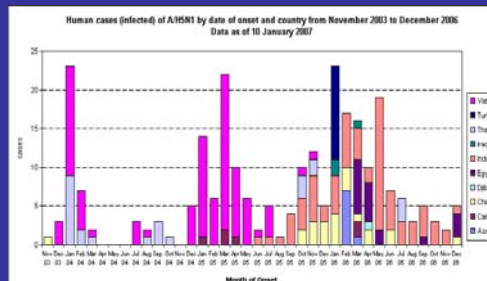


Davis County Health Department



Communicable Disease Surveillance & Control

Communicable Diseases Davis County 2006



Communicable Diseases Davis County 2006

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Executive Summary

This annual communicable disease surveillance & control report summarizes all communicable diseases that were reported in Davis County in 2006. It provides a baseline picture of the disease burden, affecting residents of Davis County. It describes trends and highlights those diseases that had the greatest impact on the health and well being of our community in 2006.

The most notable communicable disease in 2006 was Chlamydia. Chlamydia remains the most commonly reported infectious disease in the United States. However, most Chlamydia cases go undiagnosed. It is estimated that there are approximately 2.8 million new cases of Chlamydia in the United States each year. The increase in cases also affected Davis County, with 510 cases reported in 2006 (an increase of 16.8% from 2005). This increase may be attributed to a more aggressive approach to contact tracing and better diagnostic testing. However, it may also reflect a true increase in infections.

Other communicable disease areas of concern in 2006 include:

- Chickenpox reports continue to increase and are the second most reported disease in Davis County. This increase may be due to enhanced surveillance. However, the majority of Chickenpox cases reported to Davis County are in children who have been previously vaccinated and represent a break through of disease.
- Hepatitis C is the third most reported disease in Davis County. The vast majority of this disease burden is classified as chronic infections.
- Latent TB Infections continue to occupy a large percent of the disease burden in Davis County. It is the fourth most reported disease with the majority of these cases being characterized as being foreign born or as a returned missionary.
- Gonorrhea rates continue to be higher than historically seen. Gonorrhea is the fifth most reported infectious disease in the Davis County. Like Chlamydia, gonorrhea is substantially under-diagnosed and under-reported, and approximately twice as many new infections are estimated to occur each year as are reported. Davis County investigated 55 cases of Gonorrhea in 2006.
- West Nile emerged with substantial activity this year. Davis County experienced activity in all categories (mosquito Pools, wild Birds, chickens, horses, and humans). Davis County had 11 human cases. We did not see quite the levels of West Nile activity, as did surrounding counties. This reduced activity, we feel, was mostly due to aggressive and effective mosquito control activities. The Mosquito Abatement District - Davis implemented aggressive control measures to reduce the numbers of mosquitoes to 50% of the five-year average. Aggressive elimination of mosquitoes around positive mosquito pools,

sentinel chickens, horses, and human cases also played an important role in reduction of human disease. The WNV education campaign appeared to be very effective especially in our senior populations.

- The 2005-2006 influenza season in Davis County peaked during the last week of December. After sustaining peak levels for several weeks, the number of illnesses drastically declined with a slight, but not sustained, increase in mid March. During the 2005-2006, influenza season, there were 52 hospitalized influenza cases reported in Davis County. There were no influenza-associated pediatric deaths reported
- Several clusters of enteric illnesses were investigated in 2006. Davis County investigated and linked 4 cases of *E.coli* O157-H7 to the national outbreak involving spinach. A Norovirus outbreak was identified and controlled in a long term nursing care facility. We identified several other clusters of gastrointestinal illness, but were not able to identify the disease causing agents.
- Davis County experienced a decrease in pertussis in 2006. In 2005, a new pertussis booster vaccine (Tdap) was developed and marketed. Davis County's Board of Health passed a resolution with strong recommendations for the use of this new vaccine. The decrease in pertussis can be attributed to aggressive contact investigations and the increased use of the new vaccine (Tdap).

Identifying and responding to the disease burden we face in Davis County is essential to the health and well-being of our residents. Davis County Health Department is committed to the control and elimination of communicable diseases in this county.

Introduction

The Communicable Disease Surveillance and Control Program works in partnership with the medical community and neighboring health districts to control and prevent the occurrence and spread of communicable diseases through disease surveillance, disease investigation, coordination of prevention and treatment, education, training, and policy development. The program aims to:

- Interrupt and/or contain the spread of communicable diseases within the community
- Conduct surveillance for 80 communicable diseases and disease syndromes
- Provide education to infected/exposed citizens
- Facilitate appropriate medication therapy
- Enforce protective measures that will protect the community (i.e., isolation)
- Develop policies to address priority health issues

The Davis County Health Department Communicable Disease Surveillance and Control program is organized into four main areas: STD/HIV program, Tuberculosis Control program, Infectious Disease program, and Surveillance. A program description follows:

STD/HIV program:

Sexually Transmitted Diseases (STDs) affect men and women of all backgrounds and economic levels. Even though the United States has made progress in decreasing the number of cases through better testing and risk-reduction education, there is still an estimated 19 million new cases of STDs reported each year. HIV/AIDS, chlamydia, gonorrhea, pelvic inflammatory disease (PID), syphilis, and chancroid are the STDs reportable by law in the state of Utah. Hospitals, laboratories, physicians, and clinics are mandated to report these diseases to the local health department.

The Communicable Disease Surveillance and Control - STD/HIV program ensures that all reported infected individuals have an interview with a public health nurse to:

- Verify that appropriate treatment was prescribed and taken
- Confidentially identify and notify contacts/partners of infected individuals who may have been exposed and facilitate testing and treatment
- Provide risk-reduction counseling and education

Tuberculosis Control program:

The Davis County Tuberculosis (TB) Control program is dedicated to the prevention, control, and elimination of TB disease and the identification and treatment of latent TB infection.

The successful control of tuberculosis in Davis County is largely due to the following program activities:

- Early identification, isolation, and appropriate treatment of individuals suspected or diagnosed with tuberculosis diseases.
- Effective contact investigation activities to identify individuals exposed to TB and the completion of medication therapy for those diagnosed with latent TB infection.
- Targeted skin testing for those who are at a higher risk for developing TB disease (i.e., homeless, foreign-born, correctional institutions, substance abusers)

Infectious Disease program:

Communicable diseases reportable in the state of Utah with the exception of STDs and Tuberculosis fall under this program. Once reported, the Communicable Disease Surveillance and Control program implements the following activities:

- Interview with the infected individuals to obtain a disease history and identify exposed contact
- Review and interpret laboratory results
- Implement control measures to interrupt disease transmission (i.e., exclusion from work/school)
- Monitor the disease process, assessing for changes in expected manifestations
- Facilitate treatment and prophylaxis for those infected or exposed
- Provide education on the specific disease and important preventative measures
- Formalize finding and report to UDOH (Utah Department of Health)

The infectious disease program has been further divided into the following categories and each specific disease report will follow this grouping:

- **Enteric Diseases** (Food and/or Waterborne)
 - Bacterial, Viral, and Parasitic diseases involving the gastrointestinal tract
- **Vaccine-Preventable Diseases**
 - Diseases that are preventable with vaccines
- **Vector/Zoonotic Diseases**
 - Diseases caused by insects, animals, mammals
- **Other reportable diseases/conditions**
 - Diseases that do not fall under the above categories

Disease Surveillance program:

Communicable Disease Surveillance is responsible for the systematic collection, analysis, and dissemination of data pertaining to infectious diseases of public health importance. The goal of the Surveillance Program is to provide statistics that prompt public health preventive action. Core functions of the surveillance program include:

- Providing medical professionals with access to disease reporting 24 hours a day/7 days a week.
- Maintaining a computerized system for efficient storage and access to data
- Incorporating a variety of data sources including:
 - Notifiable disease reports
 - School absenteeism
 - Sentinel Physician reports
 - Syndromic data
 - Monitoring the occurrence and distribution of infectious disease activity
 - Disseminating surveillance data to the public and medical professionals

Communicable diseases are reported to the local health departments for investigation in accordance with the Utah State Health Code (R38-702). Prompt reporting of suspect and confirmed cases helps ensure necessary control and prevention actions.

Entities required to report confirmed or suspected diseases are physicians, hospitals, healthcare facilities, laboratories, schools, and daycares. All case reports should include:

- Disease
- Patient's Name
- Address
- Telephone Number
- Date of Birth
- Pertinent Clinical Information.

All reports required by rule are confidential and are not open to public inspection.

The following page summarizes the Reportable Diseases in Utah:

REPORTABLE DISEASES

UTAH LAW REQUIRES THAT THE FOLLOWING DISEASES BE REPORTED TO YOUR LOCAL HEALTH DEPARTMENT OR THE UTAH DEPARTMENT OF HEALTH IMMEDIATELY BY TELEPHONE

Davis County Health Department Disease Reporting Line: (801) 451-3003

- Anthrax
- Botulism
- Cholera
- Diphtheria
- *Haemophilus influenzae* (invasive disease)
- Measles (Rubeola)
- Meningococcal disease (invasive)
- Pertussis
- Plague
- Poliomyelitis (paralytic)
- Rabies (human and animal)
- Rubella (including congenital syndrome)
- Severe Acute Respiratory Syndrome (SARS)
- Smallpox
- Syphilis (all stages and congenital)
- Tuberculosis
- Tularemia
- Typhoid (cases and carriers)
- Viral hemorrhagic fever
- Yellow fever
- Unusual Diseases or Outbreaks of any kind

UTAH LAW REQUIRES THAT THE FOLLOWING DISEASES BE REPORTED TO YOUR LOCAL HEALTH DEPARTMENT OR THE UTAH DEPARTMENT OF HEALTH WITHIN 3 WORKING DAYS AFTER IDENTIFICATION.

Davis County Health Department Disease Reporting Line: (801) 451-3003

Or FAX (801) 451-3464

- Acquired Immunodeficiency Syndrome (AIDS)
- Adverse event resulting after smallpox vaccination
- Amebiasis
- Arbovirus infection
- Brucellosis
- Campylobacteriosis
- Chancroid
- Chickenpox
- *Chlamydia trachomatis* infection
- Coccidioidomycosis
- Colorado tick fever
- Creutzfeldt-Jakob disease and other transmissible human spongiform encephalopathies
- Cryptosporidiosis
- *Cyclospora* infection
- Dengue fever
- Echinococcosis
- Ehrlichiosis (human granulocytic, human monocytic, or unspecified)
- Encephalitis
- Enterococcal infection (vancomycin-resistant)*
- Enterohemorrhagic *Escherichia coli* (EHEC) infection (including *Escherichia coli* O157:H7)
- Giardiasis
- Gonorrhea (sexually transmitted and ophthalmia neonatorum)
- Hansen disease (leprosy)
- Hantavirus infection and pulmonary syndrome
- Hemolytic Uremic Syndrome (post-diarrheal)
- Hepatitis A
- Hepatitis B (cases and carriers)
- Hepatitis C (acute and chronic infection)
- Hepatitis (other viral)
- Human Immunodeficiency Virus (HIV) infection
- Influenza (laboratory confirmed)
- Kawasaki syndrome
- Legionellosis
- Listeriosis
- Lyme disease
- Malaria
- Meningitis (aseptic and bacterial-specify etiology)
- Mumps
- Norovirus (formerly called Norwalk-like virus) infection
- Pelvic inflammatory disease (PID)
- Psittacosis
- Q Fever
- Relapsing fever (tick-borne or louse-borne)
- Reye syndrome
- Rheumatic fever
- Rocky Mountain spotted fever
- Saint Louis encephalitis
- Salmonellosis
- Shigellosis
- Staphylococcal diseases (all outbreaks)
- *Staphylococcus aureus* with resistance or intermediate resistance to vancomycin isolated from any site
- *Staphylococcus aureus* with resistance to methicillin isolated from any site*
- Streptococcal disease (invasive, isolated from a normally sterile site)
- *Streptococcus pneumoniae* (drug-resistant, isolated from a normally sterile site)
- Tetanus
- Toxic-Shock Syndrome (staphylococcal or streptococcal)
- Trichinosis
- West Nile virus infection

* REQUIRED TO BE REPORTED MONTHLY BY NUMBERS ONLY



Davis County Health Department – February 2005

Davis County Demographics - 2006

Population: 282,217

Age Group	
Less than 1 year	5,744
1 – 14 years	71,106
15 – 24 years	49,062
25 – 44 years	80,080
45 – 64 years	54,923
65 – 84 years	19,001
More than 85 years	2,301

Gender	
Male	142,911
Female	139,306

Race*	
White	253,736
Black	3,204
American Indian or Alaskan Native	1,600
Asian	4,884
Native Hawaiian or Pacific Islander	807
Two or more races	3,956

*Race Population Data is only available for 2005 – 268,187

Ethnicity*	
Hispanic or Latino (of any race)	16,519

*Ethnicity Data is only available for 2005 – 268,187

City Populations*	
Unincorporated County	2,500
Bountiful	42,700
Centerville	15,218
Clearfield	28,000
Clinton	19,400
Farmington	14,500
Fruit Heights	5,200
Hill Air Force Base	4,500
Kaysville	23,240
Layton	66,310
North Salt Lake	9,800
South Weber	5,945
Sunset	5,200
Syracuse	20,000
West Point	7,800
West Bountiful	5,013
Woods Cross	7,400

*City Population Data is only available for 2005 (Provided by the Department of Community and Economic Development, estimated by various sources)

Additional Information

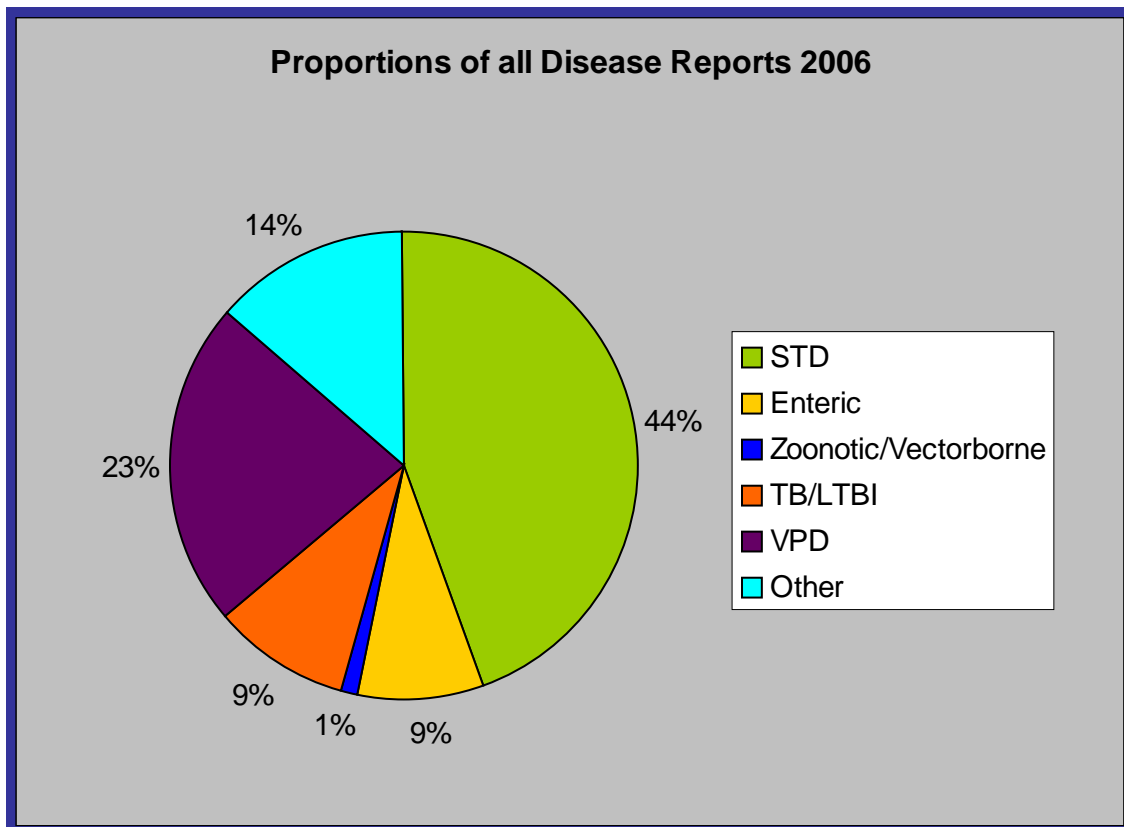
Davis County is the smallest in land area and third most populous

Davis County has 11% of Utah's population

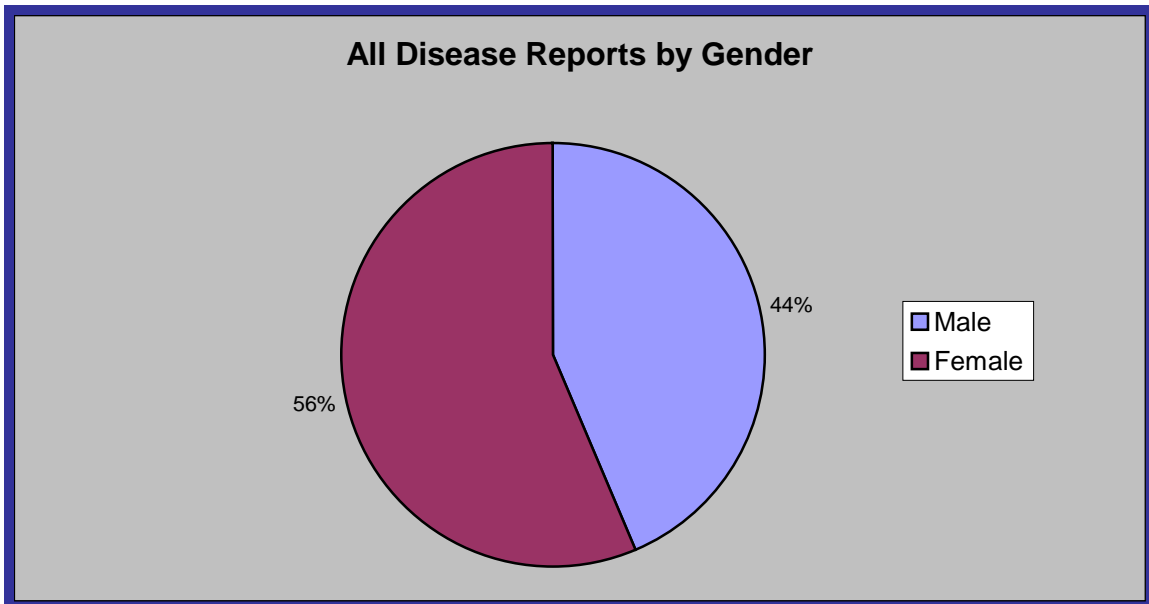
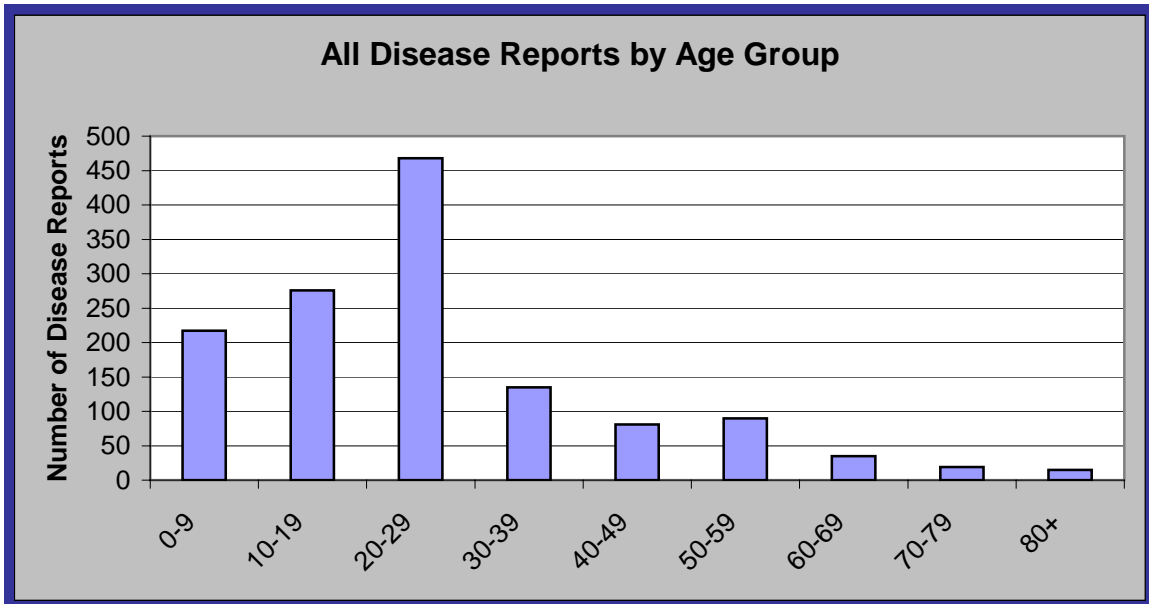
Reportable Disease Summary

Disease morbidity and mortality have decreased over the past century, partly due to the partnership between private and public health care. Unfortunately, new emerging diseases are surfacing, requiring additional efforts on both the medical community and public health. Existing pathogens are also increasing as our population increases. Disease affects all races, ethnicity, age and gender.

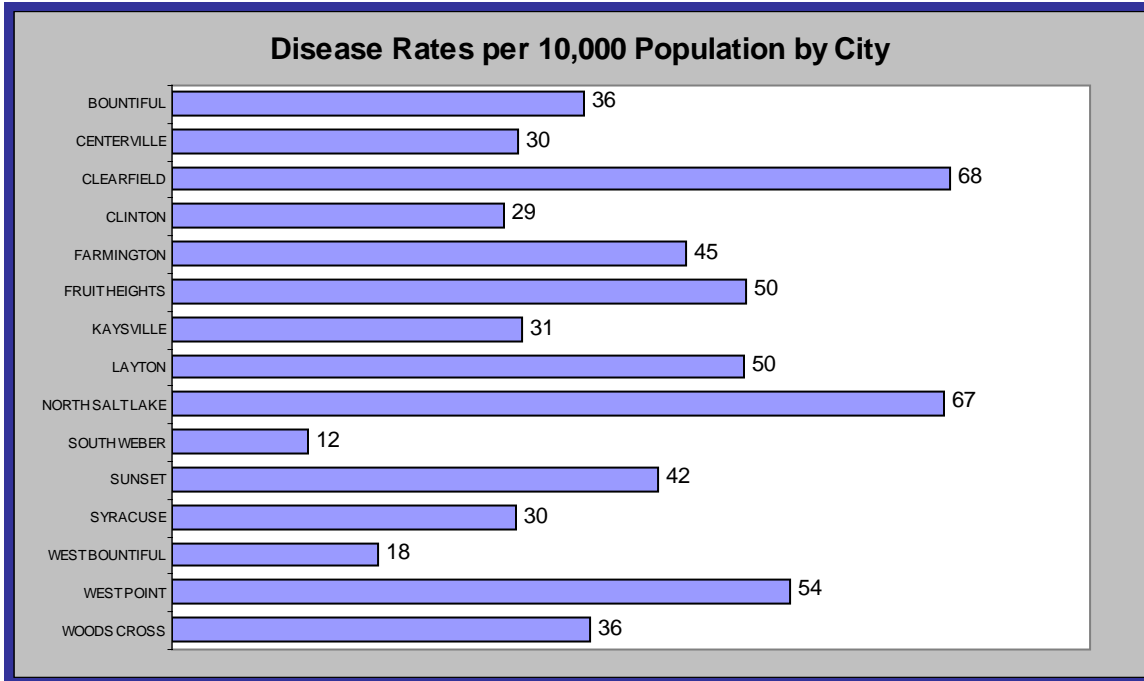
What: Davis County Health Department received a total of **1,296** disease reports during 2006. The majority (44%), of the diseases reported were sexually transmitted diseases followed by vaccine preventable diseases (23%), other diseases (14%), tuberculosis infections (9%), enteric diseases (9%), and zoonotic/vectorborne diseases (1%).



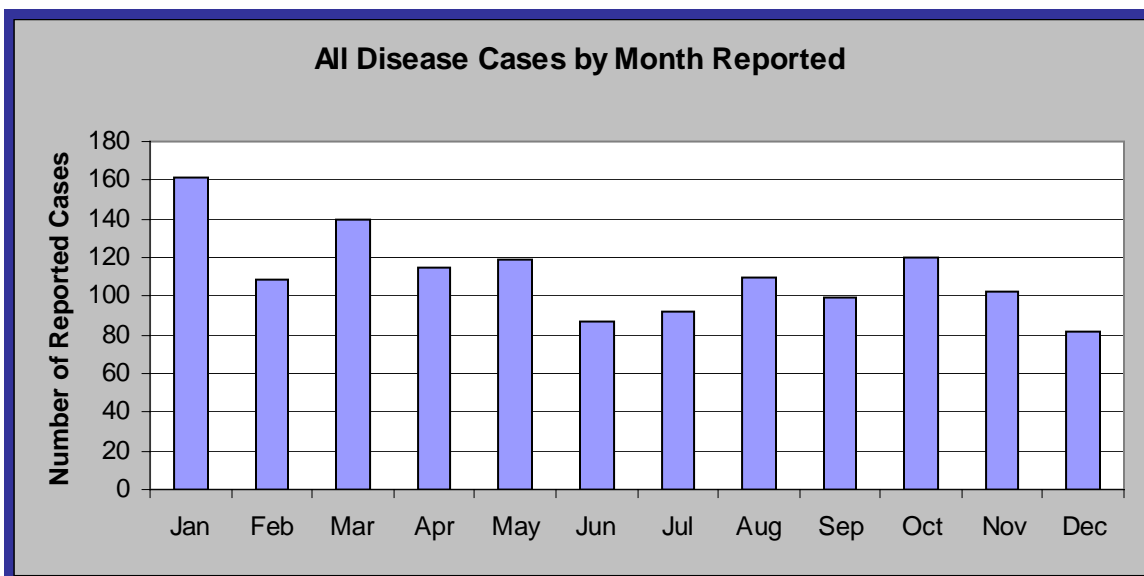
Who: Cases were most often reported among females (56%) and among 20-29 year-olds. Sexually transmitted diseases and latent TB have a significant impact on the 20-29 year old age group. Vaccine preventable diseases impact the 0-9 and the 10-19 year old age groups. Statistically females are more impacted by sexually transmitted diseases.



Where: Disease rates by city are identified by the place of residence of the individual who is affected. These rates do not suggest that one city is better or worse than another, but simply describe the disease burden in each city by the individuals who reside there. Tuberculosis data is not included because most of the infections were acquired outside of Davis County.



When: The disease burden in Davis County stays very consistent over the whole year. We saw an average of 111 reportable diseases per month. We saw variation in the type of diseases reported depending on the season, but generally the number of diseases remained consistent over the whole year.



