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Invasive Cancer Incidence — United States, 2010

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Cancer has many causes, some of which can, at least in part, be avoided through interventions known to reduce cancer risk (*1*). *Healthy People 2020* objectives call for reducing colorectal cancer incidence to 38.6 per 100,000 persons, reducing late-stage breast cancer incidence to 41.0 per 100,000 women, and reducing cervical cancer incidence to 7.1 per 100,000 women (*2*). To assess progress toward reaching these *Healthy People 2020* targets, CDC analyzed data from U.S. Cancer Statistics (USCS) for 2010. USCS includes incidence data from CDC's National Program of Cancer Registries and the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program and mortality data from the National Vital Statistics System (*3*). In 2010, a total of 1,456,496 invasive cancers were reported to cancer registries in the United States (excluding Arkansas and Minnesota), an annual incidence rate of 446 cases per 100,000 persons, compared with 459 in 2009 (*4*). Cancer incidence rates were higher among men (503) than women (405), highest among blacks (455), and ranged by state from 380 to 511 per 100,000 persons. Many factors, including tobacco use, obesity, insufficient physical activity, and human papilloma virus (HPV) infection, contribute to the risk for developing cancer, and differences in cancer incidence indicate differences in the prevalence of these risk factors. These differences can be reduced through policy approaches such as the Affordable Care Act,* which could increase access for millions of persons to appropriate and timely cancer preventive services, including help with smoking cessation, cancer screening, and vaccination against HPV (*5*).

Invasive cancers include all cancers except in situ cancers (other than in the urinary bladder) and basal and squamous cell skin cancers. Data on new cases of invasive cancer diagnosed during 2010 were obtained from population-based cancer registries affiliated with the National Program of Cancer Registries and SEER programs in each state and the District of Columbia (DC) (*3*). Data from all states except Arkansas and Minnesota met USCS publication criteria for 2010†; consequently, data in this report cover 97% of the U.S. population. Cases were first classified by anatomic site using the *International Classification of Diseases for Oncology, Third Edition* (ICD-O-3). Cases with hematopoietic histologies were further classified using the *WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues, Fourth Edition*. Breast cancers also were characterized by

* Patient Protection and Affordable Care Act of 2010. Pub. L. No. 114-48 (March 23, 2010), as amended through May 1, 2010. Available at http://www.healthcare.gov/law/full/index.html.

† Cancer registries demonstrated that cancer incidence data were of high quality by meeting the six USCS publication criteria: 1) case ascertainment is ≥90% complete, 2) ≤5% of cases are ascertained solely on the basis of a death certificate, 3) ≤3% of cases are missing information on sex, 4) ≤3% of cases are missing information on age, 5) ≤5% of cases are missing information on race, and 6) ≥97% of the registry's records passed a set of single-field and inter-field computerized edits that test the validity and logic of data components. Additional information available at http://www.cdc.gov/uscs.

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stage at diagnosis using SEER Summary Stage 2000[§]; late-stage cancers include those diagnosed at a regional or distant stage.

Population denominators for incidence rates are race-specific, ethnicity-specific, and sex-specific county population estimates from the 2010 U.S. Census, as modified by SEER and aggregated to the state and national level.[¶] Annual incidence rates per 100,000 population were age-adjusted by the direct method to the 2000 U.S. standard population.

In 2010, a total of 1,456,496 invasive cancers were diagnosed and reported to central cancer registries in the United States (excluding Arkansas and Minnesota), including 745,383 among males and 711,113 among females (Table). The age-adjusted annual incidence for all cancers was 446 per 100,000 population; 503 per 100,000 in males (compared with 524 in 2009) and 405 per 100,000 in females (compared with 414 in 2009). Among persons aged ≤19 years, 14,276 cancer cases were diagnosed in 2010 (Table). By age group, rates per 100,000 population in 2010 were 17.5 among persons aged ≤19 years, 152.3 among those aged 20–49 years, 804.8 among those aged 50–64 years, 1,816.2 among those aged 65–74 years, and 2,209.9 among those aged ≥75 years (Table).

By cancer site, rates were highest for cancers of the prostate (126.1 per 100,000 men), female breast (118.7 per 100,000 women), lung and bronchus (61.7 per 100,000 persons), and colon and rectum (40.4 per 100,000 persons) (Table). These four sites accounted for half of cancers diagnosed in 2010, including 196,038 prostate cancers, 206,966 female breast cancers, 201,144 lung and bronchus cancers, and 131,607 colon and rectum cancers. In 2010, the cervical cancer incidence rate was 7.5 per 100,000 women, representing 11,818 reported cancers.

In 2010, the top 10 cancer sites differed by sex and racial/ethnic group (Figure 1). Among men, prostate, lung, and colorectal cancers were the first, second, and third most common cancers in all racial/ethnic groups. Among women, breast cancer was the most common cancer among all racial/ethnic groups, followed by lung, colorectal, and uterine cancers in all racial/ethnic groups, except among Hispanic women, among whom colorectal cancer was more common than lung cancer, and Asian/Pacific Islander women, among whom the most common cancers were colorectal, lung, and thyroid (Figure 1). At 49.8 per 100,000 women, the incidence of late-stage breast cancer was highest among black women, compared with 22.8 for American Indian/Alaska Native women, 28.6 for Asian/Pacific Islander women, 33.6 for Hispanic women, and 40.9 for white women.

By state in 2010, all-sites cancer incidence rates ranged from 380.4 to 510.7 per 100,000 persons (Figure 2). State site-specific cancer incidence rates ranged from 90.6 to 187.0 per 100,000 men for prostate cancer, 106.3 to 142.9 per 100,000 women for female breast cancer, 26.8 to 97.3 per 100,000 persons for lung cancer, 31.5 to 51.3 per 100,000 persons for

[§] Additional information available at http://seer.cancer.gov/tools/ssm.

[¶] Population estimates for 2010 incorporate bridged single-race estimates that are derived from the original multiple race categories in the 2010 Census. Additional information available at http://seer.cancer.gov/popdata/index.html and http://www.census.gov/popest/topics/methodology.

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TABLE. Number of invasive cancers* and annual rate,† by sex, primary site, racial/ethnic group,§ and age group — National Program of Cancer Registries, and Surveillance, Epidemiology, and End Results program, United States,¶ 2010

	Overall			Men			Women		
Characteristic	**Rate**	**No.**	**(%)**	**Rate**	**No.**	**(%)**	**Rate**	**No.**	**(%)**
All cancers	**445.5**	**1,456,496**		**502.7**	**745,383**		**405.1**	**711,113**	
Prostate	**NA**	**196,038**	**(13)**	126.1	196,038	(26)	NA	NA	
Female breast	**NA**	**206,966**	**(14)**	NA	NA		118.7	206,966	(29)
Late-stage female breast	**NA**	**71,691**		NA	NA		41.7	71,691	
Lung and bronchus	**61.7**	**201,144**	**(14)**	74.1	107,164	(14)	52.4	93,980	(13)
Colon and rectum	**40.4**	**131,607**	**(9)**	46.4	67,700	(9)	35.4	63,907	(9)
Cervix uteri	**NA**	**11,818**	**(1)**	NA	NA		7.5	11,818	(2)
Racial/Ethnic group									
White	**444.9**	**1,224,067**	**(84)**	495.2	625,371	(84)	409.9	598,696	(84)
Black	**454.6**	**157,085**	**(11)**	553.2	80,638	(11)	388.8	76,447	(11)
American Indian/Alaska Native	**270.3**	**7,361**	**(1)**	299.2	3,588	(<1)	251.9	3,773	(1)
Asian/Pacific Islander	**289.2**	**41,541**	**(3)**	307.6	18,730	(3)	279.7	22,811	(3)
Hispanic	**343.9**	**103,050**	**(7)**	390.4	50,281	(7)	314.9	52,769	(7)
Age group (yrs)									
≤19	**17.5**	**14,276**	**(1)**	18.6	7,739	(1)	16.4	6,537	(1)
20–49	**152.3**	**185,051**	**(13)**	113.5	69,184	(9)	190.6	115,867	(16)
50–64	**804.8**	**474,859**	**(33)**	874.3	251,046	(34)	740.6	223,813	(31)
65–74	**1,816.2**	**382,519**	**(26)**	2,234.1	218,334	(29)	1,455.0	164,185	(23)
≥75	**2,209.9**	**399,791**	**(27)**	2,802.4	199,080	(27)	1,823.1	200,711	(28)

Abbreviation: NA = not applicable.
* Excludes basal and squamous cell carcinomas of the skin except when these occur on the skin of the genital organs, and in situ cancers other than urinary bladder.
† Per 100,000 persons, age-adjusted to the 2000 U.S. standard population.
§ Racial categories are not mutually exclusive from Hispanic ethnicity. Rates are not presented for cases with unknown or other race.
¶ Compiled from cancer registries that meet the data quality criteria for all invasive cancer sites combined (covering approximately 97% of the U.S. population).

colorectal cancer, and 5.0 to 11.2 per 100,000 women for cervical cancer (Figure 2). *Healthy People 2020* targets were reached in 15 states (compared with seven in 2009) for incidence of colorectal cancer and in 24 states (compared with 19 in 2009) for incidence of cervical cancer.

