

Public Health Brief

A Newsletter on Current Public Health Topics



Serving Adams, Arapahoe and Douglas Counties

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Notifiable Diseases 2014: A Year in Review

This Public Health Brief highlights important disease outbreak investigations and communicable disease control efforts undertaken in 2014 by Tri-County Health Department (TCHD) in Adams, Arapahoe, Douglas and Elbert Counties. In addition, a summary of select notifiable diseases reported in 2014 in the TCHD jurisdiction are presented. A case report form is included at the end of this update, along with the web address for the most current list of notifiable diseases in Colorado.

Summary of 2014 Case and Outbreak Investigations

In 2014, TCHD Epidemiology staff investigated 1,280 cases of reportable conditions. In October 2014, TCHD also began investigating reportable cases in Elbert County through a contractual agreement. Of the 1,280 case investigations, 478 were in **Adams County**, 543 were in **Arapahoe County**, 245 were in **Douglas County** and 14 were in **Elbert County**. Table 1 shows the incidence of certain diseases in our region. This table includes surveillance data in addition to select case investigations.

TABLE 1. SELECT REPORTABLE DISEASES IN ADAMS, ARAPAHOE AND DOUGLAS COUNTIES, 2014*

Disease	Adams	Arapahoe	Douglas	Total
Campylobacteriosis	58	59	21	138
Cryptosporidiosis	7	6	1	14
Giardiasis	24	41	19	84
Haemophilus Influenzae	10	9	2	21
Hantavirus	1	0	0	1
Hepatitis A	0	2	1	3
Influenza Hospitalizations	306	412	139	858
Legionellosis	4	8	3	15
Listeriosis	2	0	0	2
Meningococcal Disease	2	0	0	2
Pertussis	165	135	63	363
Salmonellosis	49	68	31	148
Shigellosis	7	10	1	18
STEC (shiga toxin producing E. coli)	18	21	8	47
Tularemia	1	0	0	1
West Nile Virus	5	7	4	16

* HIV and other sexually transmitted diseases and certain reportable conditions are investigated directly by the Colorado Department of Public Health and Environment rather than TCHD. Elbert County is not included in the table due to partial reporting of 2014.

In 2014, TCHD also conducted 91 outbreak investigations, representing a 52% increase from the number of outbreaks investigated in 2013(n=60). This increase was largely driven by influenza outbreaks in long-term care facilities. In the TCHD jurisdiction, there were 25 confirmed norovirus, 31 suspect norovirus, 22 confirmed

influenza, 1 suspect influenza and 12 other outbreak investigations (1 chemical poisoning, 1 varicella, 1 E. Coli O157:H7, 1 Legionella, 2 Mycoplasma pneumoniae, 1 mumps, 1 plague, 1 Salmonella enteritidis, 1 suspect Salmonella, 1 suspect rotavirus and one unknown etiology). Table 2 lists the settings in which outbreaks were identified and demonstrates the burden of disease that outbreaks pose in long term care facilities. Of the 91 outbreaks, 27 were in **Adams County**, 52 in **Arapahoe County**, 11 in **Douglas County** and 1 in **Elbert County**.

TABLE 2. OUTBREAK SETTINGS IN 2014

Outbreak Setting	Norovirus	Influenza	Other Etiology	Total
Long term care facility	36	23	2	61
Child care center	15	*	1	16
Restaurant	3	*	1	4
School	*	*	3	3
Private residence	1	*	2	3
Healthcare facility	1	*	0	1
Other setting	0	*	3	3

* TCHD does not investigate outbreaks in this setting.

A brief description of notable outbreaks and case investigations conducted by TCHD in 2014 are listed below to provide information on the types of investigations TCHD conducts to protect the communities we serve:

Legionnaire’s Disease Outbreak Associated with a Health Club, April 2014

In April 2014, TCHD received two reports of patients hospitalized with Legionnaires’ disease. Interviews revealed both cases used the hot tub at the same health club facility during their exposure periods. TCHD’s investigation at the health club identified insufficient levels of chlorine and improper pH levels in the hot tub as well as scum and debris in the hot tub, skimmers, and deck drains. Environmental samples collected in and around the hot tub were positive by polymerase chain reaction (PCR) testing for Legionella pneumophila and negative by culture. The hot tub was closed until the facility completed the steps outlined by the Centers for Disease Control and Prevention (CDC) for remediation of Legionella contamination. Environmental samples collected after the remediation were negative by PCR and culture for L. pneumophila. TCHD and the health club notified members alerting them about possible Legionella exposure; no additional cases were identified with exposure to the health club. The health club conducted 6 months of follow-up environmental testing to ensure complete elimination of Legionella bacteria, and all test results were negative.

