

Notifiable Diseases 2003: A Year in Review

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This Public Health Update includes brief descriptions of many of the disease outbreaks that occurred in the jurisdiction that Tri-County Health Department (TCHD) serves, as well as summary data for notifiable diseases in 2003.

West Nile Virus

The efforts involved in the West Nile virus outbreak were substantial for state and local health departments in Colorado. TCHD efforts focused on surveillance of environmental data including mosquitoes, horses, dead birds and sentinel chickens, as well as surveillance and investigation of human cases. There were a total of 2,943 human cases and 55 deaths throughout the state with most located along the Front Range. In the Tri-County region, we had a total of 408 cases; 231 in **Adams County**, 138 in **Arapahoe County**, and 39 in **Douglas County**; we also had 8 deaths; 4 in **Adams County** and 4 in **Arapahoe County**. Of our 408 cases, 288 (70.6%) were diagnosed with West Nile fever, 71 (17.4%) with meningitis and 49 (12.0%) with encephalitis. Tri-County Health Department mapped environmental and human data in order to identify hot spots of West Nile virus activity and target mosquito control and prevention efforts. In addition, human cases were investigated and we found that patients were often extremely ill, even those with the “less severe” diagnosis of fever. Symptoms included headache, malaise, fever, myalgia, muscle weakness, chills, nausea, rash, joint/bone pain and photophobia. In addition, there were 29 cases who self-reported acute flaccid paralysis in our jurisdiction. People of all ages were affected by this outbreak; the median age for West Nile fever cases was 41 years, and for encephalitis and meningitis cases was 50 years. Many cases were likely to have been exposed at or near their home. TCHD is conducting a follow-up survey of cases to determine predictors of severe illness, assess duration of symptoms, and estimate the economic impact of this outbreak in terms of patient healthcare costs and days of work missed. We are prepared for another epidemic should it occur this mosquito season.

Severe Acute Respiratory Syndrome (SARS)

Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus (SARS-CoV). SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained. According to the World Health Organization, a total of 8,098 people worldwide became sick with SARS in 2003 and, of these, 774 died. In the United States, only eight people had laboratory confirmed SARS-CoV infection and all had traveled to parts of the world with SARS. There were no persons with laboratory confirmed SARS-CoV infection in Colorado, however, there were twelve possible cases that were investigated. These met a case definition of fever $>104^{\circ}$ F, cough, and travel to a SARS affected area in the 10 days before onset of symptoms. Ten of the twelve tested negative for SARS-CoV and two were classified as suspect cases because convalescent serum could not be obtained to test for SARS-CoV. Of the two suspect cases one was a resident of **Arapahoe County** and one was a resident of Denver County.



Outbreak of Shigellosis in Aurora

An outbreak of shigellosis occurred in the City of Aurora, **Arapahoe County** between July and December 2003. The outbreak peaked toward the end of September and the beginning of October. A total of 63 cases of shigellosis were reported in the Aurora area in 2003 with 57 cases occurring from July to December. This is compared to a 5-year median from 1998 to 2002 of 17 cases reported in Aurora. The increase in cases was associated with shigellosis outbreaks in three separate child care centers in Aurora with community transmission also occurring. Of the 57 cases reported from July to December the age range was 1 to 79 years old, however, most cases occurred in children (median age was 5 years old). Person-to-person transmission can easily occur by the fecal-oral route, especially among toddlers who are not fully toilet-trained and among young children who may have poor hand hygiene practices. Transmission to household members can also be as high as 40%. Very few organisms (10 to 200 organisms) are needed to cause infection, which most likely perpetuated the outbreak. TCHD worked with the affected child care centers to improve hand washing among the staff, children, and their families. TCHD also encouraged proper diaper changing procedures, increased sanitization, and excluding ill children and staff from the child care centers to prevent further transmission. TCHD sent a letter to all child care centers in the area informing them of the outbreak and encouraging them to monitor children's health, enforce sick policies, and exclude sick persons from their centers.