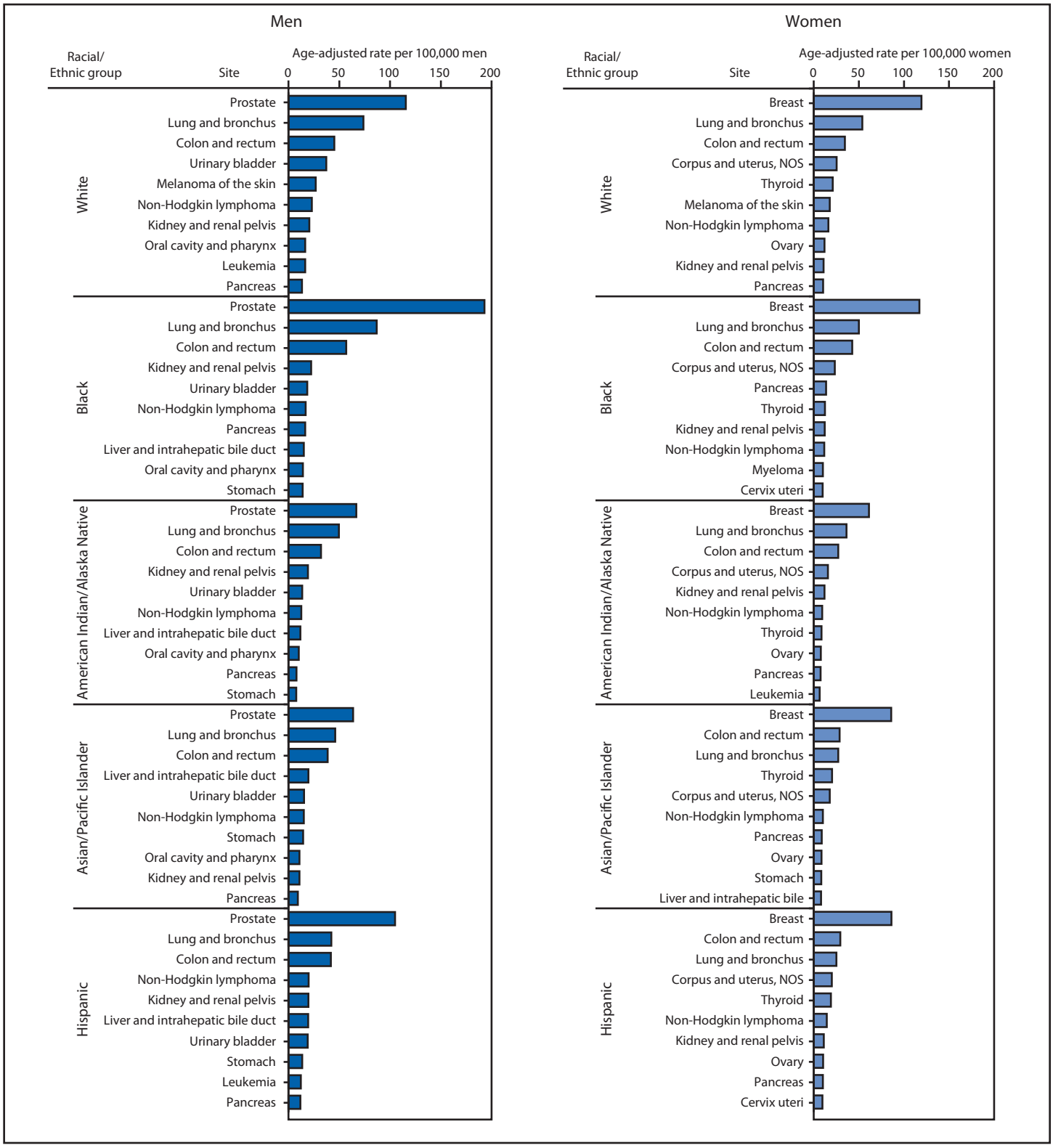
Discussion

This report provides estimates of cancer incidence for 2010 in the United States and shows that *Healthy People 2020* targets were reached in 15 states for reduced colorectal cancer incidence and 24 states for reduced cervical cancer incidence. For the first time, lung cancer was the second most common cancer among Hispanic men, surpassing colorectal cancer, although it is too soon to determine whether this trend is likely to continue. Fewer cancers were reported to cancer registries in 2010 than in 2009 (*4*). Decreases in case counts might reflect actual changes in cancer incidence, changes in the detection of cancer resulting from variations in delivery or use of cancer screening tests, recent decreases in health care use (*6*) because some cancers are diagnosed incidentally, or a drop in the completeness of case ascertainment at the registry level. Ascertaining the specific reason is difficult, and CDC and the National Cancer Institute continue to monitor these trends.

Policy approaches can enhance evidence-based interventions to reach *Healthy People 2020* targets (*1,5*). For example, most cervical cancers could be prevented through HPV vaccination and effective screening (*7*). However, only 33% of girls aged 13–17 years received the recommended 3-dose HPV vaccine series in 2012; by increasing this to 80%, an estimated 53,000 cases of cervical cancer could be prevented over the lifetimes of girls aged ≤12 years.** In 2010, 83% of women received recommended cervical cancer screening.†† Section 1001 of the Affordable Care Act removes the financial barriers to these and other preventive services by requiring nonexempted private health insurance plans to cover, with no deductibles or copayments, a collection of clinical preventive services. Those services include vaccinations recommended by the Advisory Committee on Immunization Practices and A-rated or B-rated clinical preventive services recommended by the U.S. Preventive Services Task Force, such as cancer screening and tobacco cessation counseling.§§ Administrative rules promulgated by the U.S. Department of Health and Human Services established requirements for similar preventive services coverage for enrollees in expanded state Medicaid plans.¶¶

** Information available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6234a1.htm.
†† Information available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6103a1.htm.
§§ Information available at http://www.uspreventiveservicestaskforce.org/uspstf/uspsabrecs.htm.
¶¶ Medicaid and Children's Health Insurance Programs: essential health benefits in alternative benefit plans, eligibility notices, fair hearing and appeal processes, and premiums and cost sharing; exchanges: eligibility and enrollment, 78 Fed. Reg. 42,160, 42,307 (July 15, 2013) (amending 42 C.F.R. §440.360).

