Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 65 / No. 46
November 25, 2016

World AIDS Day — December 1, 2016

World AIDS Day, observed on December 1, draws attention to the status of the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) epidemic worldwide.

The first cases of AIDS in the United States were reported more than 35 years ago in the June 5, 1981 issue of *MMWR*. Today, approximately 36.7 million persons worldwide are living with HIV infection, including approximately 2.1 million persons who were newly infected during 2015 (*1*). Although AIDS-related deaths have declined by 45% since 2005, an estimated 1.1 million persons died from AIDS in 2015 (*1*), with tuberculosis contributing to an estimated 400,000 of these deaths (*2*).

Global efforts, including the U.S. President's Emergency Plan for AIDS Relief, in which CDC is a key implementing agency, have resulted in 18.2 million persons worldwide receiving antiretroviral therapy for HIV infection by June 2016, an increase from 7.5 million in 2010 (*1*).

In the United States, an estimated 44,000 persons received a diagnosis of HIV infection in 2014 (*3*). In 2013, an estimated 1.2 million persons in the United States were living with HIV, 87% of whom were aware of their infection (*4*).

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Early Diagnosis of HIV Infection in Infants — One Caribbean and Six Sub-Saharan African Countries, 2011–2015

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Pediatric human immunodeficiency virus (HIV) infection remains an important public health issue in resource-limited settings. In 2015, 1.4 million children aged <15 years were estimated to be living with HIV (including 170,000 infants born in 2015), with the vast majority living in sub-Saharan Africa (*1*). In 2014, 150,000 children died from HIV-related causes worldwide (*2*). Access to timely HIV diagnosis and

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treatment for HIV-infected infants reduces HIV-associated mortality, which is approximately 50% by age 2 years without treatment (*3*). Since 2011, the annual number of HIV-infected children has declined by 50%. Despite this gain, in 2014, only 42% of HIV-exposed infants received a diagnostic test for HIV (*2*), and in 2015, only 51% of children living with HIV received antiretroviral therapy (*1*). Access to services for early infant diagnosis of HIV (which includes access to testing for HIV-exposed infants and clinical diagnosis of HIV-infected infants) is critical for reducing HIV-associated mortality in children aged <15 years. Using data collected from seven countries supported by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), progress in the provision of HIV testing services for early infant diagnosis was assessed. During 2011–2015, the total number of HIV diagnostic tests performed among HIV-exposed infants within 6 weeks after birth (tests for early infant diagnosis of HIV), as recommended by the World Health Organization (WHO) increased in all seven countries (Cote d'Ivoire, the Democratic Republic of the Congo, Haiti, Malawi, South Africa, Uganda, and Zambia); however, in 2015, the rate of testing for early infant diagnosis among HIV-exposed infants was <50% in five countries. HIV positivity among those tested declined in all seven countries, with three countries (Cote d'Ivoire, the Democratic Republic of the Congo, and Uganda) reporting >50% decline. The most common challenges for access to testing for early infant diagnosis included difficulties in specimen transport, long turnaround time between specimen collection and receipt of results, and limitations in supply chain management. Further reductions in HIV mortality in children can be achieved through continued expansion and improvement of services for early infant diagnosis in PEPFAR-supported countries, including initiatives targeted to reach HIV-exposed infants, ensure access to programs for early infant diagnosis of HIV, and facilitate prompt linkage to treatment for children diagnosed with HIV infection.

WHO currently recommends testing of HIV-exposed infants in resource-limited settings using polymerase chain reaction (PCR) technology at age 4–6 weeks to optimize detection of intrauterine, intrapartum, and early postnatal HIV transmissions (*4*). Data collected during 2011–2015 from one Caribbean and

The *MMWR* series of publications is published by the Center for Surveillance, Epidemiology, and Laboratory Services, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30329-4027.

Suggested citation: [Author names; first three, then et al., if more than six.] [Report title]. MMWR Morb Mortal Wkly Rep 2016;65:[inclusive page numbers].

six sub-Saharan African countries supported by PEPFAR (Haiti and Cote d'Ivoire, the Democratic Republic of the Congo, Malawi, Uganda, South Africa, and Zambia) were analyzed to assess progress in the provision of services for early infant HIV diagnosis and adherence to the WHO recommendation.

CDC laboratory advisors from participating countries used a standardized questionnaire to abstract laboratory and clinical data from national laboratory databases on number of infant HIV tests, percent HIV positive, age of infant at time of test, turnaround time from specimen collection to return of laboratory results to health facility, and mode of specimen transportation. In addition, information was collected from laboratory databases on the number of sites collecting dried blood spots (because of simplified collection, transport, and storage, this is the type of specimen collected in resource-constrained settings for early diagnosis of HIV among infants); the number of laboratories providing services for early infant diagnosis; and the number of laboratories enrolled in proficiency testing programs. Laboratory managers reported operational challenges to and successes of testing for early infant diagnosis by responding to open-ended questions.

During 2011–2015, the total number of HIV diagnostic tests performed for infants increased in all seven countries, with the highest increase reported by Uganda (513%) and the lowest by Zambia (6%) in 2015 (Table 1). The rate of early infant testing performed within 6 weeks of birth among HIV-exposed infants was low to moderate, varying from 15% in the Democratic Republic of the Congo to 62% in South Africa in 2015. During 2011–2015, an upward trend in testing for early infant diagnosis was observed in Cote d'Ivoire and Zambia, and a stable trend was observed in Haiti, Malawi, and South Africa. Uganda and the Democratic Republic of the Congo had a sharp drop in the number of early HIV tests performed for infants, with the largest decrease observed from 2014 to 2015 (Table 1). During 2011–2015, the infant HIV positivity rate declined in all seven countries, with three countries reporting >50% decline. Uganda reported the largest (60%) relative decrease, a decline from 10% in 2011 to 4% in 2015; Haiti reported the lowest (25%) relative decrease, a decline from 8% in 2012 to 6% in 2015.

During 2011–2015, the number of dried-blood-spot collection sites increased in all countries except in South Africa and Malawi, where the numbers of sites were stable. In 2015, South Africa had the highest number of dried-blood-spot collection sites (n = 3,500); although Haiti had the lowest number (n = 129) of collection sites in 2015, the number represented a 146% increase in sites compared with 2011. Three countries reported more laboratories using PCR to detect HIV infection among infants: Cote d'Ivoire, the Democratic Republic of the Congo, and Malawi. In all seven countries, all laboratories performing early infant testing for HIV participated in a proficiency-testing program, and all laboratories had a proficiency testing score ≥95% during the 5 years.

During 2011–2015, the mean testing turnaround time, from blood collection to results returned to the referring health facility, was documented in five countries. The shortest mean turnaround time was 22 days in Haiti in 2012 and the longest was 60 days in Uganda in 2012 and 2013. By 2015, only Cote d'Ivoire and Uganda saw improvements, with 50% declines in turnaround time (Table 2). Specimens were transported from the referring health facility to the testing laboratory by bicycle, motorcycle, or car. Various approaches were used for transmitting test results back to the referring facility: phone, text messages, email, hard copies transported by vehicle, and web-based laboratory–information-system searches.

The most common reported challenges in access to services for early infant diagnosis included weak sample referral

TABLE 1. Number of infant HIV tests, proportion meeting testing target time frame,* and proportion of HIV-positive tests among HIV-exposed infants in testing programs for early infant diagnosis of HIV, by country — one Caribbean and six sub-Saharan African countries, 2011–2015

	No. infant HIV tests performed by PCR					% HIV tests performed within 6 weeks from birth					% HIV positive tests				
Country	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Cote d'Ivoire	4,592	5,211	5,693	6,763	7,207	10	29	30	33	39	11	10	9	6	6
Democratic Republic of the Congo	1,482	2,465	2,441	4,017	2,934	ND	14	25	24	15	11	8	9	6	6
Haiti	2,832	3028	3438	3760	3529	22	28	31	35	34	6	8	7	6	6
Malawi	ND	28,816	32,688	35,254	34,152	ND	42	46	47	47	ND	11	7	7	5
South Africa	296,866	329,319	351,694	371,122	482,799	57	59	59	62	62	5	4	4	3	3
Uganda	17,441	77,919	60,984	72,604	106,853	32	31	50	64	37	10	10	8	7	4
Zambia	45,160	48,188	44,877	59,417	47,983	ND	ND	30	47	62	8	7	6	6	2

Abbreviations: HIV = human immunodeficiency virus; ND = no data available; PCR = polymerase chain reaction.

* The World Health Organization recommends testing HIV-exposed infants in resource-limited settings using PCR technology at age 4–6 weeks to optimize detection of intrauterine, intrapartum, and early postnatal transmissions.

networks, long turnaround time, and limitations in supply chain management (Table 3). Three countries reported that integration of services for early infant diagnosis with other programs, including those providing immunizations, pediatric care, and health outreach in the community, were integral to success of access to testing for early infant diagnosis. Use of dried blood spots (Malawi and South Africa) and improvement in specimen referral networks (Malawi and Uganda) also were important factors for increasing access to early testing. Challenges to implementation of testing for early infant diagnosis included mother and child being lost to follow-up, weak linkage between programs, (i.e., programs for the prevention of mother-to-child transmission and care/antiretroviral therapy), and inability to reach infants outside of the health care system.

Discussion

During 2011–2015, among the seven countries assessed, the number of infants being tested for HIV infection within

TABLE 2. Selected site-level* indicators for testing programs for early infant diagnosis of HIV, by country — one Caribbean and six sub-Saharan African countries, 2011–2015

	No. health facilities collecting dried-blood-spot for early infant diagnosis testing					No. laboratories with early infant diagnosis testing services					Mean collection-to-results turnaround time† (days)				
Country	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Cote d'Ivoire	320	411	420	567	585	3	3	3	4	6	†	45	45	45	22
Democratic Republic of the Congo	252	396	549	626	626	3	3	3	3	4	27	27	27	27	27
Haiti	62	74	90	120	129	2	2	2	2	2	23	22	26	37	34
Malawi	ND	729	729	729	729	2	3	3	8	8	ND	ND	ND	ND	ND
South Africa	3,500	3,500	3,500	3,500	3,500	9	9	9	9	9	ND	ND	ND	ND	ND
Uganda	904	1,504	1,684	2,284	1,859	1	1	1	1	1	ND	60	60	30	30
Zambia	106	76	807	1,090	1,077	3	4	4	4	4	35	38	40	38	38

Abbreviations: HIV = human immunodeficiency virus; ND = no data available.
* Site refers to health facility or testing laboratory.
† Mean turnaround time from blood collection at health facility to laboratory results returned to referring facility.

TABLE 3. Challenges and successes* to access to HIV testing for early infant diagnosis, by country — one Caribbean and six sub-Saharan African countries, 2011–2015

Challenge/Success	Cote d'Ivoire	Democratic Republic of the Congo	Haiti	Malawi	South Africa	Uganda	Zambia
Challenge							
Lack of resources for equipment maintenance	†	C	†	†	†	†	†
Lack of early infant diagnosis services	†	†	†	†	C	†	†
Changes in testing guidelines	†	†	†	†	C	†	†
Inconsistencies in data to identify HIV-exposed infant	†	†	†	†	C	†	†
Inadequate laboratory data management systems	†	†	†	†	†	C	†
Lack of community knowledge on when testing is required	†	C	†	†	C	†	†
Weak sample referral networks	C	C	C	†	†	†	†
Gaps in supply chain management	†	C	C	C	†	†	†
Long turnaround time	†	C	†	†	C	C	C
Success							
Involvement of community counselors	S	†	†	†	†	†	†
Continuous training of service providers	S	†	†	†	†	†	†
Standardization of equipment	†	S	†	†	†	†	†
Strong collaboration between testing laboratories	†	S	†	†	†	†	†
Improved supply chain management	†	†	†	S	†	†	†
Improved advocacy campaigns to educate mothers	†	†	†	S	†	†	†
Use of additional data to identify HIV-exposed infant	†	†	†	†	S	†	†
Parallel scale-up of viral load testing using dried-blood-spot to early infant diagnosis testing	†	†	†	†	S	†	†
Improvements in centralized data management	†	†	†	†	†	S	†
Use of dried-blood-spot	†	S	†	†	S	†	†
Use of sample referral networks	†	†	†	S	†	S	†
Integration of early infant diagnosis services with other programs, including immunization, pediatric care, outpatient, and outreach	S	†	S	†	†	†	S

Abbreviations: C = challenge; HIV = human immunodeficiency virus; S = success.
* Challenges and successes were based on country self-report.
† Country did not report a particular challenge or success.

Summary

What is already known about this topic?

Since 2011, the annual number of children infected with human immunodeficiency virus (HIV) has declined by 50% worldwide. However, in 2014, only 42% of HIV-exposed infants received a test for HIV; in 2015, only 51% of children living with HIV received antiretroviral therapy. The World Health Organization currently recommends testing HIV-exposed infants in resource-limited settings at age 4–6 weeks.

What is added by this report?

During 2011–2015, in one Caribbean and six sub-Saharan countries supported by the President's Emergency Plan for AIDS Relief, the number of tests for early infant diagnosis increased, and the HIV-positivity rate declined in all seven countries. However, the rate of HIV testing performed within 6 weeks of birth among HIV-exposed infants, as recommended by the World Health Organization, was <50% in five countries in 2015. Difficulties in specimen transport, long turnaround time and limitations in supply chain management were among the most commonly reported challenges to accessing services for early infant diagnosis.

What are the implications for public health practice?

To meet fast-track HIV treatment targets for children and infants, accurate and early diagnosis of HIV-infected infants, prompt initiation of lifesaving antiretroviral therapy, and lifelong clinical follow-up to ensure sustained viral suppression are essential.

6 weeks of birth increased, and HIV positivity among tested infants declined (by more than half in three countries). These findings demonstrate substantive expansion of programs for early infant HIV diagnosis and improvements in the ability to monitor trends in HIV positivity among infants. However, despite these gains, the percentage of HIV diagnostic tests performed on HIV-exposed infants within 6 weeks of birth remained below 50% in five of the seven countries. This finding is consistent with reports by the Joint United Nations Programme on HIV/AIDS that, despite substantial initiatives to build capacity for programs for early infant diagnosis of HIV, only 42% of HIV-exposed infants received a test for HIV within the first 2 months of life in 2014 (*3*). Initiatives focused on improvement of supply chain management, sample referral networks (the links between dried-blood-spot collection sites and laboratories), and blood collection-to-results turnaround time are needed to improve coverage of testing for early infant diagnosis for these seven countries to reach the global goal of elimination of mother-to-child HIV transmission.

Given the challenges reported with long turnaround times from specimen collection to receipt of test results, understanding the factors associated with delays in the pretest, test, and posttest phase could inform interventions to minimize turnaround time and improve follow-up and linkage to care. Strengthening specimen referral networks and supply chain management needs to take place in half of the countries assessed, similar to the improvements that have already occurred with other laboratory services in resource-limited settings (*5*). Moreover, addressing the issues of integration between programs, mothers and children lost to follow-up, and the inability to reach children out of the health care system is needed to increase access to testing services for early infant diagnosis (*6*).

Despite these challenges, important successes in the PEPFAR programs for early infant diagnosis have been recorded. PEPFAR has provided testing for early infant diagnosis in sub-Saharan Africa and the Caribbean, and has improved quality of testing through the use of proficiency testing programs (*7*,*8*). The program for early infant diagnosis has specifically helped improve country-level testing quality through the universal participation and successful performance of countries in external quality assurance programs (*7*). The program for early infant testing also has helped pave the way for expanded PCR-based technology, such as HIV viral load testing, which is the recommended approach for monitoring the effectiveness of HIV treatment (*9*).

