



# epiConnections

A BIMONTHLY NEWSLETTER OF THE COMMUNICABLE DISEASE AND  
EMERGENCY MANAGEMENT DIVISION OF BOULDER COUNTY PUBLIC HEALTH

## Another Record Year of Tularemia Cases and Above Average Enteric Infections

### 2015 Communicable Disease Control Summary

In 2015, there were 470 cases of confirmed and probable disease conditions reported in Boulder County. Among these reportable diseases, 42% of the cases (192 cases) were due to enteric infections. Among them, the largest number of cases were from campylobacteriosis (61 cases), salmonellosis (46 cases), giardiasis (39 cases), and cryptosporidiosis (26). Other infections reported included: Shiga toxin producing *E.coli* (10), shigellosis (4), vibriosis (2), yersiniosis (1), hepatitis A (1), listeriosis (1), and typhoid fever (1). Statewide, the number of cases of many of the enteric pathogens reported was above average.

**Outbreaks:** The number of outbreak investigations in Boulder County decreased in 2015, which may be due to a peak at the end of 2014. There were a total of nine outbreaks, consisting mostly of norovirus in group settings and two foodborne outbreaks from confirmed *Salmonella* infections. Several reported enteric cases in Boulder County were associated with other larger clusters or regional, state, and national outbreaks.

**Vaccine-preventable illness:** Vaccine-preventable diseases accounted for 31% (144 cases) of case investigations in 2015. Although the total number of pertussis cases in 2015 declined from 2014 (47 cases in 2015; 97 cases in 2014), pertussis remains prevalent among school-aged children; 18 schools and child care facilities within Boulder County were affected in 2015, and 7 of them reported multiple pertussis cases. There were 28 cases of varicella reported in school-aged children, including 1 school outbreak. During 2015, there were 66 total influenza hospitalizations reported in the county; 58 were considered part of the 2014-2015 influenza season, 1 of which was a pediatric death.

**Zoonosis:** In 2015, the number of reported tularemia cases in Colorado surpassed the previous high counts of 20 cases reported in 1983 and 16 cases reported in 2014. There were 52 cases of tularemia identified statewide; 31% (16) of which were in Boulder County. Several factors likely contributed to this spike, including above average rainfall, which increases vegetation growth and hence rabbit and rodent populations. Tularemia bacteria are robust and can survive in the environment for extended periods. The heightened media coverage and heightened awareness among health care providers may also have encouraged more testing and diagnosis.

There was one human case of plague reported in 2015, with this case being the first to test positive for the disease in Boulder County since 1993. The person was infected when they found a dead chipmunk on their property, and the animal was confirmed to have tested positive for plague. Three other Colorado residents, including two deaths, were also reported for the year.

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## Plans to Combat and Eliminate Tuberculosis in 2016

Tuberculosis (TB) has caused more deaths than any other single infectious disease worldwide, killing more than 1.5 million people each year; more than 4,000 people every day. Nearly one-third of the world's population is infected with *Mycobacterium tuberculosis* and is at risk of developing TB disease. Each year, 9.5 million people develop active TB, and approximately 480,000 people develop multi-drug resistant TB (MDR-TB). Fewer than 20 percent of individuals with MDR-TB receive the drugs they need; of them, less than half are cured. These individuals go on to transmit the disease to others and face prolonged illness and often death.

TB can also be economically devastating. The average TB patient may lose 4 months of work and 30 percent of their annual income, and for those with drug-resistant TB, the cost is much higher. The toll of TB on the global economy is estimated to be \$12 billion a year. In countries with a high prevalence of TB, the disease is estimated to decrease gross domestic product by 4 to 7 percent. In the United States, it costs about \$17,000 to treat a patient with drug-susceptible TB, \$150,000 to treat a patient with MDR-TB, and \$482,000 to treat a single patient with extensively drug-resistant TB (XDR-TB).

Since 1993, intensified efforts to detect and treat TB have led to a nearly 50 percent decrease in global TB deaths. In the United States, the number of individuals who develop TB has declined over the past 20 years, falling below 10,000 in 2012. This progress could be easily eroded or reversed by the further development and spread of MDR-TB and XDR-TB.

On December 22, 2015, the White House released a comprehensive plan identifying actions (and appropriations) to be taken over the next five years to combat the global rise of MDR-TB. The *National Action Plan for Combating Multidrug-Resistant Tuberculosis* describes a set of targeted interventions that address

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## epiEye

A Look Outside Our Community  
and Around the World

### Influenza: Slowly Spreading

It has been a slow start to the flu season this year. As of December 28, detection of influenza worldwide based on surveillance systems was below normal seasonal levels, with the exception of several countries in the Middle East, Western Asia, and tropical Americas.

At the start of the season this year in the U.S., influenza A (H3N2) viruses had been the most commonly reported, while influenza A (2009 H1N1) viruses have predominated since December 5. The majority of circulating flu viruses analyzed this season appear similar to the vaccine virus components for this season's flu vaccines. 2015-2016 influenza vaccines were made to protect against the following three viruses: Type A (2009 H1N1), Type A (H3N2), Type B (Yamagata lineage).