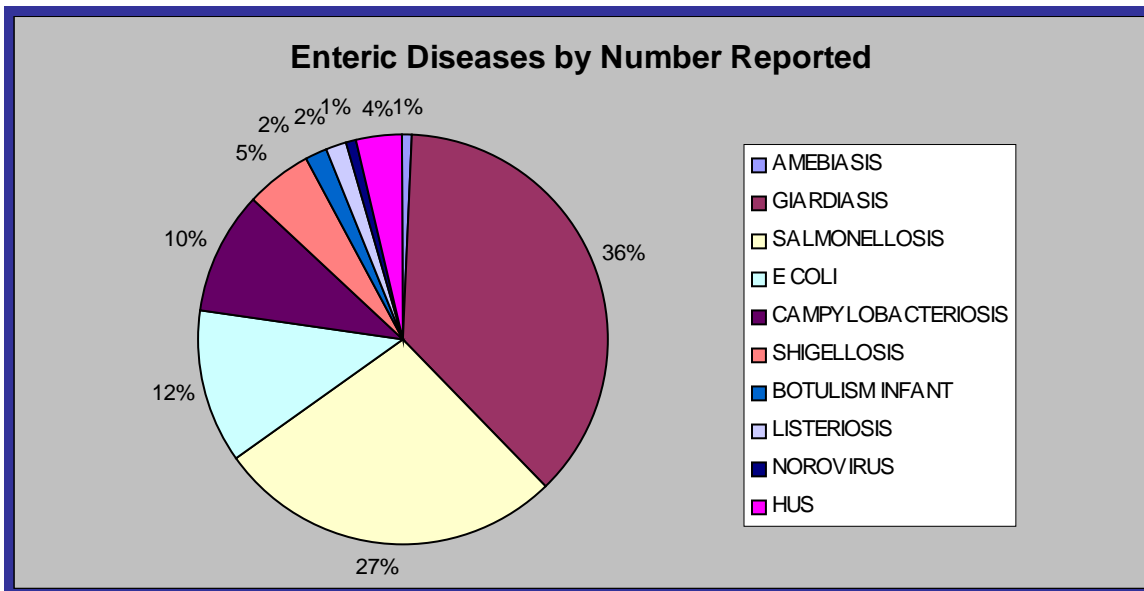
DISEASE CASES IN ORDER OF NUMBER REPORTED			
DISEASE	Rank	Number	Proportion
CHLAMYDIA	1	510	39.35%
CHICKENPOX	2	174	13.43%
LATENT TB INFECTION	3	121	9.34%
HEPATITIS C	4	100	7.72%
GONORRHEA	5	55	4.24%
PERTUSSIS	6	49	3.78%
GIARDIASIS	7	42	3.24%
INFLUENZA HOSPITALIZED	7	42	3.24%
STREPTOCOCCAL INVASIVE DISEASE	7	42	3.24%
SALMONELLOSIS	8	31	2.39%
HEPATITIS B	9	29	2.24%
MENINGITIS – ASEPTIC & VIRAL	10	22	1.70%
E COLI SHIGA TOXIN PRODUCING	11	14	1.08%
CAMPYLOBACTERIOSIS	12	11	0.85%
WEST NILE VIRUS	13	11	0.85%
MENINGITIS - BACTERIAL	13	7	0.54%
SYPHILIS ALL STAGES	14	9	0.69%
SHIGELLOSIS	15	6	0.46%
HEMOLYTIC UREMIC SYNDROME	16	4	0.31%
BOTULISM INFANT	18	2	0.15%
COCCIDIODOMYCOSIS	18	2	0.15%
DENGUE FEVER	18	2	0.15%
LISTERIOSIS	18	2	0.15%
ROCKY MOUNTAIN SPOTTED FEVER	18	2	0.15%
AIDS/HIV	19	1	0.08%
AMEBIASIS	19	1	0.08%
MALARIA	19	1	0.08%
MENINGOCOCCAL INVASIVE DISEASE	19	1	0.08%
NOROVIRUS	19	1	0.08%
TOXIC SHOCK SYNDROME	19	1	0.08%
TUBERCULOSIS ACTIVE INFECTION	19	1	0.08%
TOTAL		1296	100.00%

DISEASE CASES REPORTED 2004 - 2006	2004	2005	2006
AMEBIASIS	0	0	1
BOTULISM INFANT	0	1	2
CAMPYLOBACTERIOSIS	26	13	11
CHICKENPOX	60	87	174
CHLAMYDIA	427	453	510
COCCIDIODOMYCOSIS	4	3	2
COLORADO TICK FEVER	0	1	0
CRYPTOSPORIDIOSIS	1	0	0
DENGUE FEVER	2	1	2
E. COLI - SHIGATOXIN PRODUCING	9	8	14
ENCEPHALITIS	3	1	3
GIARDIASIS	33	32	42
GONORRHEA	42	58	55
HEAMOPHILUS INFLUENZAE - INVASIVE	0	3	0
HEPATITIS A	2	0	0
HEPATITIS B - ACUTE AND CHRONIC	31	34	29
HEPATITIS C - ACUTE AND CHRONIC	128	103	100
HEMOLYTIC UREMIC SYNDROME (HUS)	0	0	4
HIV and AIDS	1	4	1
INFLUENZA (HOSPITALIZED CASES)	14	53	42
LEGIONELLOSIS	5	1	0
LISTERIOSIS	0	0	2
MALARIA	0	1	1
MENINGITIS - BACTERIAL	0	2	7
MENINGITIS - ASEPTIC OR VIRAL	25	38	22
MENINGOCOCCAL - INVASIVE DISEASE	1	2	1
MUMPS	0	3	0
NOROVIRUS	0	2	1
PERTUSSIS	25	66	49
ROCKY MOUNTAIN SPOTTED FEVER	0	0	2
SALMONELLOSIS	24	63	31
SHIGELLOSIS	7	4	6
STREPTOCOCCAL - INVASIVE DISEASE	12	33	42
SYPHILIS ALL STAGES	8	1	19
TOXIC SHOCK SYNDROME	0	2	1
TUBERCULOSIS (ACTIVE CASES)	0	1	1
TUBERCULOSIS (LATENT INFECTIONS)	147	128	121
WEST NILE VIRUS	1	0	11

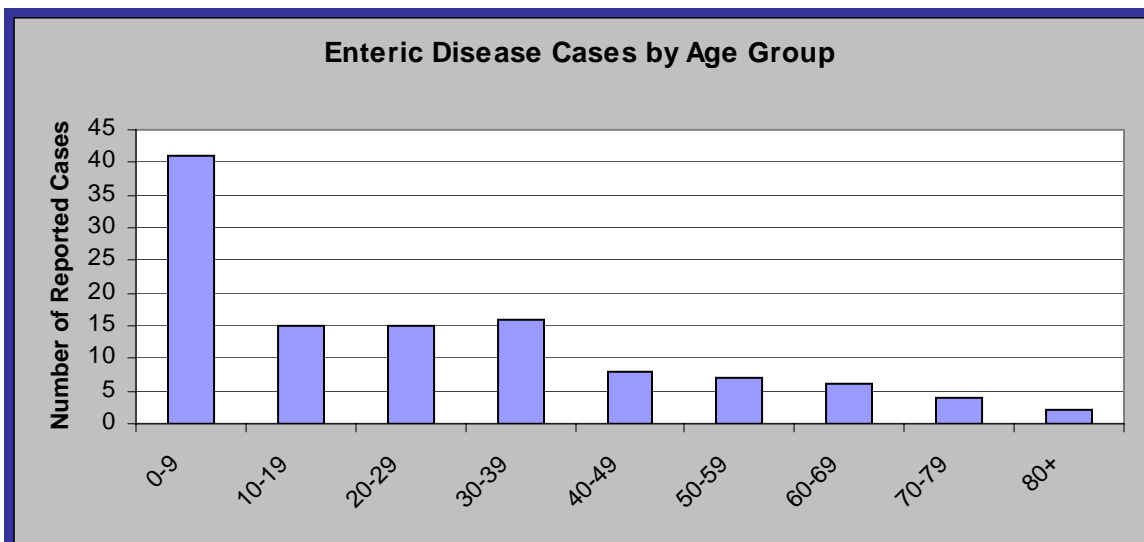
Enteric Diseases

This section focuses on the diseases (bacterial, viral, and parasitic) that are shed in the feces and can be spread by the individual directly or through contaminated food and water. Enteric diseases are generally characterized by gastrointestinal symptoms such as nausea, vomiting, and diarrhea.

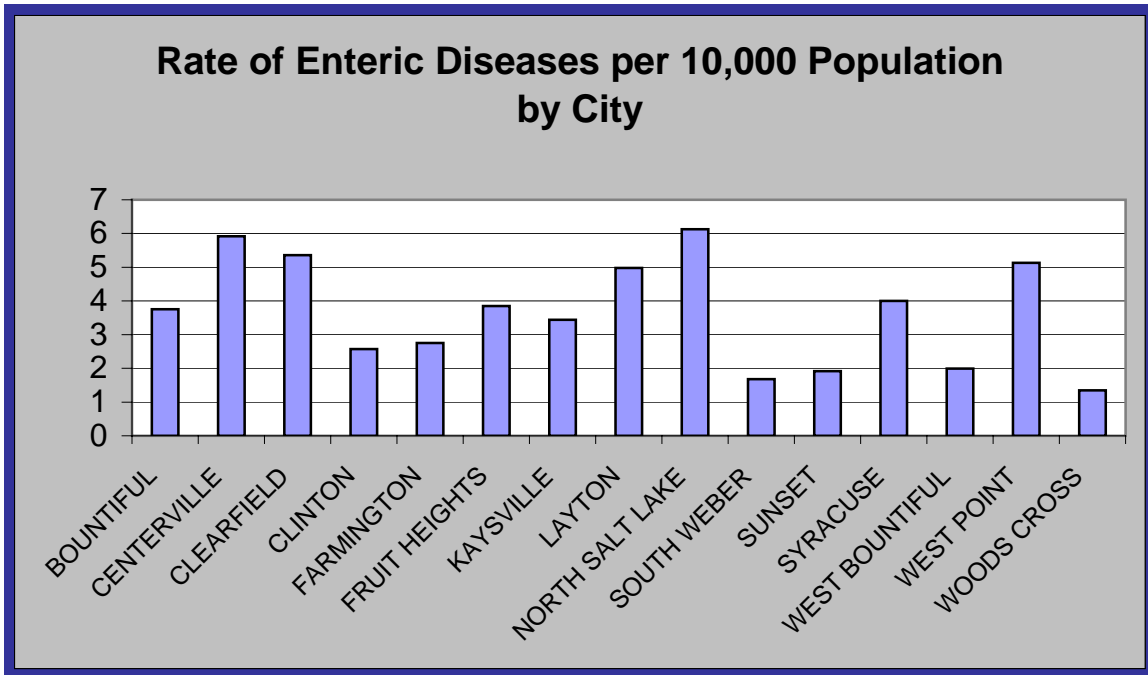
What: There were **114** total enteric disease cases reported during 2006. Giardiasis was the most frequently reported enteric disease with 42 cases (36%) followed by Salmonellosis at 31 cases (27%), and *E. coli* infections at 14 (12%). Reports of suspect foodborne illness clusters were investigated without any formal bacteria or virus being identified and therefore are not included in this data.



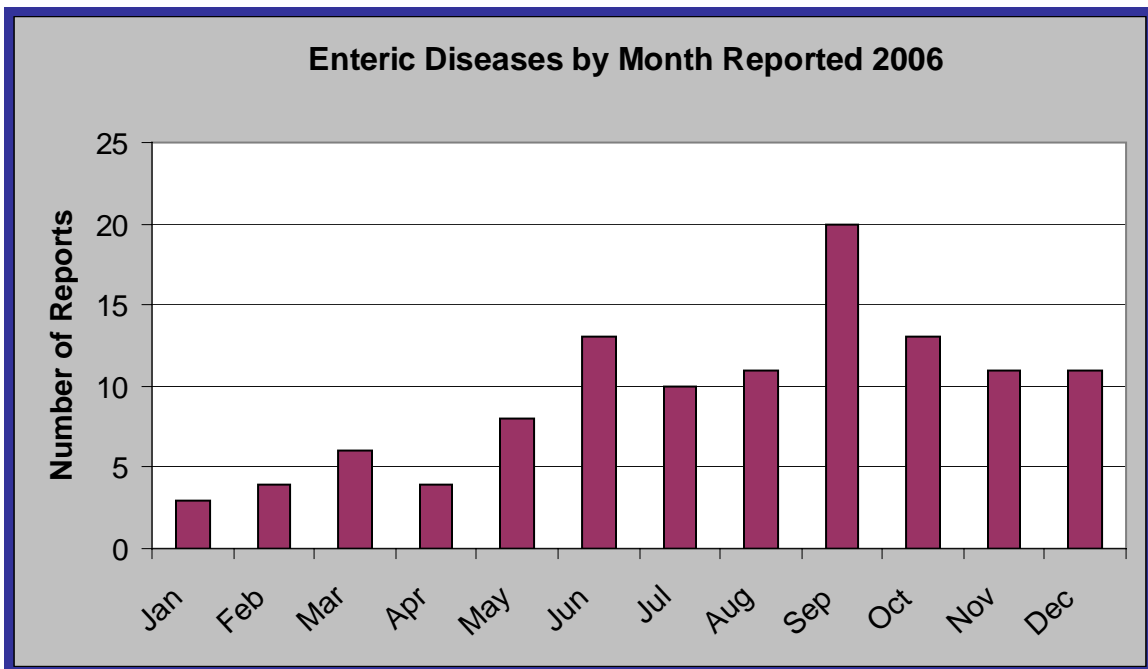
Who: Enteric diseases were reported most often among children less than 10 years old.



Where: Enteric diseases were reported among residents of every city within Davis County. The rates by city varied, but the average number of enteric diseases was 4 per 10,000 residents.



When: Enteric diseases are reported year-round, with a heavier occurrence during the summer months. Enteric diseases were reported most often during September and continued into late fall and winter months, which is an unusual occurrence.



AMEBIASIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories report cases within 3 working days of identification.

Purpose of Surveillance:

- To identify common source outbreaks for investigation

Disease Description:

Amebiasis is an intestinal illness caused by a one-celled parasite (amoeba) called *Entamoeba histolytica*. It is most common in people who live in developing countries that have poor sanitary conditions. In the United States, amebiasis is most often found in immigrants from developing countries. It also is found in people who have traveled to developing countries and in people who live in institutions that have poor sanitary conditions.

Infected people are the only sources of the parasite. Fecal material from infected people may contaminate water or food and may serve as a vehicle to infect others. Animals are not infected with and do not carry the parasite. Flies, in some parts of the world, may transfer cysts from human stool to fruits and vegetables.

During 2006, there was **one case** of amebiasis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

BOTULISM

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report immediately and submit appropriate specimens to the Utah Public Health Laboratory

Purpose of Surveillance:

- To confirm suspected cases and identify common source outbreaks
- To promptly identify cases requiring medical evaluation and/or treatment, including therapy with botulism antitoxin
- To identify and remove contaminated food products that could cause further cases of food-borne botulism

Disease Description:

Food-borne botulism is a food poisoning caused by a toxin produced by the bacteria, *Clostridium botulinum*. Food-borne botulism occurs after eating food containing the toxin that is formed by the bacterium in food. This toxin does not give a bad odor or taste to food. The disease most often develops after consuming improperly processed home-canned foods or home-preserved meats. Infant botulism is a disease caused when the *Clostridium botulinum* toxin is produced in the intestines of very young children after becoming infected by the bacteria. Children who get infant botulism are generally younger than six months old. The spores of *Clostridium botulinum* are common in soil, and can also be found in a variety of foods and in dust. Infant botulism has been associated with feeding contaminated honey (and rarely corn syrup) to infants, but not in children older than one year of age or in adults.

In the United States an average of 110 cases of botulism are reported each year. Of these, approximately 25% are food-borne, 72% are infant botulism, and the rest are wound botulism. Outbreaks of food-borne botulism involving two or more persons occur most years and usually caused by eating contaminated home-canned foods. The number of cases of food-borne and infant botulism has changed little in recent years, but wound botulism has increased because of the use of black-tar heroin, especially in California.

During 2006, there were **2 cases** of infant botulism and **no cases** of food-borne botulism reported in Davis County.

Additional Information:

One risk factor that has been identified in past infant botulism cases is construction taking place in the case's neighborhood. Diagnosis of infant botulism is often delayed due to initial symptoms mimicking other illnesses.

Action Steps: None

Future Steps: None

CAMPYLOBACTERIOSIS

Disease Reporting Requirements:

Healthcare Providers – report cases within 3 working days of identification

Laboratories – report cases within 3 working days of identification and submit isolate to the Utah Public Health Laboratory

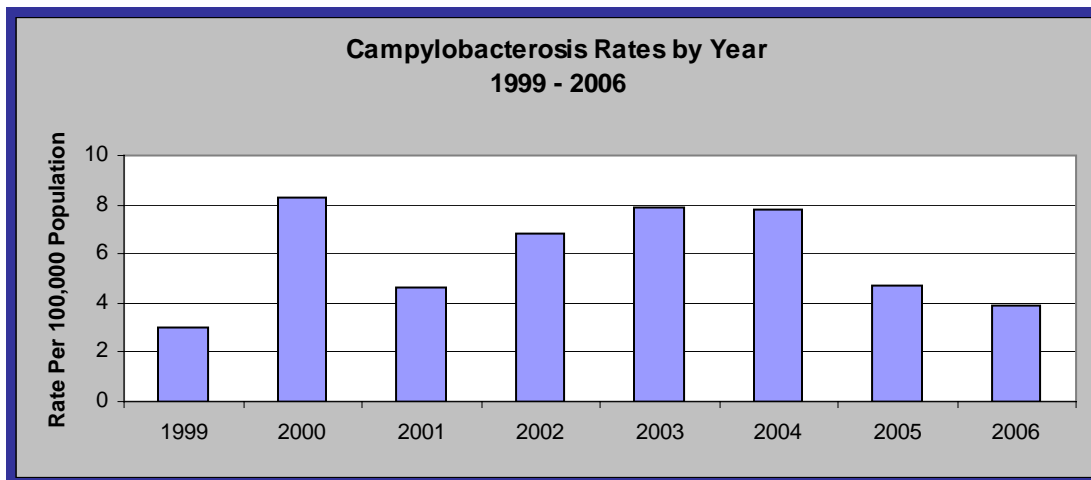
Purpose of Surveillance:

- To identify common source outbreaks for investigation
- To identify and eliminate sources of transmission

Disease Description:

Campylobacteriosis is an infectious disease caused by bacteria of the genus *Campylobacter*. The bacteria are transmitted via the fecal-oral route. Improperly cooked poultry, untreated water, and unpasteurized milk are the main sources of infection. *Campylobacter* is one of the most common bacterial causes of diarrheal illness in the United States. Virtually all cases occur as isolated, sporadic events, not as a part of large outbreaks. Active surveillance through the Centers for Disease Control and Prevention (CDC) indicates about 15 cases are diagnosed each year for each 100,000 persons in the population. Many more cases go undiagnosed or unreported, and campylobacteriosis is estimated to affect over 1 million persons every year, or 0.5% of the general population.

During 2006, there were **11 cases** of campylobacteriosis reported in Davis County, which is a decrease in the number of cases reported in 2005.



Additional Information:

Of the cases reported, some form of travel during the incubation period was identified, therefore exposure likely occurred outside of Davis County

Action Steps: None

Future Steps: None

CHOLERA

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report immediately and submit appropriate specimens to the Utah Public Health Laboratory

Purpose of Surveillance:

- To identify cases and common source outbreaks for investigation
- To eliminate sources of transmission

Disease Description:

Cholera is a severe and potentially fatal diarrheal disease caused by infection with certain toxin-producing strains of *Vibrio cholera*. In the United States, cholera was prevalent in the 1800s but has been virtually eliminated by modern sewage and water treatment systems. However, as a result of improved transportation, more persons from the United States travel to parts of Africa, Asia, or Latin America where epidemic cholera is occurring. U.S. travelers to areas with epidemic cholera may be exposed to the cholera bacterium. In addition, travelers may bring contaminated seafood back to the United States, which has caused food-borne outbreaks.

During 2006, there were **no cases** of cholera reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

CRYPTOSPORIDIOSIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify common source outbreaks for investigation

Disease Description:

Cryptosporidiosis is an infection caused by the protozoan organism *Cryptosporidium parvum*. *Cryptosporidia* have been found in many hosts, including man, cattle and other domestic mammals. Infections occur via person-to-person, fecal-oral, animal-to-person, and waterborne transmission. During the past two decades, crypto has become recognized as one of the most common causes of waterborne disease within humans in the United States. The parasite may be found in drinking water and recreational water in every region of the United States and throughout the world.

During 2006, there were **no cases** of cryptosporidiosis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

CYCLOSPORIASIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify common source outbreaks for investigation

Disease Description:

Cyclosporiasis is an infection caused by the parasite *Cyclospora cayetanensis*. *Cyclospora* may be transmitted by ingestion of contaminated water or food. Outbreaks linked to contaminated water, as well as outbreaks linked to various types of fresh produce, have been reported in the United States. It is not yet known whether animals can be infected and serve as sources of infection for humans.

During 2006, there were **no cases** of cyclosporiasis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

ENTEROHEMORRHAGIC *E. coli* (EHEC)

Disease Reporting Requirements:

Healthcare Providers – report cases within 3 working days of identification

Laboratories – report cases within 3 working days of identification and submit isolate to the Utah Public Health Laboratory

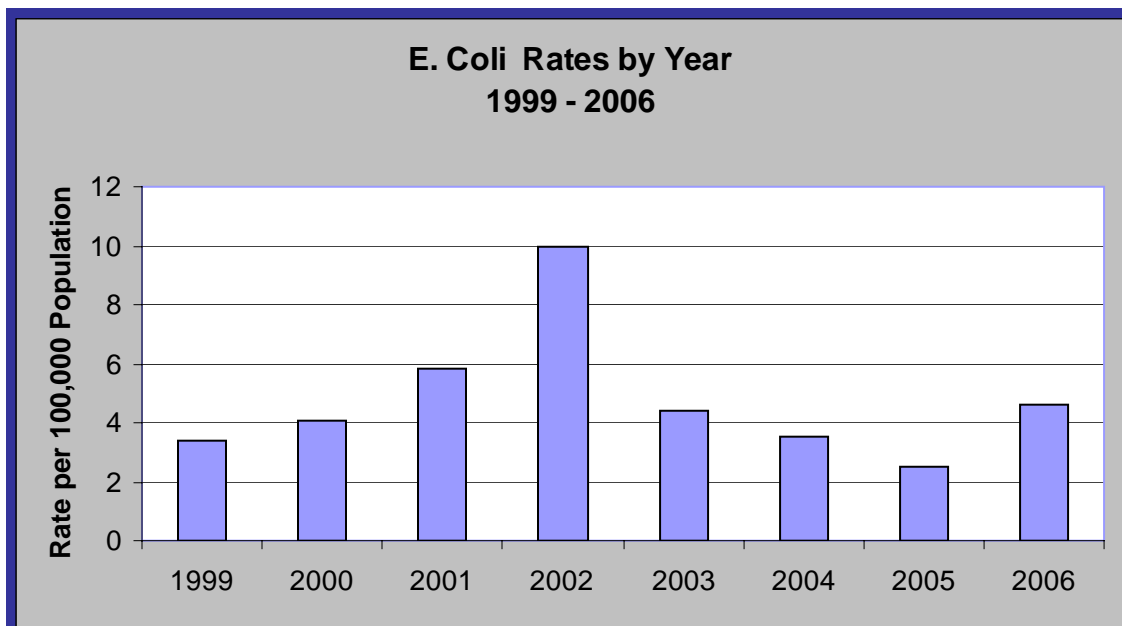
Purpose of Surveillance:

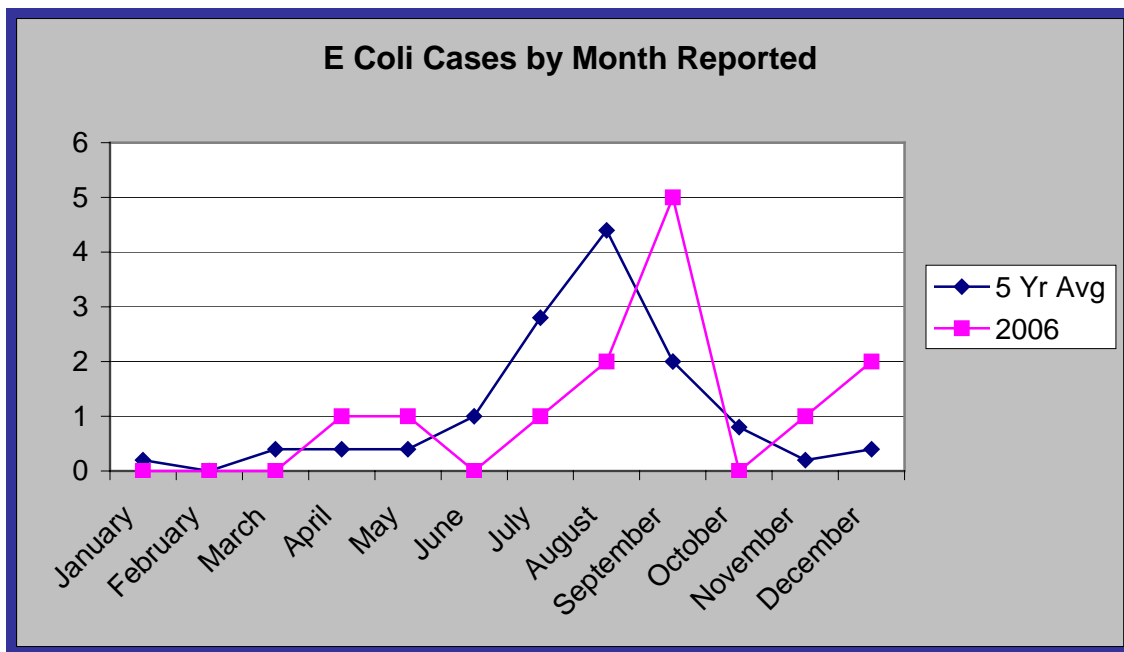
- To identify sporadic cases and common source outbreaks
- To promote disease control measures

Disease Description:

E. coli is a bacteria that normally lives in the intestines of humans and animals. There are many strains of *E. coli* such as 0121, 011, 026 and the most common strain 0157:H7. These strains of *E. coli* produce Shiga toxins that can cause hemorrhagic colitis, manifested as bloody stools. Sources of transmission include consumption of undercooked contaminated ground beef and other beef products. Other sources of transmission include unpasteurized milk, drinking or swimming in water that is contaminated with sewage, or eating unwashed fruits or vegetables that have been fertilized with cow manure. Person-to-person transmission can occur within households, childcare centers, and long-term care facilities.

During 2006, there were **14 cases** of *E. coli* reported in Davis County, compared to 7 reported in 2005. Four of the cases reported in September were part of a national outbreak of *E. coli* O157:H7 associated with consumption of raw spinach. Typically, the number of reports of *E. coli* peaks during the summer months.





Additional Information:

Cases of *E.coli* 0157:H7 are taken seriously by the Communicable Disease program. Preliminary reports are acted upon to ensure that there are no ongoing identified risks to the community. One Davis County family was dramatically affected by the U.S. spinach outbreak and resulted in two young children developing HUS.

Action Steps:

- Environmental Health staff contacted area restaurants and food markets to ensure that bagged spinach was removed until the CDC cleared the situation.
- Supplemental surveys were used on all *E.coli* cases reported during the time frame of concern, which assesses the various sources of *E.coli* exposures.
- Free stool testing was offered to those with possible risks.
- Press releases and media interviews were conducted in an effort to keep the community aware of this potential risk.
- An information hotline, staffed with a public health nurse, was advertised to assist Davis County citizens with their questions.
- Developed and piloted a new enteric disease investigation form.

Future Steps:

- Ongoing public education regarding food safety techniques.
- Implementation of new enteric disease investigation form that provides a more in-depth look into the various enteric disease cases.
- Continue efforts to link enteric diseases cases by the results of PFGE patterns provided by UPHL.
- Collaboration among physicians, hospitals, laboratories and other Utah health departments to assist in the early identification and control of foodborne illnesses.
- Enhancement of Foodborne Outbreak investigation teams to include Environmental Health, Communicable Disease, and Epidemiology staff.

GIARDIASIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

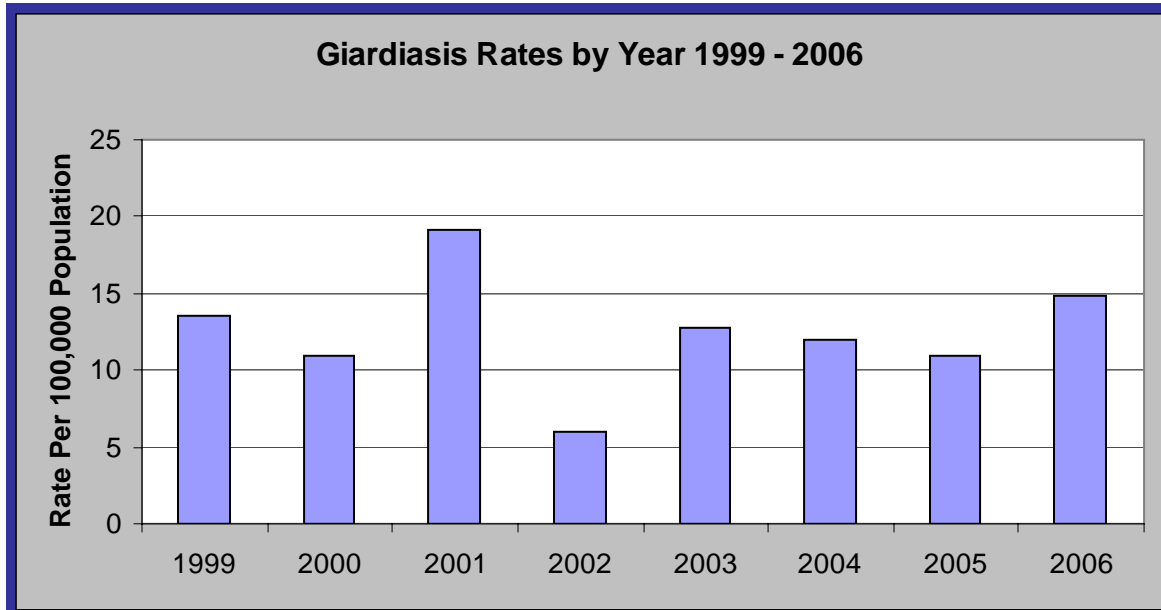
Purpose of Surveillance:

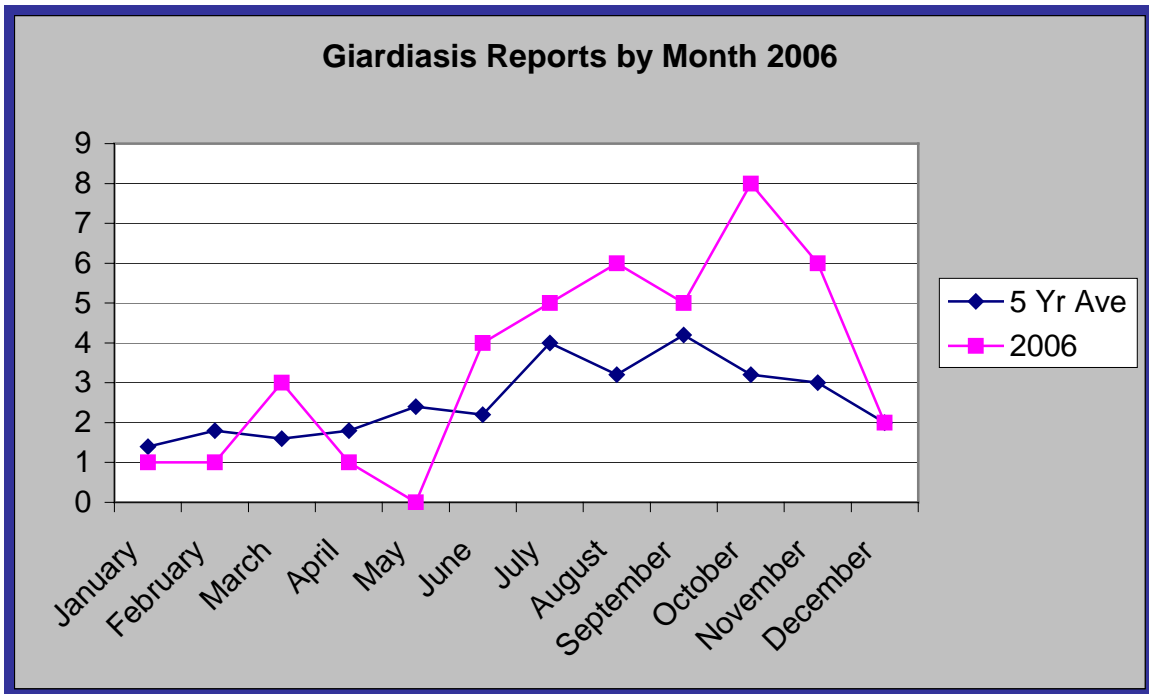
- To identify common source outbreaks
- To identify and eliminate sources of transmission

Disease Description:

Giardiasis is an infection of the upper small intestine caused by *Giardia lamblia*, a flagellate protozoan, found widely in nature. Humans and other mammals, (especially beavers, dogs, and cats), are reservoirs, and shed the organism in their stool. Persons with giardiasis are infectious to others for the entire period of their illness, which can be weeks or months. Severity of disease varies from no symptoms to chronic diarrhea.

During 2006, there were **42 cases** of giardiasis reported in Davis County, which is an increase over the 32 reported in 2005.





Additional Information:

Childcare settings pose an elevated risk due to diapered children and a higher possibility of cross contamination. Recreation exposure (lakes, oceans, streams) is also a likely culprit for giardia and turned out true with many of the cases in Davis County.

Action Steps:

- Development and pilot of new enteric disease investigation form.
- Free stool testing for symptomatic contacts

Future Steps:

- Ongoing public education regarding food safety techniques
- Implementation of new enteric disease investigation form that provides a more in-depth look into the various enteric disease cases
- Collaboration among physicians, hospitals, laboratories and other Utah health departments to assist in the early identification and control of foodborne illnesses.

HEMOLYTIC UREMIC SYNDROME (POST DIARRHEAL)

Disease Reporting Requirements:

Healthcare Providers - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify cases caused by communicable diseases
- To identify common source outbreaks
- To facilitate disease control measures for cases caused by communicable diseases

Disease Description:

Hemolytic Uremic Syndrome (HUS) is a life threatening illness characterized by hemolytic anemia, thrombocytopenia, and acute renal failure. Infection with *E. coli* 0157:H7 and other serotypes of Shiga toxin-producing *E. coli* (STEC) is believed to be the leading cause of HUS in the United States.

During 2006, there were **4 cases** of HUS reported in Davis County. Three of the cases were linked to a nationwide outbreak of *E. coli* 0157:H7 associated with the consumption of raw spinach.

Additional information:

8% of those who are diagnosed with *E.coli* 0157:H7 will progress on to HUS (Hemolytic Uremic Syndrome) or TTP (Throbotic thrombocytopenic purpura). Other diseases or conditions may also cause HUS (pneumococcal pneumonia, pregnancy and/or postpartum, AIDS, and certain medications). Although most of the pediatric HUS cases are cause by *E.coli* 0157:H7, most of the adult TTP cases have an unknown etiology.

Action Steps:

- All pediatric cases that are diagnosed with HUS caused by *E.coli* 0157:H7 are excluded from daycare and/or school until the health department can verify (2) negative stools.
- Symptomatic contacts are encouraged to seek medical attention and testing to prevent the likelihood of additional HUS or TTP cases. Prompt diagnosis and intervention measures provide ill individuals the best outcome.
- An extensive history is obtained, which helps determine if there is an ongoing public health threat in the community.
- Control and Prevention education is provided to the cases and their families/contacts.

Future Steps:

- Ongoing public education regarding food safety techniques
- Implementation of new enteric disease investigation form that provides a more in-depth look into the various enteric disease cases
- Collaboration among physicians, hospitals, laboratories and other Utah health departments to assist in the early identification and control of foodborne illnesses.

LISTERIOSIS

Disease Reporting Requirements:

Healthcare Providers - report cases within 3 working days of identification

Laboratories - report cases within 3 working days of identification and submit appropriate specimen to the Utah Public Health Laboratory

Purpose of Surveillance:

- To identify common source outbreaks for investigation
- To identify and eliminate sources of transmission including contaminated food products

Disease Description:

Listeriosis is a bacterial infection caused by *Listeria monocytogenes*. It is usually transmitted via consumption of contaminated food. In elderly and immunocompromised persons, sepsis and meningitis are the main presentations. Pregnant women may experience a mild, flu-like illness followed by fetal loss or bacteremia and meningitis in their newborns. Immunocompromised persons may experience acute febrile gastroenteritis. In the U.S., an estimated 2,500 persons become seriously ill with listeriosis each year.

During 2006, there were **2 cases** of listeriosis reported in Davis County. One case was identified as a septic infection, the other case manifested as a soft tissue infection.

Additional Information: None

Action Steps: None

Future Steps: None

NOROVIRUS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To detect outbreaks
- To facilitate outbreak control measures

Disease Description:

Noroviruses are named after the original strain “Norwalk virus,” which caused an outbreak of gastroenteritis in a school in Norwalk, Ohio, in 1968. Currently, there are at least five norovirus genogroups, which in turn are divided into at least 31 genetic clusters. Noroviruses are transmitted primarily through the fecal-oral route, either by consumption of fecally contaminated food or water or by direct person-to-person spread. Environmental and fomite contamination may also act as a source of infection. Good evidence exists for transmission due to aerosolization of vomitus that presumably results in droplets contaminating surfaces or entering the oral mucosa and being swallowed. No evidence suggests that infection occurs through the respiratory system. CDC estimates that 23 million cases of acute gastroenteritis are due to norovirus infection, and it is now thought that at least 50% of all foodborne outbreaks of gastroenteritis can be attributed to noroviruses.

During 2006, there was **one case** of norovirus reported in Davis County. The case was linked to an outbreak in another county.

Additional Information:

The Communicable Disease Surveillance and Control program responded to (3) separate gastrointestinal illness clusters in Davis County, which were thought to be caused by the Norovirus. Due to the fairly short onset (24-48 hours) and duration (typically 24 hours), plus the self-limiting mild-to-moderate manifestation, ill individuals typically don't seek medical attention. Therefore, some norovirus outbreaks are missed. Reports to the health department are coming in after the fact, making it difficult to get a confirmed specimen.

Action Steps:

- On all (3) gastrointestinal clusters, Communicable Disease staff interviewed ill individuals to help identify a possible causative agent
- Environmental Health also conducted site inspections to ensure health code compliancy
- Collaboration took place between local health districts due to either facilities and/or ill individuals residing in different county boundaries
- Free stool testing was offered

Future Steps:

- Encourage ill individuals to seek medical attention early in their illnesses
- Distribution of Norovirus posters to food establishments, hospitals, clinics, LTCF and schools. This poster explains how to control norovirus and provides instructions on disinfection of contaminated environments
- Provide information to the community via website on proper hand washing techniques

SALMONELLOSIS

Disease Reporting Requirements:

Healthcare Providers - report cases within 3 working days of identification

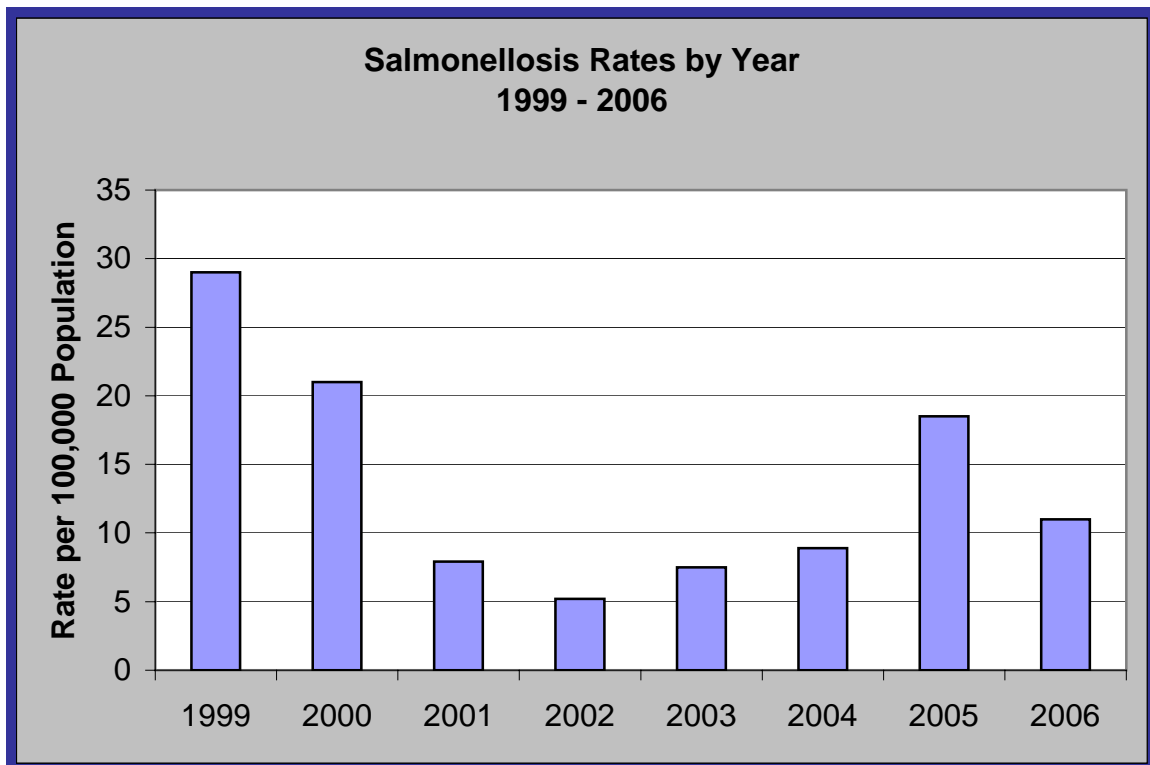
Laboratories - report cases within 3 working days of identification and submit isolate to the Utah Public Health Laboratory

Purpose of Surveillance:

- To identify common source outbreaks for investigation
- To identify and eliminate sources of and institute control measures such as excluding infected food handlers from work

Salmonellosis is a bacterial infection generally transmitted through ingestion of contaminated food or water. Salmonellosis can also be transmitted by direct contact with an infected human or animal. *Salmonella* bacteria are commonly found in food products and are carried by many domestic animals. Every year, approximately 40,000 cases of salmonellosis are reported in the United States. Because many milder cases are not diagnosed or reported, the actual number of infections may be thirty or more times greater. Salmonellosis is more common in the summer than winter. Children are the most likely to get salmonellosis. Young children, the elderly, and the immunocompromised are the most likely to have severe infections. It is estimated that approximately 600 persons die each year with acute salmonellosis.

During 2006, there were **31 cases** of Salmonellosis reported in Davis County, a decrease from the 63 cases reported in 2005.



Additional Information:

- Due to the high potential spread, ill food handlers, daycare providers, and direct caregivers are excluded from work until two negative stools are obtained.
- Antimicrobial treatment for *Salmonella* infection is not typically indicated and may, in fact, prolong carriage.
- Because of the many different serotypes of *Salmonella*, serotyping and PFGE patterns play an important role in identifying sources and epidemiological links in the community. All isolated organisms are analyzed to identify linkage with other Utah and U.S. cases. *S. enteritidis* was identified as the most commonly reported *Salmonella* serotype during 2006.

SEROTYPE	Number	Proportion
ENTERITIDIS	10	32.30%
TYPHIMURIUM	5	16.10%
UNKNOWN	4	12.90%
MUENCHEN	2	6.50%
PARATYPHI B VAR. JAVA	2	6.50%
AGO	1	3.20%
ALBANY	1	3.20%
CHOLERAESUIS	1	3.20%
HEIDELBERG	1	3.20%
INFANTIS	1	3.20%
MONTEVIDEO	1	3.20%
NEWPORT	1	3.20%
SAINTPAUL	1	3.20%
Total	31	100.00%

Action Steps:

- Cases were interviewed using the improved investigation form, which provides a more in-depth picture

Future Steps:

- Ongoing public education regarding food safety techniques
- Implementation of new enteric disease investigation form that provides a more in-depth look into the various enteric disease cases
- Ensure collaboration among physicians, hospitals, laboratories and other Utah health departments to assist in the early identification and control of foodborne illnesses.

SHIGELLOSIS

Disease Reporting Requirements:

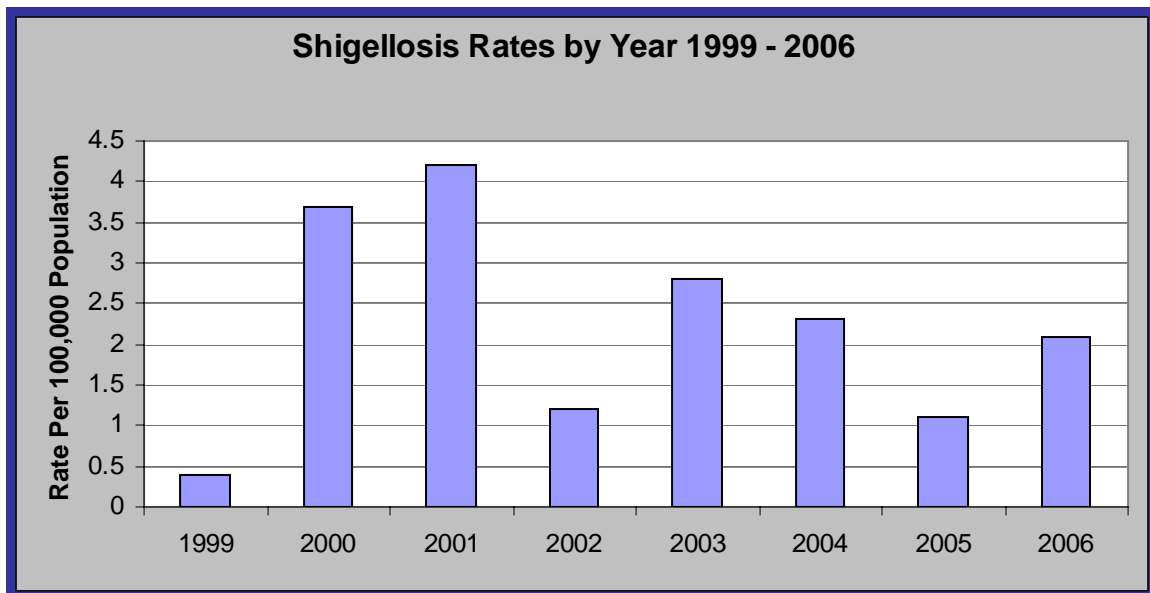
Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify common source outbreaks for investigation
- To identify and eliminate sources of transmission and institute control measures such as excluding infected food handlers and caregivers from work

Shigellosis is a human disease of the large and small intestines caused by the *Shigella* bacteria. Shigellosis infections result from direct contact or by consumption of contaminated food or water. Every year, about 18,000 cases of shigellosis are reported in the United States. Because many milder cases are not diagnosed or reported, the actual number of infections may be twenty times greater. Shigellosis is particularly common and causes recurrent problems in settings where hygiene is poor and can sometimes sweep through entire communities. Shigellosis is more common in summer than winter. Children, especially toddlers aged 2 to 4, are the most likely to get shigellosis. Many cases are related to the spread of illness in child-care settings, and many more are the result of the spread of the illness in families with small children.

During 2006, there were **6 cases** of shigellosis reported in Davis County, which is an increase over the 4 cases reported in 2005.



Additional Information: None

Action Steps: None

Future Steps: None

TRICHINELLOSIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify common source exposures
- To identify and eliminate infected food products and prevent additional cases

Disease Description:

Trichinellosis is a disease caused by an intestinal roundworm, *Trichinella spiralis*, which infects many wild mammals. Human infection results from eating undercooked pork or wild game harboring the encapsulated cysts of *T. spiralis*. Trichinellosis is now relatively rare, with an average of 12 cases per year reported in the U.S. The number of cases has decreased because of legislation prohibiting the feeding of raw-meat garbage to hogs, commercial and home freezing of pork, and the public awareness of the danger of eating raw or undercooked pork products. Today cases more often associated with eating raw or undercooked wild game meats.

During 2006, there were **no cases** of trichinosis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

TYPHOID FEVER

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report suspect cases immediately and submit appropriate specimen to the Utah

Public Health Laboratory

Purpose of Surveillance:

- To identify and track chronic typhoid carriers at risk of transmitting disease
- To identify and eliminate sources of transmission

Disease Description:

Typhoid fever is a severe bacterial infection caused by *Salmonella typhi*. It is transmitted via consumption of contaminated water and food. *S. typhi* is shed intermittently in the feces and urine of chronic carriers for prolonged periods. CDC reports about 400 cases per year in the United States, occurring mostly among travelers. An estimated 21 million cases of typhoid fever and 200,000 deaths occur worldwide.

During 2006, there were **no cases** of typhoid fever reported in Davis County.

Additional Information: None

Action Steps: None

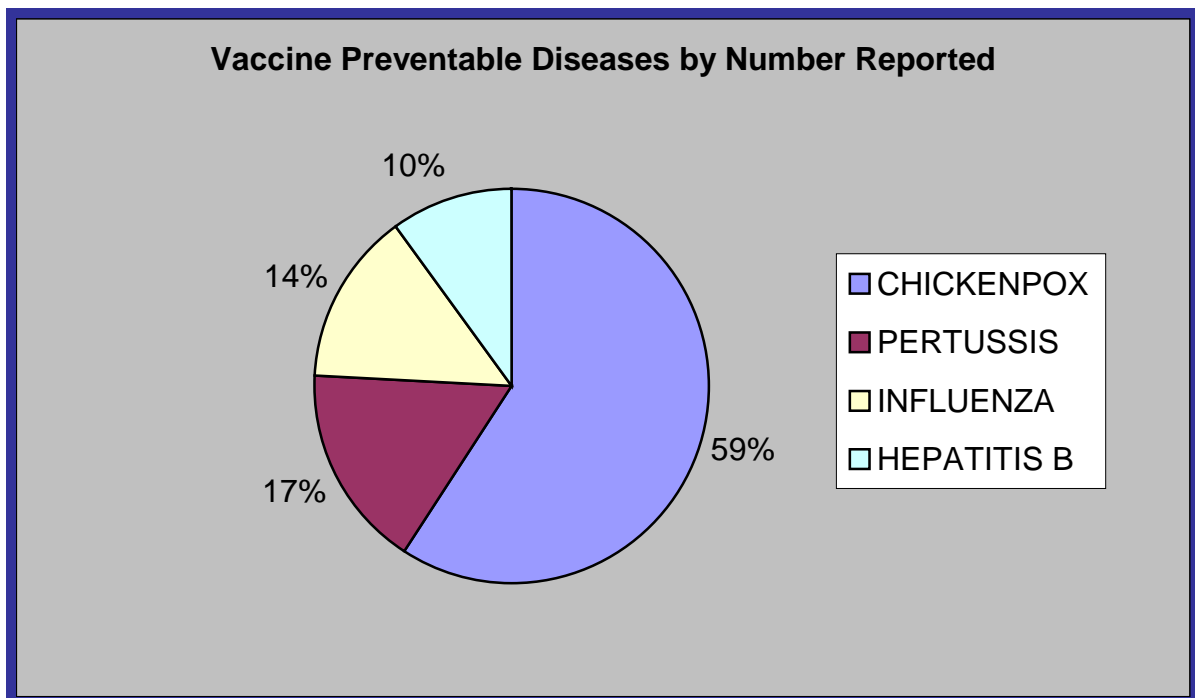
Future Steps: None

Vaccine Preventable Diseases

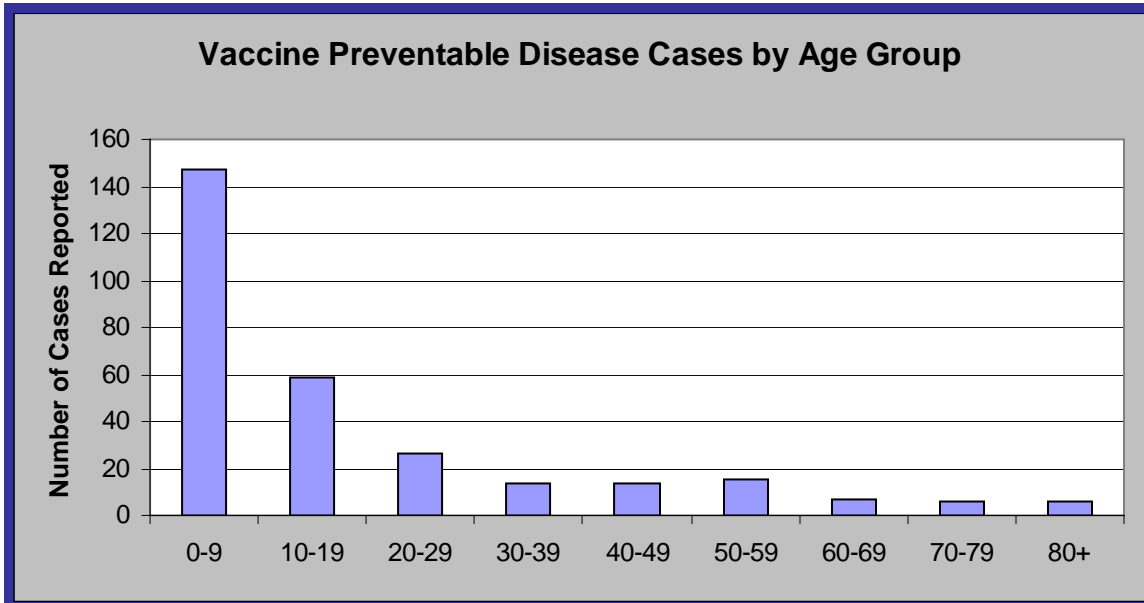
Vaccine Preventable Diseases (VPD) are those diseases that are preventable via routine vaccination. Many of the vaccine-preventable diseases used to disable or even kill children in America. Rates of VPDs have dramatically declined in large part because of immunizations. Yet worldwide each year, 27 million children do not receive basic vaccines and 2 million people die of vaccine-preventable diseases. Immunizations are the most effective step in protecting the community against VPDs. However, these diseases still occur because of importation, vaccine failure or breakthrough, and incomplete or no vaccinations.

Once a VPD is diagnosed, it is extremely important that public health measures be quickly implemented to contain the spread. These measures include the administration of prophylactic medications and vaccines, isolation of the infected individual, quarantine of exposed individuals, and public education.

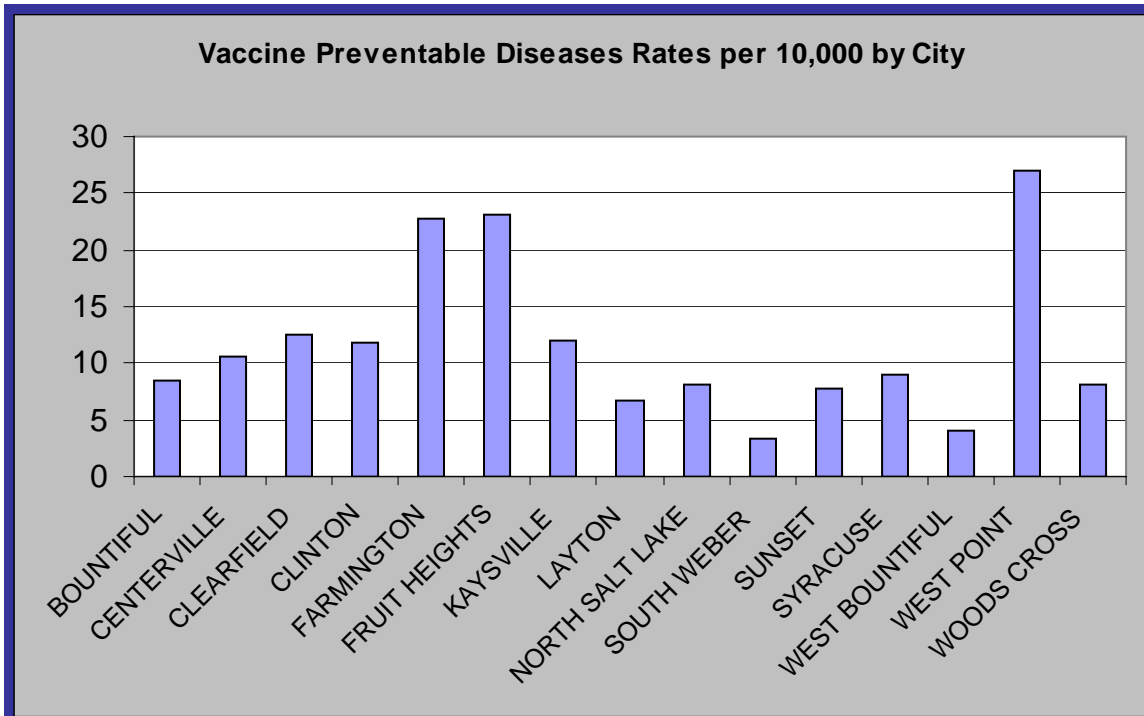
What: Chickenpox was the disease most often reported in this category with 59% of the cases followed by pertussis (17%), influenza (14%), and hepatitis B (10%).