The findings in this report are subject to at least three limitations. First, because of the low number of early infant diagnostic tests conducted in Haiti and the Democratic Republic of the Congo, the changes in HIV positivity observed over time may not be valid. Second, data were missing from several countries for some periods, making it difficult to assess trends. Finally, some data elements were self-reported and dependent upon perceptions of the respondent, such as programmatic data about successes and challenges of the early infant diagnosis program. Despite these limitations, by presenting the challenges experienced by these countries, this report provides insight into gaps in early infant HIV testing programs, which can be used to strengthen and enhance the programs in these seven countries.

To date, the global goal of elimination of mother-to-child HIV transmission has only been achieved by four countries (Armenia, Belarus, Cuba, and Thailand) (*10*). Meeting the call for an AIDS-free generation and reaching the Joint United Nations Programme on HIV/AIDS fast-track treatment targets for children and infants cannot be achieved without accurate and early diagnosis of HIV-infected infants, prompt initiation of lifesaving antiretroviral therapy for these children, and lifelong clinical follow-up to ensure sustained viral suppression and better health outcomes.

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CDC Grand Rounds: Family History and Genomics as Tools for Cancer Prevention and Control

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Although many efforts in cancer prevention and control have routinely focused on behavioral risk factors, such as tobacco use, or on the early detection of cancer, such as colorectal cancer screening, advances in genetic testing have created new opportunities for cancer prevention through evaluation of family history and identification of cancer-causing inherited mutations. Through the collection and evaluation of a family cancer history by a trained health care provider, patients and families at increased risk for a hereditary cancer syndrome can be identified, referred for genetic counseling and testing, and make informed decisions about options for cancer risk reduction (*1*). Although hereditary cancers make up a small proportion of all cancers, the number of affected persons can be large, and the level of risk among affected persons is high. Two hereditary cancer syndromes for which public health professionals have worked to reduce the burden of morbidity and mortality are hereditary breast and ovarian cancer syndrome (HBOC) and Lynch syndrome.

Hereditary breast and ovarian cancer syndrome. HBOC most commonly involves pathogenic mutations in two breast cancer susceptibility genes: *BRCA1* and *BRCA2*. Mutations in these genes are associated with increased risk for breast, ovarian, prostate, and pancreatic cancers (*2*). Approximately one in every 500 women in the United States is estimated to carry a *BRCA1* or *BRCA2* mutation (*2*). Each year, *BRCA1* and *BRCA2* mutations account for 3% of all breast cancers and 10% of all ovarian cancers (*3*). Mutation carriers face a substantially higher risk for developing breast and ovarian cancers by age 70 years than do women in the general population (Table 1) (*4*,*5*). Persons are more likely to have a *BRCA1* or *BRCA2* mutation if they or their close relatives on either their mother's or father's side of the family have had breast cancer before age 50 years, triple negative breast cancer,* ovarian cancer, cancer in both breasts, breast cancer in a male relative, or multiple relatives with breast, pancreatic, or high grade prostate cancer (*2*). In addition, persons of Ashkenazi Jewish or Eastern European descent are much more likely to have a mutation (approximately 1 in 40) (*2*). The United States Preventive Services Task Force (USPSTF) recommends that primary care providers screen women to identify a family history that might be indicative of HBOC (*1*). Women with a family history consistent with HBOC should be referred for genetic counseling and discussion of genetic testing (*1*). Patients and providers can then jointly determine the best course of action to reduce risk. Possible interventions include starting breast cancer screening earlier with mammography alone, or in combination with breast magnetic resonance imaging, chemo-prevention medications as recommended by the USPSTF, such as tamoxifen or raloxifene, or surgical options, such as risk-reducing mastectomy or oophorectomy (*1*,*6*).

Lynch syndrome. Lynch syndrome involves pathogenic mutations in DNA mismatch repair genes (*7*). Mutations in these genes are associated with increased risk for certain cancers, including colorectal cancer, and cancers of the endometrium and ovary (*7*). Each year, Lynch syndrome accounts for 1%–3% of all colorectal cancer cases (*8*). The risk for colorectal cancer among persons with Lynch syndrome is substantially higher than that of the general population (Table 1) (*9*). Persons are more likely to have Lynch syndrome if they or their close relatives have had colorectal, endometrial, or ovarian cancers, especially at younger ages (*7*). The Evaluation of Genomic Applications in Practice and Prevention (EGAPP) Working Group† recommends that persons with newly diagnosed colorectal cancer be offered genetic testing for Lynch syndrome to reduce morbidity and mortality in their close relatives (*10*). Persons with Lynch syndrome can talk to their health care provider about starting screening for colorectal cancer with colonoscopy at a younger age and screening more frequently than persons who are at average risk (*10*).

*Triple negative breast cancer is a sub-type of breast cancer diagnosed based upon the absence of three receptors associated with most breast cancers, estrogen receptors, progesterone receptors, and human epidermal growth factor receptor 2 (commonly referred to as HER-2).

†The EGAPP Working Group was established in 2005 to support the development of a systematic process for assessing the available evidence regarding the validity and utility of rapidly emerging genetic tests for clinical practice. This independent, multidisciplinary panel prioritizes and selects tests, reviews CDC-commissioned evidence reports and other contextual factors, highlights critical knowledge gaps, and provides guidance on appropriate use of genetic tests in specific clinical scenarios (http://www.egappreviews.org/).

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.*

TABLE 1. Estimated number of cancers diagnosed among the general population and among women with a *BRCA* mutation (breast and ovarian cancers) and among persons with Lynch syndrome (colorectal cancer)

Type of Cancer	Women in general population	Women with *BRCA* mutation*
Breast cancer	12/100	65/100
Ovarian cancer	1/100	39/100
	Persons in general population	**Persons with Lynch syndrome†**
Colorectal cancer	4/100	40/100

* Antoniou A, et al. J Hum Genet 2003;72:1117–30.
† Palomaki GE, et al. Genet Med 2009;11:42–65.

Public health for cancer genomics at the federal level. CDC's work is focused on translating and implementing recommendations for family history risk assessment, and genetic counseling and testing for hereditary cancer syndromes. CDC activities include surveillance, epidemiology and research, communication, and partnerships. Knowledge and resources for patients and providers are shared through the Know:BRCA clinical decision support tool (www.KnowBRCA.org), and Bring Your Brave campaign (http://www.cdc.gov/cancer/breast/young_women/bringyourbrave/). Know:BRCA helps women and their providers understand their risk for *BRCA1* or *BRCA2* mutations and fosters discussions about family history. Bring Your Brave is a digital media campaign that provides information about HBOC, the importance of receiving genetic counseling, and the usefulness of genetic testing to women, particularly women aged ≤45 years. The CDC Public Health Cancer Genomics Program funds cooperative agreements to five state public health departments to build capacity for cancer genomics activities (*11*). CDC's grantees implement activities that seek to educate the public and providers, monitor the burden associated with hereditary cancers, and improve access to care.[§]

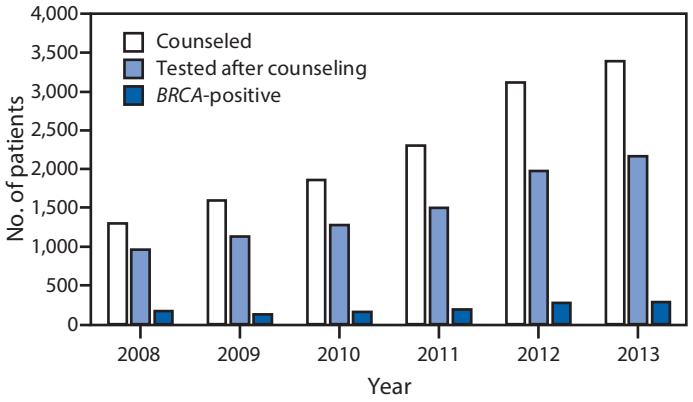
Public health initiatives for cancer genomics at the state level. The Michigan Cancer Genomics Program of the Michigan Department of Health and Human Services has been engaging in cancer genomics activities since 2003. The Michigan Cancer Genomics Program seeks to reduce morbidity and mortality related to hereditary cancers by increasing cancer genetic literacy among the public and health care providers, improving use of appropriate cancer risk assessment and clinical genetics services, enhancing communication, and developing partnerships with cancer genetic service providers and other key stakeholders.

After identifying a need for further awareness and training among primary care providers about appropriate referral for *BRCA* counseling and testing, the Michigan Cancer Genomics Program collaborated with federal, state, and local partners to develop a free online continuing medical education course wherein participants can learn to use a variety of cases with different decision options, risks, and outcomes (http://www.nchpeg.org/hboc/). The course has had approximately 4,400 session views since its launch in 2014. An additional initiative, a collaboration with the Michigan Cancer Surveillance Program, disseminated reports to health care systems and providers with information about how and where to refer patients for cancer genetics services.

In part because of the efforts of the Michigan Cancer Genomics Program, the number of persons receiving *BRCA* counseling and testing in Michigan has been increasing since 2008 (Figure). The Michigan Cancer Genomics Program has also been successful in working with health insurance providers in promoting coverage policies that are consistent with evidence-based guidelines to ensure access to genetic counseling and testing for Michigan residents. In 2009, only four of 25 health plans in the state were acknowledged for having written coverage policies consistent with evidence-based guidelines. In 2016, 16 health plans, providing coverage to approximately 8 million persons in Michigan, now provide coverage based on the best scientific evidence. The Michigan Cancer Genomics Program is currently working on addressing disparities in access to genetic counseling and testing by conducting outreach to communities and populations with the greatest need, including African Americans and Ashkenazi Jews.

Public health initiatives for cancer genomics at the community level. Bright Pink is a national nonprofit organization founded by Lindsay Avner, a woman with a family history of breast and ovarian cancer and a *BRCA1* mutation (https://www.brightpink.org/). The organization focuses on prevention and early detection of breast and ovarian cancer in young

FIGURE. *BRCA* counseling, testing, and results — Michigan Cancer Genomics Program, 2008–2013



Source: Michigan Department of Health and Human Services BRCA Clinical Genetic Counseling Database.

[§] CDC Public Health Cancer Genomics Program (http://www.cdc.gov/cancer/breast/what_cdc_is_doing/genomics_foa.htm).

women using a two-pronged educational approach that targets young women and health care providers. Bright Pink has 150 ambassadors in 39 states who train young women in their communities and workplaces using the Brighten Up Educational Workshop; the workshop provides a brief overview of breast and ovarian health basics, including signs and symptoms, early detection practices, risk reduction, family history, and risk assessment. For women who are considered to be at high risk, Bright Pink offers one-on-one outreach and digital support programs to foster community among women challenged with complex health decisions that peers who are at average risk might not understand. For health care providers, Bright Pink offers a didactic format lecture and accompanying case-based learning module that emphasize proper risk stratification and management for women at all risk levels, an understanding of risk as a spectrum, and the importance of women knowing how their breasts normally look and feel to recognize any changes. USPSTF recommendations for genetic counseling testing and risk reduction strategies are also discussed with health care providers and women at increased risk. As of August 2016, Bright Pink has trained nearly 50 speakers with a medical background who have reached approximately 8,000 providers at more than 150 institutions, ranging from community health settings to academic medical centers.

The future of public health genomics. Cancer serves as a model for public health action in genomics that can aid in translating future genomic discoveries into prevention and population health activities. Public health can play an important role in these activities by identifying genomic tests and family health history applications that are supported by high quality evidence, by estimating the potential population health impact of including genomics and family health history, and by integrating appropriate and equitable use of genomics applications in clinical care and public health programs.

To assist public health professionals in identifying which genomic tests and family health history applications can impact population health, CDC developed a classification schema for genomic tests based on levels of evidence, ranked Tier 1–3 (Table 2) (*12*). Tier 1 applications are supported by a base of synthesized evidence for implementation in practice and cover a variety of intended uses including diagnosis, prognosis, treatment, screening, and risk prediction to inform prevention. Genetic testing for *BRCA*-related cancers and Lynch syndrome are only two of approximately 30 Tier 1 applications related to cancer. In addition, family health history is a genomics application included in many evidence-based recommendations and can be applied more broadly in public health settings (*13*). CDC launched a Tier 1 toolkit to assist state health departments in implementing genomics activities related to HBOC and Lynch syndrome, with examples of approaches and materials used by model state programs.¶

TABLE 2. CDC Classification schema for genomic tests based on level of evidence

Tier	Evidence for recommendation	Examples
Tier 1	Supported by a base of synthesized evidence for implementation practice	HBOC, Lynch syndrome, newborn screening
Tier 2	Synthesized evidence is insufficient to support routine implementation in practice; may provide information for informed decision making	Many pharmacogenomics tests
Tier 3	Evidence-based recommendation against use; or not relevant synthesized evidence identified; not ready for routine implementation in practice	Direct-to-consumer personal genetic tests

Abbreviation: HBOC = Hereditary breast and ovarian cancer syndrome.

Some have raised concerns that genomic technologies and precision medicine initiatives could increase health disparities (*14*). For example, studies have found lower use of genetic counseling and testing for *BRCA* mutations among black women (*15*). To ensure that implementation of genomics applications results in health benefits for all, a public health approach is needed that promotes strategies for equitable access and protection for persons identified as being at higher-than-average risk; addresses education of providers and the public to increase appropriate use; and supports surveillance to monitor and evaluate use (*14*). Recent national policies and legislation have been enacted that support broader use of genomics and offer protections for persons identified to be at increased risk. The Genetic Information Nondiscrimination Act (2008) prohibits discrimination in health coverage and employment based on genetic information. Programs such as the Surgeon General's Family Health History Initiative (http://familyhistory.hhs.gov/) help educate both providers and the public about the importance of family health history. Surveillance of outcomes and use of genomic applications is important for identifying whether current applications have health benefits and whether there is equitable access. Future development of policies, education, and surveillance systems can work to further the implementation of genomic applications that might provide broad benefits.

¶ The Tier 1 Genomics Applications Toolkit for Public Health Departments (https://www.cdc.gov/genomics/implementation/toolkit/tier1.htm).

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Progress Toward Poliomyelitis Eradication — Pakistan, January 2015–September 2016

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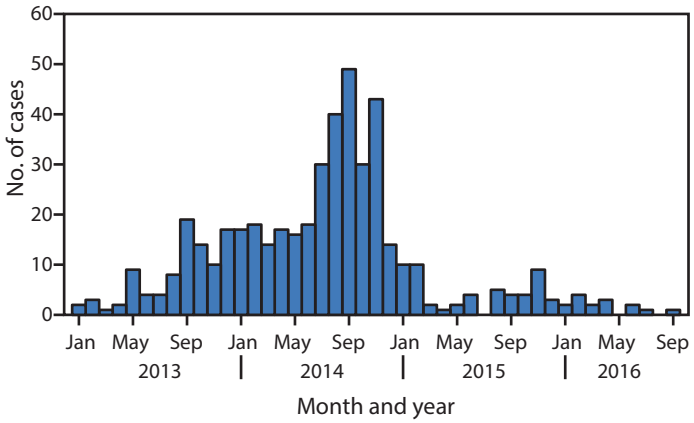
Pakistan, Afghanistan, and Nigeria remain the only countries where endemic wild poliovirus type 1 (WPV1) transmission continues. This report describes the activities, challenges, and progress toward polio eradication in Pakistan during January 2015–September 2016 and updates previous reports (*1*,*2*). In 2015, a total of 54 WPV1 cases were reported in Pakistan, an 82% decrease from 2014. In 2016, 15 WPV1 cases had been reported as of November 1, representing a 61% decrease compared with the 38 cases reported during the same period in 2015 (Figure 1). Among the 15 WPV1 cases reported in 2016, children aged <36 months accounted for 13 cases; four of those children had received only a single dose of oral poliovirus vaccine (OPV). Seven of the 15 WPV1 cases occurred in the province of Khyber Pakhtunkhwa (KP), five in Sindh, two in the Federally Administered Tribal Areas (FATA), and one in Balochistan (*3*). During January–September 2016, WPV1 was detected in 9% (36 of 384) of environmental samples collected, compared with 19% (69 of 354) of samples collected during the same period in 2015. Rigorous implementation of the 2015–2016 National Emergency Action Plan (NEAP) (*4*), coordinated by the National Emergency Operations Center (EOC), has resulted in a substantial decrease in overall WPV1 circulation compared with the previous year. However, detection of WPV1 cases in high-risk areas and the detection of WPV1 in environmental samples from geographic areas where no polio cases are identified highlight the need to continue to improve the quality of supplemental immunization activities (SIAs),* immunization campaigns focused on vaccinating children with OPV outside of routine immunization services, and surveillance for acute flaccid paralysis (AFP). Continuation and refinement of successful program strategies, as outlined in the new 2016–2017 NEAP (*5*), with particular focus on identifying children missed by vaccination, community-based vaccination, and rapid response to virus identification are needed to stop WPV transmission.