FIGURE 1. Rate* of invasive cancer for 10 primary sites with the highest rates within racial/ethnic groups,† by sex — National Program of Cancer Registries and Surveillance, Epidemiology, and End Results program, United States, 2010§



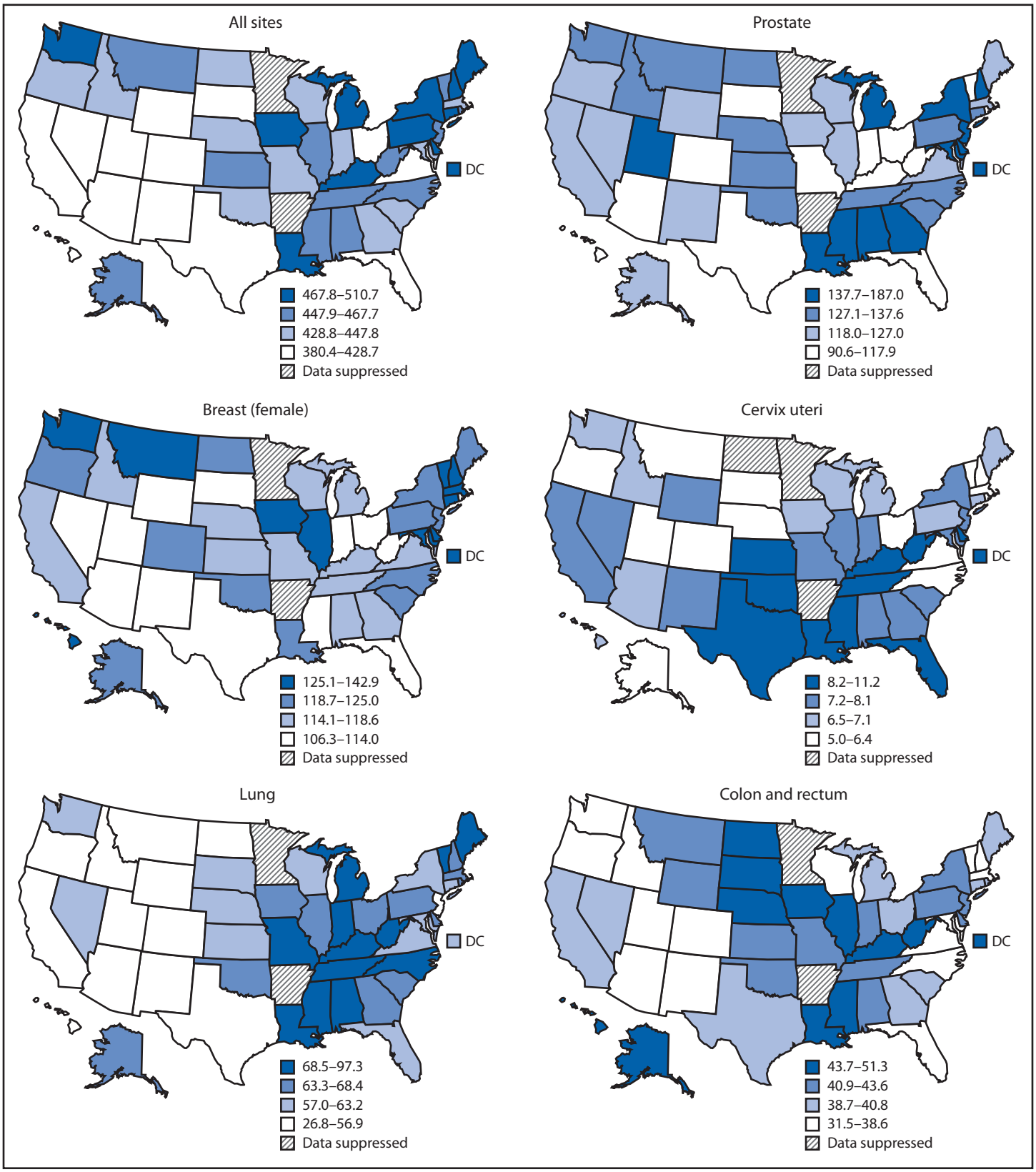
Abbreviation: NOS = not otherwise specified.

* Per 100,000 persons, age-adjusted to the 2000 U.S. standard population.

† Racial categories are not mutually exclusive from Hispanic ethnicity. Rates are not presented for cases with unknown or other race.

§ Compiled from cancer registries that meet the data quality criteria for all invasive cancer sites combined (covering approximately 97% of the U.S. population). Excludes basal and squamous cell carcinomas of the skin except when these occur on the skin of the genital organs, and in situ cancers other than urinary bladder.

FIGURE 2. Rate* of invasive cancer, by primary cancer site — National Program of Cancer Registries and Surveillance, Epidemiology, and End Results program, United States, 2010



* Per 100,000 persons, age-adjusted to the 2000 U.S. standard population.

What is already known on this topic?

In the United States in 2009, the incidence rate of invasive cancer was 524 per 100,000 among men and 414 among women. By state, all-sites cancer incidence rates ranged from 387 to 509 per 100,000 population. *Healthy People 2020* targets were reached in seven states for reduced incidence of colorectal cancer and in 19 states for reduced incidence of cervical cancer.

What is added by this report?

National cancer surveillance data indicate that 1,456,496 new cases of invasive cancer were diagnosed in the United States (excluding Arkansas and Minnesota) in 2010, an annual incidence rate of 503 cases per 100,000 among men and 405 among women, both lower than in 2009. As in 2009, cancer incidence rates were highest (455 per 100,000 persons) among black persons, largely reflecting higher rates of cancers of the prostate and female breast. By state, all-sites cancer incidence rates ranged from 380 to 511 per 100,000 population. *Healthy People 2020* targets were reached in 15 states for reduced incidence of colorectal cancer and in 24 states for reduced incidence of cervical cancer.

What are the implications for public health practice?

Differences in cancer incidence reflect differences in the prevalence of cancer risk factors. Evidence-based interventions to reduce these differences can be enhanced through policy approaches such as the Affordable Care Act of 2010, which could increase access for millions of persons to appropriate and timely cancer preventive services such as help with smoking cessation, cancer screening, and vaccination against the human papillomavirus.

CDC annually provides cancer surveillance data via several data release products, including USCS, CDC WONDER, State Cancer Profiles, and data from the National Center for Health Statistics (NCHS) Research Data Centers.*** These data can be useful in several ways.††† First, these data can guide the planning and evaluation of cancer prevention and control programs. The DC Cancer Registry, for example, found that the rate of colorectal cancer incidence was highest among residents in wards 7 and 8. In response, the DC Cancer Consortium and the DC Comprehensive Cancer Control Program funded a citywide program, focusing on those two wards, to provide free colorectal cancer screening tests to persons without health insurance. Second, these data can assist long-term planning for cancer diagnostic and treatment services. For example, a linkage of 13 cancer registries with the Scientific Registry of Transplant Recipients showed that organ transplant patients have a higher risk for cancer than the general population and might benefit from rigorous cancer screening during follow-up (*8*). Third, these data can help public health officials set priorities for allocating health resources. In Kentucky, for example, cancer registry data showed high and increasing rates of colorectal cancer incidence. In response, state and regional cancer control representatives aggressively promoted colorectal cancer screening; subsequently, screening rates increased from 35% in 1999 to 64% in 2008, and incidence rates decreased from 69 per 100,000 persons in 2001 to 56 in 2009 (*9*).

The findings in this report are subject to at least two limitations. First, analyses based on race and ethnicity might be biased if race and ethnicity were misclassified; ongoing efforts are made to ensure that this information is as accurate as possible.§§§ Second, delays in cancer reporting might result in an underestimate of certain cancers; reporting delays are more common for cancers such as melanoma that are diagnosed and treated in nonhospital settings such as physicians' offices (*10*).

National cancer surveillance data help public health officials monitor the cancer burden in the United States, identify populations with high cancer rates that might benefit most from targeted cancer prevention efforts, and track progress toward the national cancer objectives set forth in *Healthy People 2020*.

*** Additional information available at http://www.cdc.gov/cancer/npcr/datarelease.htm, http://wonder.cdc.gov, http://www.statecancerprofiles.cancer.gov/incidencerates/index.php, and http://www.cdc.gov/rdc/b1datatype/dt131.htm.

††† Additional information available at http://www.cdc.gov/cancer/npcr/value/index.htm.

§§§ Additional information available at http://www.cdc.gov/cancer/npcr/uscs/technical_notes/interpreting/race.htm.

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State and regional cancer registry personnel.