Quadrivalent vaccine (which protects against 4 viruses) also protects against Type B Victoria lineage.

Last season, laboratory data showed that the influenza A (H3N2) viruses had drifted from the 2014-15 influenza A (H3N2) vaccine reference virus. As of January 5, 2016, no significant drift had yet been identified in the current influenza viruses circulating; however, it is possible that drift could still occur.

Since the flu season began on October 6, 2015, 39 PCR-positive specimens have been tested at the state laboratory; 1 (3%) confirmed positive for influenza B (Yamagata lineage), 12 (31%) for influenza A (H3N2), and 26 (67%) for influenza A (2009 H1N1). This is similar to national trends, where 72% of all positive specimens reported to CDC in the most current week were 2009 H1N1, indicating that 2009 H1N1 is now the predominant circulating virus.

As of December 26, there were 22 influenza-associated hospitalizations in Colorado, 3 of which were in Boulder County. Of the Boulder County cases, two were confirmed for influenza B (Yamagata lineage) and one was confirmed for Type A (H3N2). Each of these strains are covered by the 2015-16 vaccines. There have been no pediatric deaths or outbreaks associated with influenza reported in Colorado.

It is not too late for health care providers or patients to get vaccinated, particularly with the slow start to the flu season. The CDC recommends an annual flu vaccine for everyone aged six months and older.

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Sources: CDC Flu View <http://www.cdc.gov/flu/weekly/>

CDPHE 2015-2016 Influenza Season [https://www.colorado.gov/pacific/sites/default/files/DC\\_ComDis-Influenza-Report\\_1.pdf](https://www.colorado.gov/pacific/sites/default/files/DC_ComDis-Influenza-Report_1.pdf)

World Health Organization (WHO) Influenza Update N 253, 28 December 2015, based on data up to 13 December 2015 [https://www.colorado.gov/pacific/sites/default/files/DC\\_ComDis-Influenza-Report\\_1.pdf](https://www.colorado.gov/pacific/sites/default/files/DC_ComDis-Influenza-Report_1.pdf)

Since 2013, the number of terrestrial (ground-dwelling) animals testing positive for rabies had steadily increased; however, the total number testing positive decreased in 2015. (The number of animals submitted for rabies testing remained about the same as in previous years at approximately 110 specimens.) In 2015, 26 animals found in Boulder County were lab-confirmed rabies-positive: 18 skunks, 7 bats, and 1 raccoon. It is notable that the number of rabies-positive skunks continues to exceed the number of rabies-positive bats, which first occurred in 2014. Post-exposure prophylaxis was recommended for 21 Boulder County residents who had exposure to animals that may have been infected with rabies.

Human West Nile virus (WNV) infections remained low during 2015 despite nine mosquito pools (collected from various sites around the county) testing positive for the virus. There were 11 human cases of WNV in Boulder County with a clinical diagnosis of uncomplicated fever (8 cases) or neuroinvasive (3 cases). Across the state, 97 cases and 2 deaths from WNV were reported. The majority of cases were uncomplicated fever (39%), with the others being meningitis (27%), encephalitis (27%), or 7% being asymptomatic blood donors.

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domestic and global challenges posed by MDR-TB and XDR-TB. The *National Action Plan* is an effort to articulate a comprehensive strategy, to mobilize political will and additional financial and in-kind commitments from donors and governments of all affected countries. The three goals of the plan are to: (1) strengthen domestic capacity to combat MDR-TB by ensuring that all individuals with TB disease are promptly detected and treated and their contacts are identified, monitored, and treated; (2) improve international capacity and collaboration to combat MDR-TB to broaden access to diagnosis and treatment, engage providers from both the public and private sectors, improve innovative health technologies and patient-centered approaches to care, and advance diagnostic and treatment options; and (3) accelerate basic and applied research and development to combat MDR-TB. The plan further encourages the development of: (a) rapid tests to diagnose TB and determine drug susceptibility; (b) new therapies and drug regimens that could cure TB and MDR-TB within weeks, making it easier to complete therapy and decrease opportunities for the emergence of drug resistance; and (c) new vaccines with the potential to prevent all forms of TB.

Closer to home, Colorado's TB Control Program is working with state partners to draft and implement a TB elimination plan for the state. The hope is to reach 1/1 million TB case rate for the state; the current rate is 1.2/100,000. While details of the plan have not been finalized, it will include improved TB testing diagnostics (IGRAs); partnership with health care providers working in co-morbid conditions, including HIV and diabetes; and utilizing recent improvements in laboratory diagnostics, including genotyping to find epi-links, pyrosequencing for identification and drug resistance, and use of other rapid identification tests to expedite confirmation of TB that can also hasten the release from isolation of pulmonary and pleural TB patients.

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Excerpted from: *The National Action Plan for Combating Multidrug-Resistant Tuberculosis*, The White House office of the Press Secretary. For the complete announcement go to: <https://www.whitehouse.gov/the-press-office/2015/12/22/fact-sheet-obama-administration-releases-national-action-plan-combating>.