FIGURE 1. Number of cases of wild poliovirus type 1, by month — Pakistan, 2013–2016



OPV Coverage and Immunization Activities

Based on World Health Organization (WHO) and United Nations Children's Fund (UNICEF) 2015 estimates, national routine vaccination coverage of infants with 3 doses of OPV (OPV3) was 72%, unchanged from 2014 estimates (*6*). There was considerable geographic variation in reported OPV3 coverage among provinces in 2015: 40% in FATA, 29% in Balochistan, 58% in Sindh, 64% in KP and 90% in Punjab. Vaccination histories, based on parental recall and vaccination cards of children aged 6–23 months with AFP who did not test positive for poliovirus (i.e., nonpolio AFP cases [NPAFP]†), are used to estimate OPV coverage in target populations. The percentage of children with NPAFP aged 6–23 months who had never received any OPV doses through routine immunization services or SIAs declined from 6.3% in 2014 to 2.1% in 2015, and to 0.3% in 2016; the percentage of children with NPAFP who received ≥4 OPV doses (through routine immunization services or SIAs) in this age group was 96% in 2016 to date, unchanged from 2015.

During January 2015–September 2016, 21 SIAs were conducted using either trivalent OPV (tOPV [types 1, 2, and 3]) or

* Mass campaigns conducted for a brief period (days to weeks) in which 1 dose of oral poliovirus vaccine is administered to all children aged <5 years, regardless of vaccination history. Campaigns can be conducted nationally or subnationally (i.e., in portions of the country).

† Vaccination histories of children aged 6–23 months with acute flaccid paralysis who do not test WPV-positive are used to estimate OPV coverage of the overall target population and to corroborate national reported routine vaccination coverage estimates.

bivalent OPV (bOPV [types 1 and 3]); tOPV was used during one national immunization campaign before the withdrawal of type 2-containing OPV on April 25, 2016, in coordination with the worldwide withdrawal of all type 2-containing OPV. After April, fixed-post SIAs using injectable inactivated polio vaccine (IPV) and house-to-house SIAs using mostly bOPV were conducted. During the first quarter of 2016 an SIA, using both bOPV and IPV and targeting children aged 4 months to <2 years, was conducted in the core reservoir districts of Pakistan (Karachi, Peshawar, Khyber and Quetta, Killa Abdullah, and Pishin). Using only IPV, an SIA targeting all children aged 4 months–5 years was conducted in North Waziristan Agency. In 2015, eight SIAs using only IPV and targeting children aged <2 years were conducted in reservoir areas within the provinces of KP, FATA, Punjab, Balochistan, and Sindh.

Surveillance Activities

AFP surveillance. During January 2015–September 2016, the annual NPAFP rate per 100,000 population aged <15 years was 9.3 nationally, ranging from 2.2 to 15.6 among the eight provinces and regions of Pakistan (Table). In 2016, the percentage of AFP cases with adequate stool specimens[§] was 89% nationally (provincial range = 70%–89%); Gilgit-Baltistan was the only province in which stool specimen timeliness (70%) failed to meet the minimum 80% target in 2016, a decrease from 2015 when stool specimen timeliness in the province was 85%.

Environmental surveillance. Environmental surveillance was used to supplement AFP surveillance through periodic testing of sewage samples for polioviruses. During January–September 2016, WPV1 was detected in 36 (9%) of 384 environmental samples from 43 sampling sites within 18 districts, compared with 69 (19%) of 354 environmental samples from 37 sampling sites during the same period in 2015, and 98 of 294 (34%) from 30 sampling sites during the same period in 2014. Three environmental surveillance samples tested positive for vaccine-derived poliovirus (VDPV)[¶] in 2016 in the province of Balochistan (two in the district of Quetta in June and September 2016, and one in Hyderabad during July 2016) compared with 13 samples that tested positive for VDPV in the provinces of Balochistan, KP, Punjab, and Sindh during January–December 2015.

WPV and VDPV Epidemiology

During 2015, a total of 54 WPV1 cases were reported in Pakistan, an 82% decrease from the 306 WPV1 cases reported in 2014. Fifteen WPV1 cases were reported during January–September 2016, a 61% decrease from the 38 cases during the same period in 2015. Among the 38 WPV1 cases in 2015, 15 (39%) occurred in the province of KP, five (13%) in Sindh, 11 (29%) in FATA, six (16%) in Balochistan, and one (3%) in Punjab. Of the 15 WPV1 cases reported in 2016, seven (47%) occurred in KP, five (33%) in Sindh, two (13%) in FATA and one (7%) in Balochistan (Figure 2). During 2015, WPV1 cases were reported from 17 districts (the highest percentages were reported in Peshawar [26%], Khyber [16%], and Quetta [11%]), compared with 11 districts reporting WPV1 cases as of September 2016 (the highest percentages of cases

[§] AFP surveillance quality is monitored by performance indicators that include 1) the detection rate of nonpolio acute flaccid paralysis (NPAFP) cases and 2) the percentage of AFP cases with adequate stool specimens. WHO operational targets for countries with endemic-poliovirus transmission are NPAFP detection rates of ≥2 cases per 100,000 population aged <15 years and adequate stool specimen collected from ≥80% of AFP cases. Adequate stool specimen is defined as two stool specimens collected ≥24 hours apart, both within 14 days of paralysis onset, and shipped on ice or frozen packs to a WHO-accredited laboratory, arriving in good condition (i.e., without leaks or desiccation) within 3 days.

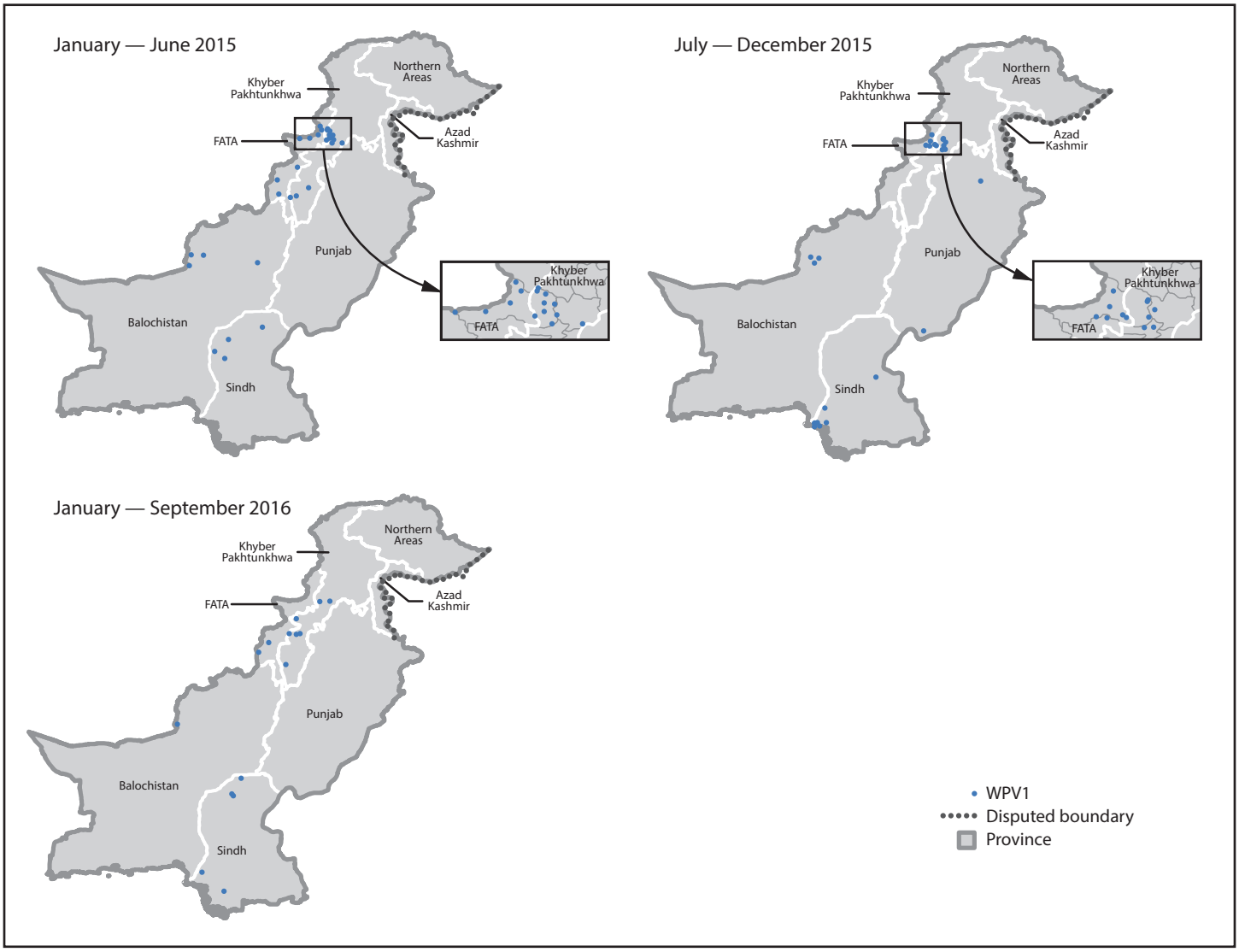
[¶] VDPVs can cause paralytic polio in humans and have the potential for sustained circulation. VDPVs resemble WPVs biologically and differ from the majority of Sabin vaccine–related poliovirus isolates by having genetic properties consistent with prolonged replication or transmission.

TABLE. Acute flaccid paralysis (AFP) surveillance indicators and reported wild poliovirus (WPV) cases by region and period — Pakistan, January 2015–September 2016

Region	AFP surveillance indicators (2015)			Reported WPV cases			
				Period			
	No. of AFP cases	Nonpolio AFP rate*	% shipped with adequate specimens†	Jan–Jun 2015	Jul–Dec 2015	Jan–Sep 2016	Total
Pakistan overall	**5,793**	**9.3**	**88**	**29**	**25**	**15**	**69**
Azad Jammu Kashmir	72	4.5	83	0	0	0	**0**
Gilgit-Baltistan	15	2.2	85	0	0	0	**0**
Islamabad	37	6.1	73	0	0	0	**0**
Khyber Pakhtunkhwa	1,158	11.1	86	13	4	7	**24**
Punjab	3,024	7.4	87	0	2	0	**2**
Balochistan	202	5.3	86	4	3	1	**8**
Sindh	1,026	5.8	90	4	8	5	**17**
FATA	259	15.6	86	8	8	2	**18**

Abbreviation: FATA = Federally Administered Tribal Areas.
* Per 100,000 children aged <15 years.
† Two stool specimens collected at an interval of at least 24 hours within 14 days of paralysis onset and properly shipped to the laboratory.

FIGURE 2. Location of wild poliovirus type 1 (WPV1) cases — Pakistan, January 2015–October 2016



were reported in Bannu [13%] and South Waziristan [13%]). Among the 15 WPV1 cases reported in 2016, 13 (87%) were among children aged <36 months. One (7%) child with polio had never received a dose of OPV, compared with 11 (29%) of 38 WPV1 patients during January–September 2015, and 148 (63%) of 235 reported during the same period in 2014. Based on parental recall, 12 (80%) of the 15 WPV1 patients in 2016 had never received OPV doses from routine immunization services but were vaccinated with OPV only through SIAs.

As of November 1, 2016, eight of the 10 WPV1 cases reported in neighboring Afghanistan have occurred in the border region with Pakistan. Four WPV1 cases were reported in a Southeastern district in Afghanistan's Paktika province, an area with regular bidirectional population movement across the border with Pakistan's South Waziristan, where two cases have been recently detected. Genetic linkages show a close relationship between these cases and the 2016 cases in FATA. Cases in South KP and South FATA in Pakistan were genetically linked to cases detected in Nangarhar, Afghanistan. The four cases in Kunar province, Afghanistan, demonstrate sustained local transmission in Afghanistan in 2016, but are also genetically linked to cases circulating in Pakistan's Peshawar and KP provinces in late 2015.

During 2015, there was a decline in the number of independent WPV1 transmission chains during the high season months of September and October, compared with the same period during the previous year. Chains of WPV1 transmission also decreased during 2016; fewer WPV1 lineages persisted during the 2015–2016 low season, particularly in the areas with endemic transmission, including Peshawar in KP and Karachi in Sindh.

Discussion

During January–September 2016 the number of WPV1 cases detected in Pakistan decreased 61%, and WPV1-positive environmental surveillance samples decreased 50% compared with the same period in 2015. However, WPV1 continues to circulate in the known high-risk areas of Karachi (Sindh Province), Peshawar (KP Province), South Waziristan (FATA Province), and Quetta (Balochistan Province). Outside of these high-risk areas, WPV1 cases have clustered in the northern part of Sindh and southern KP.

The reduction in WPV1 cases in Pakistan follows implementation of a rigorous SIA schedule throughout the country, expansion of community-based vaccination in high-risk areas, and a diligent focus on identifying and vaccinating children missed by previous SIAs. In addition, Rapid Response Units, teams made up of epidemiologists and other public health professionals, have been created in each EOC to investigate and implement mitigation strategies for all WPV1 isolates detected through AFP surveillance and environmental surveillance sampling as well as any gaps identified in AFP surveillance. Although targeted violence and threats toward polio workers have continued, these have been rare occurrences during the current reporting period and have not had a significant impact on the timing and quality of SIAs or WPV1 response efforts.

Genetic sequencing data from AFP and environmental surveillance isolates indicate that areas on the Pakistan-Afghanistan border, particularly between FATA and Eastern Afghanistan and the Quetta area and Southern Afghanistan, continue to account for cross-border transmission. Key challenges in these areas include pockets of persistently lower vaccination coverage and large populations continually moving between the two countries for trade, social visits, seasonal relocation, and specific services (e.g., health care and education). Recently, cross-border movement has increased beyond the usual levels because of resettlement of Afghanistan natives living in Pakistan to their home country and the return of displaced persons from Pakistan to FATA (*7*), posing an additional challenge for eradication measures. Considerable numbers of children in displaced groups are unvaccinated because of inaccessibility and low performance of SIAs. These children are at high risk for poliovirus infection and can contribute to the spread of virus locally and to wide geographic areas on both sides of the border. Effective cross-border coordination through weekly communication between EOCs at the national and regional/provincial level in both countries, synchronization of SIA schedules, coordinated response to newly confirmed WPV1 cases, and sharing of epidemiologic data are critical to counter this cross-border threat.