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CDC Grand Rounds: Creating a Healthier Future Through Prevention of Child Maltreatment

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Child maltreatment is abuse or neglect of a child by a parent or other caregiver that results in potential or actual harm or threats of harm to a child (*1*). Maltreatment encompasses both acts of commission (abuse) and omission (neglect). Child maltreatment is divided into four types: 1) physical abuse (e.g., hitting, kicking, shaking, or burning); 2) sexual abuse (e.g., rape or fondling); 3) psychological abuse (e.g., terrorizing or belittling); and 4) neglect, which involves the failure to meet a child's basic physical, emotional, or educational needs (e.g., not providing nutrition, shelter, or medical or mental health care) or the failure to supervise the child in a way that ensures safety (e.g., not taking reasonable steps to prevent injury) (*1*). In 2012, a total of 1,593 children were reported to have died as a result of maltreatment in the United States (*2*). Also in 2012, state child protective service (CPS) agencies received an estimated 3.4 million reports of alleged maltreatment, involving an estimated 6.3 million children. Following the CPS investigation or other response, nearly 700,000 children were confirmed as having been maltreated (*2*). However, many cases are never reported to authorities; the actual scope of child maltreatment is greater (*3*). For example, data from a nationally representative survey in 2011 of children and adult caregivers (usually parents) suggest that 13.8% of children are maltreated each year and 25.6% experienced maltreatment at some point during childhood (*4*).

Although self-reports suggest that the risk for experiencing any type of maltreatment increases with age (*4*), children aged <3 years are at greatest risk for severe injuries; approximately 70% of documented child maltreatment deaths occur in this age group (*2*). Children with special needs, such as chronic illness or disabilities that increase caregiver burden, also appear to be at greater risk for maltreatment (*5*). Caregiver factors that make maltreatment more likely include stress, inadequate parenting knowledge and skills, and factors that impair judgment, such as substance abuse or depression (*6*). Family factors include those that produce or exacerbate stress, such as poverty or unemployment, or isolation from support (*6*). Similarly, predisposing community factors include elevated levels of violence, housing instability, poverty, all factors that undermine safety and stability (*7–8*).

Child maltreatment results in immediate physical or emotional harm or threat of harm to a child. However, it also affects health across the lifespan by contributing to social, emotional, and cognitive impairments that, in turn, can lead to health risk behaviors and then to disease, injury, disability, and ultimately to early death (Figure). The Adverse Childhood Experiences study of more than 17,000 adult members of the Kaiser Permanente health maintenance organization demonstrated that the number of adverse childhood experiences (defined as physical, sexual, and emotional abuse; emotional and physical neglect; and caregiver risk factors of substance abuse, mental illness, separation or divorce, incarceration, or violent treatment of the mother) is correlated with an increased likelihood of a range of negative outcomes later in life, such as depression, suicide attempts, alcohol and illicit drug abuse, smoking, unintended pregnancies, fetal death, sexually transmitted diseases, obesity, cancer, diabetes, ischemic heart disease (*9–10*), and premature death (*11*).

CDC has estimated that the total lifetime economic cost of new child maltreatment cases in the United States in 2008 was approximately $124 billion (*12*). Of this amount, 69.2% was attributed to lost productivity over the lifetimes of the children, 20.2% was attributed to health-care costs, 3.7% to special education costs, 3.6% to child welfare costs, and 3.2% to criminal justice costs.

Prevention Challenges and Approaches

There are important gaps in child maltreatment prevention efforts. The first involves the crucial need for ongoing, systematically collected data that are reliable and accurately reflect the true magnitude and nature of this problem. The major existing child maltreatment surveillance system (National Child Abuse and Neglect Data System [*2*]) only includes cases coming to the attention of CPS agencies; it thus understates the actual incidence of child maltreatment (*3*), which suggests that the consequences and cost of child maltreatment are

This is another in a series of occasional MMWR *reports titled CDC Grand Rounds. These reports are based on grand rounds presentations at CDC on high-profile issues in public health science, practice, and policy. Information about CDC Grand Rounds is available at http://www.cdc.gov/about/grand-rounds.*

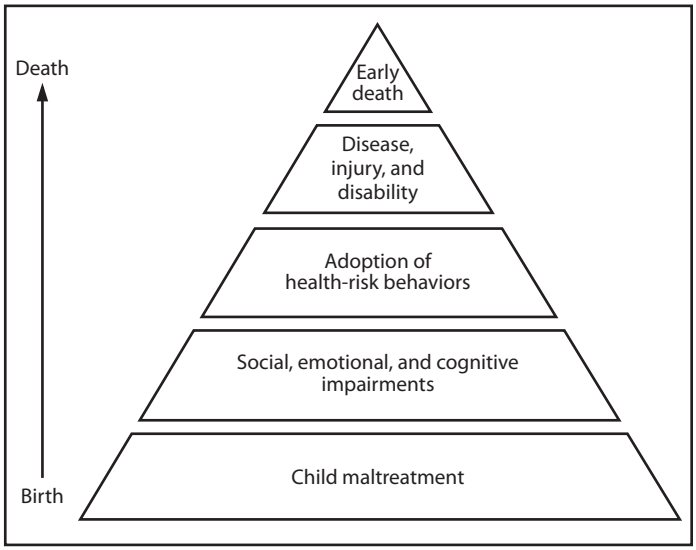
underestimated and underappreciated. Surveillance methods are needed that are less dependent on cases coming to the attention of child welfare authorities. Promising approaches for gathering data on child maltreatment include conducting regular, on-going surveys with children and parents and making better use of hospital emergency department discharge codes indicating child maltreatment, child fatality review data, and National Violent Death Reporting System data.

Second, since the 1970s, when child maltreatment became more broadly recognized, societal systems for addressing child maltreatment have been primarily reactive, focusing more on reporting cases, CPS responses, immediate treatment of injuries, and addressing longer-term mental and physical outcomes rather than preventive services. There is a growing evidence base for the effectiveness of strategies to prevent child maltreatment (*13*). Although addressing the needs of families who have already experienced child maltreatment remains essential, primary prevention of the initial occurrence should receive at least as much emphasis as responses to maltreatment. This would require full engagement of public health and other systems that have the ability to evaluate and implement prevention strategies.

Another important gap is addressing the social context in which child maltreatment occurs. Existing evidence supports strategies that teach and support positive parenting behaviors (*13*), and efforts are needed to facilitate the widespread adoption and quality implementation of these promising strategies. However, approaches that focus on modifying individual-level and family-level factors (e.g., parenting skills) do not always take into account that both child maltreatment and safe, stable, and nurturing relationships (SSNRs) emerge from and are sustained within social contexts. Various studies have found that social determinants such as neighborhood poverty, housing stress (i.e., instability or vacant housing), and unemployment are associated with child maltreatment (*8*). Policies and other interventions that have the potential to change the social context in which families function might increase caregivers' ability to provide SSNRs, and ultimately decrease child maltreatment at the broader population level. Identification, development, and promotion of such interventions will require the efforts of persons in many sectors (e.g., public health, housing, community development, education, and policy).

Commitment to a rigorous science base is critical and demands that development and implementation of programs to promote SSNRs are based on reliable data and sound evidence of effectiveness. When a strong evidence base does not exist, policies could require that publicly funded programs be rigorously evaluated to establish their short-term and long-term outcomes, benefits versus costs, and levels of implementation.

FIGURE. Potential influences of child maltreatment throughout the lifespan



Adapted from: Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the Adverse Childhood Experiences (ACE) Study. Am J Prev Med 1998;14:245–58.

The Role of Public Health in Preventing Child Maltreatment

As a national public health agency, CDC supports surveillance, research, and programmatic activities aimed at preventing child maltreatment.* For example, CDC worked with child maltreatment professionals, specialists in head trauma caused by abuse, and state health department representatives to develop uniform definitions and methods for using hospital discharge data to monitor head trauma caused by abuse. CDC also developed uniform definitions for child maltreatment and recommended data elements for surveillance to better gauge the scope of the problem, identify groups at high risk, and monitor the effects of prevention programs.

Other CDC efforts are geared toward implementing effective approaches to prevent child maltreatment. For example, in collaboration with not-for-profit partners, CDC is funding two demonstration sites of Triple P (Positive Parenting Program), a system of interventions in which training and support are delivered to meet differing levels of families' needs. Triple P targets an entire community through media messages, brief consultations with families in primary care and other settings, and more intensive services and counseling to families experiencing problems in parenting or child behavior. Preliminary evidence indicates that Triple P can prevent child maltreatment (*14*) and is cost beneficial (*15*). These demonstrations will inform implementation of the Triple P system in communities.