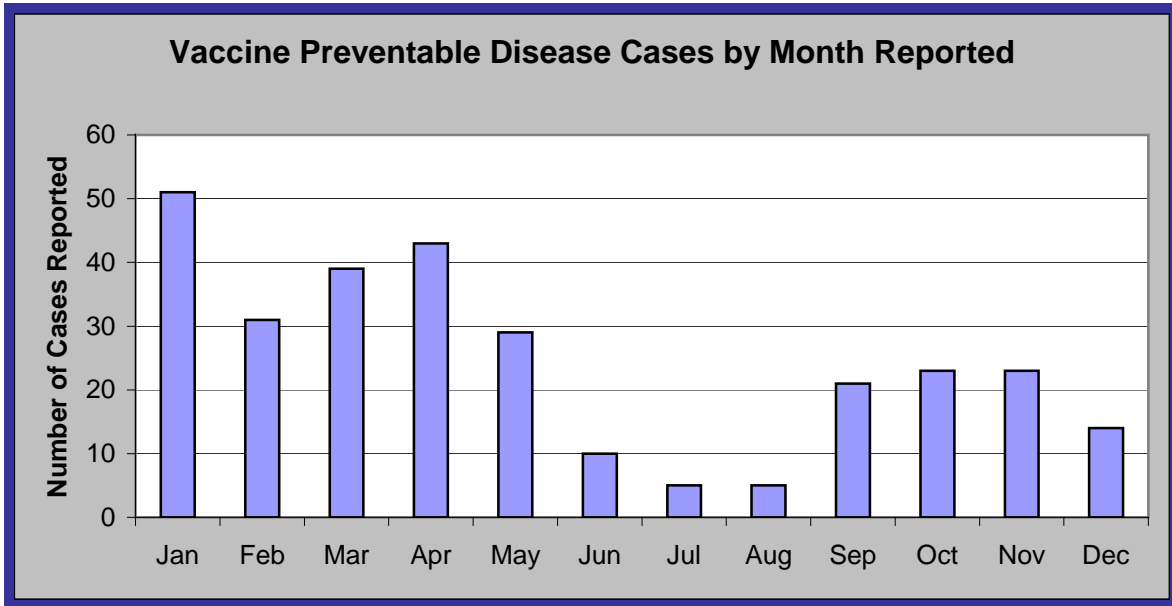
Who: Vaccine Preventable Diseases were most often reported among children under age 10 and were reported equally among males and females.



Where: The average number of vaccine preventable diseases was about 12 cases per 10,000 residents. The cities of Farmington, Fruit Heights, and West Point saw approximately double the number of cases in 2006.



When: Vaccine Preventable Diseases occur more frequently during the winter months. However, vaccine preventable diseases follow the school year.



CHICKENPOX

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report within 3 working days of identification

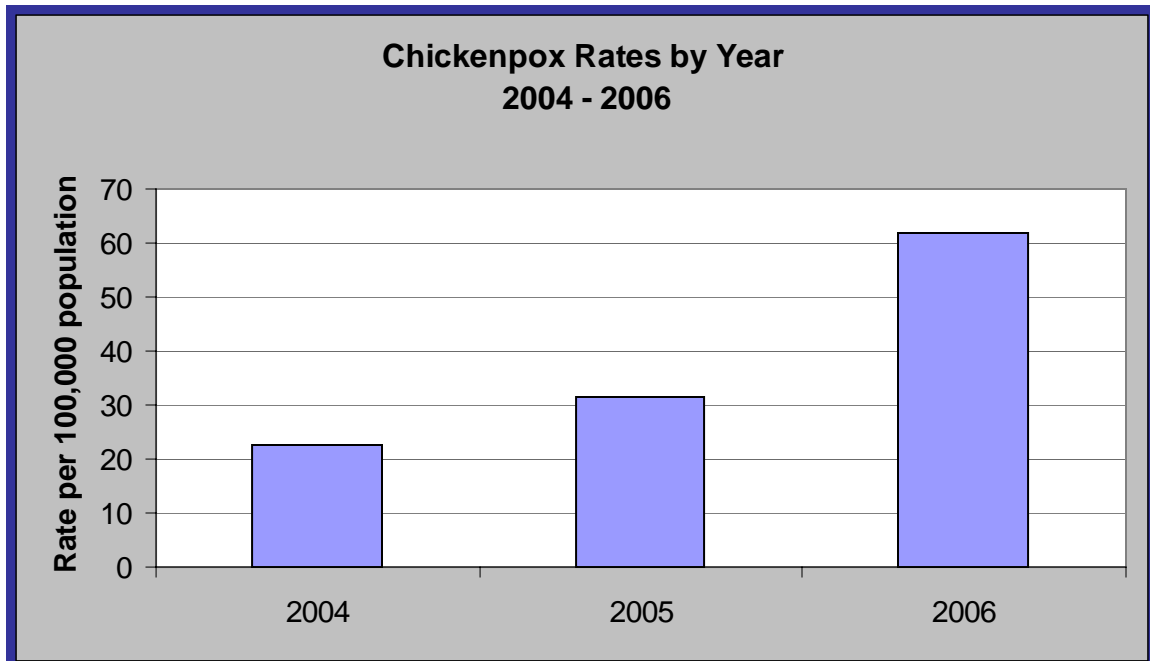
Purpose of Surveillance:

- To identify contacts of cases that may be at high risk for serious complications
- To identify outbreaks and institute control measures
- To monitor disease trends
- To monitor the impact of vaccination on incidence, morbidity, and mortality

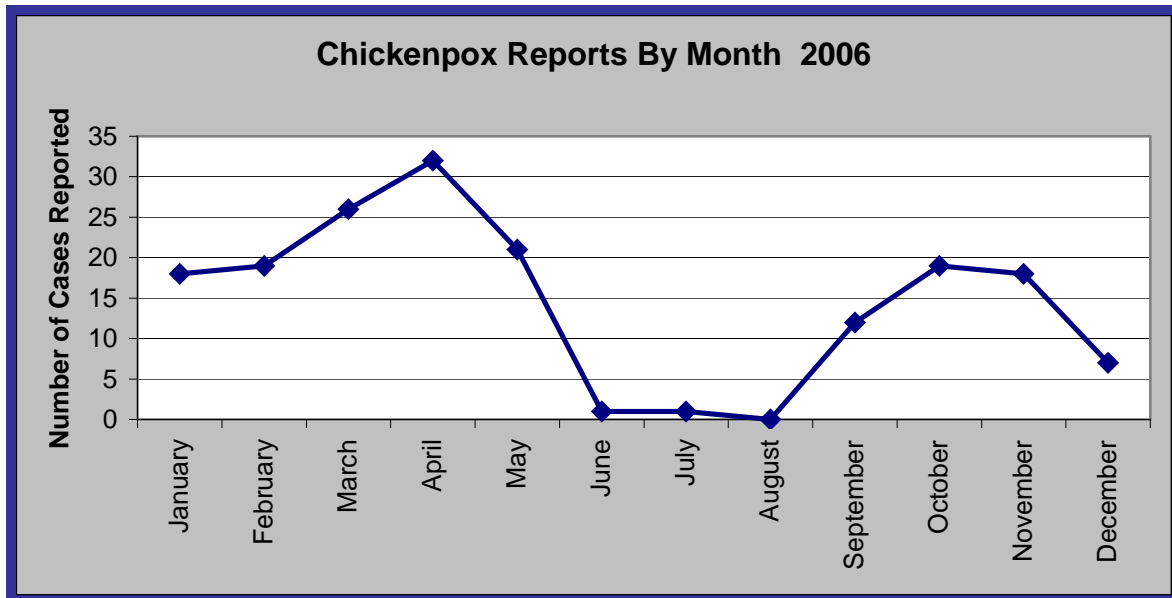
Disease Description:

Chickenpox is a vaccine preventable disease caused by the varicella-zoster virus (VZV), a member of the *Herpesvirus* group. Chickenpox is transmitted primarily via airborne respiratory secretions or vesicle fluid, but may also be transmitted by direct contact with an infected person or fomite.

During 2006, there were **174 cases** of chickenpox reported in Davis County, an increase over the 87 cases reported in 2005.



Few cases were reported during the summer months, likely because chickenpox cases are often transmitted in school settings and school nurses/school staff report most of these cases.



Additional Information:

Over the past few years, surveillance has noted that reports of “breakthrough” chickenpox cases have occurred more frequently. In Davis County, 64% of reported cases had a history of vaccination and were classified as breakthrough disease. After vaccination, about 1 in 10 persons do not develop enough protection to completely prevent chickenpox disease. If exposed to chickenpox, these individuals may develop a mild case of chickenpox with less than 50 blisters. When this occurs, duration is shorter and symptoms are milder.

Due to this increase in breakthrough occurrence, CDC is now recommending a routine two dose varicella vaccination for children and a second dose “catch-up” vaccination for children, adolescents and adults who previously received only one dose.

Action Steps:

- Revised chickenpox report form was distributed to schools within Davis County that was user friendly and required minimal time to complete. This facilitated better reporting of numbers and a more accurate disease description

Future Steps:

- Distribution of educational information regarding the new CDC recommendations
- Enforcement of Utah’s immunization requirements for school entry, which includes a varicella vaccination or disease history documentation

DIPHThERIA

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report immediately and submit appropriate specimens to the Utah Public Health Laboratory

Purpose of Surveillance:

- To facilitate appropriate treatment of cases, disease control measures, and preventive treatment for contacts of cases

Disease Description:

Diphtheria is a vaccine preventable disease caused by toxin-producing strains of the bacteria *Corynebacterium diphtheriae*. It is transmitted by direct person-to-person contact with respiratory secretions and cutaneous lesions.

The incidence of diphtheria is approximately 0.001 cases per 100,000 population in the U.S. since 1980; before the introduction of vaccine in the 1920s incidence was 100-200 cases per 100,000 population. Diphtheria remains endemic in developing countries. The countries of the former Soviet Union have reported >150,000 cases in an epidemic which began in 1990.

During 2006, there were **no cases** of diphtheria reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

HEPATITIS A

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To promptly identify contacts of cases to initiate post exposure prophylaxis
- To identify common source outbreaks for investigation
- To identify potential sources of transmission and institute control measures such as excluding infected food handlers from work

Disease Description:

Hepatitis A is a vaccine preventable disease caused by the hepatitis A virus. It is transmitted via the fecal-oral route either by direct contact or by consumption of contaminated food or water. Hepatitis A rates have declined steadily since 1999 when routine vaccination was recommended for children living in states with highest incidence including Utah. In 2004, the U.S. incidence dropped to an all time low of 1.9 cases/100,000 population.

Davis County had **no cases** of Hepatitis A in 2006. The last hepatitis A case in Davis County was reported in 2004.

Additional Information:

Even though Davis County had no confirmed cases in 2006, 4 suspect cases were evaluated and ruled out. Contacts to confirmed cases outside of Davis County were interviewed and provided access to prophylaxis.

Action Steps: None

Future Steps:

- On-going promotion of the hepatitis A vaccine

HEPATITIS B (ACUTE AND CHRONIC INFECTIONS)

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify outbreaks for investigation
- To identify contacts to facilitate testing and post-exposure prophylaxis
- To identify infected pregnant women, and ensure prompt treatment to prevent infection of the newborn
- To identify sources of nosocomial transmission

Disease Description:

Hepatitis B (HBV) is a vaccine preventable disease caused by the hepatitis B virus. It is transmitted through blood or body fluids. Common modes of transmission include percutaneous and permucosal exposure to infectious body fluids, sharing needles or syringes, sexual contact with an infected person, and perinatal exposure to an infected mother. In the U.S., 5% to 8% of the total population has been infected, and .2% to .9% of the population has chronic infection. Acute HBV infection occurs most commonly among adolescents and adults in the U.S.

During 2006, there were **28 cases** of chronic HBV and **1 case** of acute HBV reported in Davis County. Of the chronic cases, 8 tested positive during pregnancy and were referred to our Perinatal Hepatitis B Program.

Additional Information:

Of the non-pregnant hepatitis B cases, many were foreign born or had a potential exposure (i.e., substance abuser, sexual partner positive, household contact positive)

Action Steps:

- Contacts to all chronic and acute cases of hepatitis B are recommended to seek testing to determine if exposure resulted in infection
- Those contacts who were not infected are encouraged to received the hepatitis B vaccination series

Future Steps:

- On-going promotion of hepatitis B vaccination

Perinatal Hepatitis B Program:

The Perinatal Hepatitis B program is responsible for the case management (evaluation, monitoring, testing and facilitation of HBIG/Hep B vaccination) of all reported cases of HBsAg positive pregnant females in Davis County. Within this program, women who are prenatally tested and determined to be chronic hepatitis B carriers are interviewed to identify close contacts. These identified close contacts (sexual partners, household contacts, and children) are tested to see if they are infected with the hepatitis B virus. If serology testing is negative, the hepatitis B series is offered – free of charge. Prior to the delivery of their baby, arrangements are made with the delivering hospital to administer HBIG and first dose of hepatitis B vaccine within 12 hours after delivery in an effort to protect the newborn from acquiring the virus. This infant is monitored until all 3 doses of vaccine have been administered. At that point, serology testing is conducted to ensure antibody protection. If the infant is a non-responder to the vaccine, a repeat series is begun. Testing is again done at completion of the second series. The case management of HBsAg positive pregnant female can range from 8-18 months.

In 2006, the Perinatal Hepatitis B program accomplished the following:

- Provided case management for 21 cases
- All delivered babies received HBIG and 1st dose Hepatitis B vaccine within 12 hours
- 10 infants completed their Hepatitis B vaccine series
- 9 infants had a protective titer after completion of series
- 1 infant had an insufficient titer and began of a second series
- 13 close contacts were identified and tested
- 11 of these contacts were vaccinated

INFLUENZA

Disease Reporting Requirements:

Healthcare Providers - report hospitalized cases and influenza-associated pediatric deaths within 3 working days of identification

Laboratories - report hospitalized cases and influenza-associated pediatric deaths within 3 working days of identification, and submit appropriate specimens to the Utah Public Health Laboratory

Purpose of Surveillance:

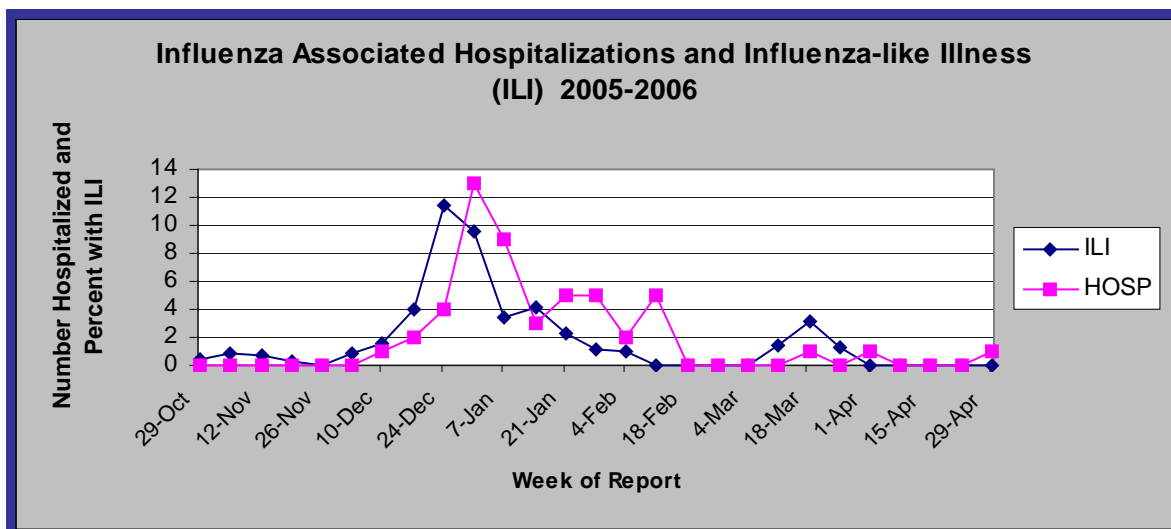
- To determine where, when, and what influenza viruses are circulating
- To determine if influenza activity is increasing or decreasing, but not to ascertain how many people have become ill with influenza during the influenza season
- To detect changes in the epidemic that would be consistent with the introduction of a new or mutated virus

Disease Description:

Influenza is an acute respiratory disease caused by RNA viruses from the *Orthomyxoviridae* family. Humans are the primary reservoir for human influenza, but many influenza species can also infect birds and mammals. Influenza is transmitted via droplets and direct contact.

During the 2005-2006, influenza season, there were **52 cases of hospitalized influenza** reported in Davis County. There were **no influenza-associated pediatric deaths** reported.

In addition to tracking influenza hospitalizations, patients with influenza-like illness (ILI) are monitored through sentinel physician surveillance. ILI is defined as fever $\geq 100^{\circ}$ F with sore throat and/or cough. During the 2005-2006 season, Davis County monitored ILI at two medical clinics. The 2005-2006 influenza season peaked during the last week in December in Davis County.



Additional Information:

The influenza vaccine provides 70-80% protection (in young healthy adults) against the anticipated circulating influenza strain. The protective level is a little less in the elderly, but it is still estimated that the vaccine can lessen the severity of disease in this population by 50-60% and decrease deaths due to influenza by 80%.

Action Steps:

- Investigation of all hospitalized cases of influenza to help identify circulating strains, predisposing risk factors, and vaccination status
- All pediatric deaths due to influenza are investigated to monitor virulence of influenza strains.
- Unvaccinated contacts of positive cases are encouraged to get the influenza vaccine
- Public educated on respiratory etiquette techniques and basic personal hygiene to help interrupt the disease transmission
- Multiple outreach influenza vaccination clinics offered throughout the community, with an emphasis on at-risk populations

Future Steps:

- On-going promotion of influenza vaccine
- Enhance school absentee surveillance to characterize influenza season
- Sentinel ILI (influenza-like illness) monitoring
- Improved tracking and assessment of immunization rates among health care workers

MEASLES

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report suspect cases immediately

Purpose of Surveillance:

- To rapidly identify and confirm cases
- To identify susceptible contacts of cases for measles post-exposure prophylaxis
- To implement disease control measures
- To assess progress toward disease elimination goals.

Disease Description:

Measles is an acute viral respiratory illness. Although it is one of the most highly infectious diseases known, it is vaccine preventable. Measles is transmitted by direct contact with infectious droplets or, less commonly, by airborne spread. Since 1992, the incidence in U.S. has been low and indigenous cases are uncommon. Cases of measles continue to occur from importation of the virus from other countries.

During 2006, there were **no cases** of measles reported in Davis County.

Additional Information:

Although no cases of measles were confirmed in 2006, 2 cases were reported as suspect measles and a prompt investigation was initiated until the disease could be ruled out.

Action Steps: None

Future Steps: None

MUMPS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify cases and contacts of cases to implement disease control measures

Disease Description:

Mumps is an acute vaccine preventable viral disease. The mumps virus replicates in the upper respiratory tract and is spread through direct contact with respiratory secretions or saliva or through fomites.

In the United States, since 2001, an average of 265 mumps cases have been reported each year. However, during January 1 - October 7, 2006, a total of 45 states and the District of Columbia reported 5,783 confirmed or probable mumps cases to CDC. This was the largest number of mumps cases reported to CDC in a single year since 1991, when 4,264 cases were reported. It was concluded that multiple factors contributed to the spread of the 2006 outbreak, which was first detected on a college campus in Iowa.

During 2006, there were **no cases** of mumps reported in Davis County. During 2005, three imported cases were reported.

Additional Information:

Although no cases of mumps were confirmed in 2006, 2 cases were reported as suspect mumps and a prompt investigation was initiated until the disease could be ruled out.

Action Steps: None

Future Steps: None

PERTUSSIS

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report immediately and submit isolate to the Utah Public Health Laboratory

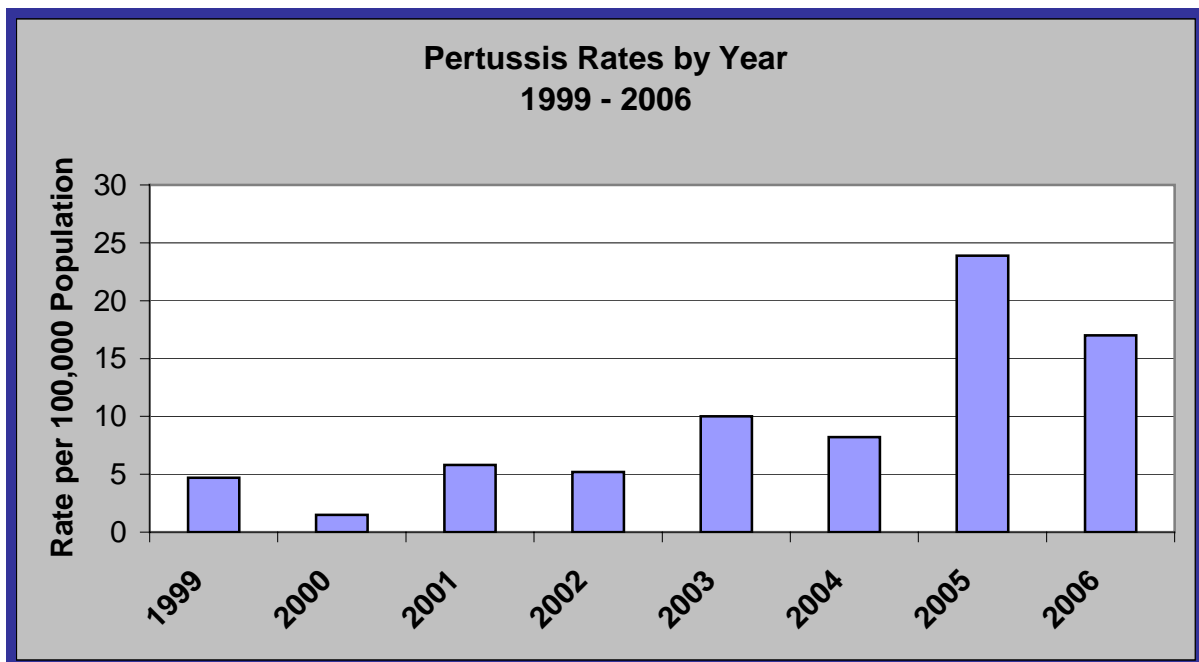
Purpose of Surveillance:

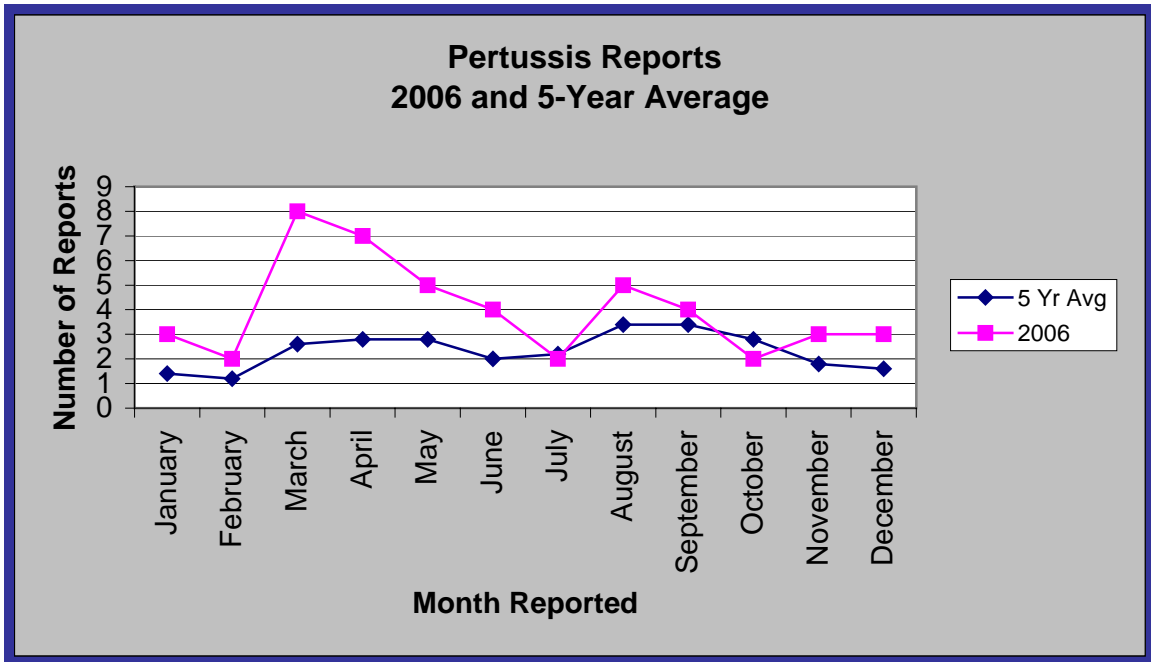
- To prevent transmission of pertussis to persons at high risk for severe illness and complications
- To identify outbreaks and implement disease control, including early recognition, testing and treatment of cases

Disease Description:

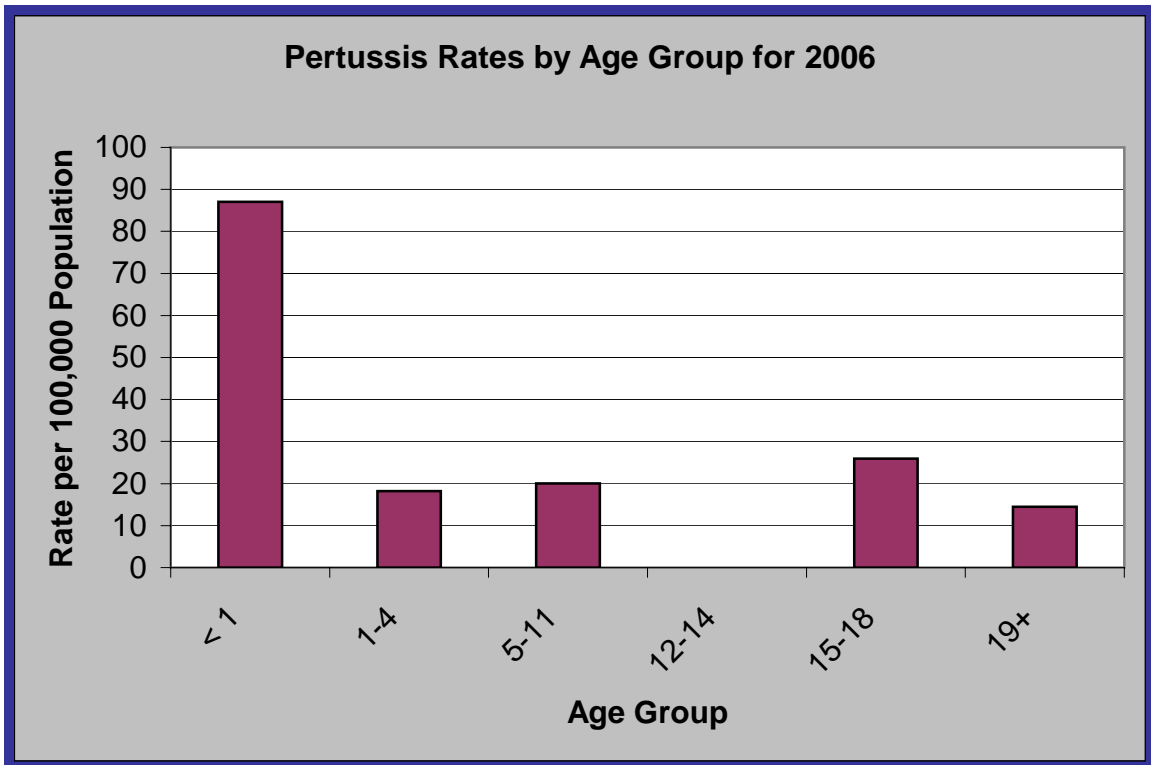
Pertussis is a vaccine preventable disease caused by the bacteria *Bordetella pertussis*. Pertussis is of particular concern in infants, because of higher rates of hospitalization, pneumonia, and death compared with older children and adults.

During 2006, there were **49 cases** of pertussis reported in Davis County, a decrease from the 66 cases reported during 2005.





The rate of pertussis in 2006 was highest among infants due to incomplete vaccination status followed by the adolescent age group, whose immunity has waned.



Additional Information:

Pertussis cases are investigated promptly and aggressively in an effort to stop disease spread. Effective preventative antibiotic medications are recommended for exposed contacts of confirmed/probable cases. Declining vaccine protection has been noted over the past several years, yet there was no adolescent/adult vaccine available to help with this growing issue. Now, an effective adolescent/adult vaccine (Tdap) is available to boost the waning immunity. The new Utah immunization requirement for 7th grade school entry is gradually making an impact on the pertussis disease burden in Davis County. Students are now required to receive a Td or Tdap booster.

Actions Steps:

- Investigation of lab confirmed and/or clinically diagnosed pertussis cases to ensure adequate treatment, exclusion from public gatherings (school, work, day care) until antibiotic treatment renders the case non-infectious (typically 5 days after initiating treatment), and identification of close contacts so that preventative treatment can be facilitated
- Ill contacts are treated as suspect cases and handled as above
- Medical community education on updated treatment/prophylaxis therapy
- Public education on disease transmission and preventative measures

Future Steps:

- On-going promotion of DTaP in children and the new Tdap booster vaccine for adolescents and adults
- Updating the medical community on the recommended testing procedures and antibiotic therapy

POLIOMYELITIS (PARALYTIC)

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report suspect cases immediately

Purpose of Surveillance:

- To identify cases of imported poliomyelitis
- To identify cases and contacts of cases requiring post-exposure prophylaxis

Disease Description:

Poliomyelitis paralytic disease is caused by the highly infectious poliovirus. This virus is transmitted primarily person-to-person via the fecal-oral route. The majority of cases are asymptomatic, with flaccid paralysis occurring in less than 1 percent of all infections. Poliovirus was declared eradicated from the Western Hemisphere in 1991.