Summary

What is already known about this topic?

Pakistan, Afghanistan, and Nigeria remain the last three countries worldwide where wild poliovirus type 1 (WPV1) transmission has never been interrupted. During April 2016, the World Health Organization (WHO) coordinated global withdrawal of the type 2 component in oral poliovirus vaccine, replacing it with oral poliovirus vaccine containing only types 1 and 3, after introduction of inactivated poliovirus vaccine.

What is added by this report?

During January-September 2016 WPV1 detected from cases of acute flaccid paralysis (AFP) and environmental surveillance in Pakistan continued to decrease compared with the same period in 2015 and 2014; vaccine-derived poliovirus was detected in two provinces in 2016. Genetic diversity of WPV1 isolates continued to decrease compared with 2015 and 2014. AFP surveillance and stool specimen timeliness at the national and provincial levels have met performance targets. Identifying and reaching unvaccinated children continue to be challenges.

What are the implications for public health practice?

To achieve the goal of zero WPV1 cases in Pakistan, the country must continue aggressive supplementary immunization activities, such as community-based vaccinations, and further strengthen polio surveillance, with particular focus on the cross-border regions, areas where environmental surveillance continues to detect poliovirus, and in vulnerable and low-risk areas where poliovirus has not been detected for some time.

Continued strong leadership by the Prime Minister's Task Force for Polio Eradication, and by EOCs at provincial and national levels, is needed to fully implement and monitor the aims in the 2017 NEAP in all districts (*4*). In particular, further strengthening of the quality of SIAs and AFP surveillance to rapidly detect and effectively respond to detection of poliovirus are needed to interrupt poliovirus transmission in Pakistan.

Acknowledgments

Steve Wassilak, MD, Global Immunization Division, Center for Global Health, CDC; Becky Maholland, Office of Public Health Preparedness and Response, CDC; National Stop Transmission of Polio and Field Epidemiology and Laboratory Training Program, Pakistan; World Health Organization (WHO) Country Office, Islamabad, Pakistan; WHO Eastern Mediterranean Regional Office, Amman, Jordan; WHO Regional Reference Laboratory for Poliovirus, Islamabad, Pakistan; WHO Global Polio Laboratory Network; Polio Eradication Department, WHO, Geneva, Switzerland.

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Notes from the Field

Clostridium perfringens Gastroenteritis Outbreak Associated with a Catered Lunch — North Carolina, November 2015

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During November 2015, the North Carolina Division of Public Health was notified by the Pitt County Health Department (PCHD) that approximately 40 persons who attended a catered company Thanksgiving lunch the previous day were ill with diarrhea and abdominal pain. The North Carolina Division of Public Health and PCHD worked together to investigate the source of illness and implement control measures. Within hours of notification, investigators developed and distributed an online survey to all lunch attendees regarding symptoms and foods consumed and initiated a cohort study. A case of illness was defined as abdominal pain or diarrhea in a lunch attendee with illness onset <24 hours after the event. Risk ratios (RRs) and 95% confidence intervals (CIs) were estimated for all menu items. Among 80 attendees, 58 (73%) completed the survey, including 44 respondents (76%) who reported illnesses meeting the case definition; among these, 41 (93%) reported diarrhea, and 40 (91%) reported abdominal pain. There were no hospitalizations. Symptom onset began a median of 13 hours after lunch (range = 1–22 hours). Risk for illness among persons who ate turkey or stuffing (38 of 44; 86%), which were plated and served together, was significantly higher than risk for illness among those who did not eat turkey or stuffing (six of 14; 43%) (RR = 2.02; 95% CI = 1.09–3.73).

PCHD collected stool specimens from ill persons and samples of leftover food from the company that hosted the lunch. Stool specimens were tested for norovirus and bacterial enteric pathogens at the North Carolina State Laboratory for Public Health. Based on reported symptoms and short interval between the lunch and symptom onset, a toxin was suspected as the cause of the outbreak; therefore, five stool specimens from ill persons and 20 food samples were submitted to CDC for *Clostridium perfringens* detection. Stools were tested for *C. perfringens* enterotoxin (CPE) using reversed passive latex agglutination. Stool culture and enumeration of *C. perfringens* colony forming units (CFU) were performed for five samples of foods implicated by the epidemiologic investigation (one stuffing sample and four turkey samples). Because meat is the most common source of *C. perfringens* outbreaks (*1*), one ham sample also was analyzed, although consumption of ham was not associated with an increased risk for illness. CPE was detected in all five stool specimens. *C. perfringens* containing the *C. perfringens* enterotoxin gene (*cpe*) was recovered from all five stool specimens and from all four turkey samples; one turkey sample contained >10^5 CFU/g. *C. perfringens* was not recovered from samples of other foods. No other pathogens were detected in stool specimens. Collectively, laboratory results met CDC guidelines for confirming *C. perfringens* as the outbreak source (*3*).

PCHD environmental health specialists interviewed the caterer about food handling and preparation practices. The North Carolina Food Code requires that all commercial caterers operate in a facility that has been inspected for compliance and permitted by the regulatory authority (*4*). The caterer had previously maintained a permitted facility, but reported having prepared the lunch food served at this event in an uninspected, residential kitchen. Turkeys were cooked approximately 10 hours before lunch, placed in warming pans, and plated in individual servings. Food was then delivered by automobile, which required multiple trips. After cooking and during transport, food sat either in warming pans or at ambient temperature for up to 8 hours. No temperature monitoring was conducted after cooking.

C. perfringens toxicoinfection (a foodborne illness caused by ingestion of toxin-producing bacteria) is often associated with consumption of meat that has been improperly prepared and handled (*1*,*2*). Because diagnostic testing is not widely available, *C. perfringens* can go undetected as a cause of foodborne illness outbreaks (*2*,*3*,*5*). Diagnostic testing to assist with outbreak source identification is useful to corroborate epidemiologic information, document disease prevalence, and guide prevention recommendations.

Epidemiologic, laboratory, and environmental evidence indicate that this outbreak was caused by consumption of turkey prepared by a commercial caterer operating in an unpermitted kitchen. Inadequate facilities, extended time between turkey preparation and consumption, and failure to monitor and control temperature before and during transport resulted in an anerobic environment conducive to *C. perfringens* spore germination and growth (*6*). Prompt local health department response, use of an online survey, and rapid collaboration between local, state, and federal public health agencies were instrumental in identifying the outbreak source quickly and preventing additional cases.

These findings confirm the need for commercial food preparers to adhere to existing food safety regulations (*4*), including use of permitted facilities and having a certified kitchen manager on staff. Caterers should be aware of the risks associated with improper storage of prepared food for long periods and the importance of temperature monitoring and regulation during food preparation and handling.

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Notes from the Field

Community-Based Prevention of Rocky Mountain Spotted Fever — Sonora, Mexico, 2016

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Rocky Mountain spotted fever (RMSF), a life-threatening tickborne zoonosis caused by *Rickettsia rickettsii*, is a reemerging disease in Mexico (*1*,*2*). *R. rickettsii* is an intracellular bacterium that infects vascular endothelium and can cause multisystem organ failure and death in the absence of timely administration of a tetracycline-class antibiotic, typically doxycycline. Epidemic RMSF, as described in parts of Arizona and Mexico, is associated with massive local infestations of the brown dog tick (*Rhiphicephalus sanguineus sensu lato*) on domestic dogs and in peridomestic settings that result in high rates of human exposure; for example, during 2003–2012, in Arizona the incidence of RMSF in the three most highly affected communities was 150 times the U.S. national average (*3*,*4*). In 2015, the Mexico Ministry of Health (MOH) declared an epidemiologic emergency because of high and sustained rates of RMSF in several states in northern Mexico, including the state of Sonora. During 2004–2015, a total of 1,129 cases and 188 RMSF deaths were reported from Sonora (Sonora MOH, unpublished data, 2016). During 2009–2015, one impoverished community (community A) in Sonora reported 56 cases of RMSF involving children and adolescents, with a case-fatality rate of 40% (Sonora MOH, unpublished data, 2016). Poverty and lack of timely access to health services are risk factors for severe RMSF. Children are especially vulnerable to infection, because they might have increased contact with dogs and spend more time playing around spaces where ticks survive (*5*). In Sonora, case fatality rates for children aged <10 years can be as high as 30%, which is almost four times the aggregate case-fatality rate reported for the general population of the state (8%) (*2*), and 10–13 times higher than the case-fatality rate described for this age group in the United States (2.4%) (*6*).

Domestic dogs serve as primary hosts for *Rh. sanguineus* ticks and present a unique target for control. Community-based programs for the control of *Rhipicephalus*-associated RMSF using long-acting tick collars on dogs and environmental acaricides (pesticides targeting ticks) have been found to be effective in reducing tick populations in homes and on dogs and in human disease cases (*4*). After the successful control of *Rhipicephalus*-associated RMSF in Arizona during 2012–2013, a collaborative endeavor was initiated in February 2016 among the University of Sonora School of Medicine, the Sonora MOH, and CDC to reduce the number of human RMSF cases in community A.

Over a period of 5 days in March 2016, six teams comprising local health care workers and community leaders, medical students from the University of Sonora School of Medicine, and public health veterinarians and epidemiologists from the Sonora MOH and CDC registered 530 households, provided education on RMSF, and placed tick collars on approximately 750 dogs. A knowledge, attitudes, and practices survey, which focused on understanding of RMSF and awareness and use of preventive practices, also was conducted among 230 households in community A and among 200 households in a similarly affected control community (community B). Community B was geographically removed (>50 km [31 miles]) from community A, and the socioeconomic status of most inhabitants was similar between the communities. In community A, 60% of dogs that were registered had visible tick infestations, and almost half of the participants reported seeing ticks inside their homes. Sonora MOH vector-control operators applied deltamethrin, an environmental acaricide, to the exterior walls and adjacent yard areas of participating homes. Bimonthly follow up visits were made to monitor tick populations on dogs, replace tick collars as necessary, deliver health messages, and provide timely pesticide application. The intervention will end in November 2016.

Since the beginning of the intervention in March through November 14, 2016, no new cases of RMSF have been reported from the intervention area in community A, and three RMSF cases (one fatal) have been reported in community B. In addition, 109 cases, 35 (32%) of which were fatal, have been reported from the remaining areas of Sonora, including two cases (one fatal) in community A outside of the intervention area, indicating that RMSF transmission is continuing in this region of Mexico. Data analyses are ongoing, including analysis of the pre- and postintervention knowledge, attitudes, and practices surveys.

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Announcement

Guidance for U.S. Laboratory Testing for Zika Virus Infection: Implications for Health Care Providers

CDC has released updated guidance online for U.S. laboratory testing for Zika virus infection. The guidance is available at https://www.cdc.gov/zika/laboratories/lab-guidance.html. Frequently asked questions are addressed at https://www.cdc.gov/zika/laboratories/lab-guidance-faq.html. This guidance updates recommendations for testing of specimens by U.S. laboratories for possible Zika virus infection. Major updates to the guidance with clinical implications for health care providers include the following:

- In addition to specimens listed in CDC's clinical guidance (*1*–*3*), whole blood can now be tested for Zika virus RNA in accordance with the Emergency Use Authorization (EUA) for Zika virus nucleic acid testing (NAT)* for a) symptomatic persons tested up to 14 days after onset of symptoms, b) asymptomatic pregnant women tested within 14 days of last possible Zika virus exposure, and c) infants tested for congenital Zika virus infection.
- The use of plaque reduction neutralization testing (PRNT) for confirmation of Zika virus infection, including in pregnant women and infants, is currently not routinely recommended in Puerto Rico.
- PRNT can be used to test for congenital Zika virus infection in children aged ≥18 months; maternally derived antibodies in the infant are expected to have waned, and therefore PRNT results will reflect infant-derived antibodies. Local health departments should determine when to implement testing of infants aged ≥18 months based on local context, including the regional circulation of similar flaviviruses, laboratory capacity, and other epidemiologic circumstances.

The updated guidance for laboratories has clinical implications for health care providers caring for pregnant women with possible Zika virus exposure, infants with possible congenital Zika virus infection, and nonpregnant persons with suspected Zika virus disease.

* Whole blood is not an approved specimen for all NAT EUA assays; health care providers should confirm with their testing laboratory that it can accept whole blood specimens prior to collecting and submitting this sample type.

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Announcement

National Family History Day — November 24, 2016

In 2004, the U.S. Surgeon General declared that Thanksgiving would be National Family History Day, a day designed to encourage American families to learn about and create a written record of their family health history. Family history can identify those persons with a higher-than-average risk for many common diseases, such as heart disease, cancer, and type 2 diabetes. Having at least one first-degree relative with a disease can increase a person's risk twofold or more (*1*). Family history is also a determinant of less common diseases like sickle cell disease and cystic fibrosis (*1*). Persons who might be at increased risk because of family history might benefit from screening or other interventions to prevent disease or detect it earlier.

An estimated 20% of women with family histories of breast and ovarian cancer might have cancer-causing mutations in *BRCA* genes (*2*). Discussing family history of cancer with patients can help providers identify persons at higher-than-average risk, foster discussions about genetic counseling and testing, and help them make informed decisions about risk reduction. Public health programs at the federal and state levels are working to increase collection and assessment of family history and identify persons at high risk and their families.

This Thanksgiving, CDC encourages everyone to learn about their family histories of cancer and other conditions. Several resources are available to help facilitate these conversations, including the U.S. Surgeon General's Family History Initiative's Before You Start (http://www.hhs.gov/sites/default/files/familyhistory/start/startenglish.pdf) and My Family Health Portrait Tool (https://familyhistory.hhs.gov/FHH/html/index.html), CDC's information on family history (http://www.cdc.gov/genomics/famhistory/index.htm), and the Know:BRCA Family Cancer History worksheet (https://www.knowbrca.org/Learn/gathering-family-history).

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Notice to Readers

Final 2015 Reports of Nationally Notifiable Infectious Diseases and Conditions

The table listed in this report on pages 1307–1321 presents finalized data, as of June 30, 2016, from the National Notifiable Diseases Surveillance System (NNDSS) for 2015. These data will be published in more detail in the *Summary of Notifiable Infectious Diseases and Conditions — United States, 2015* (*1*). Because no cases were reported in the United States during 2015, the following diseases do not appear in this early release table: anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers.

Policies for reporting NNDSS data to CDC can vary by disease or reporting jurisdiction. The publication criteria used for the 2015 finalized tables are listed in the "Print Criteria" column of the NNDSS event code list (https://wwwn.cdc.gov/nndss/document/National_Notifiable_Diseases_Surveillance_System_Event_Code_List_2015_v7.xlsx).

In addition, only cases from jurisdictions where the nationally notifiable disease was reportable in 2015 are published. The NNDSS website (https://wwwn.cdc.gov/nndss/) is updated annually to include the latest national surveillance case definitions approved by the Council of State and Territorial Epidemiologists (CSTE) for classifying and enumerating cases of nationally notifiable infectious diseases.

Population estimates are from the National Center for Health Statistics postcensal estimates of the resident population of the United States for July 1, 2014–July 1, 2015, by year, county, single-year of age (0 to ≥85 years), bridged race (white, black or African American, American Indian or Alaska Native, Asian, or Pacific Islander), Hispanic origin (not Hispanic or Latino, Hispanic or Latino), and sex (vintage 2015), prepared under a collaborative arrangement with the U.S. Census Bureau. Population estimates released for states as of June 28, 2016 are available at http://www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm#vintage2015. Population estimates for territories are 2015 estimates from the U.S. Census Bureau (*2*).