* Additional information available at http://www.cdc.gov/violenceprevention/childmaltreatment/index.html.

CDC also provides consultation to the Health Resources and Services Administration and Administration for Children and Families on the Maternal, Infant, and Early Childhood Home Visitation Program.† Home visitation involves trained practitioners visiting parents in their homes to provide education and support on child development, child care, and parenting skills. The Task Force for Community Preventive Services has stated that home visitation programs can be both effective and cost-beneficial (*16*). CDC also developed Essentials for Childhood,§ which proposes community strategies for promoting healthy relationships and environments for children.

The State Public Health Agency's Role in Prevention

Although a public health role in child maltreatment prevention at the state level is not yet well established, progress is being made. CDC, in partnership with a not-for-profit partner, invested in the Public Health Leadership for Child Maltreatment Prevention Initiative, which worked to raise awareness about child maltreatment as a preventable public health issue and to identify ways to support, improve, and expand child maltreatment prevention efforts in state health departments.¶

One example of state-level work on child maltreatment is in Florida, where the 2007 passage of the Florida Child Abuse Prevention and Permanency Plan legislated the development of a statewide plan on prevention and permanent placement of abused and neglected children, as well as establishment of the multiagency Children and Youth Cabinet that included representation from the leadership of the Department of Health, the Department of Children and Families, the Department of Education, the Department of Juvenile Justice, representatives of child advocacy groups, and other stakeholders. The statewide plan called for integrating support for five protective factors into state systems that serve both parents and children.** These factors are 1) nurturing and attachment, 2) knowledge about parenting and child development, 3) parental resilience, 4) social connections, and 5) concrete support for parents. These principles also are used within the statewide Healthy Start Program, the Teen Parent Program, and other programs for children and parents. In addition, the state Early Periodic Screening, Detection, and Treatment Program includes information on child maltreatment prevention in the literature it provides to families and health-care providers.

Florida's Department of Health also works with the Department of Children and Families to provide traditional child protection services, including the investigation of suspected cases of abuse and neglect; medical, psychological, and psychosocial evaluations; forensic and specialized interviews; and training for family members and professionals. Finally, the Department of Health houses the Child Abuse Death Review Committee that reviews all cases of children who died as a result of verified maltreatment. The committee works to identify rectifiable deficiencies in the services provided to these children and their families by public and private agencies.

Conclusion

Child maltreatment is an avoidable tragedy and a preventable public health problem. In addition to the toll on individual children, it has profound negative implications for the entire society. Essential strategies for addressing child maltreatment and ensuring the public's health include prevention of child maltreatment before it occurs and promotion of children's healthy development, as well as approaches to ameliorate the effects of child maltreatment. There are evidence-based interventions to prevent child maltreatment, including ones such as home visitation that are within the traditional purview of public health. Working with the public and other agencies, such as those responsible for child welfare, criminal justice, and education, the public health community can be instrumental in developing and disseminating the evidence base for both individual and population-based prevention strategies. Only this coordinated effort can ensure that children never experience child maltreatment but rather have safe, stable, and nurturing relationships during their critical periods of development.

† Additional information available at http://mchb.hrsa.gov/programs/homevisiting/index.html.

§ Additional information available at http://www.cdc.gov/violenceprevention/childmaltreatment/essentials/index.html.

¶ Additional information available at http://www.vetoviolence.org/childmaltreatment/phl.

** Additional information available at http://www.flgov.com/wp-content/uploads/childadvocacy/section_1_introduction_june_2012_final.pdf.

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State Medicaid Coverage for Tobacco Cessation Treatments and Barriers to Coverage — United States, 2008–2014

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Medicaid enrollees have a higher smoking prevalence than the general population (30.1% of adult Medicaid enrollees aged <65 years smoke, compared with 18.1% of U.S. adults of all ages), and smoking-related disease is a major contributor to increasing Medicaid costs (*1,2*). Evidence-based cessation treatments exist, including individual, group, and telephone counseling and seven Food and Drug Administration (FDA)–approved medications (*3*). A *Healthy People 2020* objective (TU-8) calls for all state Medicaid programs to adopt comprehensive coverage of these treatments.* However, most states do not provide such coverage (*4*). To monitor trends in state Medicaid cessation coverage, the American Lung Association† collected data on coverage of all evidence-based cessation treatments except telephone counseling§ by state Medicaid programs (for a total of nine treatments), as well as data on barriers to accessing these treatments (such as charging copayments or limiting the number of covered quit attempts) from December 31, 2008, to January 31, 2014. As of 2014, all 50 states and the District of Columbia cover some cessation treatments for at least some Medicaid enrollees, but only seven states cover all nine treatments for all enrollees. Common barriers in 2014 include duration limits (40 states for at least some populations or plans), annual limits (37 states), prior authorization requirements (36 states), and copayments (35 states). Comparing 2008 with 2014, 33 states added treatments to coverage, and 22 states removed treatments from coverage; 26 states removed barriers to accessing treatments, and 29 states added new barriers.¶ The evidence from previous analyses suggests that states could reduce smoking-related morbidity and health-care costs among Medicaid enrollees by providing Medicaid coverage for all evidence-based cessation treatments, removing all barriers to accessing these treatments, promoting the coverage, and monitoring its use (*3,5–8*).

To assess state Medicaid tobacco cessation coverage, the American Lung Association compiled data through internet searches of websites and documents. Data sources included Medicaid member websites and handbooks, Medicaid provider websites and handbooks, Medicaid policy manuals, and relevant regulations and legislation. Searches were conducted using search functions on Medicaid and other relevant state-sponsored websites and the Google search engine. Researchers searched for mentions of the nine cessation treatments considered in this study. These data were then confirmed through consultations with staff of state Medicaid agencies, staff of state health departments, or other knowledgeable state government personnel. These consultations were also used to supply missing information and reconcile discrepancies. The information on state Medicaid cessation coverage compiled by the American Lung Association has been added to the CDC State Activities Tracking and Evaluation (STATE) System,** a database that contains tobacco-related epidemiologic and economic data and information on state tobacco-related legislation. Although CDC has previously reported data on state Medicaid cessation coverage (*4*), this is the first time that CDC is reporting information on related barriers.

Comparing 2008 with 2014, 41 states made changes to the treatments they covered for at least some plans or populations, with 19 states adding treatments to coverage without removing any treatments from coverage, eight states removing treatments from coverage without adding any treatments to coverage, and 14 states both adding and removing treatments (Table 1). The treatments most commonly added were individual counseling and the nicotine lozenge; the treatments most commonly dropped were group counseling and the nicotine nasal spray. During this same period, 38 states made changes to barriers to accessing one or more treatments for at least some plans or

* Additional information available at http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=41.

† The tobacco use focus area of *Healthy People 2020* recently changed *Healthy People 2020* objective TU-8 to make the American Lung Association (as reported in the STATE System online database) its data source for state Medicaid cessation coverage. CDC had previously used the Center for Health and Public Policy Studies at the University of California, Berkeley as its source for these data. The designated data source for objective TU-8 is being updated to reflect this change.

§ This report assesses state Medicaid coverage of individual counseling, group counseling, and the seven FDA-approved cessation medications. Telephone counseling is available free to callers to state quitlines (including Medicaid enrollees) in all 50 states and the District of Columbia through the national quitline portal 1-800-QUIT-NOW, and therefore is not captured by this report. In June 2011, the Centers for Medicare and Medicaid Services announced that it would offer a 50% federal administrative match to state Medicaid programs for the cost of state quitline counseling provided to Medicaid enrollees.

¶ These changes in coverage and barriers were made for at least some plans or populations. Some states made both positive and negative changes to coverage or barriers during the study period. These states are included in both categories.