Salmonella Typhimurium Outbreak from Feeder Rodents, April 2014

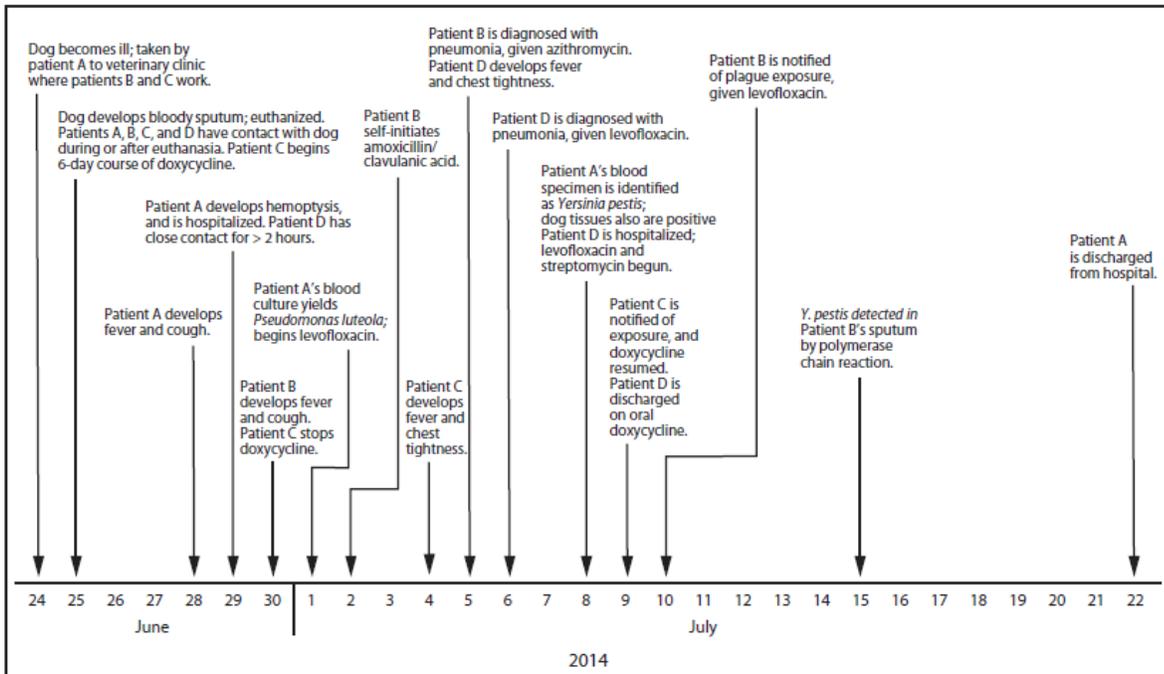
TCHD investigated 2 cases of Salmonella in January 2014. In March, the Colorado Department of Public Health and Environment (CDPHE) identified 3 additional Salmonella cases in Colorado that matched the same strain type as the TCHD cases from January. All 5 cases reported owning pet snakes or reptiles that were fed live rodents purchased from the same pet shop located in Arapahoe County. TCHD and CDPHE collected stool samples from the pet reptiles and their cages from the home of one case. Additionally, CDPHE, TCHD and the Colorado Department of Agriculture (the regulatory agency for pet stores) investigated the pet shop where feeder rodents were purchased as well as the rodent breeder facility located in Douglas County that supplied feeder rodents to the pet shop. Environmental cultures were taken at the breeder facility, including ones from mice and rats, surfaces, and bulk samples of the breeder bins; seven samples grew Salmonella that matched

the serotype of the human cases. Salmonella was also identified at the case's home on the pet reptile and its cage and the pet shop, but the strains were different from the outbreak strain. The owners of the pet shop were temporarily permitted to continue selling the animals, but were required to distribute a warning letter and a CDC fact sheet regarding rodent feeder safety to customers until the stock was depleted. Once the stock cleared, they disinfected the entire facility before procuring new stock.