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TABLE 2a. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Total resident population (in thousands)	Arboviral diseases†						
		Chikungunya virus disease		Eastern equine encephalitis virus disease	Jamestown Canyon virus disease		LaCrosse virus disease	
		Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Nonneuro-invasive
United States	321,417	4	892	6	6	5	51	4
New England	14,727	—	59	1	1	—	—	—
Connecticut	3,591	—	16	—	—	—	—	—
Maine	1,329	—	2	1	—	—	—	—
Massachusetts	6,794	—	34	—	1	—	—	—
New Hampshire	1,331	—	1	—	—	—	—	—
Rhode Island	1,056	—	5	—	—	—	—	—
Vermont	626	—	1	—	—	—	—	—
Mid. Atlantic	41,556	—	138	3	1	—	—	—
New Jersey	8,958	—	31	—	1	—	—	—
New York (Upstate)	11,245	—	37	3	—	—	—	—
New York City	8,550	—	62	—	—	—	—	—
Pennsylvania	12,803	—	8	—	—	—	—	—
E. N. Central	46,787	1	53	—	3	2	29	1
Illinois	12,860	1	19	—	—	—	—	—
Indiana	6,620	—	7	—	—	—	—	—
Michigan	9,923	—	9	—	—	—	—	—
Ohio	11,613	—	10	—	1	—	23	1
Wisconsin	5,771	—	8	—	2	2	6	—
W.N. Central	21,121	1	40	—	1	2	1	1
Iowa	3,124	—	4	—	—	1	—	—
Kansas	2,912	—	11	—	—	—	1	—
Minnesota	5,490	—	15	—	1	1	—	1
Missouri	6,084	—	5	—	—	—	—	—
Nebraska	1,896	—	4	—	—	—	—	—
North Dakota	757	1	1	—	—	—	—	—
South Dakota	858	—	—	—	—	—	—	—
S. Atlantic	63,276	1	146	1	—	—	17	1
Delaware	946	—	—	—	—	—	—	—
District of Columbia	672	—	—	—	—	—	—	—
Florida	20,271	—	73	—	—	—	—	—
Georgia	10,215	—	9	—	—	—	2	—
Maryland	6,006	—	19	—	—	—	—	—
North Carolina	10,043	—	19	1	—	—	11	—
South Carolina	4,896	1	2	—	—	—	1	—
Virginia	8,383	—	24	—	—	—	—	—
West Virginia	1,844	—	—	—	—	—	3	1
E.S. Central	18,876	—	19	—	—	—	3	1
Alabama	4,859	—	1	—	—	—	—	—
Kentucky	4,425	—	8	—	—	—	—	—
Mississippi	2,992	—	1	—	—	—	—	—
Tennessee	6,600	—	9	—	—	—	3	1
W.S. Central	39,029	—	70	1	—	—	1	—
Arkansas	2,978	—	4	—	—	—	—	—
Louisiana	4,671	—	7	1	—	—	1	—
Oklahoma	3,911	—	4	—	—	—	—	—
Texas	27,469	—	55	—	—	—	—	—
Mountain	23,531	—	42	—	—	1	—	—
Arizona	6,828	—	24	—	—	—	—	—
Colorado	5,457	—	8	—	—	—	—	—
Idaho	1,655	—	5	—	—	—	—	—
Montana	1,033	—	1	—	—	—	—	—
Nevada	2,891	—	1	—	—	—	—	—
New Mexico	2,085	—	—	—	—	—	—	—
Utah	2,996	—	3	—	—	—	—	—
Wyoming	586	—	—	—	—	1	—	—
Pacific	52,514	1	325	—	—	—	—	—
Alaska	738	—	1	—	—	—	—	—
California	39,145	—	276	—	—	—	—	—
Hawaii	1,432	—	7	—	—	—	—	—
Oregon	4,029	—	3	—	—	—	—	—
Washington	7,170	1	38	—	—	—	—	—
Territories								
American Samoa	54	—	—	—	—	—	—	—
C.N.M.I.	52	—	—	—	—	—	—	—
Guam	162	—	—	—	—	—	—	—
Puerto Rico	3,598	—	216	—	—	—	—	—
U.S. Virgin Islands	104	—	21	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Totals reported to the Division of Vector-Borne Diseases (DVBD), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) (ArboNET Surveillance), as of July 1, 2016.

TABLE 2b. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Arboviral diseases (continued)†					
	Powassan virus disease		St. Louis encephalitis virus disease		West Nile virus disease	
	Neuroinvasive	Nonneuroinvasive	Neuroinvasive	Nonneuroinvasive	Neuroinvasive	Nonneuroinvasive
United States	6	1	19	4	1,455	720
New England	4	—	—	—	16	5
Connecticut	—	—	—	—	8	2
Maine	1	—	—	—	1	—
Massachusetts	3	—	—	—	7	3
New Hampshire	—	—	—	—	—	—
Rhode Island	—	—	—	—	—	—
Vermont	—	—	—	—	—	—
Mid. Atlantic	1	1	—	—	82	31
New Jersey	1	—	—	—	23	3
New York (Upstate)	—	1	—	—	12	7
New York City	—	—	—	—	30	8
Pennsylvania	—	—	—	—	17	13
E. N. Central	1	—	—	—	112	48
Illinois	—	—	—	—	51	26
Indiana	—	—	—	—	16	5
Michigan	—	—	—	—	16	2
Ohio	—	—	—	—	23	12
Wisconsin	1	—	—	—	6	3
W.N. Central	—	—	—	—	82	135
Iowa	—	—	—	—	4	10
Kansas	—	—	—	—	12	22
Minnesota	—	—	—	—	3	6
Missouri	—	—	—	—	23	6
Nebraska	—	—	—	—	19	49
North Dakota	—	—	—	—	10	13
South Dakota	—	—	—	—	11	29
S. Atlantic	—	—	—	—	76	33
Delaware	—	—	—	—	—	6
District of Columbia	—	—	—	—	3	2
Florida	—	—	—	—	12	1
Georgia	—	—	—	—	13	2
Maryland	—	—	—	—	31	14
North Carolina	—	—	—	—	4	—
South Carolina	—	—	—	—	—	—
Virginia	—	—	—	—	13	8
West Virginia	—	—	—	—	—	—
E.S. Central	—	—	—	—	36	21
Alabama	—	—	—	—	5	4
Kentucky	—	—	—	—	1	1
Mississippi	—	—	—	—	25	13
Tennessee	—	—	—	—	5	3
W.S. Central	—	—	—	—	302	131
Arkansas	—	—	—	—	16	2
Louisiana	—	—	—	—	41	10
Oklahoma	—	—	—	—	49	40
Texas	—	—	—	—	196	79
Mountain	—	—	19	4	156	101
Arizona	—	—	19	4	67	36
Colorado	—	—	—	—	57	44
Idaho	—	—	—	—	5	8
Montana	—	—	—	—	3	—
Nevada	—	—	—	—	4	3
New Mexico	—	—	—	—	12	2
Utah	—	—	—	—	5	3
Wyoming	—	—	—	—	3	5
Pacific	—	—	—	—	593	215
Alaska	—	—	—	—	—	—
California	—	—	—	—	585	198
Hawaii	—	—	—	—	—	—
Oregon	—	—	—	—	—	1
Washington	—	—	—	—	8	16
Territories						
American Samoa	—	—	—	—	—	—
C.N.M.I.	—	—	—	—	—	—
Guam	—	—	—	—	—	—
Puerto Rico	—	—	—	—	—	—
U.S. Virgin Islands	—	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Totals reported to the Division of Vector-Borne Diseases (DVBD), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) (ArboNET Surveillance), as of July 1, 2016.

TABLE 2c. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Babesiosis			Botulism				Brucellosis
	Total	Confirmed	Probable	Total	Foodborne	Infant	Other†	
United States	2,100	1,804	296	195	37	138	20	126
New England	1,078	973	105	1	—	1	—	2
Connecticut	328	286	42	—	—	—	—	—
Maine	55	53	2	—	—	—	—	—
Massachusetts	443	425	18	—	—	—	—	2
New Hampshire	53	51	2	—	—	—	—	—
Rhode Island	190	151	39	1	—	1	—	—
Vermont	9	7	2	—	—	—	—	—
Mid. Atlantic	889	727	162	31	—	31	—	11
New Jersey	297	244	53	6	—	6	—	—
New York (Upstate)	521	418	103	1	—	1	—	4
New York City	71	65	6	3	—	3	—	4
Pennsylvania	N	N	N	21	—	21	—	3
E. N. Central	64	51	13	31	25	5	1	10
Illinois	3	3	—	2	2	—	—	5
Indiana	—	—	—	—	—	—	—	2
Michigan	3	2	1	1	—	1	—	1
Ohio	2	—	2	28	23	4	1	1
Wisconsin	56	46	10	—	—	—	—	1
W.N. Central	48	38	10	6	—	5	1	8
Iowa	N	N	N	2	—	2	N	1
Kansas	N	N	N	1	—	1	—	—
Minnesota	45	35	10	1	—	1	—	4
Missouri	N	N	N	—	—	—	—	—
Nebraska	—	—	—	—	—	—	—	1
North Dakota	3	3	—	2	—	1	1	2
South Dakota	—	—	—	—	—	—	—	—
S. Atlantic	7	4	3	20	—	18	2	21
Delaware	1	1	—	2	—	2	—	—
District of Columbia	N	N	N	—	—	—	—	4
Florida	N	N	N	1	—	—	1	8
Georgia	N	N	N	—	—	—	—	3
Maryland	4	1	3	10	—	9	1	1
North Carolina	N	N	N	3	—	3	—	1
South Carolina	2	2	—	—	—	—	—	2
Virginia	N	N	N	3	—	3	—	2
West Virginia	—	—	—	1	—	1	—	—
E.S. Central	3	2	1	7	—	7	—	6
Alabama	2	1	1	1	—	1	—	2
Kentucky	—	—	—	1	—	1	—	1
Mississippi	N	N	N	1	—	1	—	—
Tennessee	1	1	—	4	—	4	—	3
W.S. Central	2	2	—	14	—	12	2	27
Arkansas	—	—	—	—	—	—	—	1
Louisiana	1	1	—	3	—	3	—	2
Oklahoma	N	N	N	2	—	2	—	1
Texas	1	1	—	9	—	7	2	23
Mountain	—	—	—	20	4	15	1	6
Arizona	—	—	—	3	—	2	1	1
Colorado	N	N	N	3	—	3	—	1
Idaho	N	N	N	2	—	2	—	—
Montana	—	—	—	—	—	—	—	1
Nevada	N	N	N	—	—	—	—	—
New Mexico	N	N	N	3	2	1	—	—
Utah	—	—	—	8	2	6	—	3
Wyoming	—	—	—	1	—	1	—	—
Pacific	9	7	2	65	8	44	13	35
Alaska	N	N	N	5	4	1	—	1
California	5	5	—	50	1	36	13	29
Hawaii	N	N	N	1	—	1	—	1
Oregon	2	1	1	3	3	—	—	—
Washington	2	1	1	6	—	6	—	4
Territories								
American Samoa	U	U	U	—	—	—	—	—
C.N.M.I.	—	—	—	—	—	—	—	—
Guam	—	—	—	—	—	—	—	—
Puerto Rico	N	N	N	—	—	—	—	—
U.S. Virgin Islands	—	—	—	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Includes cases reported as wound and unspecified botulism.

TABLE 2d. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Campylobacteriosis	Chancroid†	*Chlamydia trachomatis* infection†	Cholera	Coccidioidomycosis§
United States	54,556	11	1,526,658	8	11,072
New England	3,114	3	50,762	—	—
Connecticut	780	—	13,126	—	N
Maine	221	—	3,965	—	N
Massachusetts	1,456	3	24,100	—	—
New Hampshire	252	—	3,095	—	—
Rhode Island	232	—	4,575	—	—
Vermont	173	—	1,901	—	N
Mid. Atlantic	8,005	—	188,412	2	—
New Jersey	1,907	—	31,337	—	N
New York (Upstate)	1,982	—	40,860	2	N
New York City	1,716	—	62,755	—	N
Pennsylvania	2,400	—	53,460	—	N
E. N. Central	5,433	1	226,089	—	40
Illinois	N	—	69,610	—	N
Indiana	914	1	28,886	—	N
Michigan	1,339	—	46,486	—	20
Ohio	1,722	—	56,726	—	13
Wisconsin	1,458	—	24,381	—	7
W.N. Central	5,092	—	88,804	—	108
Iowa	769	—	12,085	—	N
Kansas	679	—	11,464	—	N
Minnesota	1,407	—	21,243	—	80
Missouri	1,207	—	28,948	—	10
Nebraska	505	—	7,956	—	9
North Dakota	176	—	3,159	—	9
South Dakota	349	—	3,949	—	N
S. Atlantic	8,949	—	320,277	3	5
Delaware	156	—	4,605	—	—
District of Columbia	8	—	7,894	—	N
Florida	3,351	—	90,468	3	N
Georgia	1,093	—	57,639	—	N
Maryland	789	—	27,450	—	5
North Carolina	1,298	—	64,376	—	N
South Carolina	363	—	27,538	—	N
Virginia	1,564	—	35,349	—	N
West Virginia	327	—	4,958	—	N
E.S. Central	2,331	—	92,446	1	—
Alabama	589	—	26,359	1	N
Kentucky	788	—	17,444	—	—
Mississippi	195	—	17,371	—	N
Tennessee	759	—	31,272	—	N
W.S. Central	5,619	2	210,674	—	11
Arkansas	448	—	16,166	—	7
Louisiana	365	—	32,325	—	4
Oklahoma	862	—	21,025	—	N
Texas	3,944	2	141,158	—	N
Mountain	4,319	2	102,286	1	7,845
Arizona	1,379	1	32,387	—	7,622
Colorado	965	—	23,857	—	N
Idaho	409	—	5,631	—	N
Montana	323	—	4,184	—	12
Nevada	175	—	12,925	—	115
New Mexico	479	—	12,632	1	31
Utah	435	—	8,633	—	52
Wyoming	154	1	2,037	—	13
Pacific	11,694	3	246,908	1	3,063
Alaska	98	—	5,660	—	N
California	8,304	2	189,170	—	3,053
Hawaii	569	—	7,074	1	N
Oregon	882	—	16,305	—	10
Washington	1,841	1	28,699	—	N
Territories					
American Samoa	—	—	—	—	N
C.N.M.I.	—	—	—	—	—
Guam	4	—	881	—	—
Puerto Rico	28	—	5,295	—	—
U.S. Virgin Island	—	—	743	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Totals reported to the Division of STD Prevention (DSTDP), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), as of June 8, 2016.

§ Notifiable in <25 states.