** Additional information available at http://www.cdc.gov/tobacco/statesystem. Because of slightly different coding rules and categories, as well as different reporting periods, some data presented in this report differ slightly from Medicaid cessation coverage data reported in the STATE System.

populations, with nine states removing barriers without adding new barriers, 12 states adding new barriers without removing existing ones, and 17 states both removing and adding barriers (Table 2). The barriers most commonly removed were copayments, duration limits on treatment, and conditioning access to medications on enrolling in counseling; the barriers most commonly added were prior authorization requirements and annual limits. As of 2014, seven states (Connecticut, Indiana, Massachusetts, Minnesota, Nevada, Pennsylvania, and Vermont) cover all nine evidence-based cessation treatments considered in this study for all Medicaid enrollees, with all of these states retaining some barriers to accessing some of these treatments. Also as of 2014, 27 states cover individual counseling and eight states cover group counseling for all populations and plans, whereas 26 states cover all seven FDA-approved cessation medications for all populations and plans. The most common barriers as of 2014 are duration limits (with 40 states reporting this barrier for at least some populations or plans), annual limits (37 states), prior authorization requirements (36 states), and copayments (35 states).

Discussion

Insurance coverage of evidence-based cessation treatments leads to increases in quit attempts, use of cessation treatments, and successful smoking cessation (*3*). In particular, more comprehensive state Medicaid coverage for cessation treatments appears to be associated with increased quit rates among smokers enrolled in Medicaid (*8*). Provisions in coverage that pose barriers to accessing cessation treatments, such as copayments, requirements for prior authorization, and limitations on the number and duration of treatments, might reduce use of these treatments and therefore reduce cessation (*3*). These provisions are commonly used by private and public health insurers, often to limit use of benefits because of concerns about overuse and resulting costs.[††] Removing these barriers would be expected to increase use of cessation treatments and cessation (*3,5*).

This analysis indicates that although a number of states have added treatments to their state Medicaid cessation coverage and/or removed barriers to accessing treatments during the period 2008–2014, a number of states have removed treatments and/or added new barriers during this period. Although all states now cover some cessation treatments for at least some Medicaid enrollees, only seven states cover all nine treatments considered in this report for all Medicaid enrollees. All seven of these states still have some barriers in place to accessing some of these treatments. Although more states added treatments to coverage than removed treatments from coverage during the study period, more states added barriers to accessing these treatments than removed them.

Several provisions in the 2010 Patient Protection and Affordable Care Act provide opportunities for expanding state Medicaid cessation coverage.[§§] Effective October 2010, section 4107 of the Affordable Care Act required state Medicaid programs to cover tobacco cessation counseling and pharmacotherapy for pregnant women with no cost-sharing. This provision resulted in increases in state Medicaid coverage of cessation counseling and medications for pregnant women (*9*). Additionally, effective January 2014, section 2502 of the Affordable Care Act barred state Medicaid programs from excluding FDA-approved cessation medications from coverage. Although this provision should increase Medicaid enrollees' access to cessation medications, the extent to which it will do so remains unclear. The impact of the provision will likely depend on how states implement it, and in particular on the extent to which states add cessation medications to preferred drug lists and remove barriers to accessing these medications. The Centers for Medicare and Medicaid Services has issued guidance to states on implementing this provision.[¶¶][***][†††]

To obtain a full, accurate assessment of a state's Medicaid cessation coverage and its impact, it is important to consider, not only the cessation treatments covered and the barriers to accessing those treatments, but the extent to which the state Medicaid program promotes the coverage to smokers enrolled in Medicaid and to health-care providers who serve them and the extent to which the coverage is used. The extent to which Medicaid-covered cessation treatments are actually used plays a key role in determining the impact of cessation coverage, and this is driven by promotion and awareness of the coverage. Studies have suggested that many Medicaid enrollees and many physicians who serve them are not aware of their states' Medicaid cessation coverage (*10*) and that, as of 2010, many

[††] Additional information available at http://www.tobaccofreekids.org/press_releases/post/2012_11_26_cessation.

[§§] Patient Protection and Affordable Care Act of 2010. Pub. L. No. 114–48 (March 23, 2010), as amended through May 1, 2010. Available at http://docs.house.gov/energycommerce/ppacacon.pdf.

[¶¶] Additional information available at http://www.medicaid.gov/medicaid-chip-program-information/by-topics/benefits/prescription-drugs/downloads/rx-releases/state-releases/state-rel-165.pdf.

[***] The data on state Medicaid coverage of cessation medications in this report do not reflect this requirement because, as of the writing of this report, state Medicaid programs are still in the process of submitting state plan amendments to bring them into compliance with this provision.

[†††] In addition to the Affordable Care Act provisions mentioned in this report, this legislation, as written, also provides strong incentives for all states to expand eligibility for Medicaid coverage. Although the Supreme Court ruling in June 2012 held that a state may not lose federal funding for its existing Medicaid program if it chooses not to participate in the expansion, more than half of the states are moving forward with expanding Medicaid at present. This is expected to further increase the number of smokers who have access to cessation treatments in expansion states. However, the information needed to evaluate cessation coverage in the Medicaid expansion population is not currently available.

TABLE 1. Medicaid coverage for tobacco cessation treatments, by state — United States, 2008 and 2014*†

	Individual counseling		Group counseling		Nicotine patch		Nicotine gum		Nicotine lozenge		Nicotine nasal spray		Nicotine inhaler		Bupropion (Zyban)		Varenicline (Chantix)	
State	2008	2014	2008	2014	2008	2014	2008	2014	2008	2014	2008	2014	2008	2014	2008	2014	2008	2014
Alabama	P	P	No	No	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Alaska	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes
Arizona	No	P	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arkansas	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes
California	Yes	V	V	V	Yes	Yes	V	Yes	V	Yes	V	Yes	V	Yes	Yes	Yes	V	Yes
Colorado	No	P	No	P	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Connecticut	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Delaware	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
District of Columbia	V	Yes	V	No	V	V	V	V	V	V	No	No	No	No	V	No	V	No
Florida	Yes	V	Yes	V	Yes	V	Yes	V	No	V	No	V	No	V	Yes	V	No	V
Georgia	No	Yes	No	No	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Hawaii	No	V	V	V	V	Yes	V	Yes	V	V	V	V	V	V	V	V	V	V
Idaho	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Illinois	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Indiana	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Iowa	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Kansas	No	P	No	P	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Kentucky	P	V	No	V	No	Yes	No	V	No	V	No	V	No	V	No	V	No	V
Louisiana	No	No	No	V	Yes	Yes	Yes	Yes	No	V	Yes	V	Yes	V	Yes	Yes	Yes	V
Maine	Yes	Yes	No	No	Yes	P	Yes	P	Yes	P	Yes	P	Yes	P	Yes	P	Yes	P
Maryland	Yes	V	Yes	V	V	Yes	V	V	V	V	No	V	No	V	V	Yes	V	V
Massachusetts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Michigan	V	Yes	V	V	Yes	Yes	V	Yes	V	V	V	V	V	V	V	Yes	V	Yes
Minnesota	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mississippi	P	V	P	V	Yes	Yes	Yes	Yes	Yes	Yes	Yes	V	Yes	V	Yes	Yes	Yes	Yes
Missouri	No	Yes	No	No	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Montana	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Nebraska	Yes	Yes	Yes	V	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Nevada	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
New Hampshire	Yes	Yes	P	P	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
New Jersey	Yes	No	Yes	No	Yes	Yes	V	Yes	No	V	No	V	No	V	V	Yes	V	V
New Mexico	No	V	V	V	V	Yes	V	Yes	V	Yes	V	Yes	V	Yes	V	Yes	V	Yes
New York	P	Yes	P	Yes	Yes	Yes	Yes	Yes	No	V	Yes	V	Yes	V	Yes	Yes	Yes	Yes
North Carolina	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
North Dakota	Yes	P	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ohio	No	V	No	V	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Oklahoma	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Oregon	Yes	Yes	Yes	V	Yes	Yes	Yes	V	Yes	V	Yes	V	Yes	V	Yes	Yes	Yes	Yes
Pennsylvania	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rhode Island	Yes	Yes	Yes	V	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	V	Yes	V	Yes
South Carolina	No	V	No	V	Yes	Yes	Yes	V	Yes	V	Yes	V	Yes	V	Yes	V	Yes	V
South Dakota	No	NA	No	NA	No	P	No	P	No	P	No	No	No	No	Yes	NA	Yes	NA
Tennessee	No	No	No	No	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Texas	V	V	V	V	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Utah	P	P	P	P	V	V	V	V	V	V	V	V	V	V	Yes	Yes	Yes	Yes
Vermont	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Virginia	No	Yes	P	V	Yes	Yes	Yes	V	Yes	V	Yes	V	Yes	V	Yes	Yes	Yes	V
Washington	Yes	V	No	No	Yes	V	Yes	V	No	V	No	V	No	V	Yes	V	Yes	V
West Virginia	No	No	V	V	V	Yes	V	Yes	V	Yes	V	Yes	V	Yes	No	Yes	No	No
Wisconsin	Yes	Yes	Yes	V	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wyoming	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes
Yes	23	27	15	8	38	45	34	40	25	30	28	28	27	29	36	43	35	38
No	20	6	24	20	7	0	8	0	18	5	17	8	18	7	8	1	8	2
Varies by plan (V)	3	11	7	18	6	4	9	9	8	14	6	14	6	14	7	5	8	9
Pregnant women only (P)	5	6	5	4	0	2	0	2	0	2	0	1	0	1	0	1	0	1
Not available (NA)	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1

Abbreviations: V = varies by plan; P = pregnant women only; NA = not available.