Rare Pneumonic Plague Outbreak in Humans and Domestic Pets, July 2014

On July 8, 2014, the CDPHE laboratory identified *Yersinia pestis*, the bacterium that causes plague, in a blood specimen collected from a man (patient A) hospitalized with pneumonia. An investigation led by TCHD evaluated potential exposures to determine the risk for further disease transmission. The investigation revealed that patient A's dog had died recently from pneumonic plague, and three persons and a cat who had contact with the dog and/or patient A had experienced a febrile respiratory illness after exposure (see figure below). Specimens from the dog and all three human contacts yielded evidence of acute *Y. pestis* infection. Contact tracing done by TCHD identified 114 persons who had close contact with the dog or one or more of the human patients: 36 in veterinary settings, 58 in human health care settings, and 20 as close personal contacts. Prophylaxis was recommended for 88 persons interviewed within 7 days of exposure. The remaining 26 were advised to monitor for fever for 7 days and to seek medical attention immediately if symptoms occurred. No other cases of plague were documented. TCHD staff distributed information on plague symptoms and transmission risk to homes in the vicinity of patient A. Primary pneumonic plague is rare in the United States with only 74 cases reported during 1900-2012. This event represents the largest outbreak and the first instance of possible human-to-human transmission since an outbreak in Los Angeles in 1924.

FIGURE. Timeline of diagnoses and treatment for patients identified in a pneumonic plague outbreak — Colorado, 2014



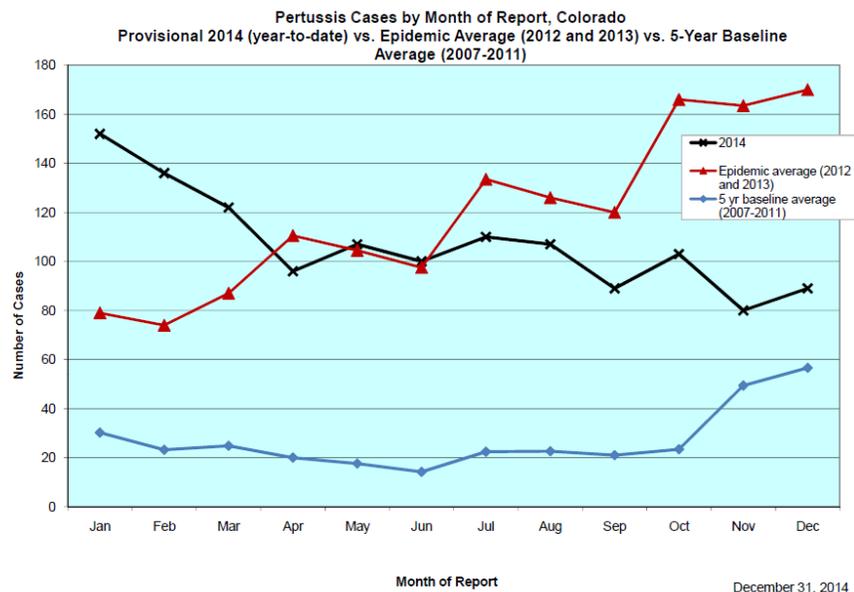
1. Runfola JK, et al. Outbreak of human pneumonic plague with dog-to-human and possible human-to-human transmission – Colorado, June-July 2014. MMWR 2015;64:429-434.
2. Foster CL, et al. Sick as a dog. N Engl J Med 2015;372:1845-1850.

Ebola Monitoring for West African Travelers, October to December 2014

In response to the first case of Ebola in the United States in September, TCHD immediately began planning for a response to Ebola should a case occur in our jurisdiction. This planning process involved coordination with CDPHE, health care providers, hospitals and emergency medical services. In October 2014, TCHD began monitoring travelers returning from affected countries of West Africa for symptoms of Ebola. Upon arrival to Colorado, travelers from Guinea, Liberia, Sierra Leone and Mali were contacted by TCHD for an assessment of their exposure to Ebola. Travelers were classified as low, some or high risk based on their exposure history. Based on their classification, travelers were monitored either in-person and/or by phone each day for symptoms of Ebola for 21 days after leaving an affected country. Each traveler was visited in person, most in their homes, by a TCHD Disease Intervention Specialist (DIS) and a Nurse to establish a relationship and explain the monitoring requirements. Travelers were required to take their temperature twice daily and report any symptoms immediately to TCHD. Travelers were also required to report any plans for travel (if allowed) and to coordinate any healthcare needs through their DIS. Between October and December 2014, TCHD monitored 30 travelers. TCHD continues to monitor travelers from Ebola-affected countries in 2015.