TABLE 2e. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Cryptosporidiosis			Cyclosporiasis	Dengue virus infections†		
	Total	Confirmed	Probable		Dengue	Dengue-like illness	Severe Dengue
United States	9,735	6,145	3,590	645	929	16	6
New England	443	394	49	40	22	2	—
Connecticut	82	82	—	16	4	1	—
Maine	34	24	10	N	4	—	—
Massachusetts	211	211	—	21	8	—	—
New Hampshire	36	23	13	3	1	—	—
Rhode Island	25	25	—	—	3	—	—
Vermont	55	29	26	—	2	1	—
Mid. Atlantic	818	673	145	93	187	4	1
New Jersey	86	84	2	21	57	3	—
New York (Upstate)	269	263	6	21	33	—	—
New York City	133	131	2	51	74	1	1
Pennsylvania	330	195	135	N	23	—	—
E. N. Central	1,672	1,182	490	45	63	—	—
Illinois	240	100	140	21	29	—	—
Indiana	188	123	65	—	—	—	—
Michigan	238	210	28	8	16	—	—
Ohio	424	167	257	2	11	—	—
Wisconsin	582	582	—	14	7	—	—
W.N. Central	1,794	826	968	20	36	—	1
Iowa	373	109	264	4	4	—	—
Kansas	179	94	85	6	4	—	—
Minnesota	318	232	86	1	20	—	1
Missouri	401	160	241	5	3	—	—
Nebraska	259	200	59	4	2	—	—
North Dakota	17	17	—	N	1	—	—
South Dakota	247	14	233	—	2	—	—
S. Atlantic	1,960	1,169	791	84	148	3	2
Delaware	15	10	5	1	1	—	—
District of Columbia	24	21	3	—	8	2	1
Florida	856	384	472	32	82	—	—
Georgia	350	350	—	34	8	—	—
Maryland	99	73	26	3	11	1	1
North Carolina	282	192	90	4	9	—	—
South Carolina	77	50	27	2	4	—	—
Virginia	234	72	162	8	24	—	—
West Virginia	23	17	6	—	1	—	—
E.S. Central	669	439	230	1	19	—	—
Alabama	261	147	114	N	3	—	—
Kentucky	95	52	43	—	1	—	—
Mississippi	35	34	1	N	2	—	—
Tennessee	278	206	72	1	13	—	—
W.S. Central	1,057	648	409	320	37	—	2
Arkansas	69	65	4	3	1	—	—
Louisiana	132	66	66	1	4	—	—
Oklahoma	116	48	68	N	2	—	—
Texas	740	469	271	316	30	—	2
Mountain	596	358	238	22	37	5	—
Arizona	62	49	13	1	12	5	—
Colorado	136	77	59	8	13	—	—
Idaho	95	85	10	N	3	—	—
Montana	39	39	—	3	4	—	—
Nevada	12	8	4	N	1	—	—
New Mexico	51	48	3	2	3	—	—
Utah	173	24	149	8	1	—	—
Wyoming	28	28	—	—	—	—	—
Pacific	726	456	270	20	380	2	—
Alaska	9	8	1	—	1	—	—
California	372	345	27	15	138	—	—
Hawaii	22	22	—	—	219	—	—
Oregon	213	15	198	—	3	2	—
Washington	110	66	44	5	19	—	—
Territories							
American Samoa	N	N	N	N	—	—	—
C.N.M.I.	—	—	—	—	—	—	—
Guam	—	—	—	—	—	—	—
Puerto Rico	—	—	—	—	58	—	—
U.S. Virgin Islands	—	—	—	—	3	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Total number of reported laboratory-positive dengue cases including all confirmed cases [by anti-dengue virus (DENV) molecular diagnostic methods or seroconversion of anti-DENV IgM] and all probable cases (by a single, positive anti-DENV IgM). Totals reported to the Division of Vector-Borne Diseases (DVBD), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) (ArboNET Surveillance), as of July 1, 2016.

TABLE 2f. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Ehrlichiosis and Anaplasmosis				Giardiasis	Gonorrhea†
	Anaplasma phagocytophilum infection	*Ehrlichia chaffeensis* infection	*Ehrlichia ewingii* infection	Undetermined ehrlichiosis/ anaplasmosis		
United States	3,656	1,288	14	179	14,485	395,216
New England	1,438	77	1	3	1,151	7,302
Connecticut	120	—	N	N	215	2,088
Maine	186	5	—	1	116	417
Massachusetts	767	12	—	—	678	3,817
New Hampshire	110	12	1	—	102	245
Rhode Island	116	44	—	—	40	580
Vermont	139	4	—	2	N	155
Mid. Atlantic	929	181	1	26	2,835	45,580
New Jersey	125	61	1	5	443	7,228
New York (Upstate)	727	109	—	11	860	8,719
New York City	56	7	—	—	871	16,842
Pennsylvania	21	4	—	10	661	12,791
E. N. Central	563	74	—	82	1,493	57,127
Illinois	10	30	—	1	N	17,130
Indiana	—	—	—	20	178	7,843
Michigan	6	5	—	—	444	10,330
Ohio	1	17	—	1	383	16,564
Wisconsin	546	22	—	60	488	5,260
W.N. Central	637	286	9	32	1,487	21,257
Iowa	N	N	N	N	213	2,247
Kansas	5	46	2	1	108	2,536
Minnesota	613	4	—	21	617	4,097
Missouri	15	231	7	9	251	8,942
Nebraska	1	4	—	—	131	1,703
North Dakota	3	1	—	1	39	684
South Dakota	—	—	—	—	128	1,048
S. Atlantic	43	274	—	13	2,634	87,900
Delaware	4	14	—	—	28	1,310
District of Columbia	N	1	—	—	121	2,742
Florida	5	18	—	1	1,038	24,125
Georgia	—	33	—	1	736	15,982
Maryland	4	30	—	—	251	6,858
North Carolina	19	74	—	—	N	19,809
South Carolina	1	3	—	—	125	8,206
Virginia	10	96	—	10	269	8,099
West Virginia	—	5	—	1	66	769
E.S. Central	17	132	1	16	188	26,035
Alabama	7	9	—	2	188	7,196
Kentucky	—	53	—	—	N	4,678
Mississippi	—	9	1	3	N	5,775
Tennessee	10	61	—	11	N	8,386
W.S. Central	19	264	2	2	352	61,321
Arkansas	16	192	1	—	119	4,780
Louisiana	—	2	—	2	233	10,282
Oklahoma	—	62	1	—	N	6,542
Texas	3	8	—	—	N	39,717
Mountain	3	—	—	3	1,128	21,804
Arizona	—	—	—	3	143	8,245
Colorado	N	N	N	N	370	4,387
Idaho	N	N	N	N	161	472
Montana	1	—	—	—	93	844
Nevada	—	—	—	—	53	3,630
New Mexico	N	N	N	N	77	2,489
Utah	2	—	—	—	196	1,562
Wyoming	—	—	—	—	35	175
Pacific	7	—	—	2	3,217	66,890
Alaska	N	N	N	N	94	1,113
California	3	—	—	1	2,150	54,135
Hawaii	N	N	N	N	38	1,239
Oregon	3	—	—	1	334	3,232
Washington	1	—	—	—	601	7,171
Territories						
American Samoa	N	N	N	N	—	—
C.N.M.I.	—	—	—	—	—	—
Guam	N	N	N	N	1	147
Puerto Rico	N	N	N	N	23	620
U.S. Virgin Islands	—	—	—	—	—	52

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Totals reported to the Division of STD Prevention (DSTDP), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), as of June 8, 2016.

TABLE 2g. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	*Haemophilus influenzae*, invasive disease					Hansen's disease (leprosy)	Hantavirus infections	
		Age <5 years						
	All ages, serotype	Serotype b	Not typeable	Non-b serotype	Unknown		Hantavirus infection (non-HPS)	Hantavirus pulmonary syndrome (HPS)
United States	4,138	29	175	135	167	89	3	21
New England	259	1	8	9	1	1	—	—
Connecticut	42	—	—	3	—	—	N	N
Maine	39	1	1	1	—	N	—	—
Massachusetts	122	—	4	5	—	—	—	—
New Hampshire	23	—	1	—	1	1	—	—
Rhode Island	20	—	1	—	—	—	—	—
Vermont	13	—	1	—	—	N	—	—
Mid. Atlantic	633	2	14	4	29	7	—	—
New Jersey	136	—	—	—	18	1	N	—
New York (Upstate)	197	1	9	2	—	—	—	—
New York City	97	—	—	—	6	3	—	—
Pennsylvania	203	1	5	2	5	3	—	—
E. N. Central	723	8	39	20	8	4	2	1
Illinois	204	1	12	6	3	—	1	—
Indiana	119	4	4	3	1	1	—	1
Michigan	132	—	5	6	2	1	—	—
Ohio	161	2	12	3	—	2	—	—
Wisconsin	107	1	6	2	2	—	1	—
W.N. Central	334	1	3	12	26	1	—	1
Iowa	2	—	—	—	—	—	—	—
Kansas	48	—	3	5	—	—	N	—
Minnesota	105	—	—	—	11	1	—	—
Missouri	121	—	—	—	14	—	—	—
Nebraska	32	—	—	4	1	—	—	—
North Dakota	25	1	—	3	—	N	—	1
South Dakota	1	—	—	—	—	—	—	—
S. Atlantic	1,009	2	48	25	40	36	—	—
Delaware	18	—	—	—	3	—	—	—
District of Columbia	9	—	1	—	—	—	N	—
Florida	239	—	24	7	6	29	—	—
Georgia	210	1	10	8	6	3	—	—
Maryland	85	—	4	2	—	—	—	—
North Carolina	182	—	—	—	20	1	—	—
South Carolina	100	—	2	5	5	1	—	—
Virginia	121	1	5	3	—	2	N	—
West Virginia	45	—	2	—	—	N	—	—
E.S. Central	320	—	13	12	6	2	—	—
Alabama	80	—	3	2	1	1	N	N
Kentucky	49	—	1	1	3	—	—	—
Mississippi	45	—	—	4	—	1	—	—
Tennessee	146	—	9	5	2	—	—	—
W.S. Central	245	4	17	10	3	22	—	2
Arkansas	56	—	6	3	1	2	—	—
Louisiana	61	—	1	3	2	—	—	—
Oklahoma	117	—	10	4	—	N	N	—
Texas	11	4	N	N	N	20	—	2
Mountain	415	9	27	34	5	2	1	14
Arizona	133	3	13	18	2	1	—	1
Colorado	92	1	5	2	1	—	—	6
Idaho	27	1	3	1	1	—	N	—
Montana	15	—	—	2	—	—	—	4
Nevada	31	2	—	—	—	—	—	—
New Mexico	62	1	1	8	—	—	—	1
Utah	50	—	5	3	1	1	1	1
Wyoming	5	1	—	—	—	—	—	1
Pacific	200	2	6	9	49	14	—	3
Alaska	22	1	1	5	—	—	—	—
California	64	—	—	—	46	7	—	2
Hawaii	12	—	—	—	3	7	—	—
Oregon	97	—	3	2	—	N	—	—
Washington	5	1	2	2	—	N	N	1
Territories								
American Samoa	—	—	—	—	—	—	—	N
C.N.M.I.	—	—	—	—	—	—	—	—
Guam	—	—	—	—	—	22	—	N
Puerto Rico	—	—	—	—	—	—	—	—
U.S. Virgin Islands	—	—	—	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

TABLE 2h. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Hemolytic uremic syndrome postdiarrheal	Hepatitis					
		A acute	B acute	B chronic†	B perinatal infection	C acute	C, past or present†
United States	274	1,390	3,370	14,147	37	2,447	179,584
New England	11	60	43	412	2	295	11,067
Connecticut	2	9	6	38	1	15	3,291
Maine	7	8	9	51	—	30	1,486
Massachusetts	1	34	25	284	1	249	5,482
New Hampshire	—	2	—	U	—	N	N
Rhode Island	1	4	U	—	—	U	—
Vermont	—	3	3	39	—	1	808
Mid. Atlantic	16	225	226	3,445	4	380	34,974
New Jersey	2	59	85	273	—	130	7,928
New York (Upstate)	7	50	32	561	—	112	8,335
New York City	5	73	48	1,754	4	9	6,723
Pennsylvania	2	43	61	857	—	129	11,988
E. N. Central	39	172	658	1,748	2	438	34,672
Illinois	3	57	55	440	—	31	8,696
Indiana	10	19	133	68	—	138	N
Michigan	12	51	56	350	—	83	6,808
Ohio	3	36	409	890	—	122	19,165
Wisconsin	11	9	5	—	2	64	3
W.N. Central	39	66	96	1,045	4	75	13,786
Iowa	5	16	16	39	—	U	20
Kansas	5	7	19	130	—	22	1,697
Minnesota	10	21	19	186	3	37	2,015
Missouri	14	9	35	521	—	8	7,800
Nebraska	1	6	3	93	1	8	893
North Dakota	3	5	2	53	—	—	794
South Dakota	1	2	2	23	—	—	567
S. Atlantic	24	278	1,135	5,422	6	512	56,385
Delaware	—	2	8	122	—	U	U
District of Columbia	—	U	U	U	U	U	U
Florida	5	108	432	1,423	—	126	22,793
Georgia	5	30	119	1,867	2	84	7,175
Maryland	2	19	40	566	—	38	7,425
North Carolina	3	45	165	507	1	144	N
South Carolina	4	16	30	156	—	5	4,515
Virginia	4	50	69	556	1	52	8,138
West Virginia	1	8	272	225	2	63	6,339
E.S. Central	28	55	556	—	1	362	—
Alabama	3	23	101	N	1	70	N
Kentucky	9	16	162	N	—	119	N
Mississippi	1	2	50	N	—	U	—
Tennessee	15	14	243	N	—	173	N
W.S. Central	39	173	319	285	1	109	3,068
Arkansas	5	10	36	N	—	2	N
Louisiana	3	5	87	201	—	24	2,478
Oklahoma	17	11	37	84	—	35	590
Texas	14	147	159	N	1	48	N
Mountain	25	118	102	525	2	141	11,662
Arizona	2	54	25	133	—	U	U
Colorado	4	25	28	163	1	40	3,561
Idaho	6	9	8	51	—	4	1,017
Montana	2	2	4	31	—	15	1,354
Nevada	7	11	25	—	1	12	—
New Mexico	—	6	2	41	—	40	3,680
Utah	4	8	10	64	—	30	1,578
Wyoming	—	3	U	42	—	U	472
Pacific	53	243	235	1,265	15	135	13,970
Alaska	—	4	3	—	—	N	1,604
California	38	179	160	1,008	11	59	1,182
Hawaii	—	6	14	U	1	—	U
Oregon	15	28	24	138	2	13	5,472
Washington	N	26	34	119	1	63	5,712
Territories							
American Samoa	N	—	—	N	—	—	—
C.N.M.I.	—	—	—	—	—	—	—
Guam	—	48	—	113	—	N	138
Puerto Rico	N	2	24	9	—	—	960
U.S. Virgin Islands	—	—	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Reported cases of hepatitis B, chronic and hepatitis C, past or present may not reflect unique case reports and may include both confirmed and probable case reports.