* Data as of December 31, 2008, and January 31, 2014.

† Because of differences in the methods and timing of data collection, some findings differ from previously reported findings (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5941a4.htm).

TABLE 2. Barriers to Medicaid coverage for tobacco cessation treatments, by state — United States, 2008 and 2014*†§

	Copayments required		Prior authorization required		Counseling required for medications		Stepped care therapy		Limits on duration		Annual limit on quit attempts		Lifetime limit on quit attempts	
State	**2008**	**2014**	**2008**	**2014**	**2008**	**2014**	**2008**	**2014**	**2008**	**2014**	**2008**	**2014**	**2008**	**2014**
Alabama	No	No	Yes	Yes	NA	Yes	NA	No	Yes	Yes	No	Yes	No	No
Alaska	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No
Arizona	No	No	No	No	No	No	No	No	Yes	Yes	No	Yes	No	No
Arkansas	No	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No
California	Yes	No	No	V	Yes	V	No	V	Yes	V	Yes	V	No	No
Colorado	Yes	V	Yes	Yes	Yes	V	No	No	Yes	Yes	Yes	Yes	Yes	No
Connecticut	NA	No	NA	Yes	NA	No	NA	No	NA	Yes	NA	Yes	NA	No
Delaware	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
District of Columbia	No	No	No	No	No	No	No	No	Yes	V	No	No	No	No
Florida	Yes	V	No	V	No	V	Yes	V	V	V	V	V	V	V
Georgia	NA	No	NA	Yes	NA	Yes	NA	Yes	NA	Yes	NA	Yes	NA	No
Hawaii	V	V	V	V	V	V	V	V	V	V	V	Yes	V	No
Idaho	No	No	No	Yes	Yes	Yes	No	No	No	No	Yes	Yes	No	No
Illinois	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
Indiana	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Iowa	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No
Kansas	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Kentucky	No	No	No	V	NA	V	NA	No	Yes	V	No	V	No	No
Louisiana	Yes	Yes	No	No	Yes	V	No	No	No	V	No	No	No	No
Maine	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maryland	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Massachusetts	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	Yes	No	No
Michigan	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Minnesota	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
Mississippi	Yes	Yes	No	No	No	No	No	No	No	V	No	No	No	No
Missouri	NA	No	NA	Yes	NA	No	NA	No	NA	Yes	NA	No	NA	Yes
Montana	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Nebraska	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No
Nevada	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	No	No
New Hampshire	Yes	Yes	Yes	No	No	No	No	No	Yes	No	Yes	Yes	No	No
New Jersey	V	V	V	V	V	No	V	No	V	V	V	V	V	V
New Mexico	No	No	No	V	V	No	No	No	V	V	Yes	V	No	No
New York	V	V	No	V	No	No	No	No	Yes	V	Yes	No	No	No
North Carolina	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
North Dakota	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No
Ohio	Yes	V	No	V	No	No	No	V	No	V	No	No	No	No
Oklahoma	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No
Oregon	Yes	V	No	V	No	V	No	No	No	V	No	V	No	No
Pennsylvania	Yes	Yes	V	V	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Rhode Island	V	No	V	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No
South Carolina	Yes	V	Yes	V	No	V	Yes	V	Yes	Yes	Yes	V	No	No
South Dakota	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
Tennessee	NA	No	NA	Yes	NA	No	NA	No	NA	Yes	NA	No	NA	No
Texas	V	Yes	No	No	V	No	V	No	Yes	No	Yes	No	No	No
Utah	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	No	No	Yes	No
Vermont	Yes	Yes	No	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	No	No
Virginia	Yes	V	No	V	No	No	No	V	No	V	No	V	No	No
Washington	No	No	Yes	V	No	V	No	No	No	V	No	V	No	V
West Virginia	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No
Wisconsin	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
Wyoming	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Yes	30	24	19	21	15	12	7	8	28	24	21	26	4	2
No	10	16	22	15	24	28	33	35	13	11	21	14	38	44
Varies by plan (V)	7	11	6	15	6	11	5	8	6	16	5	11	5	5
Not applicable (NA)	4	0	4	0	6	0	6	0	4	0	4	0	4	0

Abbreviations: V = varies by plan; P = pregnant women only; NA = not applicable.

* Data as of December 31, 2008, and January 31, 2014.

† Barriers apply to one or more cessation treatments.

§ Because of differences in the methods and timing of data collection, some findings differ from previously reported findings (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5941a4.htm).

What is already known on this topic?

Medicaid enrollees smoke at a higher rate than the general population, and smoking-related disease is an important contributor to Medicaid costs. Comprehensive state Medicaid cessation coverage has the potential to reduce smoking rates, smoking-related disease, and health-care costs in the Medicaid population. However, previous reports have found that few states provided such coverage.

What is added by this report?

Although progress has been achieved in expanding state Medicaid cessation coverage during 2008–2014, this progress has been mixed. During this period, 33 states added one or more treatments to coverage for at least some plans or populations, whereas 22 states removed treatments from coverage. During this same period, 26 states removed barriers to accessing treatments for at least some plans or populations, compared with 29 states that added at least one new barrier. As of 2014, only seven states cover all nine evidence-based cessation treatments considered in this study for all Medicaid enrollees, and none of these states has removed all barriers to accessing these treatments.

What are the implications for public health practice?

States that cover all evidence-based cessation treatments for all Medicaid enrollees and remove all barriers to accessing these treatments could potentially achieve significant reductions in smoking-related morbidity and health-care costs among Medicaid enrollees. It is also critically important for states to promote their Medicaid cessation coverage to Medicaid smokers and their health-care providers, and to monitor awareness and use of this coverage.

state Medicaid programs were not promoting their cessation coverage to smokers enrolled in Medicaid (*9*). Even a cessation benefit that appears comprehensive on paper will have little impact if smokers and health-care providers are unaware of it and do not use it. Conversely, a generous benefit that falls short of being comprehensive might have a substantial positive impact if it is vigorously promoted and widely used. Promoting a cessation benefit to ensure high use might be at least as important an element of comprehensive cessation coverage as covering a specific treatment.

The experience of Massachusetts provides an example of the impact that state Medicaid cessation coverage that is widely promoted can have. An evidence-based cessation benefit was heavily promoted to Medicaid enrollees and their providers, achieving high levels of awareness among Medicaid enrollees (*5*). Massachusetts used data from the Behavioral Risk Factor Surveillance System to monitor changes in smoking prevalence for Medicaid enrollees and used claims data to monitor use of the cessation benefit (*5*). The benefit was used by 37% of smokers on Medicaid (approximately 70,000 persons) (*5*). The benefit was associated with a decrease in the smoking rate among the Medicaid population from 38% to 28% (*5*), and a nearly 50% reduction in hospital admissions for heart attacks and other acute heart disease diagnoses among smokers who used the benefit (*6*). The benefit also generated a favorable return on investment: every dollar spent on the benefit was associated with $3.12 in medical savings for cardiovascular conditions alone (*7*). The Massachusetts example suggests that smokers enrolled in state Medicaid programs are interested in quitting and will take advantage of cessation coverage if this coverage is promoted adequately.