Pertussis Epidemic Continues, 2014

Since 2012, a substantial rise in pertussis cases has been reported in the state of Colorado. Prior to 2012, there was an average of 324 pertussis cases a year (5-year baseline average, 2007-2011, see figure below); statewide in 2014, 1290 cases were reported. In TCHD's jurisdiction, 363 cases were reported for Adams, Arapahoe and Douglas counties in 2014, as compared to an average of 90 cases a year between 2007-2011. However, the number of pertussis cases from October to December are significantly lower than the epidemic average. Incidence continues to be highest among infants <6 months of age, followed by children 11-14 years of age and infants 6-11 months of age. Unvaccinated children are at least eight times more likely to develop pertussis compared to vaccinated children who have received their complete series of 5 DTaPs.¹ Although effective, evidence suggests that protection after the fifth dose of DTaP is thought to wane substantially each year.² The primary objective of testing, treatment, exclusion of pertussis cases and use of chemoprophylaxis for close contacts is to prevent illness in persons at high-risk of developing severe disease or who might expose those at high-risk. High-risk persons include infants less than 12 months of age, pregnant women, and those with pre-existing health conditions that may be exacerbated by pertussis.

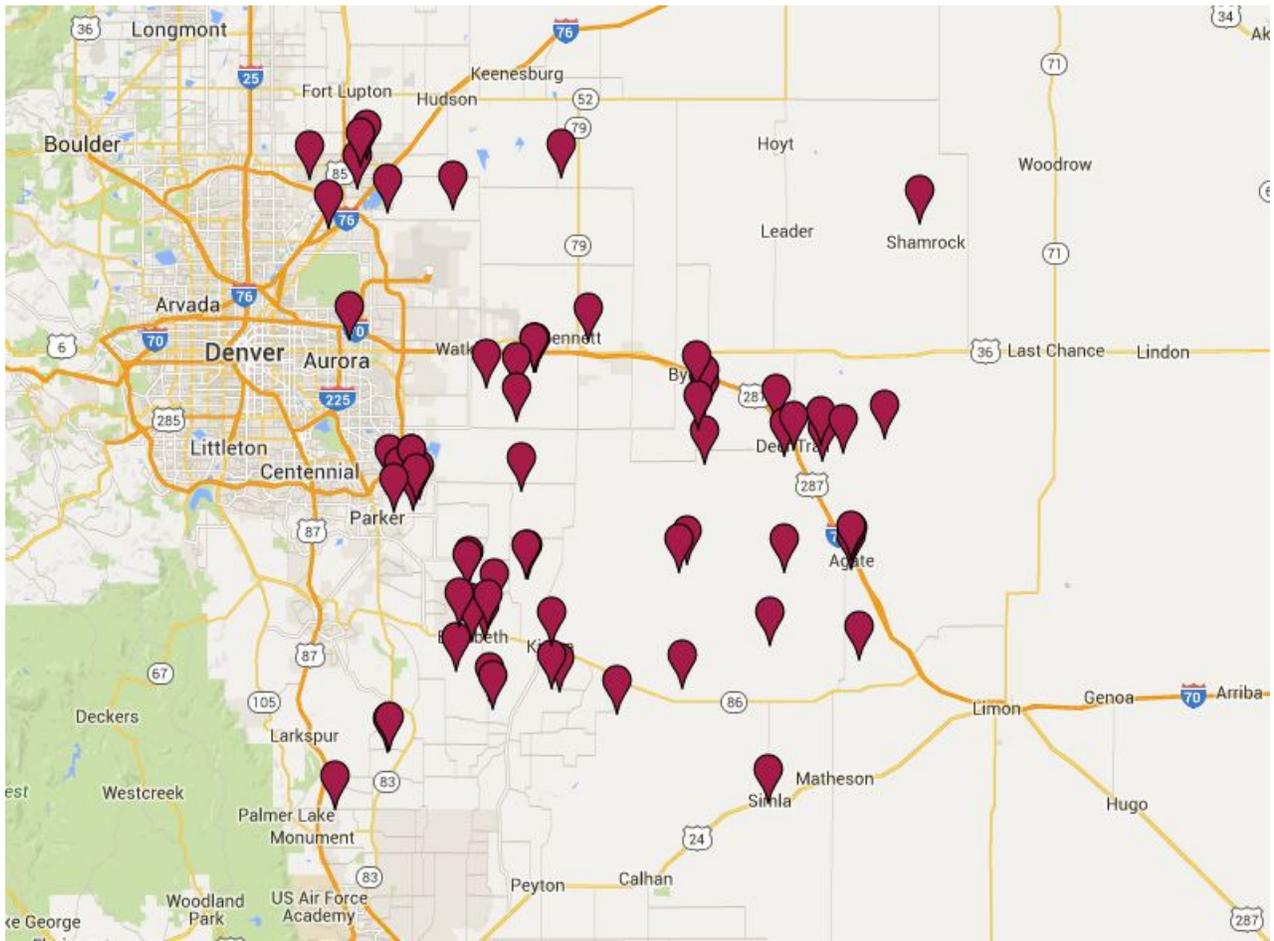


1. Debold C, et al. Pertussis Epidemic — Washington, 2012. MMWR July 20, 2012/61(28);517-522
2. Klein NP, et al. Waning Protection after Fifth Dose of Acellular Pertussis Vaccine in Children. N Engl J Med 2012; 367:10012-1019.

Rabies Prevention and Managing Animal Bites, 2014

As the epidemic of skunk rabies continues to grow into Adams, Arapahoe, Douglas and Elbert counties (see figure below), TCHD's DIS and Environmental Health staff enhanced efforts to respond to animal bite reports. Rabies reservoir species (RRS) in Colorado include bats, skunks, raccoons and foxes. In 2014, there were 13 rabid animals reported in Adams, Arapahoe, Douglas and Elbert counties (5 skunks and 8 bats). These numbers are likely underestimates since TCHD only tests animals when there is an exposure to humans or domestic pets or if there is a suspect terrestrial animal in an area where there has never been rabies positive terrestrial animals. In 2014, TCHD investigated 322 animal bite or rabies exposure reports, with over 60% representing domestic pet (dogs and cats) bites to humans. Nine percent (n=25) of the reports involved domestic animal exposures to RRS and TCHD followed up on 48 incidents of potential human exposures to RRS. Early detection of human exposures to known or suspected rabid animals is critical to institute timely post-exposure prophylaxis. Domestic pets that are exposed to rabid animals or RRS undergo quarantine and rabies booster vaccination to reduce risk of disease. Rabies vaccination remains the most effective protection for pets and livestock.