TABLE 2i. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	HIV diagnoses†	Influenza-associated pediatric mortality§	Legionellosis	Leptospirosis	Listeriosis	Lyme disease		
						Total	Confirmed	Probable
United States	33,817	130	6,079	40	768	38,069	28,453	9,616
New England	804	3	306	1	57	10,109	7,279	2,830
Connecticut	233	—	57	N	25	2,541	1,873	668
Maine	32	—	16	—	7	1,201	993	208
Massachusetts	456	1	162	—	19	4,224	2,922	1,302
New Hampshire	21	—	32	N	3	529	436	93
Rhode Island	50	2	21	1	3	904	564	340
Vermont	12	—	18	—	—	710	491	219
Mid. Atlantic	4,665	10	1,464	5	149	18,217	14,535	3,682
New Jersey	952	1	214	—	26	4,855	3,932	923
New York(Upstate)	735	3	433	N	43	3,376	2,650	726
New York City	1,997	2	437	5	34	938	602	336
Pennsylvania	981	4	380	—	46	9,048	7,351	1,697
E. N. Central	3,360	17	1,434	4	128	2,621	1,935	686
Illinois	1,065	3	315	2	46	287	287	—
Indiana	567	2	177	2	19	138	102	36
Michigan	643	3	251	—	20	148	125	23
Ohio	877	4	572	—	27	154	112	42
Wisconsin	208	5	119	—	16	1,894	1,309	585
W.N. Central	1,078	15	299	—	16	2,200	1,342	858
Iowa	121	3	36	N	3	318	130	188
Kansas	129	1	31	N	3	23	11	12
Minnesota	252	7	51	—	3	1,805	1,174	631
Missouri	454	1	148	—	5	5	2	3
Nebraska	78	1	18	—	1	11	5	6
North Dakota	21	—	5	N	1	33	15	18
South Dakota	23	2	10	N	—	5	5	—
S. Atlantic	10,653	11	1,027	7	140	4,558	3,181	1,377
Delaware	99	—	24	—	4	435	334	101
District of Columbia	254	—	13	—	2	121	78	43
Florida	4,903	3	306	4	42	166	116	50
Georgia	1,421	—	121	—	16	8	8	—
Maryland	957	1	153	3	15	1,728	1,249	479
North Carolina	1,284	—	177	—	14	230	38	192
South Carolina	736	3	59	—	15	42	13	29
Virginia	931	3	139	N	22	1,539	1,102	437
West Virginia	68	1	35	—	10	289	243	46
E.S. Central	1,751	11	303	—	23	104	36	68
Alabama	350	—	59	—	5	25	14	11
Kentucky	261	3	87	N	3	49	12	37
Mississippi	493	1	38	N	6	4	4	—
Tennessee	647	7	119	N	9	26	6	20
W.S. Central	5,256	28	419	—	57	57	20	37
Arkansas	235	4	37	N	3	—	—	—
Louisiana	1,148	3	42	—	7	3	2	1
Oklahoma	279	7	48	—	6	—	—	—
Texas	3,594	14	292	N	41	54	18	36
Mountain	1,635	20	265	—	26	41	21	20
Arizona	663	2	93	—	5	12	8	4
Colorado	342	5	74	N	10	—	—	—
Idaho	29	—	13	—	4	9	3	6
Montana	18	—	8	—	1	5	2	3
Nevada	382	8	25	—	3	7	5	2
New Mexico	123	1	17	—	3	—	—	—
Utah	65	3	31	—	—	7	3	4
Wyoming	13	1	4	—	—	1	—	1
Pacific	4,615	15	562	23	172	162	104	58
Alaska	24	1	—	—	1	9	1	8
California	3,879	11	453	1	128	98	83	15
Hawaii	99	1	6	22	6	N	N	N
Oregon	182	1	47	—	16	31	3	28
Washington	431	1	56	—	21	24	17	7
Territories								
American Samoa	—	—	N	—	N	N	N	N
C.N.M.I.	—	—	—	—	—	—	—	—
Guam	1	—	—	11	—	—	—	—
Puerto Rico	437	—	14	45	2	N	N	N
U.S. Virgin Islands	8	—	—	—	—	—	—	—

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* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Total number of HIV diagnoses reported to the Division of HIV/AIDS Prevention, NCHHSTP through December 31, 2015.

§ Totals reported to the Influenza Division (ID), National Center for Immunization and Respiratory Diseases (NCIRD), as of June 30, 2016.

TABLE 2j. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Malaria	Measles			Meningococcal disease				
		Total	Indigenous	Imported	All serogroups	Serogroup A, C, Y, and W-135	Serogroup B	Serogroups Other	Serogroups Unknown
United States	1,390	188	162	26	372	120	111	21	120
New England	92	—	—	—	27	7	14	6	—
Connecticut	12	—	—	—	5	1	2	2	—
Maine	7	—	—	—	4	—	2	2	—
Massachusetts	51	—	—	—	12	6	6	—	—
New Hampshire	6	—	—	—	1	—	—	1	—
Rhode Island	16	—	—	—	4	—	4	—	—
Vermont	—	—	—	—	1	—	—	1	—
Mid. Atlantic	381	11	4	7	34	4	13	—	17
New Jersey	86	3	3	—	8	—	—	—	8
New York (Upstate)	58	1	—	1	9	2	7	—	—
New York City	200	6	1	5	8	—	—	—	8
Pennsylvania	37	1	—	1	9	2	6	—	1
E. N. Central	121	19	18	1	56	20	27	5	4
Illinois	50	17	17	—	15	10	3	2	—
Indiana	9	—	—	—	6	—	5	1	—
Michigan	20	1	1	—	8	4	2	—	2
Ohio	37	1	—	1	18	3	13	2	—
Wisconsin	5	—	—	—	9	3	4	—	2
W.N. Central	98	8	5	3	27	3	2	1	21
Iowa	17	—	—	—	5	—	1	1	3
Kansas	6	—	—	—	5	2	1	—	2
Minnesota	43	2	—	2	7	—	—	—	7
Missouri	19	1	—	1	7	—	—	—	7
Nebraska	4	3	3	—	2	—	—	—	2
North Dakota	5	—	—	—	—	—	—	—	—
South Dakota	4	2	2	—	1	1	—	—	—
S. Atlantic	336	11	5	6	66	31	16	5	14
Delaware	3	1	—	1	—	—	—	—	—
District of Columbia	17	3	2	1	3	1	—	—	2
Florida	40	5	3	2	23	15	6	1	1
Georgia	56	1	—	1	17	10	1	—	6
Maryland	122	—	—	—	2	1	1	—	—
North Carolina	27	—	—	—	6	3	2	—	1
South Carolina	3	—	—	—	3	—	—	2	1
Virginia	66	1	—	1	10	—	6	2	2
West Virginia	2	—	—	—	2	1	—	—	1
E.S. Central	31	—	—	—	13	3	5	1	4
Alabama	11	—	—	—	6	2	3	—	1
Kentucky	4	—	—	—	3	—	—	—	3
Mississippi	1	—	—	—	—	—	—	—	—
Tennessee	15	—	—	—	4	1	2	1	—
W.S. Central	131	2	—	2	40	18	14	—	8
Arkansas	9	—	—	—	2	2	—	—	—
Louisiana	11	—	—	—	5	1	2	—	2
Oklahoma	12	1	—	1	3	1	2	—	—
Texas	99	1	—	1	30	14	10	—	6
Mountain	58	18	17	1	15	9	2	3	1
Arizona	14	7	7	—	5	3	1	1	—
Colorado	21	1	1	—	4	2	—	1	1
Idaho	6	—	—	—	—	—	—	—	—
Montana	1	—	—	—	1	1	—	—	—
Nevada	6	9	9	—	1	—	—	1	—
New Mexico	3	—	—	—	1	1	—	—	—
Utah	6	1	—	1	2	1	1	—	—
Wyoming	1	—	—	—	1	1	—	—	—
Pacific	142	119	113	6	94	25	18	—	51
Alaska	3	—	—	—	4	4	—	—	—
California	97	109	103	6	46	—	—	—	46
Hawaii	1	—	—	—	4	1	1	—	2
Oregon	20	—	—	—	30	13	14	—	3
Washington	21	10	10	—	10	7	3	—	—
Territories									
American Samoa	—	—	—	—	—	—	—	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—
Guam	—	1	—	1	—	—	—	—	—
Puerto Rico	7	—	—	—	—	—	—	—	—
U.S. Virgin Islands	—	—	—	—	—	—	—	—	—

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* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

TABLE 2k. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Mumps	Novel influenza A virus infections†	Pertussis	Plague	Psittacosis	Q fever		
						Total	Acute	Chronic
United States	1,329	7	20,762	16	4	156	122	34
New England	16	—	723	—	—	—	—	—
Connecticut	4	—	74	—	N	—	—	—
Maine	—	—	281	—	—	—	—	—
Massachusetts	6	—	251	—	—	—	—	—
New Hampshire	2	—	41	—	—	N	N	N
Rhode Island	3	—	27	—	—	—	—	—
Vermont	1	—	49	—	—	N	—	—
Mid. Atlantic	166	1	2,431	—	1	14	11	3
New Jersey	27	1	491	—	1	3	3	—
New York(Upstate)	24	—	616	—	—	4	3	1
New York City	101	—	436	—	—	—	—	—
Pennsylvania	14	—	888	—	—	7	5	2
E. N. Central	528	2	2,998	1	—	18	16	2
Illinois	430	—	718	—	—	4	4	—
Indiana	6	—	223	—	—	1	1	—
Michigan	8	1	475	1	—	4	2	2
Ohio	18	1	827	—	—	4	4	—
Wisconsin	66	—	755	—	—	5	5	—
W.N. Central	451	4	2,033	—	2	19	15	4
Iowa	411	1	173	—	—	N	N	N
Kansas	—	—	421	—	—	—	—	—
Minnesota	6	3	598	—	—	2	2	—
Missouri	32	—	266	—	—	7	5	2
Nebraska	2	—	515	—	2	5	3	2
North Dakota	—	—	43	—	—	—	—	—
South Dakota	—	—	17	—	—	5	5	—
S. Atlantic	67	—	1,811	1	1	16	12	4
Delaware	2	—	20	—	—	1	1	—
District of Columbia	—	—	11	—	—	N	—	—
Florida	10	—	339	—	1	1	1	—
Georgia	—	—	244	1	—	3	—	3
Maryland	16	—	134	—	—	2	2	—
North Carolina	4	—	443	—	—	4	4	—
South Carolina	—	—	171	—	—	3	3	—
Virginia	34	—	369	—	—	—	—	—
West Virginia	1	—	80	—	—	2	1	1
E.S. Central	8	—	542	—	—	4	4	—
Alabama	1	—	160	—	—	—	—	—
Kentucky	4	—	184	—	—	—	—	—
Mississippi	—	—	12	—	—	1	1	—
Tennessee	3	—	186	—	—	3	3	—
W.S. Central	30	—	1,706	—	—	17	11	6
Arkansas	7	—	59	—	—	3	3	N
Louisiana	2	—	55	—	—	—	—	—
Oklahoma	1	—	88	—	—	1	—	1
Texas	20	—	1,504	—	N	13	8	5
Mountain	17	—	2,798	11	—	24	16	8
Arizona	2	—	580	2	—	7	4	3
Colorado	6	—	913	4	—	8	7	1
Idaho	8	—	194	—	—	1	—	1
Montana	—	—	230	—	—	5	3	2
Nevada	—	—	112	—	—	3	2	1
New Mexico	1	—	242	4	—	—	—	—
Utah	—	—	498	1	—	—	—	—
Wyoming	—	—	29	—	—	—	—	—
Pacific	46	—	5,720	3	—	44	37	7
Alaska	—	—	105	—	—	—	—	—
California	33	—	3,597	1	—	39	33	6
Hawaii	3	—	47	—	—	—	—	—
Oregon	3	—	589	2	—	2	2	—
Washington	7	—	1,382	—	—	3	2	1
Territories								
American Samoa	—	—	—	—	N	N	N	N
C.N.M.I.	—	—	—	—	—	—	—	—
Guam	5	—	55	—	—	N	N	N
Puerto Rico	4	—	10	—	N	—	—	—
U.S. Virgin Islands	—	—	—	—	—	—	—	—

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† Totals reported to the Influenza Division (ID), National Center for Immunization and Respiratory Diseases (NCIRD), as of June 30, 2016.

TABLE 2I. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Rabies animal†	Rabies human	Rubella	Rubella, congenital syndrome	Salmonellosis	Shiga toxin–producing *Escherichia Coli* (STEC)§	Shigellosis
United States	5,491	2	5	1	55,108	7,059	23,590
New England	415	1	—	—	2,103	247	265
Connecticut	170	—	—	—	434	82	57
Maine	34	—	—	—	123	29	4
Massachusetts	145	1	—	—	1,153	69	165
New Hampshire	24	—	—	—	173	29	5
Rhode Island	17	—	—	—	144	9	28
Vermont	25	—	—	—	76	29	6
Mid. Atlantic	1,031	—	—	1	4,975	667	1,811
New Jersey	308	—	—	—	1,145	137	370
New York (Upstate)	372	—	—	—	1,312	199	335
New York City	6	—	—	1	929	104	685
Pennsylvania	345	—	—	—	1,589	227	421
E. N. Central	196	—	1	—	5,806	927	2,641
Illinois	97	—	—	—	1,839	179	886
Indiana	13	—	—	—	667	136	278
Michigan	38	—	—	—	962	124	507
Ohio	26	—	—	—	1,359	262	693
Wisconsin	22	—	1	—	979	226	277
W.N. Central	234	—	1	—	3,760	1,031	2,658
Iowa	12	—	—	—	618	164	683
Kansas	100	—	—	—	509	121	150
Minnesota	28	—	—	—	970	268	299
Missouri	31	—	1	—	984	244	1,126
Nebraska	28	—	—	—	309	128	92
North Dakota	6	—	—	—	145	44	24
South Dakota	29	—	—	—	225	62	284
S. Atlantic	1,764	—	1	—	14,751	583	4,341
Delaware	11	—	—	—	159	5	21
District of Columbia	10	—	—	—	122	5	45
Florida	85	—	—	—	5,924	135	1,737
Georgia	266	—	—	—	2,154	107	1,302
Maryland	342	—	—	—	960	85	234
North Carolina	342	—	—	—	2,538	78	381
South Carolina	130	—	1	—	1,514	38	287
Virginia	528	—	—	—	1,181	107	317
West Virginia	50	—	—	—	199	23	17
E.S. Central	139	—	—	—	3,648	302	1,418
Alabama	87	—	—	—	1,151	41	679
Kentucky	11	—	—	—	537	74	417
Mississippi	4	—	—	—	1,066	22	100
Tennessee	37	—		—	894	165	222
W.S. Central	1,116	—	2	—	8,733	904	7,012
Arkansas	73	—	—	—	773	85	115
Louisiana	5	—	—	—	1,328	45	224
Oklahoma	86	—	—	—	905	164	1,050
Texas	952	—	2	—	5,727	610	5,623
Mountain	329	1	—	—	3,843	807	871
Arizona	120	—	—	—	1,160	128	549
Colorado	119	—	—	—	618	207	110
Idaho	10	—	—	—	588	157	31
Montana	22	—	—	—	195	85	14
Nevada	8	—	—	—	276	59	44
New Mexico	13	—	—	—	447	36	77
Utah	22	—	—	—	460	97	36
Wyoming	15	1	—	—	99	38	10
Pacific	267	—	—	—	7,489	1,591	2,573
Alaska	7	—	—	—	78	10	5
California	230	—	—	—	5,562	926	2,224
Hawaii	—	—	—	—	286	40	80
Oregon	20	—	—	—	528	229	112
Washington	10	—	—	—	1,035	386	152
Territories							
American Samoa	—	U	—	—	—	—	—
C.N.M.I.	—	—	—	—	—	—	—
Guam	—	—	—	—	18	—	14
Puerto Rico	17	1	—	—	641	2	19
U.S. Virgin Islands	—	—	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Totals reported to the Division of High-Consequence Pathogens and Pathology (DHCPP), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) (ArboNET Surveillance), as of December 31, 2015.

§ Includes *Escherichia coli* O157:H7; shiga toxin–positive, serogroup non-O157; and shiga toxin–positive, not serogrouped.