Hepatitis A Outbreak Among Young Adult Concert Attendees

An outbreak of hepatitis A occurred in July that was associated with a "Jam band." Statewide, there were a total of five confirmed cases of hepatitis A and three were **Douglas County** residents. The cases often traveled from one venue to another to attend outdoor concerts and camping events. Epidemiologic and laboratory investigations were conducted to identify potential sources of hepatitis A virus infection and modes of transmission. The source of illness could not be identified, but many of the cases shared the common exposure of concerts. Colorado Department of Public Health and Environment and Centers for Disease Control and Prevention (CDC) notified other states and enhanced surveillance for additional cases. Nine contacts of TCHD cases related to this outbreak received immune globulin from Tri-County Health Department. One of the **Douglas County** cases worked at a restaurant, but had limited food handling. An environmental assessment and education of the restaurant were completed by Tri-County Health Department. There was no community transmission associated with this restaurant. A public health dispatch of the multistate outbreak was written for *Morbidity and Mortality Weekly Report* and is available on the following website: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5235a5.htm>

Outbreaks of Enterovirus #1

In July a cluster of viral meningitis (enterovirus) cases among children in an apartment complex in **Adams County** was reported to Tri-County Health Department. Seven children were reported with illness; symptoms included headache, vomiting, fever, dizziness, stiff neck, nausea, chills, diarrhea, sensitivity to light, and drowsiness. Ages of the children ranged from 2 to 9 years old. TCHD interviewed parents of ill children and cerebrospinal fluid (CSF) and/or stool samples were collected from 6 of the 7 ill individuals for enterovirus typing at the CDC. The six specimens tested positive for enterovirus and were serotyped Echovirus 30. TCHD educated residents about enterovirus and conducted an environmental assessment of the apartment complex. The source of illness for the index case is unknown, however, spread of the illness to the other children most likely occurred from close contact of children playing with each other.

Outbreaks of Enterovirus #2

In October, Tri-County Health Department received information regarding six family members ill with viral meningitis and several others ill following a birthday celebration in **Arapahoe County**. Of the thirty-two family members and close contacts interviewed, fifteen (47%) developed upper respiratory illness and six (19%) developed viral meningitis. TCHD interviewed all family members who attended the party and other close family contacts. Symptoms included diarrhea, fever, chills, body aches, stiff neck, sinus infection, cough, and rash. Four of the individuals with viral meningitis tested positive for enterovirus. The family was educated about proper hand washing and the importance of avoiding contact with others who are ill. The source of the illness for the index case is unknown, but spread of the illness was likely due to close contact between family members.

Restaurant Associated Foodborne Illness Outbreak #1

Tri-County Health Department received a report in August that attendees of a wedding in **Adams County** became ill subsequent to several group events. There were 200 attendees at the wedding held in a restaurant; 25 cases and 42 non-ill people who were invited to the wedding were interviewed. The median length of illness was 24 hours and the median onset of symptoms was 32 hours. Although there were several group events during the weekend of the wedding, statistical analysis indicated that the wedding event was associated with illness. This analysis indicated a common source outbreak, therefore, it is most likely that a contaminated food was the source of illness. However, the specific food source is unclear. Environmental investigation of preparation techniques and water systems within the restaurant did not determine techniques or systems of concern. The symptoms, incubation period and length of illness suggest norovirus (formerly called Norwalk-like virus) as the contaminating agent. Four stool samples were submitted for laboratory testing and two were positive for norovirus. Training of restaurant staff was conducted to ensure proper food preparation.

Restaurant Associated Foodborne Illness Outbreak #2

In September, there was an outbreak of *Shigella sonnei* at a hotel in **Adams County** that was jointly investigated with the Colorado Department of Public Health and Environment (CDPHE). There were several groups affected including hotel staff, a veteran's group, a wedding group, and other hotel guests. There were 37 case-patients identified, including four culture-confirmed with matching pulsed-field gel electrophoresis patterns. The median age was 53 years (range: 1-83); 54% were male; 100% had diarrhea; and 53% had fever. Three patients were hospitalized and no deaths occurred. The hotel kitchen voluntarily closed until adequate staffing was available (staff were not allowed to return to work until a stool sample was submitted and the results were negative). The kitchen was sanitized and high risk foods were discarded. Epidemiologic investigation determined that illness was associated with eating from the breakfast buffet and was most likely due to consuming honeydew melon. During environmental assessments, staff inconsistently sanitized melons prior to serving. Training of restaurant staff was conducted to ensure proper food preparation.