MAP OF RABIES POSITIVE TERRESTRIAL MAMMALS IN ADAMS, ARAPAHOE, DOUGLAS AND ELBERT COUNTIES, January 2007-May 2015



REMINDER TO REPORT NOTIFIABLE DISEASES

Visit <https://www.colorado.gov/pacific/cdphe/report-a-disease> for the most current list of notifiable diseases in Colorado. Please report cases of reportable disease (including suspect cases) as soon as possible to TCHD or CDPHE. Note that public health will likely contact your patient to assess exposure and ensure appropriate control measures are in place.

Please remember that outbreaks due to any cause are notifiable conditions and should be reported to the local or state health department within 24 hours of identification. Your local and state health departments can facilitate testing for pathogens, identifying the source and ending the outbreak by providing guidance, education and assistance for infection control measures. Thank you for your partnership in ensuring the health and well-being of the communities we serve!

Tri-County Health Department:

(303) 220-9200 / (303) 461-2342 (after hours)

Fax: (303) 846-6295

Colorado Department of Public Health and Environment:

(303) 692-2700 / (303) 370-9395 (after hours)

Fax: (303) 782-0338

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**TRI-COUNTY HEALTH DEPARTMENT
DISEASE REPORT FORM
FOR PHYSICIANS AND OTHER HEALTH CARE PROVIDERS**

Case Information

DATE: _____
Reported by: _____ **Organization:** _____
Case's Name: _____ **Parent's Name:** _____

Age: _____ Date of Birth: _____ Sex: () Male () Female

Home Phone(s): _____ Work Phone(s): _____

Address: _____ City: _____ Zip: _____

County of Residence: () Adams () Arapahoe () Douglas

If another county, please specify: _____ School/Employer: _____

Medical Information

Disease: _____ **Onset Date:** _____ **Specimen:** _____

Specimen Collect Date: _____ Lab Tests Performed: _____

Lab Confirmed: () Yes () No Name of Lab Used: _____

Other Relevant Medical/Rx/Immunization Info: _____

Doctor's Information

Doctor's Name: _____ Doctor's Phone: _____

Doctor's Address: _____ City: _____ Zip: _____

For your convenience, you may report diseases by phone Monday through Friday, 8:00 A.M. to 5:00 P.M. at (303) 220-9200 or you may complete this form and fax it 24 hours a day to (303) 846-6295.

For after hour and weekend emergencies:

Contact the Tri-County Health Department at (303) 461-2342 or the Colorado Department of Public Health and Environment at (303) 370-9395

For Internal Use:

Date Report Received: _____ **Received By:** _____