The findings in this report are subject to at least four limitations. First, 2014 data were only partially available for South Dakota. Second, in cases where official documents were not available or conflicted, information on state Medicaid cessation coverage was gathered from knowledgeable state government personnel; this information might have been inaccurate in some cases. Third, cessation coverage can vary widely across Medicaid managed care plans, making it difficult to determine what cessation coverage specific plans provide in practice. Finally, this report does not assess promotion, awareness, or use of state Medicaid cessation coverage. Although examining these factors is essential to accurately evaluate the impact of a state's Medicaid cessation coverage, the data required to do so are not currently available on an ongoing basis at the national level.

The current status of state Medicaid cessation coverage falls well short of the *Healthy People 2020* target of full coverage in all 50 states and the District of Columbia. States that cover all evidence-based cessation treatments for all Medicaid enrollees and remove barriers to accessing these treatments could substantially reduce smoking rates in a vulnerable population. If states take advantage of its full potential, the provision of the Affordable Care Act that took effect in January 2014 barring state Medicaid programs from excluding cessation medications from coverage might greatly facilitate progress in this regard. States can maximize the impact of their Medicaid cessation coverage by covering counseling as well as medications, promoting their Medicaid cessation benefits, and monitoring awareness and use of these benefits. At present, most states do not appear to be systematically monitoring use of their Medicaid cessation coverage. As indicated by the example from Massachusetts described previously, the fact that most states currently do not provide and promote comprehensive Medicaid cessation coverage is a major missed opportunity to reduce smoking-related morbidity and health-care costs in a population with high smoking rates.

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Notes from the Field

Heartland Virus Disease — United States, 2012–2013

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Heartland virus is a newly identified phlebovirus that was first isolated from two northwestern Missouri farmers hospitalized with fever, leukopenia, and thrombocytopenia in 2009 (*1*). Based on the patients' clinical findings and their reported exposures, the virus was suspected to be transmitted by ticks. After this discovery, CDC worked with state and local partners to define the ecology and modes of transmission of Heartland virus, develop diagnostic assays, and identify additional cases to describe the epidemiology and clinical disease. From this work, it was learned that Heartland virus is found in the Lone Star tick (*Amblyomma americanum*) (Figure) (*2*). Six additional cases of Heartland virus disease were identified during 2012–2013; four of those patients were hospitalized, including one with comorbidities who died.

A confirmed case of Heartland virus disease was defined as a clinically compatible illness in a person with laboratory evidence of recent Heartland virus infection. A clinically compatible illness was defined as fever (≥100.4°F [≥38.0°C]), leukopenia (white blood cell count <4,500 cells/mm^3; normal range = 4,500–12,000 cells/mm^3), and thrombocytopenia (platelet count <150,000/mm^3; normal range = 150,000–400,000/mm^3) without a more likely clinical explanation. Evidence of recent Heartland virus infection included 1) detection of viral RNA by reverse transcriptase–polymerase chain reaction on blood or tissue or 2) a ≥4-fold rise in virus-specific plaque reduction neutralization antibody titers between acute and convalescent serum specimens.

During 2012–2013, six confirmed Heartland virus disease cases were identified; five patients were Missouri residents, and one was a Tennessee resident. All patients were men aged ≥50 years (median = 58 years; range = 50–80 years). Patients had symptom onset during May to September (three cases in May, one in July, and two in September). All of the patients had fever, thrombocytopenia, and leukopenia when first evaluated. Of the five patients whose acute symptoms were systematically recorded, all reported fatigue and anorexia, and four reported headache, nausea, myalgia, or arthralgia. Four of the patients were hospitalized. One patient with multiple comorbidities died. All of the patients reported spending several hours per day outside (e.g.,working, walking, doing yard work, hunting, or hiking), and five of the six patients reported tick bites in the 14 days preceding their illness onset.

FIGURE. Heartland virus has been found in the Lone Star tick (*Amblyomma americanum*)

No vaccine or medication is available to prevent or treat Heartland virus disease. Because the virus likely is transmitted through infected ticks or other arthropods, prevention depends on using insect repellents, wearing long sleeves and pants, avoiding bushy and wooded areas, and performing tick checks after spending time outdoors. Health-care providers should consider Heartland virus testing in patients who develop fever, leukopenia, and thrombocytopenia without a more likely explanation and who have tested negative for *Ehrlichia* and *Anaplasma* infection or have not responded to doxycycline therapy (*3*). Questions regarding Heartland virus testing should be directed to state health departments or to the CDC Arboviral Diseases Branch (telephone: 970-221-6400).

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Announcement

Updated Guidelines on Managing Drug Interactions in the Treatment of HIV-Related Tuberculosis

Guidelines for managing pharmacologic interactions that can result when patients receive antiretroviral drugs for treatment of human immunodeficiency virus (HIV) infection together with rifamycin antibiotics for treatment of tuberculosis (TB) have been published previously (*1–4*). Newly updated guidelines, developed by CDC in collaboration with experts from other key national and international institutions, are now available at http://www.cdc.gov/tb/publications/guidelines/tb_hiv_drugs/default.htm.

The updated guidelines include recommendations for use of newer antiretroviral drugs, including those in new classes, such as CCR5 receptor antagonists and integrase inhibitors. The new guidelines provide additional recommendations regarding use of rifampin with antiretroviral therapy; these recommendations are critical in regions where rifabutin is unavailable. New features of the guidelines include 1) summaries of clinical experience with use of specific antiretroviral regimens during TB treatment (in addition to pharmacokinetic data), 2) a table summarizing clinical experience with key antiretroviral regimens and providing recommended regimens, and 3) sections on treatment for special populations, including persons with latent TB infection, young children, pregnant women, and patients with drug-resistant TB. The online guidelines will be updated as necessary to provide clinicians with the latest information.

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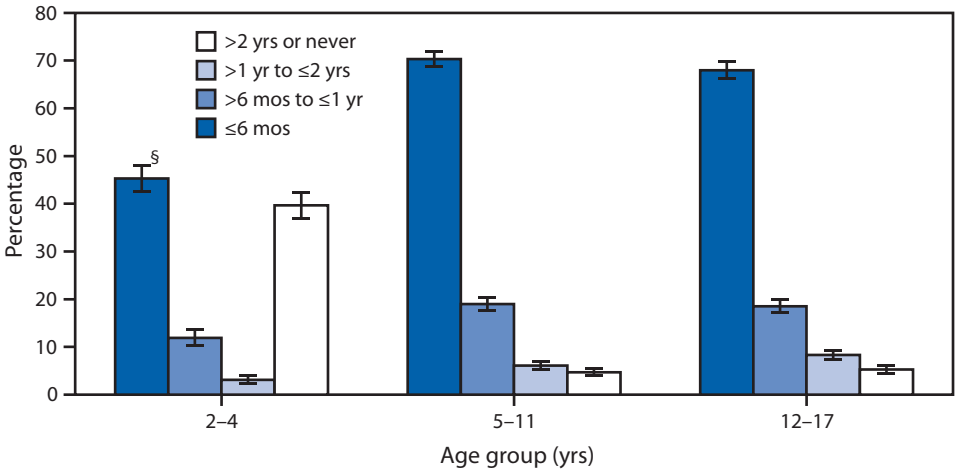
QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Time Since Last Dental Visit* by Children Aged 2–17 Years, by Age Group — National Health Interview Survey,† United States, 2012



* Based on response to the question, "About how long has it been since [child's name] last saw a dentist? Include all types of dentists, such as orthodontists, oral surgeons, and all other dental specialists, as well as dental hygienists."

† Estimates were based on household interviews of a sample of the noninstitutionalized U.S. civilian population and are derived from the National Health Interview Survey sample child component.

§ 95% confidence interval.

During 2012, approximately 69% of children aged 5–17 years had a dental visit in the past 6 months; among children aged 2–4 years, the percentage with a dental visit was 45%. Approximately 19% of those aged 5–17 years and 12% of those aged 2–4 years had a visit >6 months to ≤1 year before. Approximately 40% of those aged 2–4 years and 5% of those aged 5–17 years had not had a dental visit in >2 years or had never seen a dentist.

Source: Bloom B, Jones LI, Freeman G. Summary health statistics for U.S. children: National Health Interview Survey, 2012. Vital Health Stat 2013;10(258).

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