During 2006, there were **no cases** of polio reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

RUBELLA

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report suspect cases immediately

Purpose of Surveillance:

- To identify cases and implement disease control measures
- To prevent transmission to susceptible pregnant women

Rubella is a viral vaccine preventable disease caused by the togavirus of the genus *Rubivirus*. Rubella is spread person-to-person via respiratory transmission. Rubella cases are at record low levels in the U.S., but remain a global burden. CDC estimates 110,000 cases of congenital rubella syndrome occur annually throughout the world.

During 2006, there were **no cases** of rubella reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

TETANUS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To facilitate prompt appropriate diagnostic testing and management of cases
- To identify sources of infection
- To determine factors contributing to the failure of vaccine delivery

Disease Description:

Tetanus is an acute vaccine preventable disease caused by an exotoxin of *Clostridium tetani*, the tetanus bacillus, which grows anaerobically at the site of a wound. Tetanus spores are everywhere in the environment and can contaminate wounds of all types. Tetanus incidence in the U.S. has rapidly declined since the introduction of tetanus toxoid vaccines. Less than one case per 100,000 population is reported in the U.S. each year.

During 2006, there were **no cases** of tetanus reported in Davis County.

Additional Information: None

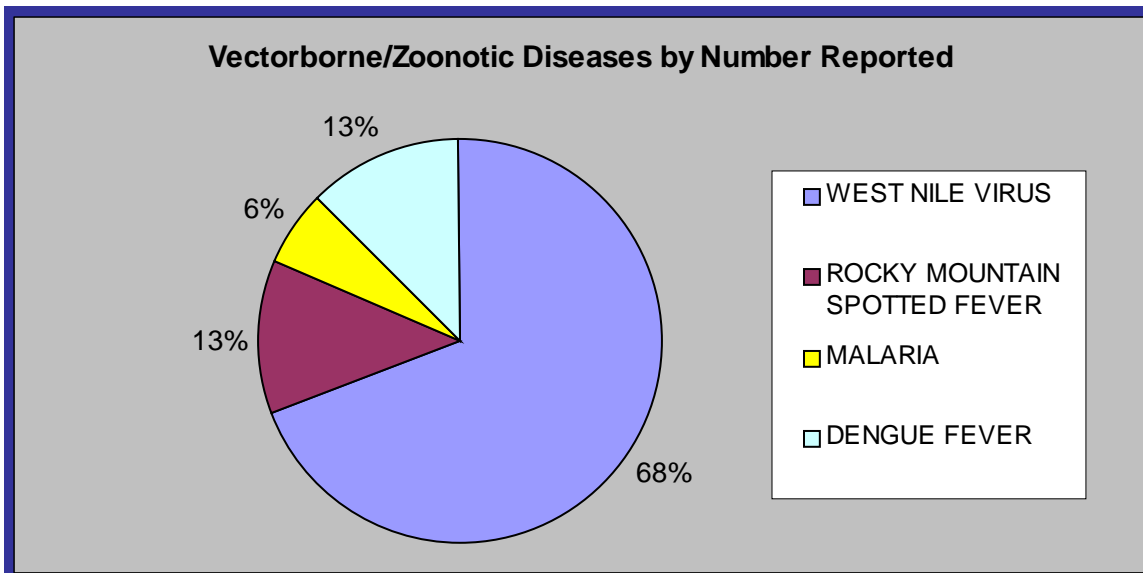
Action Steps: None

Future Steps: None

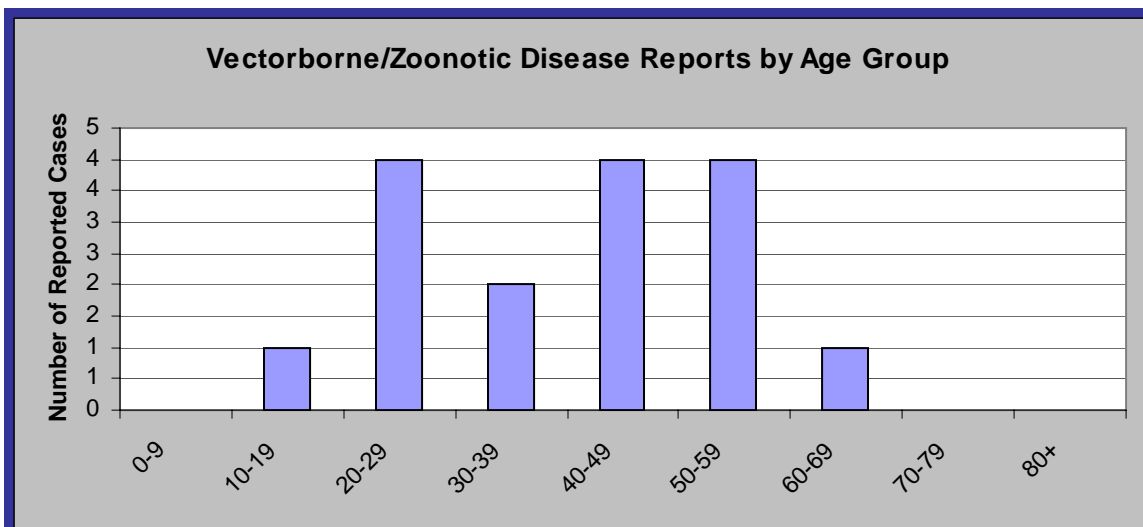
Vectorborne/Zoonotic Diseases

Vectorborne/Zoonotic Diseases are those diseases transmitted via an animal or insect source. Vectorborne/Zoonotic diseases do occur in Davis County. However some of these diseases, such as malaria and dengue fever, are typically acquired outside of the United States. In this section all reportable vectorborne/zoonotic diseases will be discussed.

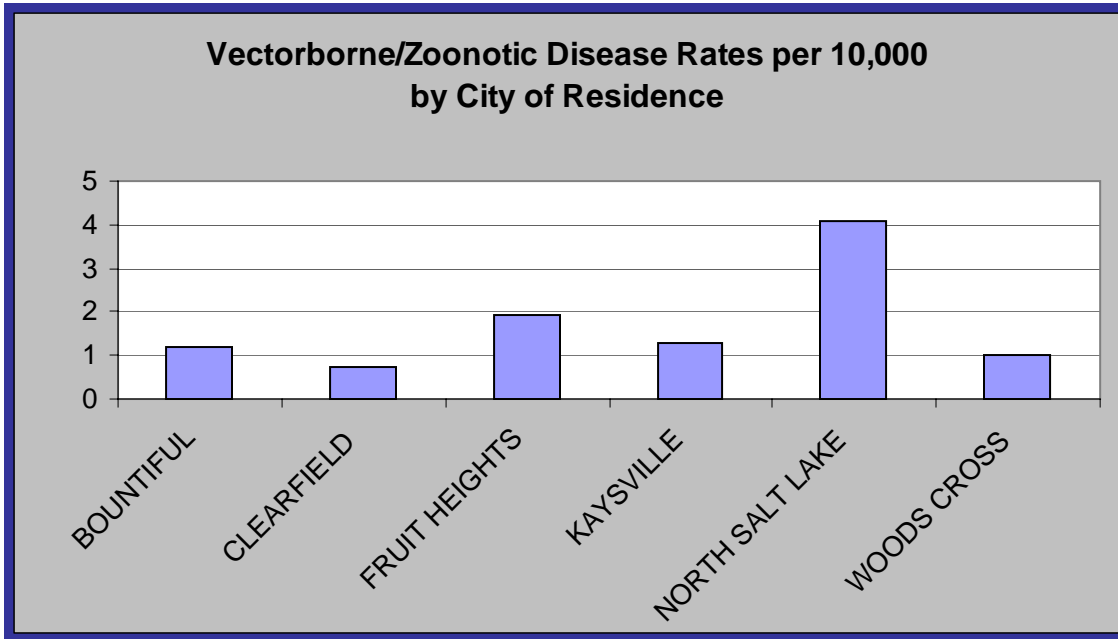
What: In 2006, Davis County had **16 cases** reported of vectorborne/zoonotic diseases. West Nile virus was the most commonly reported disease in this category.



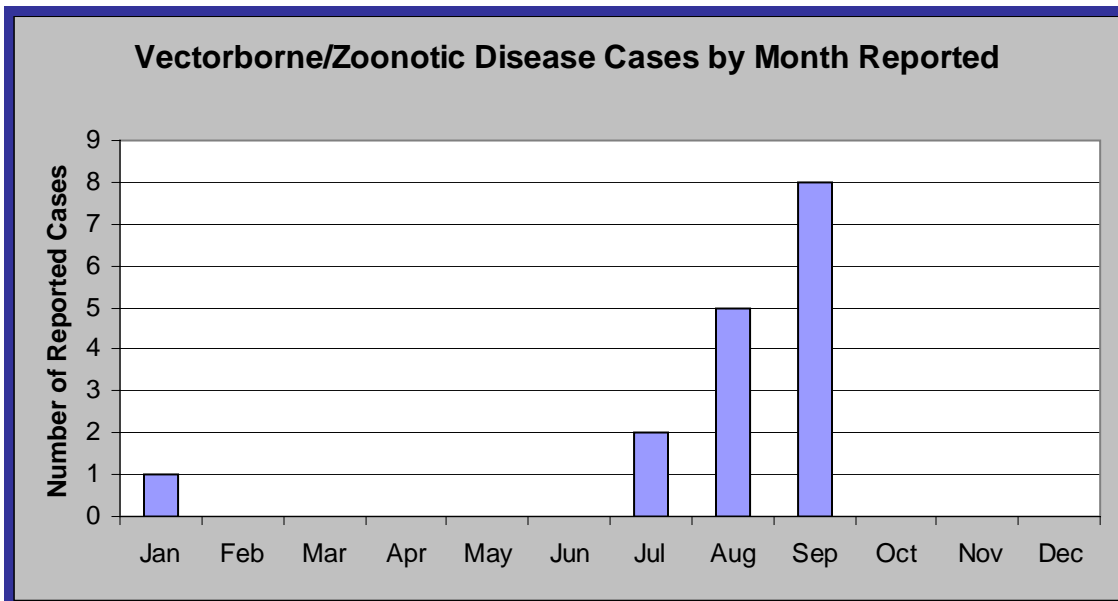
Who: Vectorborne/Zoonotic diseases were most often reported among males (56%) and all cases were reported among adults age 19 – 60 years.



Where: Although some reported Vectorborne/Zoonotic diseases were contracted outside of the U.S., cases were most often reported among residents of the south end of the county. Cities not shown on the chart did not have any cases reported in 2006.



When: Vectorborne/Zoonotic diseases were most often reported in summer months. This is due mainly to West Nile and the seasonality of the virus.



ANTHRAX

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report immediately and submit isolate to the Utah Public Health Laboratory

Purpose of Surveillance:

- To confirm suspected cases and identify common source outbreaks
- To identify infections suspected of bioterrorism origin

Disease Description:

Anthrax is an acute infectious disease caused by the spore-forming bacteria *Bacillus anthracis*. Anthrax most commonly occurs in warm-blooded animals, but can also infect humans. Although anthrax among humans is extremely rare in the United States, anyone can get anthrax if they are exposed to infected animals, or if they eat undercooked meat from infected animals. Workers who are exposed to dead animals and animal products from countries where anthrax is more common are at the highest risk. Anthrax infection can occur in three forms: cutaneous (skin), inhalation, and gastrointestinal. Direct person-to-person spread of anthrax is unlikely.

In the United States, incidence of naturally acquired anthrax is extremely rare (~ 1-2 cases of cutaneous disease per year). Gastrointestinal anthrax is rare, but may occur as explosive outbreaks associated with ingestion of infected animals. Worldwide, the incidence is unknown, though *B. anthracis* is present in most of the world. Unreliable reporting makes it difficult to estimate the true incidence of human anthrax worldwide. *B. anthracis* is considered a potential agent of bioterrorism. In fall 2001, 22 cases of anthrax (11 inhalation, 11 cutaneous) were identified in the United States following intentional contamination of the mail.

There were **no cases** of anthrax reported in Davis County in 2006.

Additional Information: None

Action Steps: None

Future Steps: None

ARBOVIRUS INFECTION

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report within 3 working days of identification

Purpose of Surveillance:

- To identify common source outbreaks
- To identify and eliminate sources of transmission

Disease Description:

Arboviral (short for arthropod-borne) infections are caused by any of a number of viruses transmitted by arthropods such as mosquitoes and ticks. These infections generally occur during warm weather months when mosquitoes are active. Young children and the elderly appear to be most susceptible to arboviral infections. Most arboviral infections are spread by infected mosquitoes. Fortunately, only a few types of mosquitoes are capable of transmitting the disease and only a small number of the mosquitoes are actually carrying the virus.

During 2006, there were **11 cases** of West Nile virus, a type of arboviral infection. Other arboviral diseases include Dengue Fever, Colorado Tick Fever, Yellow Fever and St. Louis encephalitis.

Additional Information: None

Action Steps: None

Future Steps: None

BRUCELLOSIS

Disease Reporting Requirements:

Healthcare Providers – report cases within 3 working days of identification

Laboratories – report cases within 3 working days of identification and submit appropriate specimens to the Utah Public Health Laboratory

Purpose of Surveillance:

- To confirm suspected cases and identify common source outbreaks
- To identify infections suspected of bioterrorism origin

Disease Description:

Brucellosis is caused by an infection with a bacterium of one of the *Brucella* species. Persons at highest risk for brucellosis are those who work with animals that are infected, such as veterinarians and ranchers, and persons who consume raw milk or cheeses or ice cream made with raw milk. Brucellosis may also be transmitted to humans if they are inadvertently exposed to live brucellosis vaccine by a needle stick or other accident.

Brucellosis is not very common in the United States, where 100 to 200 cases occur each year. But brucellosis can be very common in countries where animal disease control programs have not reduced the amount of disease among animals. *Brucella* is considered a potential agent of bioterrorism.

During 2006, there were **no cases** of brucellosis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

DENGUE FEVER

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify sources of infection

Disease Description:

Dengue Fever (DF) and dengue hemorrhagic fever (DHF) are caused by one of four closely related, but antigenically distinct, virus serotypes (DEN-1, DEN-2, DEN-3, and DEN-4), of the genus *Flavivirus*. Infection with one of these serotypes provides immunity to only that serotype for life, so persons living in a dengue-endemic area can have more than one dengue infection during their lifetime. DF and DHF are primarily diseases of tropical and sub tropical areas, and the four different dengue serotypes are transmitted between humans and the *Aedes* mosquito. Infections produce a spectrum of clinical illness ranging from a nonspecific viral syndrome to severe and fatal hemorrhagic disease. Important risk factors for DHF include the strain of the infecting virus, as well as the age, and especially the prior dengue infection history of the patient.

During 2006, there were **2 cases** of Dengue Fever reported in Davis County. Both cases recently returned from Dengue endemic areas.

Additional Information: None

Action Steps: None

Future Steps: None

ECHINOCOCCOSIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify the source of infection

Disease Description:

Echinococcosis or hydatid disease results from being infected with the larvae of the tapeworms *Echinococcus granulosus*, *E. multilocularis*, or *E. vogeli*. *E. granulosus* is found most commonly in dogs that consume the viscera of infected sheep, but can also be found in coyotes, wolves, dingos, and jackals. *E. multilocularis* is found in foxes, coyotes, dogs and cats. *E. vogeli* has been identified only in Central and South America.

During 2006, there were **no cases** of echinococcosis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

EHRlichiosis

Disease Reporting Requirements:

Healthcare Providers and Laboratories report cases within 3 working days of identification

Purpose of Surveillance:

- To facilitate appropriate diagnostic testing and treatment
- To identify sources of infections
- To provide disease prevention information

Disease Description:

Ehrlichiosis is caused by several bacterial species in the genus *Ehrlichia*. Currently, three known species of *Ehrlichia* in the United States and one in Japan are known to cause disease in humans. In the United States, human diseases caused by *Ehrlichia* species have been recognized since the mid-1980s. Ixodidae ticks are the vectors for *Ehrlichia* transmission.

The occurrence of these diseases mirrors the geographic distributions and seasonal activities of the tick vectors. Most patients with ehrlichiosis are infected in the spring and summer when they are more commonly exposed to vector ticks.

During 2006, there were **no cases** of ehrlichiosis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

HANTAVIRUS PULMONARY SYNDROME

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To facilitate diagnostic testing
- To facilitate environmental clean up of rodent-infested areas where cases have occurred

Disease Description:

Hantavirus Pulmonary Syndrome was first reported in the United States in 1993. The Sin Nombre virus, a member of the hantavirus genus is responsible for the majority of the HPS cases in the United States.

As of January 17, 2007, a total of 460 cases of hantavirus pulmonary syndrome have been reported in the United States. The case count started when the disease was first recognized in May 1993. Thirty-five percent of all reported cases have resulted in death.

During 2006, there were **no cases** of Hantavirus Pulmonary Syndrome reported in Davis County.

Additional Information:

Two suspect cases of hantavirus were investigated in 2006. Both cases had exposure to rodent droppings. One case was exposed in California and the other case was exposed in Davis County. Both cases had some clinical symptoms consistent with non-pulmonary hantavirus infection. However, appropriate testing ruled out both cases.

Action Steps: None

Future Steps: None

LYME DISEASE

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To facilitate appropriate diagnostic testing and treatment
- To identify sources of infections
- To provide disease prevention information

Disease Description:

Lyme disease is caused by the spirochete *Borrelia burgdorferi*, which is transmitted by the bite of infected *Ixodes* ticks. In the U.S. exposure to Lyme disease is common in the northeastern states, Atlantic coastal states, and the upper Midwest.

During 2006, there were **no cases** of Lyme Disease reported in Davis County. However, 6 suspect cases were reported. All 6 cases were investigated and ruled out.

Additional Information: None

Action Steps: None

Future Steps: None

MALARIA

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify sources of infection

Disease Description:

Malaria is an infection caused by a parasite of the genus *Plasmodium*. *Anopheles* mosquitoes in tropical zones transmit the parasite. Malaria transmission has been eliminated in many countries of the world, including the United States and countries of Western Europe. However, cases of malaria still occur in these countries, mostly in returning travelers or immigrants.

During 2006, there was **1 case** of malaria reported in a Davis County resident who had recently returned from travel to a malaria endemic area.

Additional Information: None

Action Steps: None

Future Steps: None

PLAGUE

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report immediately and submit isolate to the Utah Public Health Laboratory

Purpose of Surveillance:

- To identify cases caused by bioterrorism
- To identify naturally-occurring sources of infection
- To identify contacts of cases requiring post-exposure prophylaxis

Disease Description:

Plague is a bacterial disease caused by *Yersinia pestis*. This bacterium is found in rodents and their fleas, in many areas of the world, including the United States. Clinical forms of plague include bubonic, septicemic, pneumonic, and pharyngeal. *Y. pestis* is considered a potential agent of bioterrorism.

During 2006, there were **no cases** of plague reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

PSITTACOSIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report within 3 working days of identification

Purpose of Surveillance:

- To identify sources of transmission and eliminate risk to others
- To facilitate appropriate diagnostic testing and treatment for infected persons
- To monitor clean-up of contaminated areas and management of infected birds

Disease Description:

Psittacosis is a bacterial disease caused by the inhalation of the desiccated droppings, secretions, or dust from the feathers of birds infected with *Chlamydia psittaci*.

Since 1996, fewer than 50 confirmed cases were reported in the United States each year. Likely many more cases may occur that are not reported.

During 2006, there were **no cases** of psittacosis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

Q FEVER

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify sources of transmission and reduce the risk of additional cases
- To identify cases due to bioterrorism

Disease Description:

Q Fever is a bacterial disease caused by *Coxiella burnetii*. Cattle, sheep, and goats are the primary reservoirs of *C. burnetii*. Infection of humans usually occurs by inhalation of these organisms from air that contains airborne barnyard dust contaminated by dried placental material, birth fluids, and excreta of infected herd animals. Ingestion of contaminated milk, followed by regurgitation and inspiration of the contaminated food, is a less common mode of transmission. Other modes of transmission to humans, including tick bites and human-to-human transmission, are rare. Many human infections are inapparent and because the disease is underreported, there is no reliable estimate of how many cases of Q fever have actually occurred worldwide. *C. burnetii* could be developed for use in biological warfare and is considered a potential terrorist threat.

During 2006, there were **no cases** of Q Fever reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

RABIES (Human and Animal)

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report suspect cases immediately

Purpose of Surveillance:

- To rapidly implement disease control measures
- To monitor the changing epidemiology of rabies

Disease Description:

Rabies is a preventable viral disease of mammals most often transmitted through the bite of a rabid animal. The vast majority of rabies cases reported to the Centers for Disease Control and Prevention (CDC) each year occur in wild animals like raccoons, skunks, bats, and foxes. Domestic animals account for less than 10% of the reported rabies cases, with cats, cattle, and dogs most often reported rabid. In Utah, the majority of cases are reported in bats.

Over the last 100 years, rabies in the United States has changed dramatically. More than 90% of all animal cases reported annually to CDC now occur in wildlife; before 1960 the majority were in domestic animals. The principal rabies hosts today are wild carnivores and bats. The number of rabies-related human deaths in the United States has declined from more than 100 annually at the turn of the century to one or two per year in the 1990s. Modern day prophylaxis has proven nearly 100% successful. In the United States, human fatalities associated with rabies occur in people who fail to seek medical assistance, usually because they were unaware of their exposure.

During 2006, there was **one case** of rabies reported in Davis County in a bat. **No human cases** were reported.

Additional Information:

During the late spring and summer months, reports of animal bites become more prevalent. Rabies post-exposure prophylaxis is evaluated on a case-by-case situation. Surveillance on positive animals guides the decision making-process. Rabies post-exposure prophylaxis may be available through hospital emergency rooms. However, individual insurances dictate where prophylaxis may be obtained.

Action Steps: None

Future Steps: None

RELAPSING FEVER

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify sources of infections
- To facilitate appropriate treatment
- To provide disease prevention information

Disease Description:

Relapsing fever is a systemic disease caused by the spirochetes *Borrelia hermsii* and *Borrelia turicatae*. It is transmitted to humans by the bites of argasid ticks infected with the *Borrelia* spirochete from feeding on infected rodents and squirrels. In the U.S., relapsing fever is a tickborne disease that typically occurs in the western states.

During 2006, there were **no cases** of relapsing fever reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

ROCKY MOUNTAIN SPOTTED FEVER

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To facilitate appropriate diagnostic testing and treatment
- To identify sources of infections
- To provide disease prevention information

Disease Description:

Rocky Mountain spotted fever (RMSF) is a disease caused by the bacterium *Rickettsia rickettsii* (rick-ETT-cee-uh rick-ETT-cee-eye), which is carried by ticks. RMSF is the most severe and most frequently reported rickettsial illness in the U.S. In the last 50 years, approximately 250-1200 cases of RMSF have been reported annually in the U.S., although it is likely that many more cases go unreported.

During 2006, there were **2 cases** of RMSF reported in Davis County. Both cases were military personnel who likely acquired their infections outside of Utah.

Additional Information: None

Action Steps: None

Future Steps: None

TULAREMIA

Disease Reporting Requirements:

Healthcare Providers– report suspect cases immediately

Laboratories – report suspect cases immediately and submit appropriate specimen to the Utah Public Health Laboratory

Purpose of Surveillance:

- To facilitate prompt and appropriate treatment
- To identify and eliminate sources of transmission
- To identify cases caused by bioterrorism

Disease Description:

Tularemia is a bacterial disease caused by the *Francisella tularensis*. Transmission occurs through the bites of arthropods that have fed on an infected animal, by handling infected animal carcasses, by eating or drinking contaminated food or water, or by inhaling infected aerosols in a laboratory setting. *Francisella tularensis* is considered a potential agent of bioterrorism. Approximately 200 cases tularemia are reported annually in the U.S. mostly in persons living in the south-central and western states.

During 2006, there were **no cases** of tularemia reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

VIRAL HEMORRHAGIC FEVER

Disease Reporting Requirements:

Healthcare Workers and Laboratories – report suspect cases immediately

Purpose of Surveillance:

- To identify source of infection and mode of transmission
- To study the pathogenesis of the viruses
- To gain knowledge about the ecology of these viruses and their hosts in order to provide advice about disease control and prevention

Disease Description:

Viral hemorrhagic fevers (VHFs) refer to a group of illnesses that are caused by four distinct families of viruses: arenaviruses, filovirus, bunyaviruses, and flaviviruses. Arthropod ticks, mosquitoes, and rodents serve as vectors for some of the illnesses. However, the hosts of some viruses remain unknown.

The viruses carried in rodent reservoirs are transmitted when humans have contact with urine, fecal matter, saliva, or other body excretions from infected rodents. The viruses associated with arthropod vectors are spread most often when the vector mosquito or tick bites a human, or when a human crushes a tick. However, some of these vectors may spread virus to animals, livestock, for example. Humans then become infected when they care for or slaughter the animals. Some viruses that cause hemorrhagic fever such as Ebola, Marburg, Lassa and Crimean-Congo hemorrhagic fever viruses can be spread from person-to-person.

Taken together, the viruses that cause VHFs are distributed over much of the globe. However, because each virus is associated with one or more particular host species, the virus and the disease it causes are usually seen only where the host species live(s).

During 2006, there were **no cases** of VHFs reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

WEST NILE VIRUS

Disease Reporting Requirements:

Healthcare Providers and Laboratories report within three working days of identification.

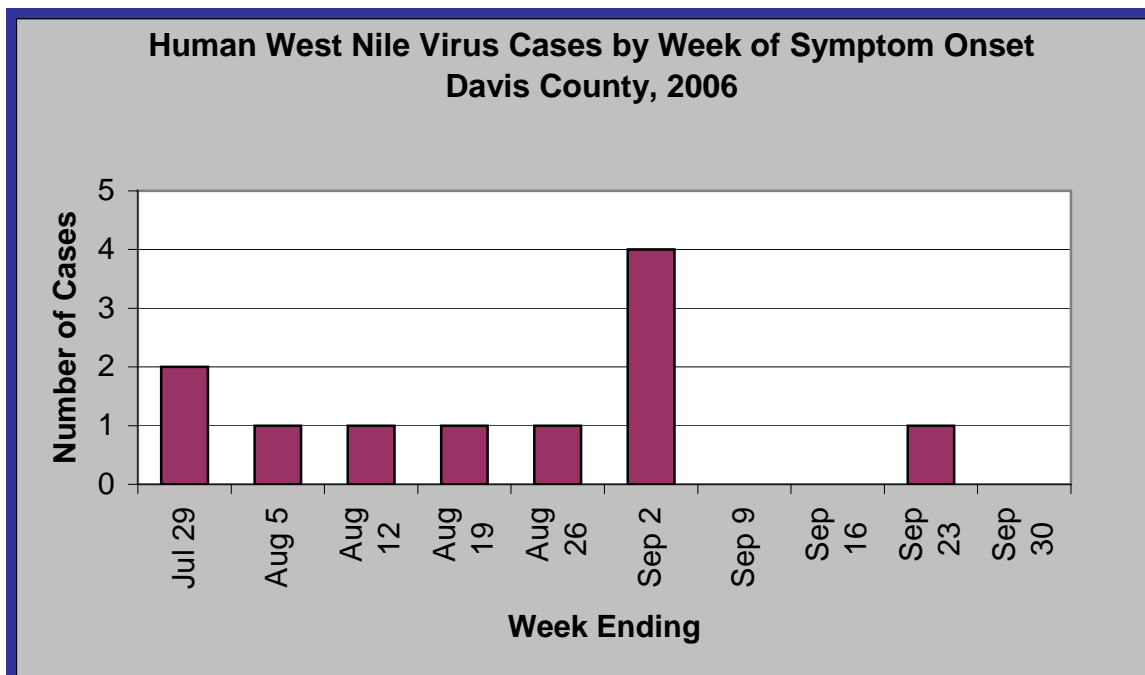
Purpose of Surveillance:

- To assess the impact of the disease
- To monitor trends
- To identify risk factors for infection and determine high risk populations
- To identify areas in need of targeted interventions

Disease Description:

Most West Nile virus (WNV) infections are mild and often clinically unapparent. Approximately 20% of those infected develop a generally mild illness (West Nile fever). Approximately 1 in 150 infections will result in severe neurological disease. The most significant risk factor for developing severe neurological disease is advanced age.

