectiveness of PEP, many mass exposure incidents prompt administration of rabies immune globulin and vaccine, even if the circumstances do not meet the criteria for exposure.1-3

During 1990-1996, CDC received reports of 22 incidents of mass human exposures to rabid or presumed-rabid animals in the United States, resulting in 1908 persons receiving PEP (median: 33 persons per incident).4 In Massachusetts during 1991-1995, the median cost for PEP was $2376 per person, including physician and facility charges.5 Prolific administration of PEP in response to these incidents strains the availability of rabies biologics, especially human rabies immune globulin, which has a short shelf-life and tightly controlled distribution by the manufacturers.

An average of 150 rabid cattle have been reported to CDC in the United States each year since 1990.6 In addition to concerns about rabies transmission from animals to humans through bites, rabid livestock raise the potential for foodborne transmission. The National Association of State Public Health Veterinarians recommends against consuming tissues and milk from rabid animals.7 However, because rabies virus is inactivated by temperatures below those used for cooking and pasteurization, eating cooked meat or drinking pasteurized milk from a rabid animal is not an indication for PEP.

Rabies virus can be transmitted by direct contact with infected material, such as saliva from an animal infected with rabies, and mucous membranes, including the oral and gastric mucosa.7 In addition to saliva and neural tissue, rabies virus also has been detected in the kidney, prostate, pancreas, and other tissues and body fluids.8 However, saliva and neural tissue are the primary proven vehicles for rabies virus in naturally occurring cases. Anecdotal reports exist of rabies transmission by ingestion of milk from rabid animals (e.g., from a rabid sheep to a nursing lamb).9 In these reports, the more conventional routes (e.g., bite or mucous membrane exposure) could not be completely excluded.

Transmission of rabies virus in unpasteurized milk is theoretically possible. The risk could be defined better if samples of milk and mammary tissue were collected from rabid livestock and assayed for the presence, viability, and infectivity of rabies virus. Regardless of the amount of viable rabies virus that may be shed in cows’ milk, the theoretical risk for transmission of rabies from this route can be eliminated if all dairy products are pasteurized before consumption.

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Neighborhood Safety and the Prevalence of Physical Inactivity—Selected States, 1996

PHYSICAL INACTIVITY IS AN IMPORTANT RISK factor for premature morbidity and mortality, especially among high-risk populations. Although health-promotion programs have targeted high-risk groups (i.e., older adults, women, and racial/ethnic minorities), barriers exist that may affect their physical activity level. Identifying and reducing specific barriers (e.g., lack of knowledge of the health benefits of physical activity, limited access to facilities, low self-efficacy, and environmental issues) are important for efforts designed to increase physical activity. Concerns about neighborhood safety may be a barrier to physical activity. To characterize the association between neighborhood safety and physical inactivity, CDC analyzed data from the 1996 Behavioral Risk Factor Surveillance System (BRFSS) in Maryland, Montana, Ohio, Pennsylvania, and Virginia. This report summarizes the results of this analysis, which indicate that persons who perceived their neighborhood to be unsafe were more likely to be physically inactive.

The BRFSS is a population-based, random-digit-dialed telephone survey of the civilian, noninstitutionalized U.S. population aged ≥18 years. In 1996, data on physical activity were analyzed for 12,767 persons (5320 men and 7447 women) who responded to the Social Context Module included in the 1996 surveys in Maryland, Montana, Ohio, Pennsylvania, and Virginia. Respondents were asked, “How safe from crime do you consider your neighborhood to be?” Possible responses were “extremely safe,” “quite safe,” “slightly safe,” or “not at all safe.” Respondents were classified as physically inactive if they reported no physical activity or exercise during the preceding month. Numbers for racial/ethnic groups other than white were combined because, when analyzed separately, data were too small for meaningful analysis. Data were weighted, and standard errors were calculated using SUDAAN.

The prevalence of physical inactivity among respondents was approximately 30% (n = 3967), which is similar to the levels reported for adults in the United States. The prevalence of physical inactivity was highest among adults aged ≥65 years, women, racial/ethnic minorities, persons with a high school education or less, and persons with annual household incomes of <$20,000. Overall, higher levels of perceived neighborhood safety were associated with lower levels of physical inactivity; the differences were greatest among persons aged ≥65 years (from 38.6% [extremely safe] to 63.1% [not at all safe]) and racial/ethnic minorities (from 29.9% [extremely safe] to 44.6% [not at all safe]). For respondents with more than a high school education, little difference in physical inactivity was noted among persons who perceived their neighborhood as unsafe and persons who perceived their neighborhood as safe (24.5% and 23.0%, respectively). The prevalence of physical inactivity among men and women differed across neighborhood safety levels among persons aged 18-64 years but not among persons aged ≥65 years. Data stratified by age and sex and controlling for race and education demonstrated an association between neighborhood safety and physical inactivity among older adults (odds ratio = 2.3; 95% confidence interval = 1.1-4.7).