TABLE 2m. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Spotted fever rickettsiosis			Streptococcal Toxic-shock syndrome	*Streptococcus pneumoniae* invasive disease (IPD)†		Syphilis§,¶		
	Total	Confirmed	Probable		All ages	Age <5 years	All stages	Congenital	Primary & secondary
United States	4,198	199	3,999	335	16,163	1,177	74,702	487	23,872
New England	21	2	19	50	1,086	45	1,783	5	664
Connecticut	5	1	4	23	238	6	220	1	92
Maine	1	—	1	13	135	5	38	—	28
Massachusetts	13	1	12	9	487	20	1,263	4	418
New Hampshire	—	—	—	1	102	7	84	—	40
Rhode Island	2	—	2	3	62	3	163	—	77
Vermont	—	—	—	1	62	4	15	—	9
Mid. Atlantic	119	7	112	30	2,474	135	10,889	19	3,033
New Jersey	63	1	62	15	538	27	1,306	—	372
New York (Upstate)	36	6	30	14	805	41	1,540	3	502
New York City	4	—	4	—	664	39	6,255	9	1,504
Pennsylvania	16	—	16	1	467	28	1,788	7	655
E. N. Central	101	2	99	111	2,822	171	6,687	63	2,412
Illinois	52	1	51	70	N	3	3,289	30	1,085
Indiana	30	—	30	21	627	38	699	5	285
Michigan	2	—	2	11	779	43	1,089	11	403
Ohio	12	1	11	7	978	57	1,348	17	560
Wisconsin	5	—	5	2	438	30	262	—	79
W.N. Central	521	10	511	16	1,035	83	2,096	5	810
Iowa	8	—	8	—	N	N	232	—	75
Kansas	146	1	145	—	173	13	240	—	87
Minnesota	10	—	10	10	530	36	653	2	246
Missouri	324	4	320	2	N	20	777	3	307
Nebraska	25	4	21	1	141	8	81	—	45
North Dakota	6	—	6	—	82	6	42	—	11
South Dakota	2	1	1	3	109	N	71	—	39
S. Atlantic	969	126	843	54	2,673	242	18,297	94	6,017
Delaware	19	—	19	—	77	6	110	1	41
District of Columbia	—	—	—	—	67	6	322	1	95
Florida	21	—	21	N	431	68	7,132	38	2,083
Georgia	114	114	—	20	991	76	4,156	21	1,413
Maryland	4	—	4	—	411	22	1,870	18	509
North Carolina	459	5	454	10	N	N	2,741	9	1,196
South Carolina	47	2	45	4	439	21	834	3	294
Virginia	296	5	291	19	28	28	1,023	3	334
West Virginia	9	—	9	1	229	15	109	—	52
E.S. Central	1,127	20	1,107	5	1,628	123	3,091	9	993
Alabama	288	1	287	N	298	28	657	3	280
Kentucky	134	—	134	5	219	10	433	1	145
Mississippi	100	4	96	N	246	27	760	—	219
Tennessee	605	15	590	—	865	58	1,241	5	349
W.S. Central	1,272	15	1,257	3	2,371	234	11,733	114	2,719
Arkansas	889	5	884	—	324	25	500	5	134
Louisiana	15	1	14	3	354	30	2,465	53	696
Oklahoma	307	7	300	N	N	19	521	7	209
Texas	61	2	59	N	1,693	160	8,247	49	1,680
Mountain	48	17	31	66	1,909	133	3,597	24	1,427
Arizona	17	10	7	1	678	49	1,496	14	589
Colorado	7	—	7	14	505	29	553	—	245
Idaho	3	—	3	5	N	11	102	—	57
Montana	9	5	4	4	60	—	20	—	13
Nevada	2	1	1	18	174	11	915	8	335
New Mexico	2	—	2	—	284	18	332	2	118
Utah	7	1	6	23	189	14	169	—	65
Wyoming	1	—	1	1	19	1	10	—	5
Pacific	20	—	20	—	165	11	16,529	154	5,797
Alaska	N	N	N	N	99	7	24	—	8
California	10	—	10	N	N	N	14,450	141	4,908
Hawaii	N	N	N		66	4	163	2	91
Oregon	6	—	6	—	N	N	783	6	345
Washington	4	—	4	N	N	N	1,109	5	445
Territories									
American Samoa	N	N	N	N	N	—	—	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—
Guam	N	N	N	—	—	—	21	1	2
Puerto Rico	N	N	N	N	—	—	1,267	5	531
U.S. Virgin Islands	—	—	—	—	—	—	25	—	8

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Since January 1, 2010, "Invasive pneumococcal disease (IPD)" has been nationally notifiable and separate notifications for "Drug resistant *S. pneumoniae*" and "IPD in children <5 years of age" have been discontinued.

§ Includes the following categories: primary, secondary, latent (including early latent, late latent, and latent syphilis of unknown duration), neurosyphilis, late (including late syphilis with clinical manifestations other than neurosyphilis), and congenital syphilis.

¶ Totals reported to the Division of STD Prevention (DSTDP), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), as of June 8, 2016.

TABLE 2n. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Tetanus	Toxic-shock syndrome	Trichinellosis	Tuberculosis†	Tularemia	Typhoid fever
United States	29	64	14	9,557	314	367
New England	—	—	—	330	5	23
Connecticut	—	N	—	70	—	8
Maine	—	—	—	18	—	—
Massachusetts	—	—	—	192	4	14
New Hampshire	—	—	—	13	1	—
Rhode Island	—	—	—	30	—	1
Vermont	—	—	—	7	—	—
Mid. Atlantic	3	12	1	1,291	4	87
New Jersey	—	3	—	326	1	22
New York (Upstate)	1	4	—	188	—	12
New York City	1	—	—	577	—	40
Pennsylvania	1	5	1	200	3	13
E. N. Central	3	10	2	802	16	45
Illinois	1	1	—	343	10	20
Indiana	—	2	1	116	3	6
Michigan	—	5	—	131	—	8
Ohio	1	1	—	143	1	7
Wisconsin	1	1	1	69	2	4
W.N. Central	2	14	—	375	118	18
Iowa	—	—	—	38	—	7
Kansas	—	—	—	36	34	1
Minnesota	—	10	—	150	—	3
Missouri	1	1	—	92	29	3
Nebraska	—	3	—	33	25	1
North Dakota	—	—	—	9	5	2
South Dakota	1	—	—	17	25	1
S. Atlantic	8	4	2	1,682	6	41
Delaware	—	1	—	22	—	—
District of Columbia	—	—	—	33	—	—
Florida	4	N	—	602	—	6
Georgia	—	—	N	324	—	4
Maryland	—	N	2	176	—	9
North Carolina	3	2	—	199	1	11
South Carolina	1	1	—	104	—	—
Virginia	—	N	—	212	4	11
West Virginia	—	—	—	10	1	—
E.S. Central	1	6	—	391	4	4
Alabama	1	N	—	119	—	—
Kentucky	—	—	—	67	1	3
Mississippi	—	N	—	74	—	—
Tennessee	—	6	—	131	3	1
W.S. Central	3	2	4	1,610	48	66
Arkansas	—	1	N	90	24	2
Louisiana	1	1	—	119	—	3
Oklahoma	—	N	—	67	23	37
Texas	2	N	4	1,334	1	24
Mountain	5	8	4	464	99	13
Arizona	2	—	—	198	4	2
Colorado	2	7	2	73	52	6
Idaho	—	1	1	11	2	—
Montana	—	—	—	9	7	—
Nevada	—	—	—	85	—	3
New Mexico	1	—	—	47	8	1
Utah	—	—	1	37	5	1
Wyoming	—	—	—	4	21	—
Pacific	4	8	1	2,612	14	70
Alaska	—	N	—	68	2	—
California	3	8	—	2,133	2	55
Hawaii	—	N	—	127	—	4
Oregon	1	N	—	76	6	1
Washington	—	N	1	208	4	10
Territories						
American Samoa	—	N	N	4	—	—
C.N.M.I.	—	—	—	27	—	—
Guam	—	—	—	76	—	—
Puerto Rico	1	N	N	52	—	—
U.S. Virgin Islands	—	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Totals reported to the Division of Tuberculosis Elimination (DTBE), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP), as of June 15, 2016.

TABLE 2o. Reported cases of notifiable diseases,* by geographic division and area — United States and U.S. territories, 2015

Area	Vancomycin-intermediate *Staphylococcus aureus (VISA)*	Vancomycin-resistant *Staphylococcus aureus (VRSA)*	Varicella		Vibriosis
			Morbidity	Mortality†	
United States	183	3	9,789	6	1,323
New England	5	—	945	—	127
Connecticut	—	—	165	—	32
Maine	2	—	233	—	6
Massachusetts	3	—	365	—	78
New Hampshire	N	—	96	—	6
Rhode Island	—	—	53	—	3
Vermont	—	—	33	—	2
Mid. Atlantic	45	—	1,207	1	117
New Jersey	4	—	466	—	34
New York (Upstate)	13	—	N	1	48
New York City	24	—	—	—	18
Pennsylvania	4	—	741	—	17
E. N. Central	40	—	1,957	2	62
Illinois	21	—	443	—	26
Indiana	N	—	173	—	3
Michigan	4	—	549	—	10
Ohio	11	—	458	—	15
Wisconsin	4	—	334	2	8
W.N. Central	53	—	859	1	33
Iowa	N	—	N	—	N
Kansas	—	—	240	—	5
Minnesota	—	—	361	—	21
Missouri	51	—	170	1	5
Nebraska	—	—	25	—	1
North Dakota	—	—	36	—	1
South Dakota	2	—	27	—	N
S. Atlantic	18	1	1,666	—	345
Delaware	—	1	16	—	11
District of Columbia	—	—	28	—	—
Florida	4	—	740	—	196
Georgia	5	—	160	—	23
Maryland	3	—	N	—	37
North Carolina	2	—	N	—	25
South Carolina	3	—	208	—	11
Virginia	1	—	354	—	40
West Virginia	—	—	160	—	2
E.S. Central	5	—	178	1	42
Alabama	2	—	165	—	18
Kentucky	N	N	N	—	5
Mississippi	1	—	13	—	14
Tennessee	2	—	N	1	5
W.S. Central	16	2	1,799	—	166
Arkansas	—	—	198	—	3
Louisiana	4	1	110	—	56
Oklahoma	3	1	N	—	5
Texas	9	—	1,491	—	102
Mountain	1	—	1,001	—	57
Arizona	1	—	270	—	33
Colorado	N	—	311	—	12
Idaho	N	N	N	—	N
Montana	—	—	132	—	—
Nevada	—	—	N	—	3
New Mexico	N	N	57	—	—
Utah	—	—	217	—	9
Wyoming	—	—	14	—	—
Pacific	—	—	177	1	374
Alaska	N	—	59	—	3
California	N	N	61	1	240
Hawaii	—	—	57	—	37
Oregon	N	N	N	—	26
Washington	N	—	N	—	68
Territories					
American Samoa	N	N	N	—	N
C.N.M.I.	—	—	—	—	—
Guam	—	—	29	—	—
Puerto Rico	—	—	103	—	—
U.S. Virgin Islands	—	—	—	—	—

N: Not Reportable U: Unavailable —: No reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

* No cases of anthrax; dengue hemorrhagic fever; diphtheria; eastern equine encephalitis virus disease, nonneuroinvasive; poliomyelitis, paralytic; poliovirus infection, nonparalytic; severe acute respiratory syndrome-associated coronavirus disease (SARS-CoV); smallpox; western equine encephalitis virus disease, neuroinvasive and nonneuroinvasive; yellow fever; and viral hemorrhagic fevers were reported in the United States during 2015.

† Totals reported to the Division of Viral Diseases (DVD), National Center for Immunization and Respiratory Diseases (NCIRD), as of May 2, 2016.

Notice to Readers

NNDSS Tables Have Updated "N" Indicators for 2015 and 2016

CDC's National Notifiable Diseases Surveillance System (NNDSS) maintains and annually updates information about whether each Nationally Notifiable Infectious Condition (NNIC) is considered "reportable" (by health care providers, hospitals, laboratories, or other public health reporters) in each reporting jurisdiction. NNDSS personnel within the Division of Health Informatics and Surveillance performed assessments with each reporting jurisdiction to ascertain the reportable disease status of each NNIC for 2015 and 2016. NNICs that are not designated reportable are indicated with an "N"; NNICs that are reportable, but for which no cases were reported, are indicated with a "–" and NNICs that are reportable, but for which data are not available in a jurisdiction, are designated by either "U" or "NA." These designations are used in the annual *MMWR Summary of Notifiable Diseases — United States* and in the weekly *MMWR* Notifiable Diseases and Mortality Tables I and II of provisional NNDSS data.

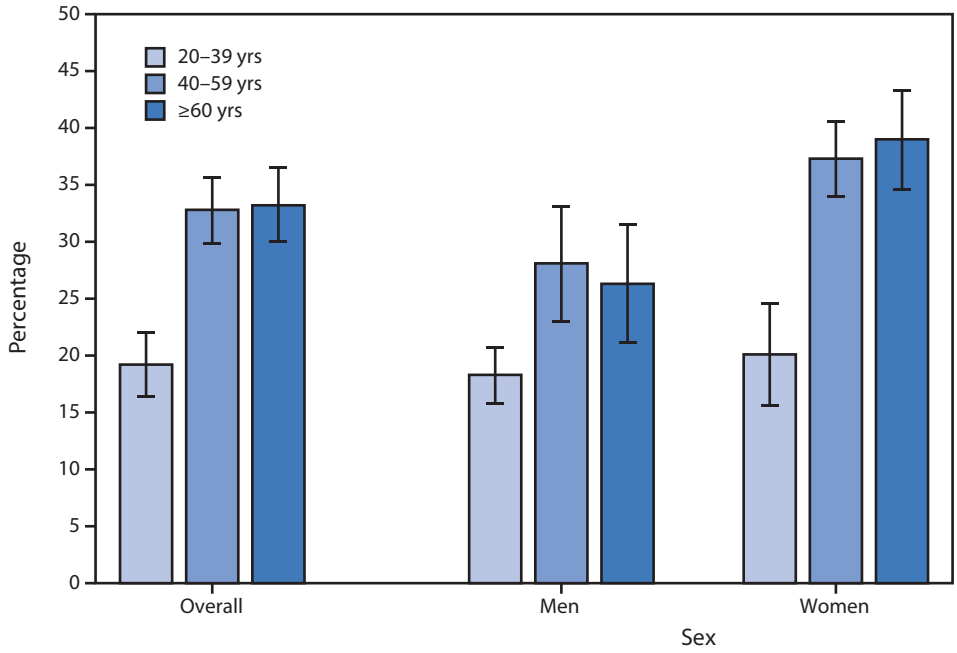
The assessment results for 2015 and 2016 were used to populate the N indicators for NNDSS data in the *MMWR Summary of Notifiable Diseases — United States, 2015* and the NNDSS weekly provisional *MMWR* Notifiable Diseases and Mortality Tables I and II for 2016, respectively. Assessment results for 2016 also will be used initially to populate the N indicators in the *MMWR* weekly provisional tables for 2017.

When the data for a specified year are reconciled and finalized, NNDSS reporting exceptions (N indicators) are summarized by NNIC and reporting jurisdiction in a report available at https://wwwn.cdc.gov/nndss/script/downloads.aspx. This report currently includes reporting exceptions data for 2006–2016. The N indicators for 2015 and earlier have been finalized with each reporting jurisdiction. The N indicators for 2016 are provisional until NNDSS data for 2016 have been finalized (next year).

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage* of Adults Aged ≥20 Years Who Ever Told A Doctor That They Had Trouble Sleeping,† by Age Group and Sex — National Health and Nutrition Examination Survey, 2013–2014



* With 95% confidence intervals indicated by error bars.
† Participants were asked, "Have you ever told a doctor or other health professional that you have trouble sleeping?"

In 2013–2014, 28.0% of U.S. adults reported that they had told a doctor or other health professional that they had trouble sleeping. A smaller percentage of adults aged 20–39 years (19.2%) reported having trouble sleeping compared with persons aged 40–59 years (32.8%) and ≥60 years (33.2%). This pattern by age group was observed for both men and women, although larger percentages of women aged 40–59 years and ≥60 years reported trouble sleeping compared with men in those age groups.

Source: National Center for Health Statistics. National Health and Nutrition Examination survey data. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2013–2014. http://www.cdc.gov/nchs/nhanes.htm.

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ISSN: 0149-2195 (Print)