During 2006, there were **11 cases** of West Nile virus reported in Davis County.



Human Cases of WNV by Age Group & Clinical Diagnosis: Davis County, 2006				
Age Group	Fever	Neurologic Disease*	Death	Total
< 18	0	0	0	0
18 - 39	1	2	0	3
40 - 64	6	2	0	8
65 +	0	0	0	0
Total	7	4	0	11

* Neurologic disease includes the presentation of meningitis, encephalitis, and acute flaccid paralysis (poliomyelitis-like syndrome).

Non-human WNV Surveillance Positive Results: Davis County, 2006			
Sentinel Chickens	Horses	Mosquito Batches	Dead Birds
4	4	42	3

Additional Information:

In 2006, Davis County detected WNV activity through multiple surveillance sources (mosquito pools, sentinel chickens, veterinary reports of infected horses and confirmed human cases). Human cases were affected at all levels of the disease: asymptomatic infections detected through serology testing; mild-moderate illnesses – typically not requiring hospitalization; full neuroinvasive disease requiring hospitalization.

Action Steps:

- Investigation of confirmed cases to obtain clinical manifestations and infection demographics (location where disease may have been acquired)
- Infection demographics were used to determine mosquito abatement activities
- Public education campaign to ensure dissemination of information to at-risk populations
- Provided resource materials to the medical community
- Statewide weekly conference call
- Health fair booths with WNV literature and prevention messages
- Establishment of WNV information hotline

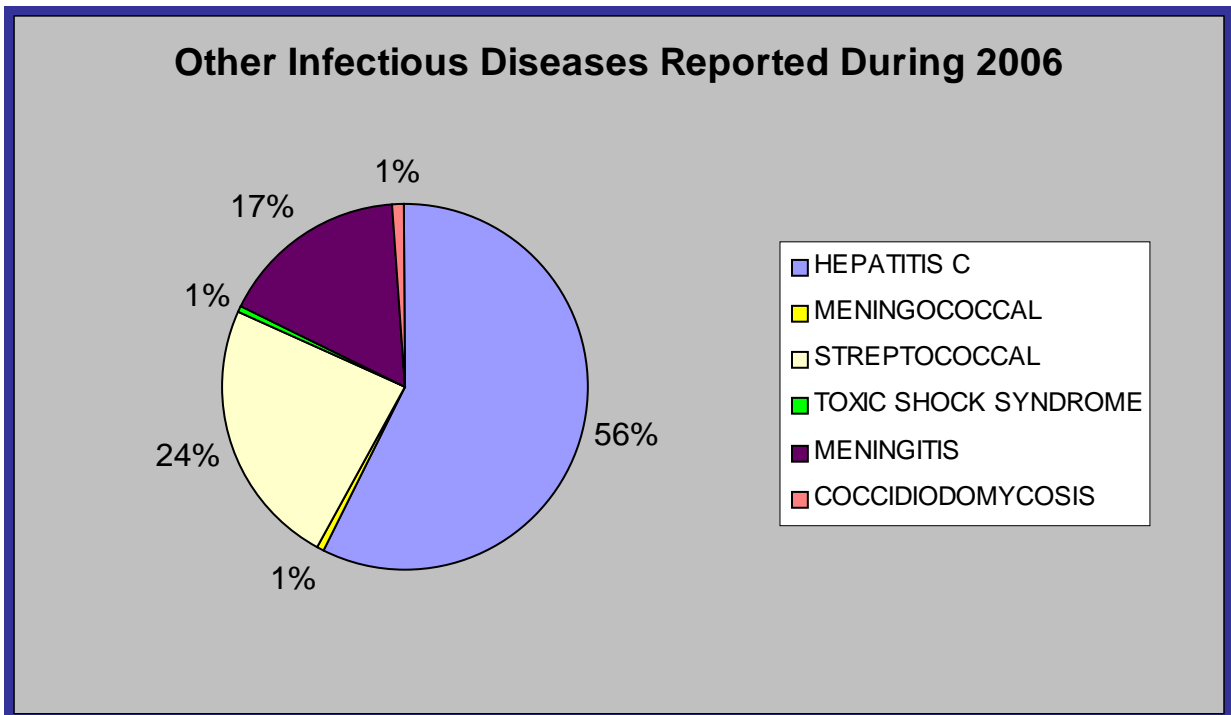
Future Steps:

- On-going public education campaign
- Enhanced surveillance activities to assist in the prompt detection of seasonal WNV activity

Other Infectious Diseases

All other disease that do not fall under a specific identified category will be discussed in this section.

WHAT: Hepatitis C cases made up the majority of this category followed by Streptococcal and Meningitis infections.



COCCIDIOIDOMYCOSIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify sources of infection and outbreaks for investigation

Disease Description:

Coccidioidomycosis is an infectious disease caused by inhaling spores of the fungus *Coccidioides immitis*. The disease starts out as a respiratory illness and may progress to a persistent infection. Disseminated coccidioidomycosis is the most severe form of the disease and is often fatal. In endemic areas such as Arizona, 10-50% are skin-test positive for coccidioidomycosis.

During 2006, there were **2 cases** of coccidioidomycosis reported in Davis County. Both cases were acquired outside of Utah.

Additional Information: None

Action Steps: None

Future Steps: None

CREUTZFELDT-JAKOB DISEASE (CJD)

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify the source of infection
- To eliminate possible sources of transmission

Disease Description:

Classic CJD is a human prion disease. It is a neurodegenerative disorder with characteristic clinical and diagnostic features. This disease is rapidly progressive and always fatal. Infection with this disease leads to death usually within 1 year of onset of illness.

Classic CJD has been recognized since the early 1920s. The most common form of classic CJD is believed to occur sporadically, caused by the spontaneous transformation of normal prion proteins into abnormal prions. This sporadic disease occurs worldwide, including the United States, at a rate of approximately one case per 1 million population per year, although rates of up to two cases per million are not unusual. The risk of CJD increases with age, and in persons aged over 50 years of age, the annual rate is approximately 3.4 cases per million. In recent years, the United States has reported fewer than 300 cases of CJD a year. Whereas the majority of cases of CJD (about 85%) occur as sporadic disease, a smaller proportion of patients (5-15%) develop CJD because of inherited mutations of the prion protein gene.

During 2006, there were **no cases** of CJD reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

ENTEROCOCCAL INFECTION (Vancomycin-Resistant)

Disease Reporting Requirements:

Healthcare Providers and Laboratories report number of cases each month

Purpose of Surveillance:

- To identify outbreaks in healthcare settings

Disease Description:

Vancomycin resistant enterococci (VRE) are bacteria that have developed a resistance to most antibiotics commonly used for enterococcal infections. The antibiotics include vancomycin, aminoglycosides, and ampicillin. Most VRE infections occur in hospitals.

VRE was not reported in U.S. hospitals until 1989. Data reported to the Centers for Disease Control and Prevention during 2004 showed that VRE caused about 1 of every 3 infections in hospital intensive care units.

During 2006, VRE infections were monitored at the two hospitals in Davis County and there were **no outbreaks** reported.

Additional Information: None

Action Steps: None

Future Steps: None

***HAEMOPHILUS INFLUENZAE* (INVASIVE DISEASE)**

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report immediately and submit appropriate specimens to the Utah Public Health Laboratory

Purpose of Surveillance:

- To identify *Haemophilus influenzae* serotype b (Hib) disease for investigation
- To monitor occurrence of invasive disease due to non-serotype b *Haemophilus influenzae*
- To identify contacts of persons with Hib infection, and assure administration of post-exposure prophylaxis

Disease Description:

Haemophilus influenzae is the leading cause of bacterial meningitis in children two months to five years in the U.S. Prior to 1987, most invasive *Haemophilus influenzae* infections were due to Hib. The introduction of the Hib conjugate vaccine in 1987 led to a rapid decline in the number of pediatric invasive *Haemophilus influenzae* infections.

During 2006 there were **no cases** of invasive *Haemophilus influenzae* reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

HANSEN'S DISEASE (LEPROSY)

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify source of infection
- To ensure prompt antibiotic treatment

Disease Description:

Hansen's Disease is a chronic bacterial disease caused by *Mycobacterium leprae*. The mode of transmission for this disease is not fully understood, however, most investigators think that *M. leprae* is usually spread from person-to-person in respiratory droplets. Close contacts with patients with untreated, active disease, and persons living in countries with highly endemic disease are at highest risk.

Hansen's Disease is very rare in the United States, but is common in other parts of the world. Places where Hansen's Disease is common include South and Southeast Asia and some parts of Latin America.

During 2006, there were **no cases** of Hansen's Disease reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

HEPATITIS C (ACUTE AND CHRONIC INFECTIONS)

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

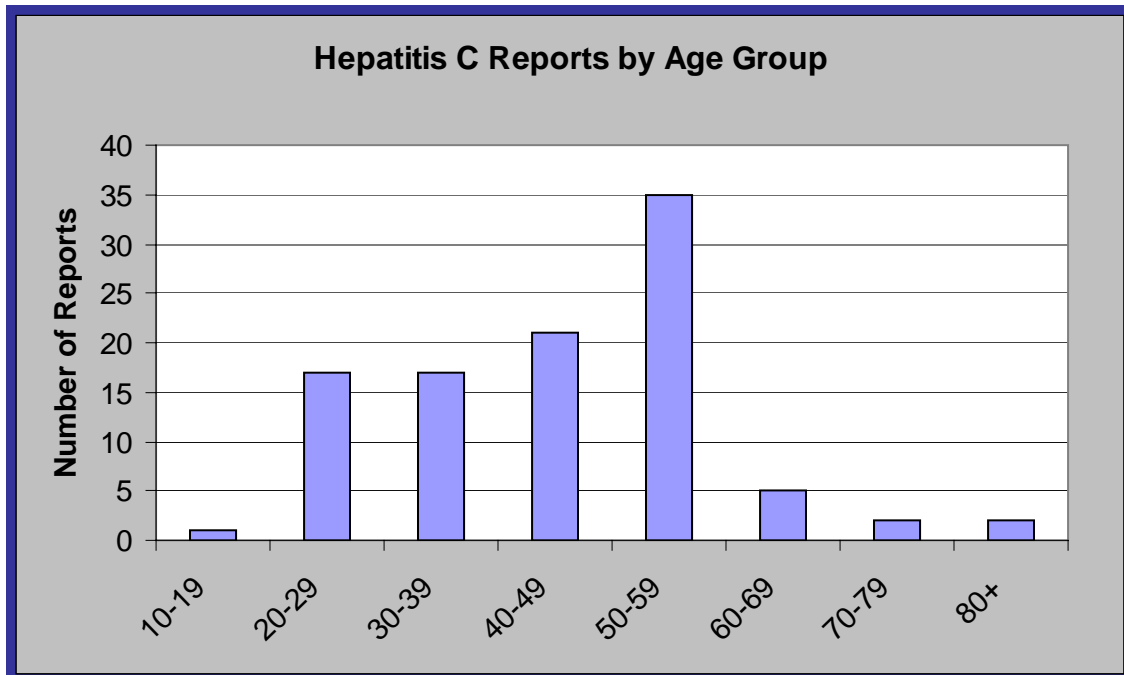
- To provide education to cases in order to minimize risk of transmission and to reduce risk factors for development of chronic liver disease
- To identify epidemiological features of hepatitis C for prioritization of prevention activities

Disease Description:

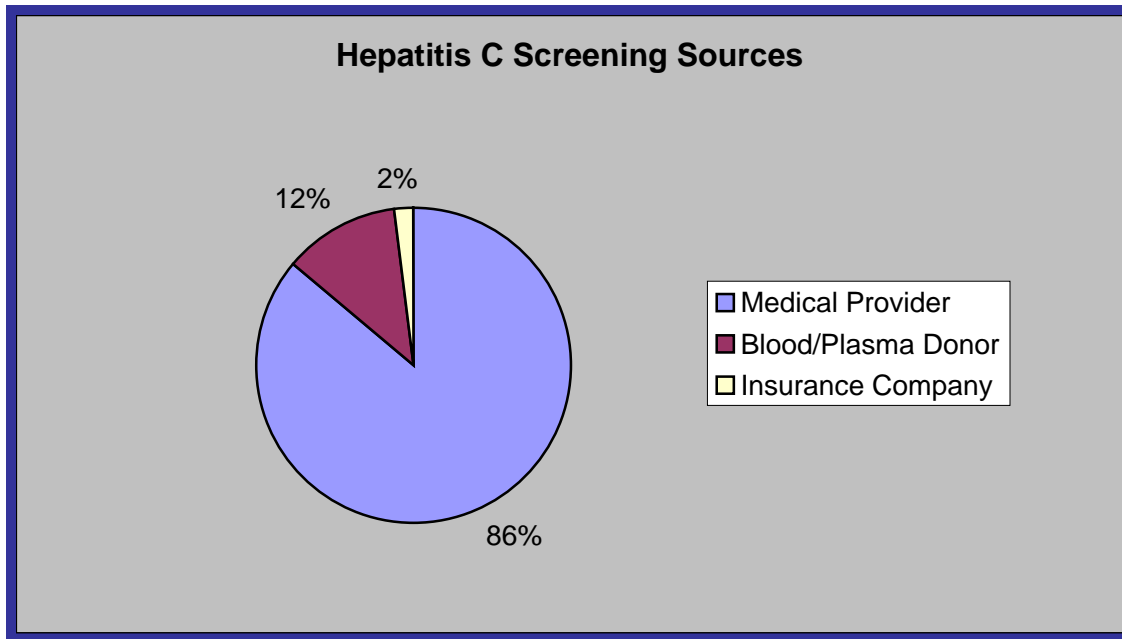
Hepatitis C (HCV) is transmitted primarily by direct exposure to blood of HCV-infected people. The prevalence of HCV infection in the general population of the U.S. is estimated at 1.8%. Highest prevalence is among people with large or repeated direct percutaneous exposure to blood or blood products, such as injection drug users and people with hemophilia who were treated with clotting factor concentrates produced before 1987.

During 2006, there were **100 reports** of HCV in Davis County.

The majority of the reported cases fall in the 50-59 year age group.



Of the 100 cases reported, 86% were identified through a medical provider versus a blood/plasma donation center or an insurance company.



Additional Information:

Hepatitis C is typically reported as a positive HCV antibody test. Investigation of this disease is focused on determining whether the case is acute, chronic, or a false-positive. Additional confirmatory testing is necessary. One case out of 100 reported was determined to be an acute infection. Risk factors for HCV infection included history of injecting drug use, blood transfusions, birth in an endemic country, and exposure to other HCV infected individuals (sexual and/or household contacts). The majority of cases were asymptomatic.

Action Steps:

- Obtaining confirmatory testing or encouraging confirmatory testing on all HCV antibody positive cases
- Referral to gastroenterologist
- Education on communicability of infection and preventative measures

Future Steps:

- Education to medical community on the need for confirmatory testing
- Risk-reduction education to public

LEGIONELLOSIS

Disease Reporting Requirements:

Healthcare Providers - report cases within 3 working days of identification

Laboratories - report cases within 3 working days of identification and submit appropriate specimen to the Utah Public Health Laboratory

Purpose of Surveillance:

- To identify common source outbreaks and nosocomial cases for investigation
- To identify and eliminate preventable sources of transmission

Disease Description:

Legionellosis is a bacterial infection caused by *Legionella pneumophila*. The disease is transmitted through the air from a soil or water source. All studies to date have shown that person-to-person spread does not occur. Outbreaks occur following the exposure of many individuals to a common source of *Legionella pneumophila* bacteria in the environment.

An estimated 8,000-18,000 cases occur each year in the United States, but only a fraction of these are reported. Most legionellosis cases are sporadic; 23% are nosocomial and 10%-20% can be linked to outbreaks.

During 2006, there were **no cases** of legionellosis reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

MENINGOCOCCAL DISEASE (INVASIVE)

Disease Reporting Requirements:

Healthcare Providers – report suspect cases immediately

Laboratories – report immediately and submit isolate to the Utah Public Health Laboratory

Purpose of Surveillance:

- To identify cases and exposed persons, and implement appropriate disease control measures including post-exposure prophylaxis
- To identify outbreaks of disease requiring use of meningococcal vaccine
- To monitor trends in the incidence of specific serotypes and strains of *Neisseria meningitidis*

Disease Description:

Meningococcal Disease is a severe infection caused by the bacteria *Neisseria Meningitidis*. The organism is transmitted via respiratory droplets. Carriers may be asymptomatic or have only mild respiratory symptoms. Risk factors for invasive meningococcal disease include age less than one year, smoking, recent viral respiratory infection, and living in certain close settings such as dormitories.

The current rate of disease in the U.S. is 1.3 cases/100,000 population per year. In the U.S. serogroups C and Y are the most prevalent, each causing 33% of the reported invasive disease. This disease is most common in winter and spring.

During 2006, there was **one case** of invasive meningococcal disease reported in Davis County.

Additional Information:

Invasive meningococcal infections have an 8-15% mortality rate, with an estimated 10-20% long-term sequelae for those who survive. Therefore, suspicion of this disease needs to be reported versus waiting for confirmatory results. Davis County has had meningococcal outbreaks in the past, but these outbreaks were contained due to rapid notification, prompt identification and rapid prophylactic treatment of contacts, and use meningococcal vaccine.

Action Steps:

- Rapid notification and investigation of all suspect meningococcal infections
- Obtaining an accurate history of places of exposure
- Contacting, evaluating, educating, and treating exposed individuals

Future Steps:

- On-going promotion of the meningococcal vaccine – especially for high risk individuals (i.e.; college freshman living in a dormitory, crowding, low socioeconomic status, and day care/nursery facilities)

MENINGITIS (ASEPTIC/VIRAL and BACTERIAL)

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify common source outbreaks for investigation
- To identify types that may be communicable and may require disease control measures, and preventive treatment for contacts of cases

Disease Description:

Meningitis can be caused by a number of viruses and bacteria. Aseptic/viral meningitis is generally less severe, resolving without specific treatment. Bacterial meningitis can be quite severe and may result in brain damage, hearing loss, disability, or death.

Prior to the 1990s, *Haemophilis influenzae* was the leading cause of bacterial meningitis in the U.S. Since the introduction of the Hib vaccine, *Streptococcus pneumoniae* and *Neisseria meningitidis* have taken the lead as causes of bacterial meningitis. During 2006, there were 7 cases of bacterial meningitis reported in Davis County.

Enteroviruses are the leading identifiable cause of aseptic/viral meningitis in children and adults, particularly in summer and autumn in the U.S. However the epidemiology of aseptic/viral meningitis is changing with the emergence of West Nile virus.

During 2006, there were **22 cases** of aseptic/viral meningitis reported in Davis County. Of those, 5 cases were due to enteroviruses, 4 were due to West Nile virus, and the causative virus was not identified for 13 cases.

Additional Information:

All meningitis cases are promptly investigated to identify causative organisms to implement appropriate disease control measures.

Action Steps: None

Future Steps: None

SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report suspect cases immediately

Purpose of Surveillance:

- To promptly detect of cases and their contacts
- To rapidly implement of control measures

Disease Description:

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 many countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained. The virus that causes SARS is transmitted most readily by respiratory droplets spread person-to-person.

Currently, there is **no** known SARS transmission anywhere in the world. The most recent human cases of SARS-CoV infection were reported in China in April 2004 in an outbreak resulting from laboratory-acquired infections.

Additional Information: None

Action Steps: None

Future Steps: None

SMALLPOX

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report suspect cases immediately

Purpose of Surveillance:

- To facilitate criminal investigation
- To rapidly implement disease control measures

Disease Description:

Smallpox was a systemic viral disease caused by the variola virus, a species of *Orthopoxvirus*. The last naturally acquired case of smallpox in the world occurred in October 1977 in Somalia. Global eradication was certified by the World Health Organization two years later. Smallpox is considered a potential agent of bioterrorism.

Additional Information: None

Action Steps: None

Future Steps: None

STAPHYLOCOCCUS AUREUS WITH RESISTANCE TO METHICILLIN (MRSA)

Disease Reporting Requirements:

Healthcare Providers and Laboratories report number of cases each month

Purpose of Surveillance:

- To identify outbreaks in healthcare settings

Disease Description:

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a type of bacteria that is resistant to methicillin and other more common antibiotics such as oxacillin, penicillin and amoxicillin. Staph infections, including MRSA, occur most frequently among persons in hospitals and healthcare facilities (such as nursing homes and dialysis centers) who have weakened immune systems. MRSA infections that are acquired by persons who have not been recently (within the past year) hospitalized or had a medical procedure (such as dialysis, surgery, catheters) are known as CA-MRSA infections. Staph or MRSA infections in the community are usually manifested as skin infections, such as pimples and boils, and occur in otherwise healthy people.

During 2006, MRSA cases were monitored at the two Davis County hospitals and **no outbreaks** were reported.

Additional Information: None

Action Steps: None

Future Steps: None

STAPHYLOCOCCUS AUREUS WITH RESISTANCE OR INTERMEDIATE RESISTANCE TO VANCOMYCIN (VRSA & VISA)

Disease Reporting Requirements:

Healthcare Providers and Laboratories report cases within 3 working days of identification

Purpose of Surveillance:

- To assess the extent of the transmission of the organism
- To rapidly identify contacts of cases
- To provide appropriate infection control guidance

Disease Description:

VISA and VRSA are specific types of antimicrobial-resistant staph bacteria. While most staph bacteria are susceptible to the antimicrobial agent vancomycin some have developed resistance. VISA and VRSA cannot be successfully treated with vancomycin because these organisms are no longer susceptible to vancomycin. However, to date, all VISA and VRSA isolates have been susceptible to other Food and Drug Administration (FDA) approved drugs.

VISA and VRSA infections are extremely rare. To date, there have been 8 cases of VISA and 3 cases of VRSA reported in the United States.

During 2006, there were **no cases** of VISA or VRSA reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

STREPTOCOCCAL DISEASE (INVASIVE)

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify risk factors associated with invasive infections
- To monitor the changing epidemiology of invasive infections

Disease Description:

The primary invasive Streptococcal diseases of public health concern are Group A, Group B and *Streptococcus pneumoniae*.

Group A Streptococcal invasive disease manifests as necrotizing fasciitis [NF], streptococcal toxic shock syndrome [STSS], bacteremia, and pneumonia. It is transmitted person-to-person by contact with infectious secretions. Asymptomatic pharyngeal carriage occurs among all age groups but is most common among children.

Group B Streptococcal invasive disease in neonates manifests as sepsis, pneumonia and meningitis. Infection in the first week of life is called "early-onset disease." In adults, sepsis and soft tissue infections are most common. Pregnancy-related infections include sepsis and amnionitis. Asymptomatic carriage in gastrointestinal and genital tracts is common and intrapartum transmission via ascending spread from vaginal and/or gastrointestinal GBS colonization occurs. Mode of transmission of disease in non-pregnant adults and older infants (>1 week) is unknown.

Streptococcus pneumoniae invasive disease manifests as pneumonia, bacteremia, meningitis, and arthritis. More than 90 serotypes exist and of the strains causing invasive disease, 88% are serotypes included in the 23-valent polysaccharide vaccine. Before the new pneumococcal conjugate vaccine was introduced in 2001, over 80% of invasive isolates in children <5 years old were those that are included in the 7-valent vaccine.

During 2006, there were **42 cases** of streptococcal invasive disease reported in Davis County.

Invasive Streptococcal Organism	Number of Cases Reported in 2006		
	Bacteremia	Meningitis	Other
Group A	10	0	0
Group B	10	2	0
<i>Streptococcus pneumoniae</i>	18	0	2

Additional Information:

Most invasive streptococcal infections are isolated in blood cultures. Some have obvious sources of infection (i.e., wounds, post surgical), yet others manifest with early "flu-like" symptoms, leading up to more invasive infections (meningitis, pneumonia, bacteremia).

Action Steps: None

Future Steps: None

TOXIC-SHOCK SYNDROME

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To identify etiologic agent
- To identify risk factors

Disease Description:

Toxic shock syndrome is most often caused by exotoxin producing strains of *Staphylococcus aureus*. *S. aureus* commonly colonizes skin and mucous membranes in humans. TSS has been associated with use of tampons and intravaginal contraceptive devices in women and occurs as a complication of skin abscesses or surgery.

During 2006, there was **one case** of toxic shock reported in Davis County.

Additional Information: None

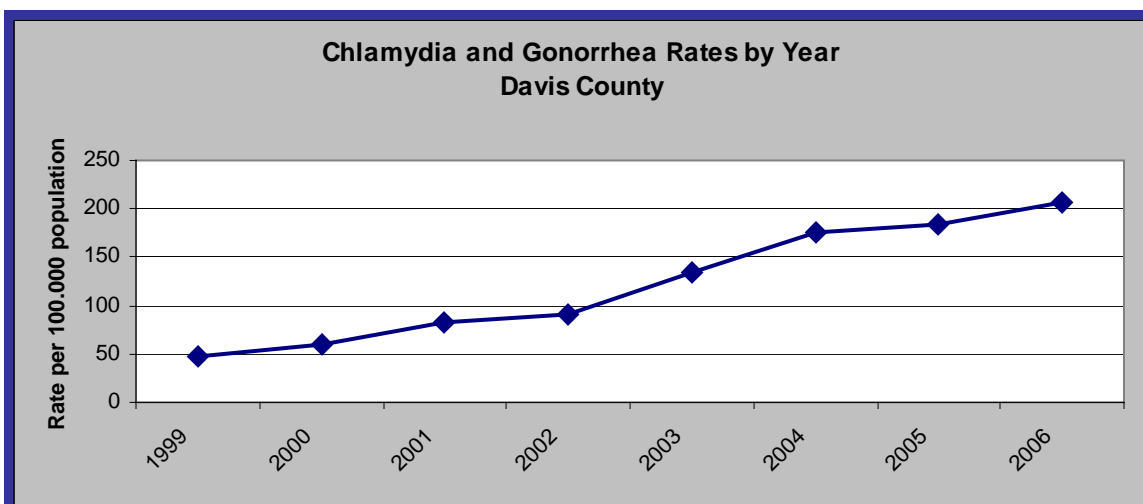
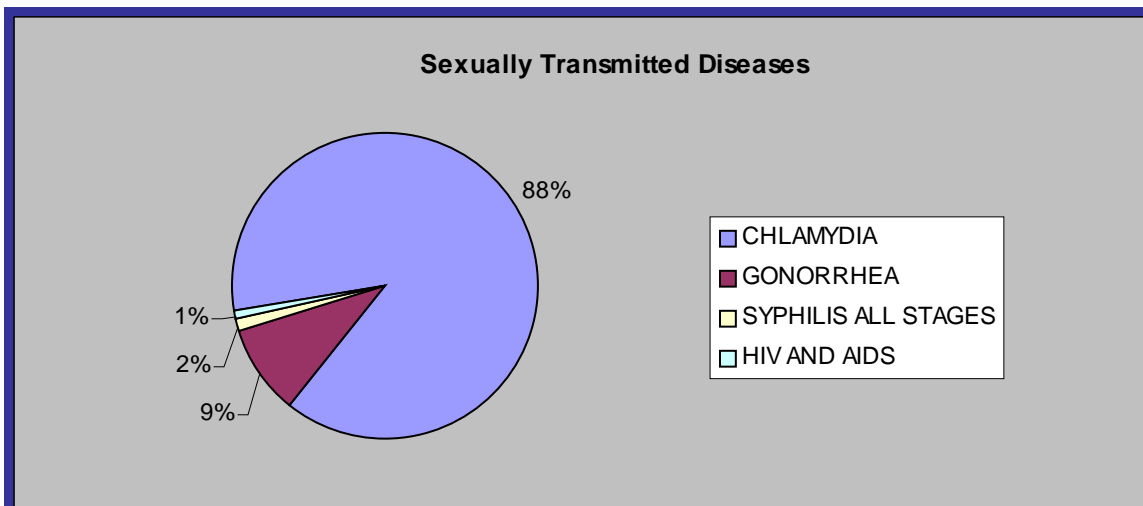
Action Steps: None

Future Steps: None

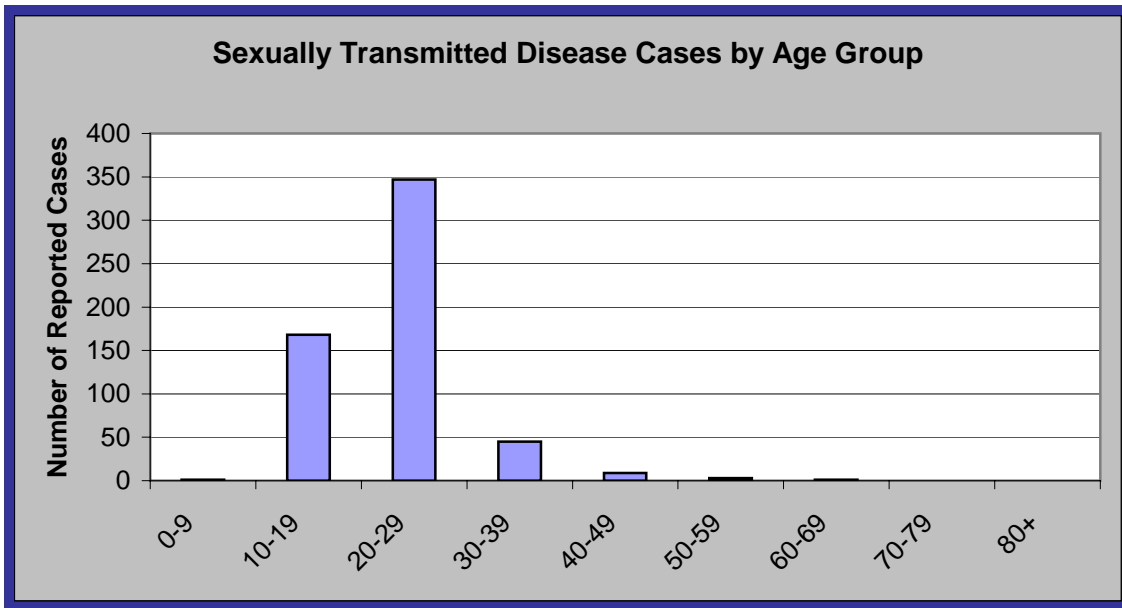
Sexually Transmitted Diseases

Sexually transmitted diseases (STD) are bacteria, viruses, and other organisms transferred from one person to another via sexual activity. Bacterial STDs, such as chlamydia, gonorrhea, and syphilis, are curable – using appropriate antibiotic therapy. Viral STDs such as herpes, human papillomavirus, hepatitis B, and human immunodeficiency virus (HIV) are not curable, but medication is now available to lessen the symptoms and help prolong life. Complications from STDs range from mild and brief illness to infertility, cancer, and even death. Less invasive testing techniques have helped diagnose chlamydia and gonorrhea. In this section, we will be discussing the only the reportable STDs (chlamydia, gonorrhea, syphilis, chancroid, pelvic inflammatory disease, and HIV/AIDS).