Environmental barriers, including neighborhood safety, are not the only factors associated with physical inactivity among adolescents and young adults. However, many young adults use facilities, and the types of activities available are more varied. Among older adults, environmental barriers studied have been related to access to facilities (e.g., malls, parks, and gymnasiums) for physical activity rather than neighborhood safety issues. Older adults, for whom walking is the major activity, may be more influenced by safety concerns in their neighborhoods. The findings in this report are subject to at least five limitations. First, BRFSS data are cross-sectional and may not accurately reflect behaviors or conditions over time. Second, data are from only five states and may not represent trends in other states. Third, because the number of respondents in this analysis is relatively small and the data are self-reported, estimates may be unreliable. Fourth, because of the small number of respondents for racial/ethnic minorities, numbers were combined for a comparison with whites. Finally, these data may be affected by unmeasured confounding factors (e.g., social and demographic factors).

The survey described in this report suggests that public health action is needed to provide safe alternatives for physical activity in neighborhoods. Such efforts could increase community support and access to safe places for older adults to engage in physical activity. Additional research is needed to increase understanding of how perceived and actual neighborhood safety inhibits or facilitates participation in physical activity.

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method of obtaining a stool sample. Use of the home kit allows for collection of multiple samples and should be performed in conjunction with dietary restrictions to decrease the possibility of false-positive or false-negative results from certain foods and medications.

Previous estimates of the prevalence of colorectal cancer screening practices using the 1993 BRFSS demonstrated that the rates of use of colorectal cancer screening tests were low. Although direct comparison between these two analyses is not possible because the wording of the survey questions differed, the current analysis demonstrates continued underuse of sigmoidoscopy/proctoscopy. Both patient and provider barriers have contributed to the low rates of screening. Patient barriers may include lack of knowledge of screening recommendations, access to health care, anticipated discomfort, and embarrassment. Provider barriers may include lack of skills and lack of time to counsel patients.

The findings in this report are subject to at least three limitations. First, because the BRFSS is administered as a telephone survey, only persons with telephones are represented. Second, results are based on self-reports and have not been validated. However, self-report of certain colorectal cancer screening tests appears to be valid. Third, because the BRFSS questionnaire did not distinguish between tests conducted for diagnostic or screening purposes, the rates of use of these tests for screening purposes were probably lower than reported.

Activities relating to colorectal cancer screening are increasing at both the state and national levels. In 1997, the American Cancer Society and CDC established the National Colorectal Cancer Roundtable, a collaboration of state health departments, professional and medical societies, private industry, consumers, and cancer survivors to promote colorectal cancer screening awareness and activities. In 1998, the Health Care Financing Administration expanded Medicare coverage to include colorectal cancer screening. For average-risk persons aged ≥50 years, coverage will be provided for annual FOBT and sigmoidoscopy every 4 years, and for high-risk persons, coverage will be provided for colonoscopy every 2 years. Double-contrast barium enema may be substituted for either sigmoidoscopy or colonoscopy if requested in writing by the provider. Some commercial health plans also cover colorectal cancer screening.

The findings in this report underscore the need for efforts to increase screening for colorectal cancer. In response to low rates of use of screening tests, CDC is beginning a comprehensive health communication campaign to educate consumers and health-care providers about the importance of colorectal cancer screening and to encourage patients to discuss screening options with their providers. Public health officials, health-care providers, and commercial health plans need to intensify efforts to increase awareness of the effectiveness of screening and to promote the widespread use of colorectal cancer screening tests.

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Publication of An Ounce of Prevention . . . What Are the Returns?

MMWR. 1999;38:256

THE SECOND EDITION OF An Ounce of Prevention . . . What Are the Returns? is now available. This publication outlines strategies for and economic benefits of health promotion and disease and injury prevention. In addition, it outlines interventions in 19 areas of chronic and infectious disease and injury in which prevention can improve the quality of life and increase longevity. Each section presents the health impact of the disease, injury, or disability on U.S. society; the effectiveness of prevention strategies; the costs of the disease, injury, or disability; and the cost-effectiveness of prevention strategies. An Ounce of Prevention is available on the World-Wide Web, http://www.cdc.gov/epo/prevent.htm, or from CDC’s Prevention Effectiveness Branch, Division of Prevention Research and Analytic Methods, Epidemiology Program Office, Mailstop D-01, 1600 Clifton Road, N.E., Atlanta, GA 30333; e-mail epopeb@cdc.gov.

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In the report, “Mass Treatment of Humans Who Drank Unpasteurized Milk From Rabid Cows—Massachusetts, 1996-1998,” on page 229 (in JAMA, p 1372, third paragraph under CDC Editorial Note), the second sentence of the second paragraph should read: In addition to concerns about rabies transmission from animals to humans through bites, rabid livestock raise the issue of potential foodborne transmission.