Norovirus (Norwalk-like Virus) Outbreaks in Long-Term Care Facilities

There were four separate outbreaks of norovirus in long-term care facilities in the Tri-County area during 2003. Two of these outbreaks were in **Adams County** and two were in **Arapahoe County**. Three of the outbreaks were spread through person-to-person contact and one was a point source exposure with subsequent person-to-person transmission. Interviews of staff and residents were conducted to determine onset dates, symptoms, and duration of symptoms. Control measures were implemented and included the following: no common or group activities for residents, restriction of ill patients to their rooms, ill staff stayed home until 48 hours after the cessation of symptoms and increased hand washing and sanitizing.

Norovirus is one of the leading causes of acute gastrointestinal illness. Symptoms include vomiting and/or diarrhea and abdominal cramping, with occasional complaints of muscle aches, headache and low-grade fever. Illness usually lasts 1-2 days, but can be longer. Norovirus is primarily spread through fecal-oral transmission, with possible spread through aerosols (generated with vomiting) as well. It is extremely infectious, and highly concentrated in the stool and/or vomit of infected people. People are most contagious from the moment they begin feeling ill until diarrhea subsides. Norovirus is a frequent cause of outbreaks of gastrointestinal illness in long-term care facilities, particularly in the winter and early spring. Because these outbreaks can rapidly become quite large and sometimes affect more than half of the residents and staff, rapid investigation and implementation of infection control measures is very important when an outbreak is identified.

Please be reminded

All outbreaks from any cause are notifiable conditions and should be reported to the local or state health department within 24 hours of identification. The health department can facilitate testing for pathogens, and can provide guidance/assistance for outbreak investigation and infection control measures.

Tri-County Health Department: (303) 220-9200

Table. Reported Cases of Disease in Adams, Arapahoe and Douglas Counties, 2003.

Diagnosis	Adams	Arapahoe	Douglas	Total
<i>Amebiasis</i>	2	5	0	7
<i>Brucellosis</i>	1	0	0	1
<i>Campylobacter</i>	46	55	29	130
<i>Cryptosporidiosis</i>	0	2	0	2
<i>Dengue Fever</i>	0	0	0	0
<i>E. coli O157:H7</i>	6	12	5	23
<i>Encephalitis Other</i>	1	0	0	1
<i>Giardiasis</i>	23	60	30	113
<i>Group A Strep Invasive</i>	15	35	5	55
<i>Group B Strep Invasive</i>	21	22	6	49
<i>Haemophilus influenzae</i>	4	6	2	12
<i>Hantavirus</i>	1	0	0	1
<i>Hemolytic Uremic Syndrome</i>	0	0	2	2
<i>Hepatitis A</i>	5	11	3	19
<i>Hepatitis B, Acute</i>	6	12	1	19
<i>Hepatitis B, Chronic</i>	61	99	29	189
<i>Hepatitis B, Perinatal</i>	0	1	0	1
<i>Hepatitis C, Acute</i>	0	2	0	2
<i>Hepatitis C, Chronic</i>	205	243	52	500
<i>Influenza</i>	1188	1252	284	2724
<i>Legionnaires Disease</i>	3	2	0	5
<i>Listeriosis</i>	0	3	0	3
<i>Malaria</i>	4	3	2	9
<i>Meningitis Aseptic</i>	74	138	49	261
<i>Meningitis, other bacteria</i>	1	2	0	3
<i>Meningococcal Disease</i>	3	2	1	6
<i>Pertussis Syndrome</i>	24	63	28	115
<i>Rubella</i>	0	1	0	1
<i>Salmonellosis</i>	49	45	18	112
<i>Shigellosis</i>	37	63	4	104
<i>Strep, Pneumo Invasive</i>	48	52	14	114
<i>Toxic Shock-Strep</i>	1	1	0	2
<i>Toxic Shock-Other</i>	1	1	1	3
<i>Tularemia</i>	1	0	0	1
<i>Typhoid Fever</i>	0	1	0	1
<i>Vibrio spp. (non-cholera)</i>	1	0	0	1
<i>West Nile Virus Infection</i>	231	138	39	408
<i>Yersiniosis</i>	0	1	0	1
Total	2063	2333	604	5000

Comments or questions, please call Tri-County Health Department at (303) 220-9200.