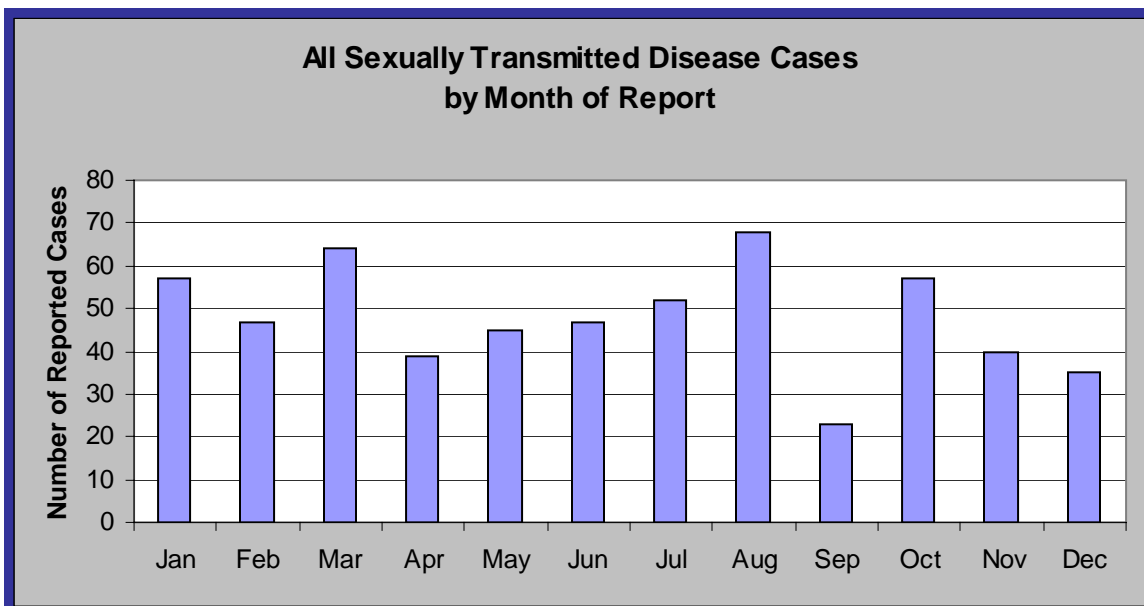
What: The sexually transmitted diseases reported during 2006 were chlamydia, gonorrhea, syphilis, HIV and AIDS. Chlamydia was the most commonly reported with 510 cases followed by gonorrhea with 55 cases. Chlamydia and gonorrhea rates have increased steadily for the past several years.



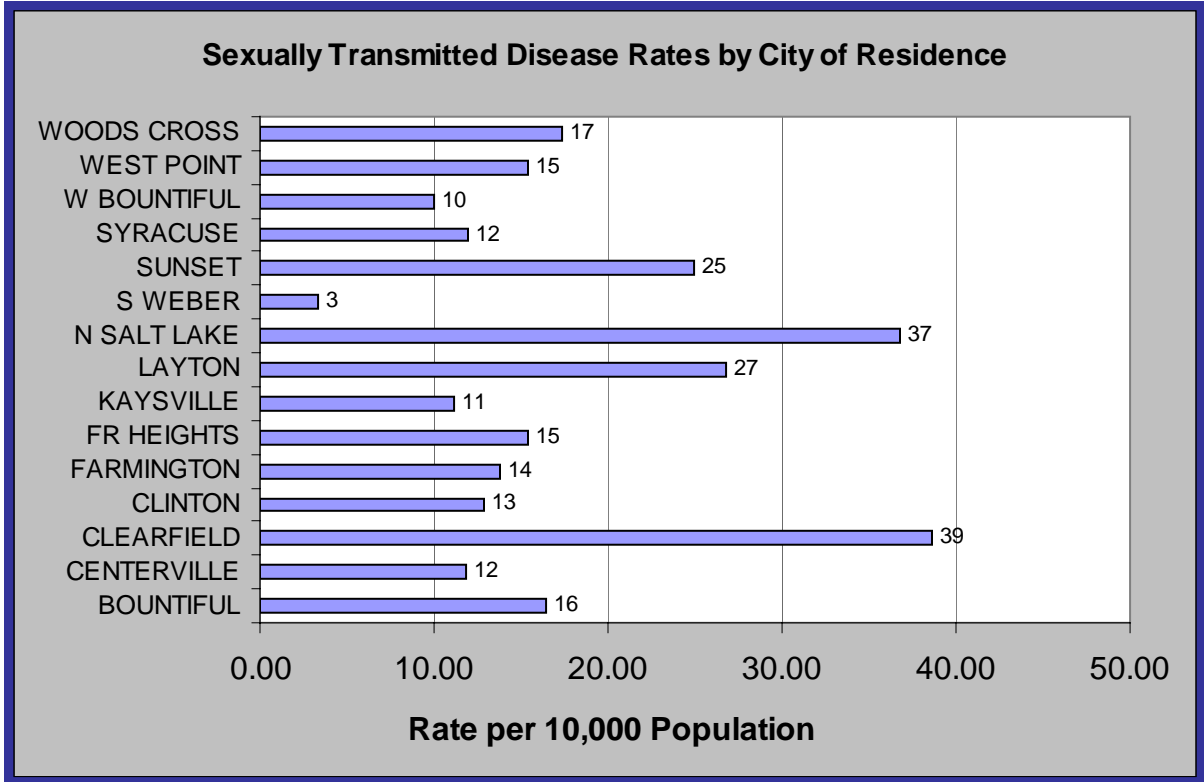
Who: Sexually transmitted diseases were most often reported among women (64%), and among 20-29 year olds.



When: Sexually transmitted diseases were reported every month with an average of 48 cases per month. STDs do not appear to have any seasonal trend.



Where: Sexually transmitted diseases affected every city in Davis County. The average number of cases per city was 18 per 10,000 residents. North Salt Lake and Clearfield had twice the average number of cases.



ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS) and HUMAN IMMUNODEFICIENCY VIRUS (HIV)

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

Purpose of Surveillance:

- To assess HIV and AIDS incidence and prevalence in Davis County
- To implement disease control measures such as education and contact tracing

Disease Description:

AIDS was first reported in the United States in 1981 and has since become a major worldwide epidemic. AIDS is caused by human immunodeficiency virus. HIV is transmitted person-to-person through sexual intercourse, abraded skin or mucus membrane contact with infected blood, CSF or semen; the use of HIV-contaminated needles and syringes; transfusion of infected blood; and transplantation of HIV-infected tissues or organs. HIV can also be transmitted from mother to child through the birth process or breast-feeding.

During 2006, there was **1 case** of HIV/AIDS reported in Davis County.

Additional Information:

The HIV/AIDS disease incidence in Davis County is low. Although STDs in general are the number one disease burden, the true prevalence of HIV infected individuals in the community is unknown. This may be due in part to the nature of this disease. Many infected individuals are asymptomatic and therefore do not seek testing.

Action Steps:

- Strict confidentiality is maintained on all HIV/AIDS case investigations
- Focus is centered on partner identification and testing
- Extensive risk-reduction education is provided to all positive cases and their exposed contacts
- Referrals to appropriate resources

Future Steps:

- Public education on risk-reduction activities
- Free testing for at-risk individuals
- Outreach activities concentrating on reaching at-risk populations
- Web page focused on STDs – including HIV/AIDS

CHANCROID

Disease Reporting Requirements:

Healthcare Providers and Laboratories report cases within 3 working days of identification

Purpose of Surveillance:

- To identify source of infection
- To identify and investigate contacts of cases

Disease Description:

Chancroid is an acute bacterial disease caused by *Haemophilus ducreyi*. It is transmitted through direct sexual contact to discharges from infected lesions and pus from buboes. Auto-inoculation to non-genital sites may occur in infected persons. Chancroid occurs most often among men and is most prevalent in tropical and subtropical regions.

During 2006, there were **no cases** of chancroid reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

CHLAMYDIA

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

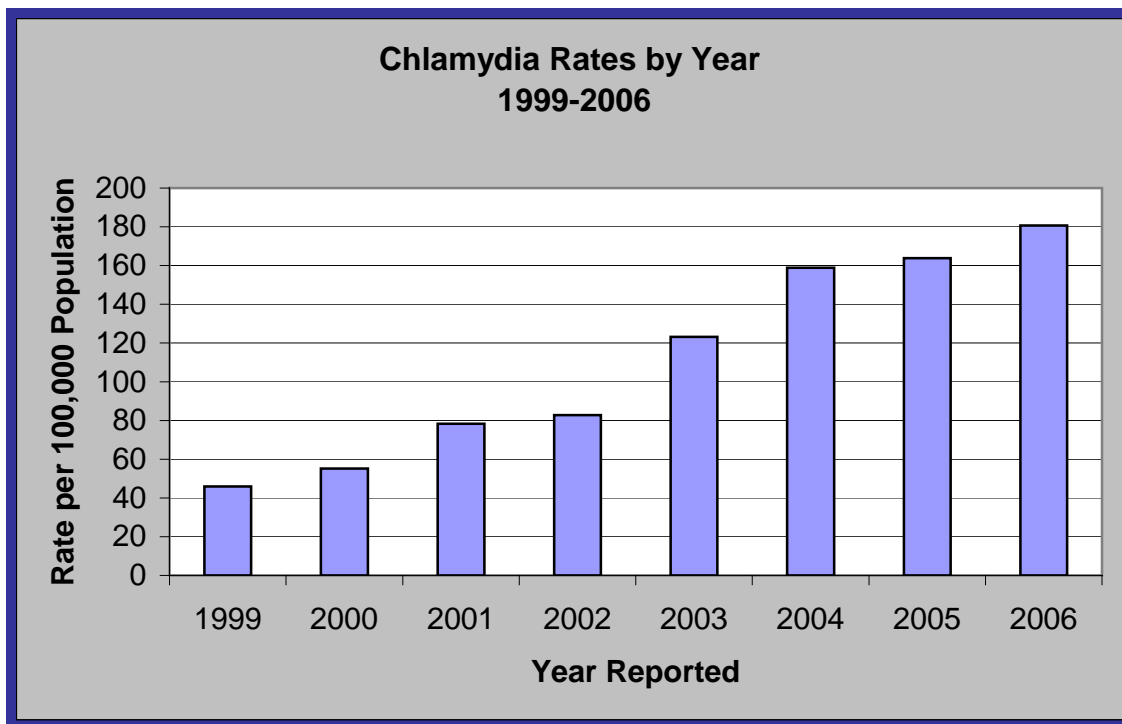
Purpose of Surveillance:

- To identify and screen contacts to reduce further spread
- To identify high risk populations for targeted intervention
- To monitor trends over time and across subpopulations

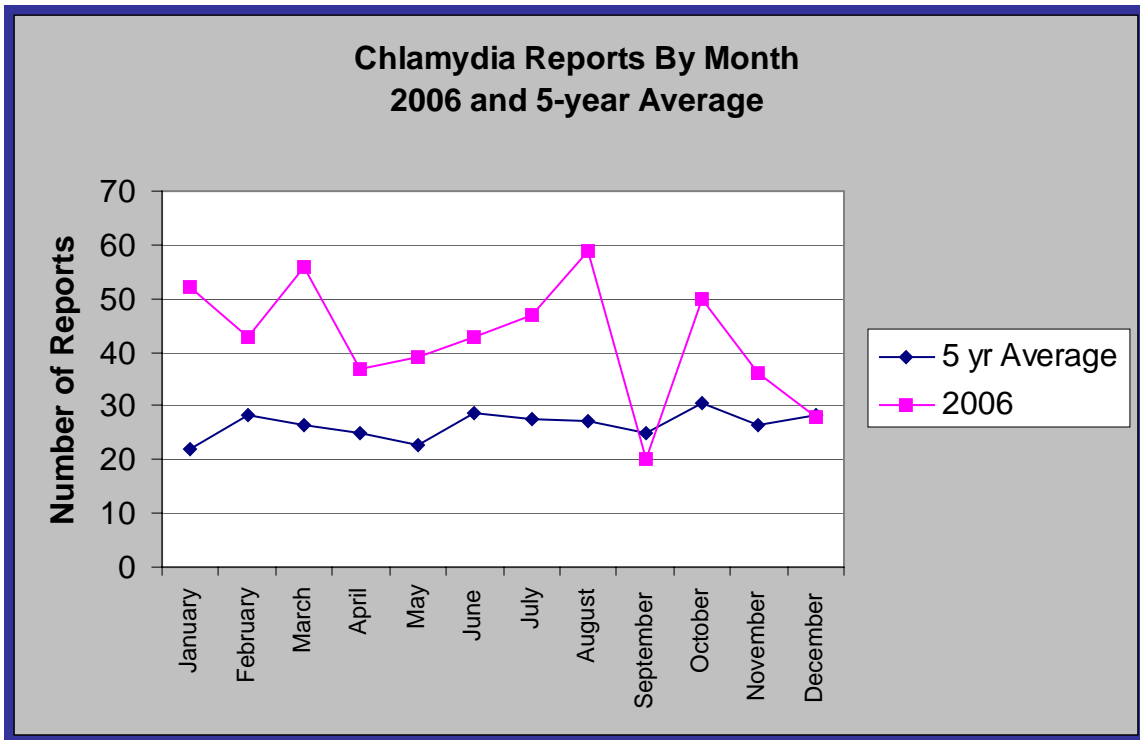
Disease Description:

Chlamydia is a sexually transmitted bacterial disease (STD) caused by *Chlamydia trachomatis*. Chlamydia is one of the most common STDs seen in the United States today. The vast majority of chlamydia infections are asymptomatic. Approximately 75% of females and 50% of males who are infected do not have any symptoms.

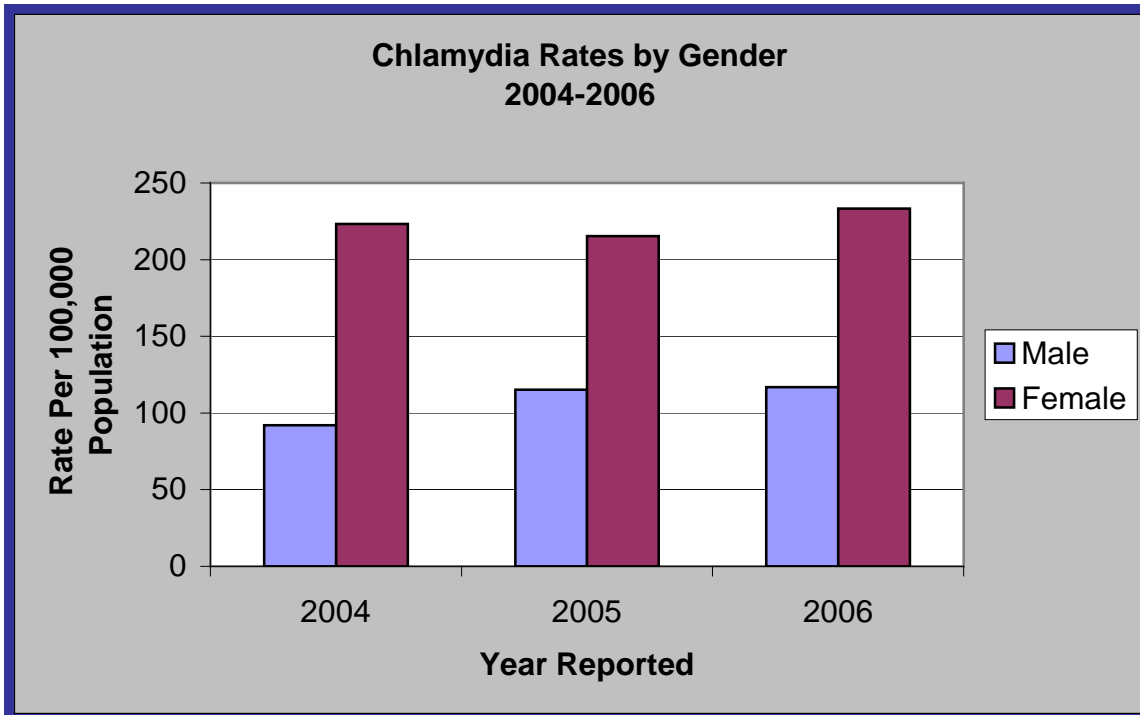
During 2006, there were **510 cases** of chlamydia reported in Davis County. Chlamydia incidence has increased every year for the past several years.



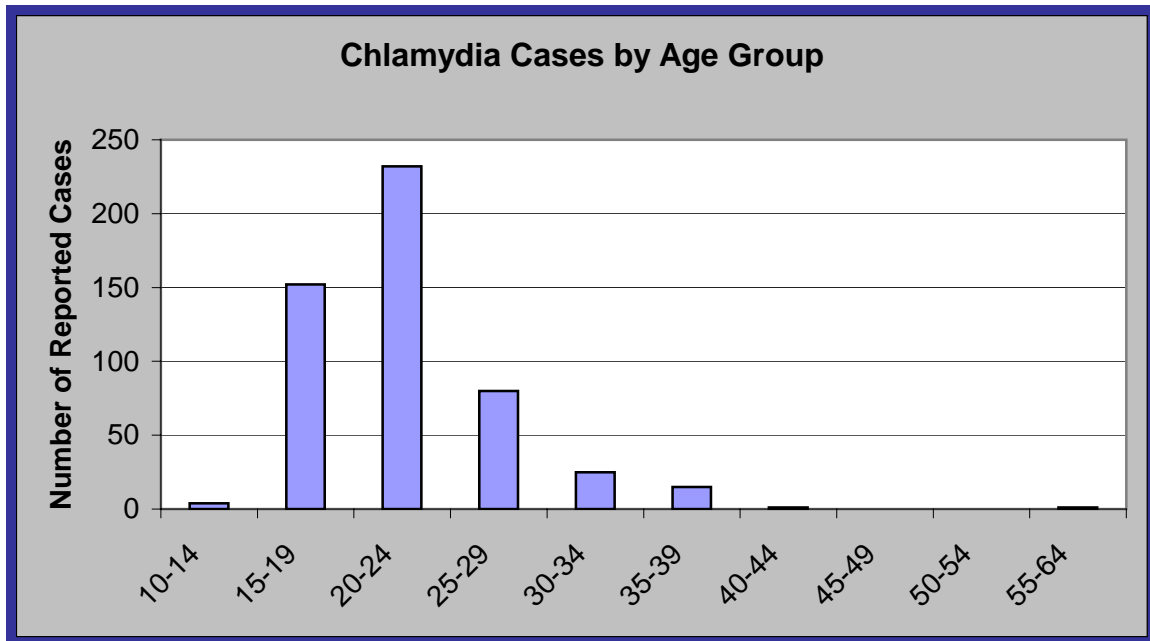
During 2006, the average number of chlamydia reports per month was 44 (range 21-59). The number of reports per month was higher than the 5-year average every month except September.



As in previous years, the rate of chlamydia was higher among females in 2006. This is due in part to testing during routine annual female exams.



Chlamydia cases ranged in age from 14 to 59 years; the majority of cases (45%) were reported among 20-24 year olds.



Additional Information:

Chlamydia infection in Davis County is of great concern. During interviews with infected individuals, numerous high-risk activities are being noted (i.e., multiple sex partners, unknown sex partners, unprotected sex; increase in oral and anal sexual activity). A complacent attitude toward the infection has also been noted. Because chlamydia can be readily cured with antibiotics, individuals have less concern about being infected or spreading the infection to their contacts. Investigations also noted a higher incident of asymptomatic cases.

Action Steps:

- Efforts were centered on contact tracing, which included home visits for high-risk cases that were unreachable by phone
- Free testing and treatment was offered to identified contacts
- Implementation of epidemiological tools to help identify at-risk populations
- Outreach education presentation provided to at-risk populations within the community
- Development of a website page specific for STD information and education

Future Steps:

- Continued aggressive case investigations and contact tracing (cards, hotline, website)
- Reach at-risk population to provide testing and risk reduction education
- Conduct an STD Awareness Summit with our neighboring health districts
- Elevate the ability of staff to investigate and identify contacts through advanced training
- Develop new techniques to increase public awareness (website, brochures, presentation within the community, parent education packets)

GONORRHEA

Disease Reporting Requirements:

Healthcare Providers and Laboratories - report cases within 3 working days of identification

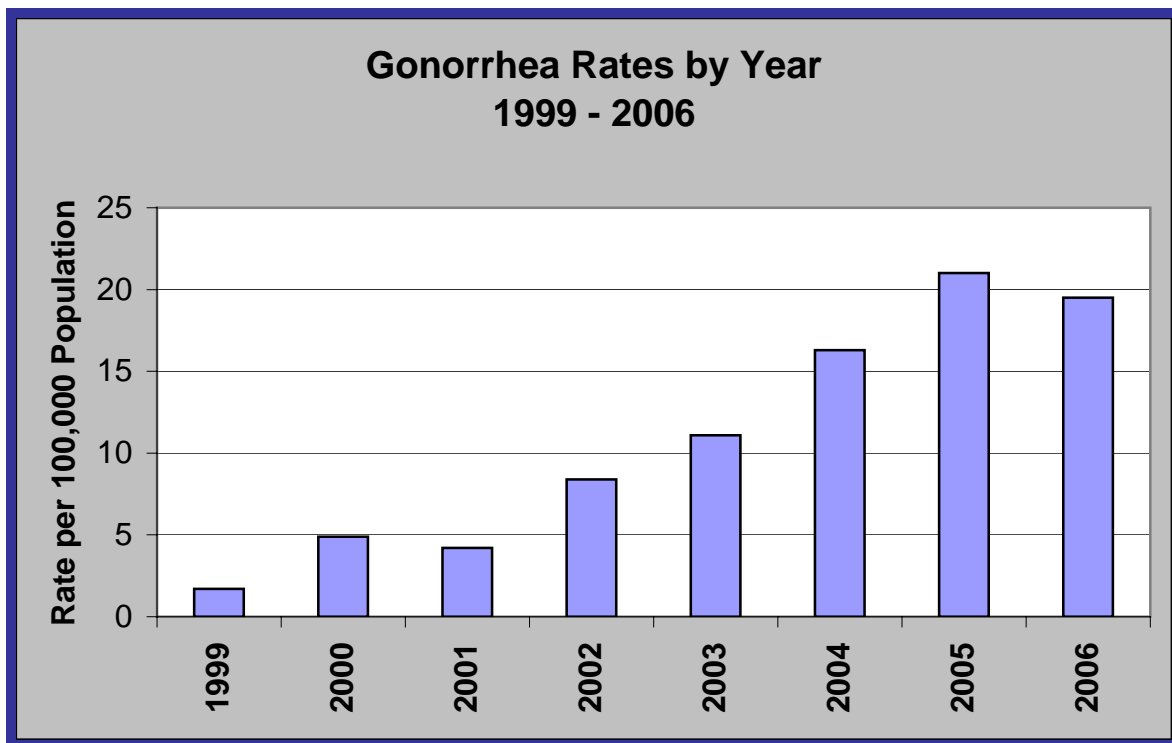
Purpose of Surveillance:

- To identify and screen contacts to reduce further spread
- To identify high risk populations for targeted intervention
- To monitor trends over time and across subpopulations

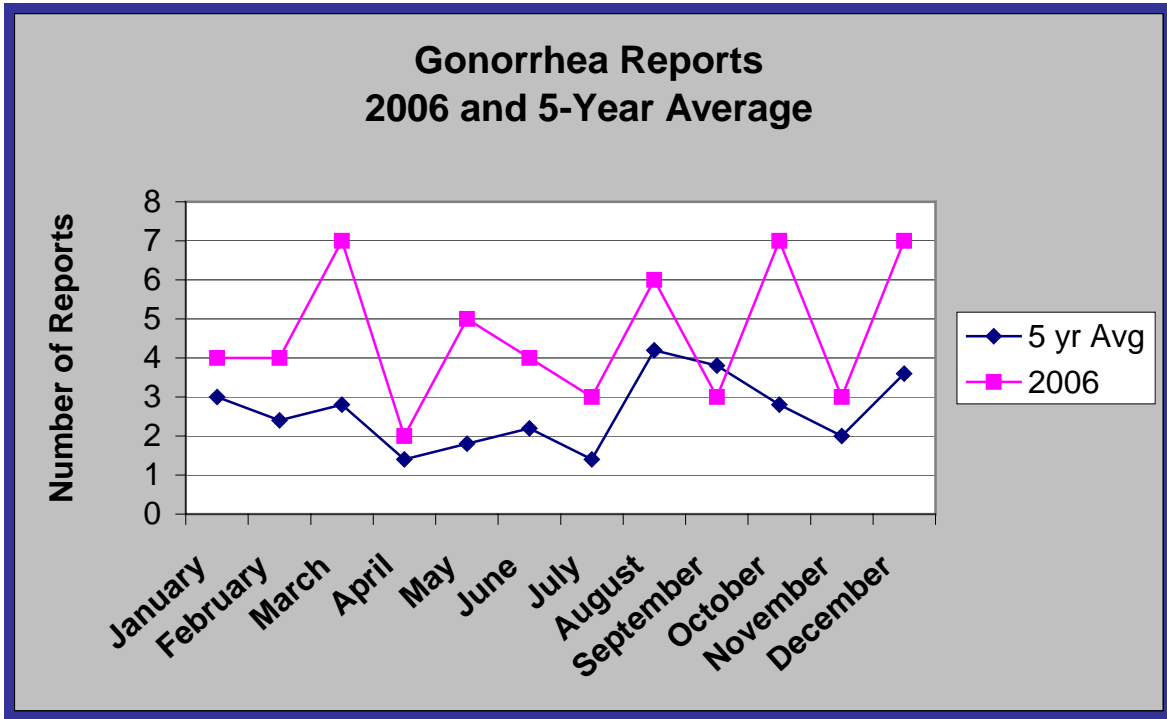
Disease Description:

Gonorrhea is a sexually transmitted disease caused by the bacteria *Neisseria gonorrhoeae*. Gonorrhea infections are often asymptomatic in woman. If left untreated, gonorrhea may result in serious complications including infertility.

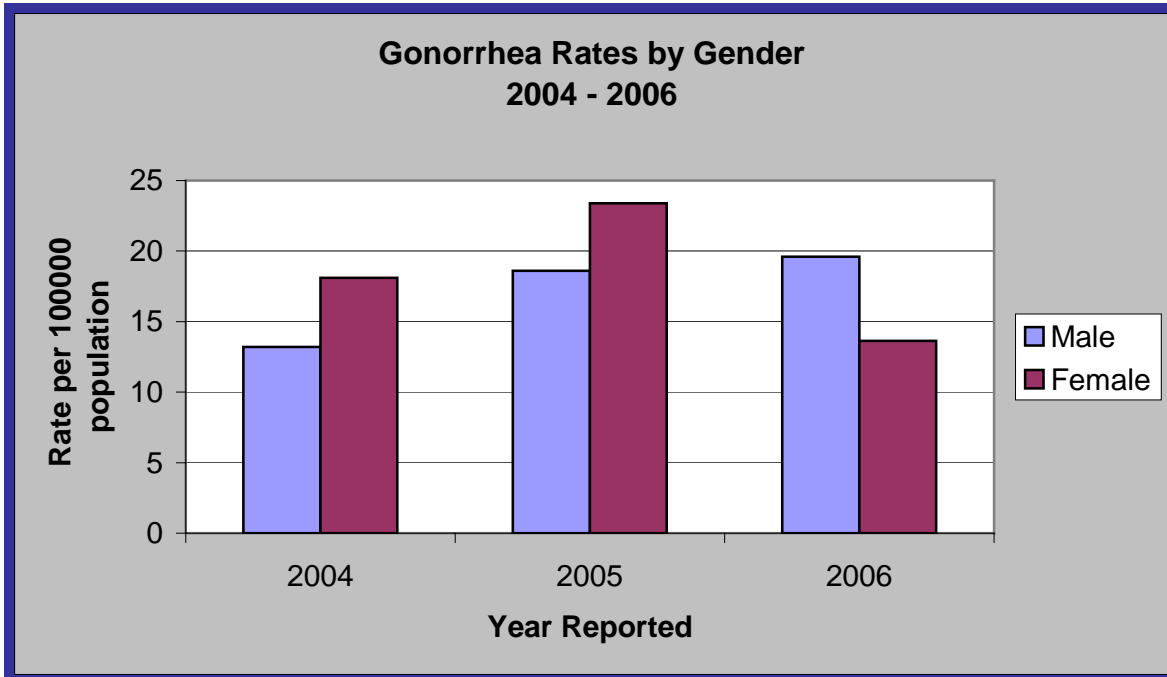
During 2006, there were **55 cases** of gonorrhea reported in Davis County, compared to 58 cases reported during 2005. There was a steady increase in reported cases from 1999 to 2005. In 2006, there was a slight decrease of 3 reported cases.



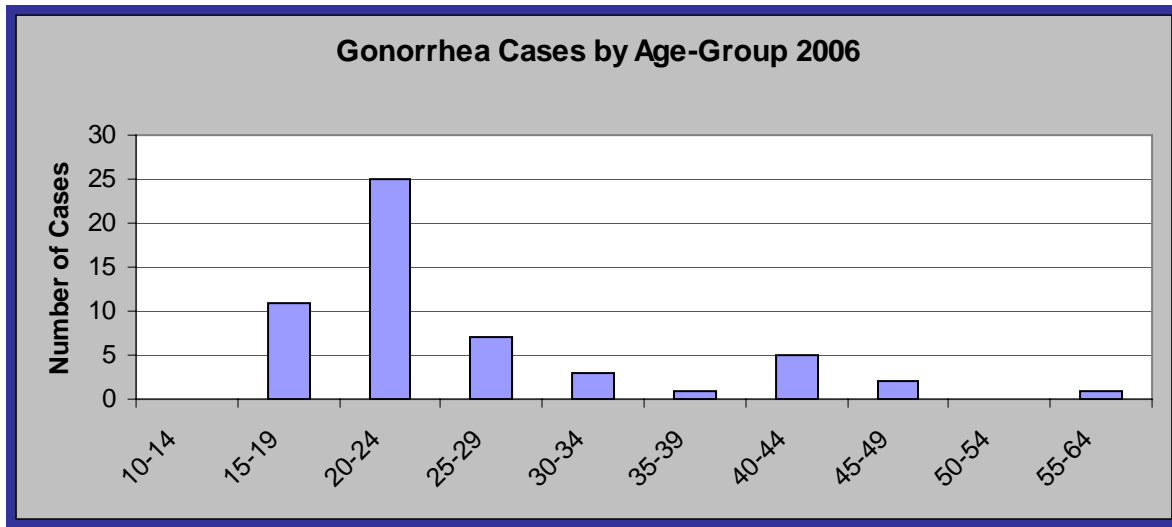
The number of gonorrhea reports per month ranged between 2 and 7 and was above the 5-year average every month except September.



During the years 2004 and 2005, the rate of reported gonorrhea cases was higher among females, which was different from the national trend. However, during 2006, the rate was higher among males, which is typically observed.



Gonorrhea cases ranged in age from 15 to 58 years; the majority of cases (45%) were reported among 20-24 year olds.



Additional Information:

Gonorrhea is the second most commonly reported STD in Davis County. Like chlamydia, gonorrhea often causes no symptoms. Because of this, gonorrhea is underreported. Another growing problem is the occurrence of antibiotic resistant strains of gonorrhea surfacing in the United States – making it difficult to treat this infection.

Action Steps:

- Efforts were centered on contact tracing, which included home visits for high-risk cases that were unreachable by phone
- Free testing and treatment were offered to identified contacts
- Implementation of epidemiological tools to help identify at-risk populations within the community
- Outreach education presentation provided to at-risk populations within the community
- Development of a website page specific for STD information and education (including presentation materials for the public)

Future Steps:

- Continued aggressive case investigations and contact tracing (cards, hotline, website e-mail)
- Reach at-risk population to provide testing and risk reduction education
- Conduct an STD Awareness Summit with our neighboring health districts
- Elevate the ability of staff to investigate and identify contacts through advanced training
- Develop new techniques to increase public awareness (website, brochures, presentation within the community, parent education packets)

PELVIC INFLAMMATORY DISEASE (PID)

Disease Reporting Requirements:

Healthcare Providers and Laboratories report cases within 3 working days of identification

Purpose of Surveillance:

- To facilitate appropriate diagnostic testing and treatment
- To investigate contacts of cases caused by chlamydia and gonorrhea infections

Disease Description:

Pelvic inflammatory disease (PID) is a general term that refers to infection of the uterus, fallopian tubes and other reproductive organs. It is a common and serious complication of some sexually transmitted diseases, especially chlamydia and gonorrhea. Untreated, up to 40% of women with chlamydia or gonorrhea will develop PID. Each year in the United States, it is estimated that more than 1 million women experience an episode of acute PID.

Although PID is a reportable condition, it is severely underreported by healthcare providers. During 2006, there were **no cases** of PID reported in Davis County.

Additional Information: None

Action Steps: None

Future Steps: None

SYPHILIS

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report suspect cases immediately

Purpose of Surveillance:

- To identify and screen contacts
- To identify infected pregnant women and provide treatment in order to reduce the risk of infection in the newborn
- To identify high risk populations for prevention activities
- To monitor changes in syphilis trends over time and across subpopulations

Disease Description:

Syphilis is a sexually transmitted disease (STD) caused by the spirochete *Treponema pallidum*.

During 2006, there were **9 cases** of syphilis reported in Davis County. Of those, 7 were latent infections, 1 was a secondary infection, and 1 was a congenital infection.

Additional Information:

Syphilis is broken into three stages: *primary, secondary, and late stage*. People infected with syphilis may not have any symptoms for years; yet remain at risk for late complications if they are not treated. Although transmission appears to occur from persons with sores who are in the primary or secondary stage, many of these sores are unrecognized. Thus, most transmission is from persons who are unaware of their infection. Over the past several years, increases in syphilis among men having sex with men (MSM) have been reported and has been an issue in Davis County as well.

Action Steps:

- New reporting guidelines facilitate faster notification, investigation, and treatment of confirmed syphilis cases and their contacts
- Routine testing for syphilis included with STD examinations in Davis County STD clinics
- Free treatment available for cases and their contacts
- Investigation of positive RPR tests have detected a number of biologically false positive cases
- Aggressive contact tracing implemented

Future Steps:

- Dissemination of updated information to the medical community

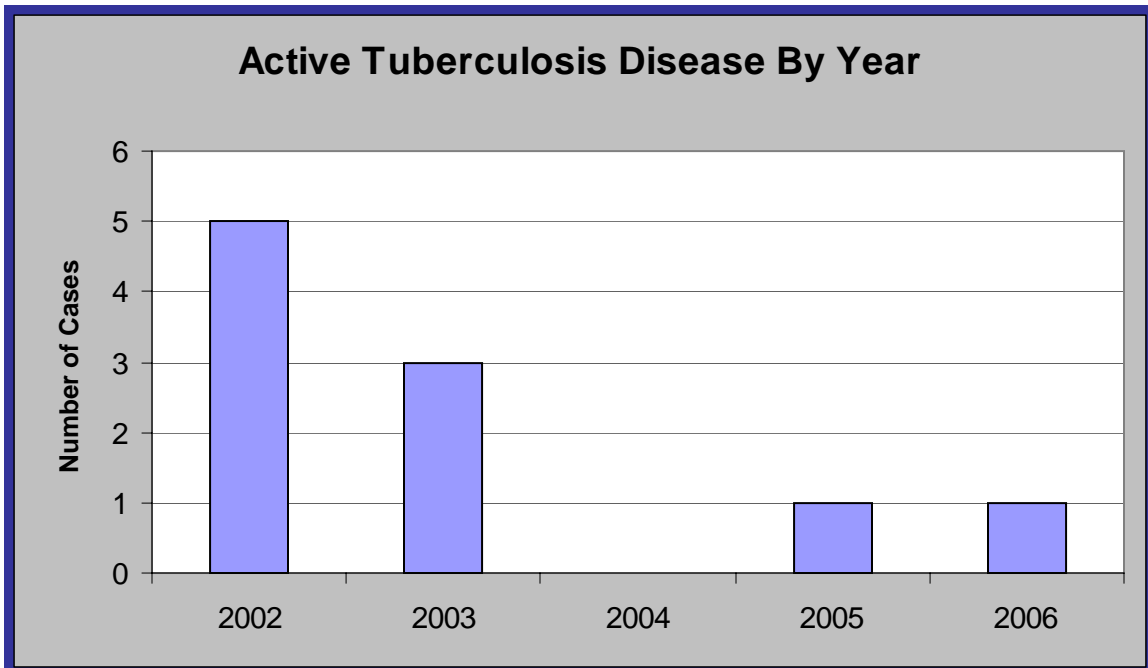
Tuberculosis

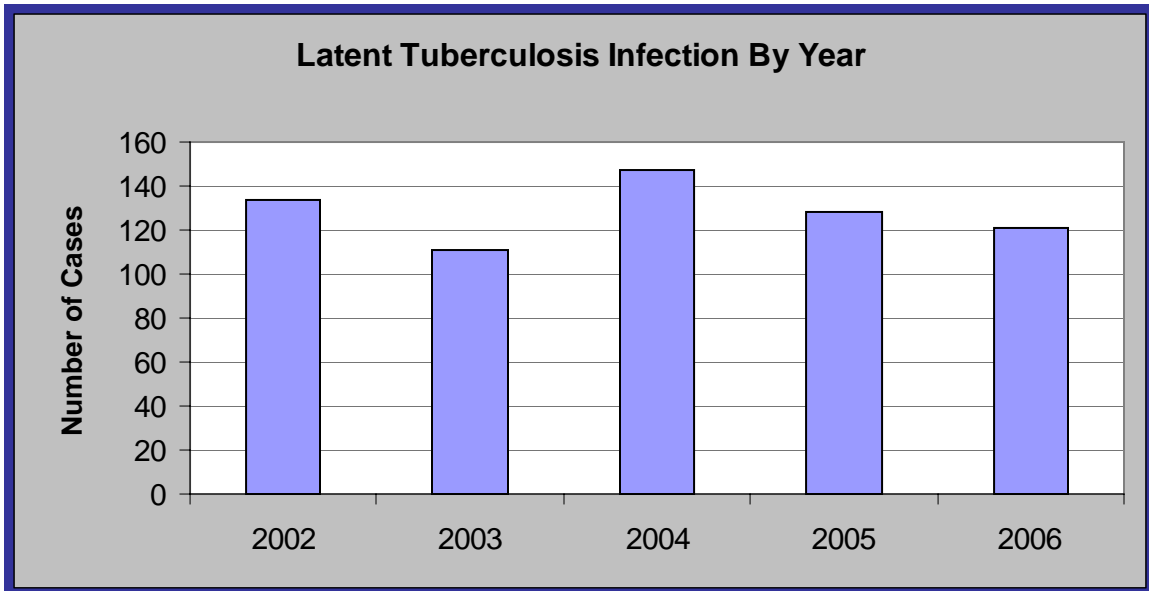
Many people think that tuberculosis (TB) is a disease of the past, mainly because we are currently seeing a slight decline the number of TB cases in the United States. There are an estimated 9 -14 million people in the United States infected with *M. tuberculosis*. On average, about 10% of infected individuals will develop active TB disease at some point in their lives.

By the early 1980s, TB was considered to be under control and many states and cities redirected TB prevention and control funds to other programs. As a result of this, our country experienced a resurgence of TB, with a 20% increase in TB cases reported between 1985 and 1992. Many of these were persons with difficult-to-treat drug-resistant TB. This resurgence caused a new look at TB and aggressive prevention and control monies were reallocated back to the TB programs. These aggressive efforts have paid off and we have seen a consistent decline in the incidence of tuberculosis. However, the decline of TB cases in 2004-2005 was small – only 2.9%. With the introduction of HIV, TB rates remain a constant threat. Also, this past year, a new virulent strain of TB was identified (XDR-TB). This strain is resistant to almost all drugs used to treat tuberculosis and has a high mortality rate.

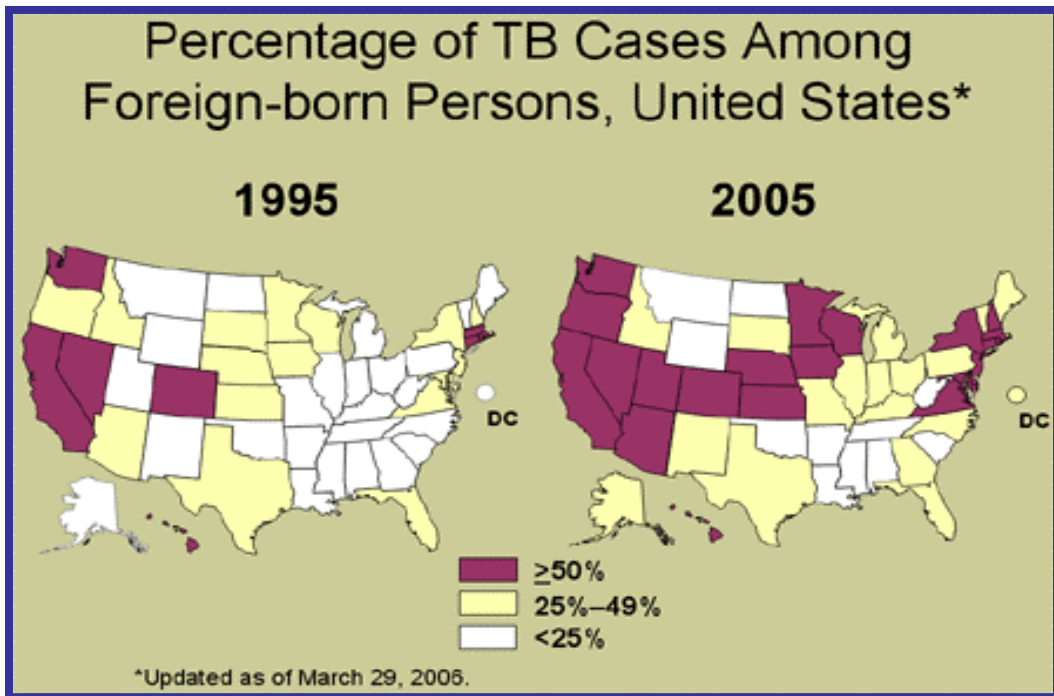
In this section, tuberculosis disease and latent tuberculosis infection (LTBI) will be reviewed.

WHAT: 99.2% of tuberculosis activity falls under latent tuberculosis infection (LTBI). Davis County had one active tuberculosis disease in 2006 and 121 LTBI cases





WHO: In Davis County, active disease and LTBI is primarily seen in individuals who are foreign-borne or have traveled/lived in endemic countries.



WHEN: There is no seasonality to tuberculosis disease or infection. We manage, on average, 60 individuals a month with LTBI.

WHERE: Active disease and latent infections are reported in residents throughout the county.

TUBERCULOSIS (Active Disease)

Disease Reporting Requirements:

Healthcare Providers and Laboratories – report suspect active cases immediately

Purpose of Surveillance:

- To identify and screen contacts to reduce further spread
- To identify high risk populations for targeted intervention
- To monitor trends over time and across subpopulations

Disease Description:

Tuberculosis (TB) is caused by a type of bacteria called *Mycobacterium tuberculosis*. The bacteria usually attack the lungs but may attack any part of the body. TB is typically spread through the air when a person with TB disease of the lungs or throat expels tiny airborne particles (droplet nuclei). People nearby may breathe in these particles and become infected. People who have latent TB infection do not feel sick, do not have any symptoms, and cannot spread TB. But they may develop active TB disease at some time in the future. The U.S. experienced a resurgence of TB disease between 1985 and 1992, when the number of TB cases increased by 20%. Early detection and treatment of TB are essential to control the spread of the disease and to prevent outbreaks.

In 2006, Davis County had **one case** of active tuberculosis. Currently, Utah is considered a low-incidence state.

Additional Information:

Davis County sees very few active TB cases each year. Of those who are diagnosed with active disease, most are foreign-born. Over the past 5 years, Davis County has had 10 active cases. All but one of those 10 cases were foreign-born. The TB cases seen in Davis County over the past year were pulmonary TB, extrapulmonary TB, or both.

People who are at a high risk of developing TB disease include:

- Individuals with HIV or AIDS
- Individuals who were infected with TB within the last two years
- Babies and young children
- Substance abusers (especially IV-drug users)
- Individuals with chronic illnesses that weaken the immune system
- Individuals who were not properly treated for TB in the past

Action Steps:

- All suspect/confirmed TB cases were isolated until deemed non-infectious
- All suspect/confirmed TB cases received antibiotic treatment through Directly Observed Therapy (DOT)
- Contact tracing was conducted on all confirmed cases – which included some worksite tuberculin skin testing (TST)
- Incentives and enablers were used to help ensure compliancy of treatment to completion
- Assisted a local educational facility that provides student housing in testing contacts to an active tuberculosis case that resided at that facility while infectious
- Completed an internal review of the tuberculosis program and implemented changes

Future Steps:

- Develop effective tools to assist the medical community in detecting and reporting active tuberculosis cases
- Enhance contact tracing methods to help identify at-risk individuals with latent tuberculosis infection

TUBERCULOSIS (Latent Infection)

Disease Reporting Requirement:

Latent tuberculosis infection (LTBI) is not required to be reported. However, if reactive tuberculin skin tests are reported, resources are made available for free or at low cost.

Disease Surveillance:

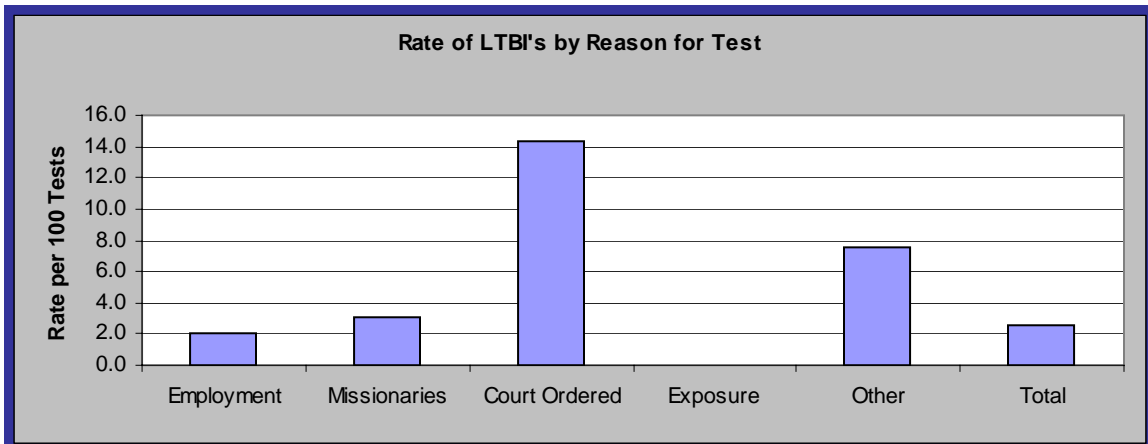
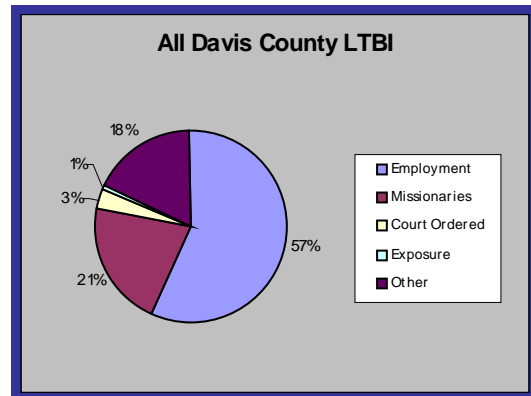
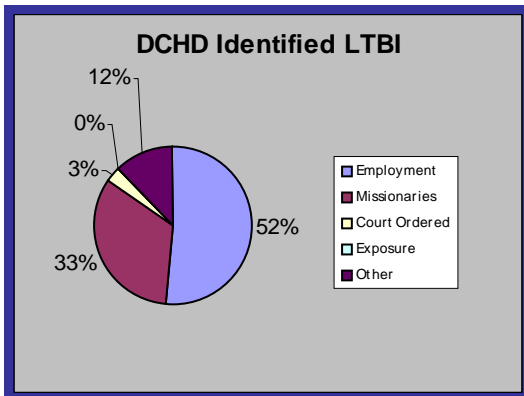
- To obtain a thorough understanding and analysis of disease patterns
- To appropriately plan and implement programs to reduce the burden of disease in our communities

Disease Description:

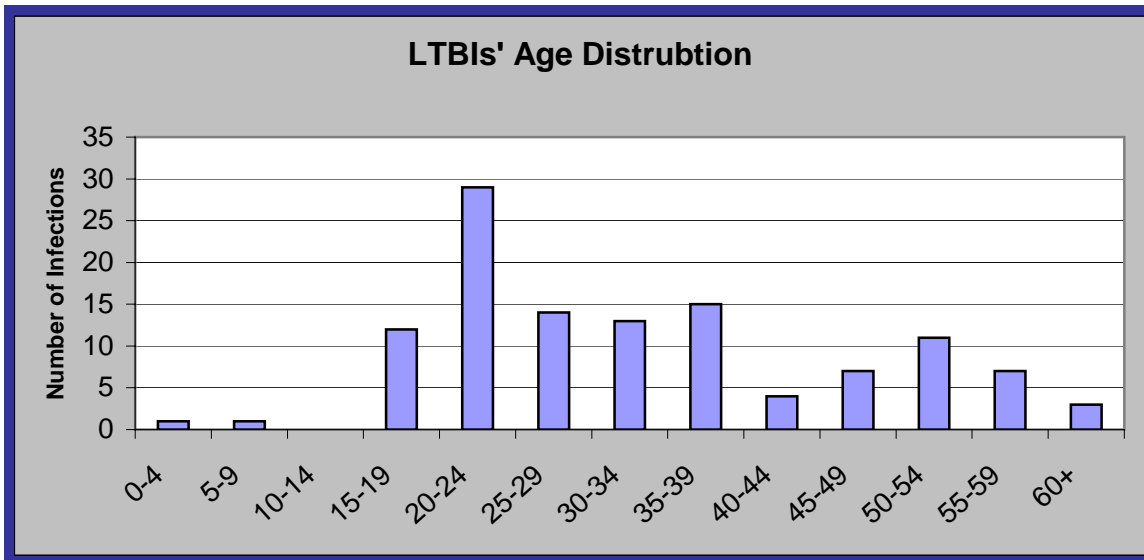
Latent tuberculosis infection is a condition in which TB bacteria are alive but inactive in the body. People with latent TB infection have no symptoms, don't feel sick, can't spread TB to others, and usually have a positive skin test reaction. Development into active disease can occur if they do not receive treatment for latent TB infection.

In 2006, Davis County had **121 cases** of LTBI.

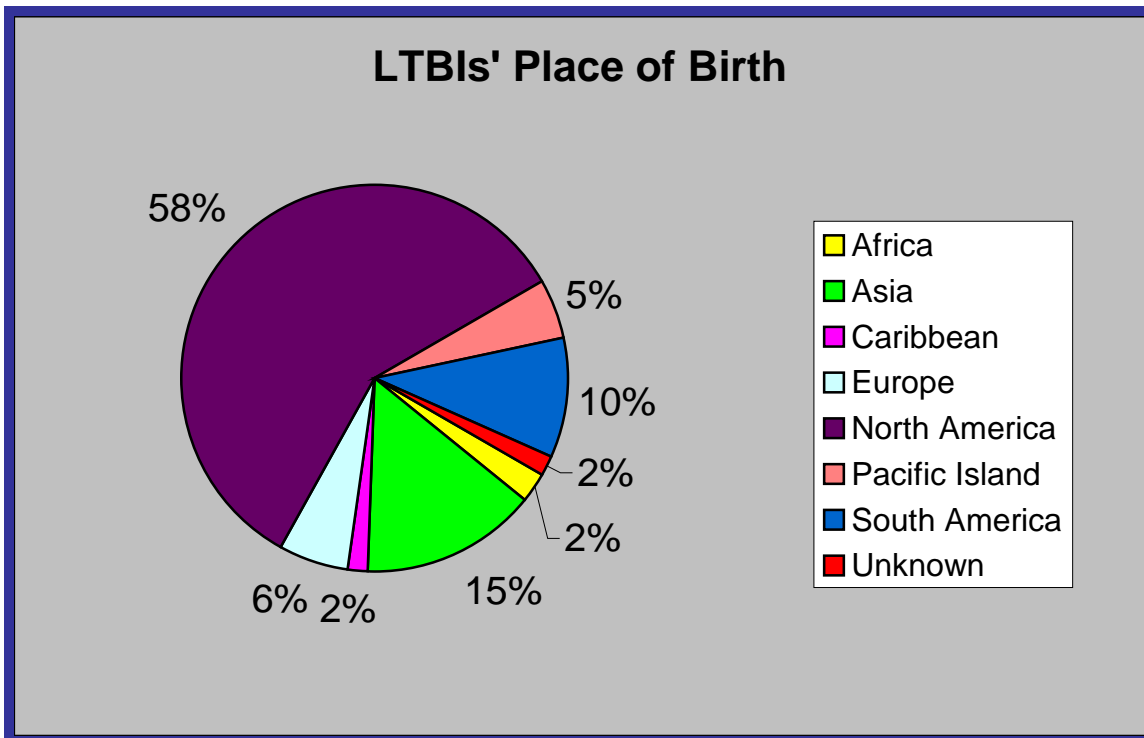
Davis County Health Department provided 1,292 tuberculin skin tests to the public. However, this only accounts for a small percentage of all TB tests performed in the community. Outside agencies look very similar to data collected by the Davis County Health Department. The reason for TB skin testing is described below.



LTBI usually occurs in all age groups. In Davis County, we see the highest number of infections in the 20-24 year old age group. This is largely due to the number of LDS missionaries returning from endemic countries.



During interviews, individuals reported the following locations as their place of birth.



Additional Information:

Treatment of LTBI is essential to controlling and eliminating Tuberculosis by reducing the risk that TB infection will progress to disease. In the past, treatment for LTBI was termed “preventative treatment”. Today, the term "latent tuberculosis treatment" is used in U.S. because the treatment does not actually prevent infection: it prevents an existing silent infection from becoming active.

Action Steps:

- Distributed resource material to the medical community and at-risk facilities
- Developed a quality assurance tool to improve case management and documentation
- Continued partnership with local pharmacy chain to dispense and track inventory of LTBI medications
- Partnered with two Davis County facilities to provide reduced cost chest x-rays
- Provided monthly on-site evaluations for each LTBI client receiving treatment to ensure compliance and assess medication tolerance

Future Steps:

- Development and implementation of Respiratory Protection Plan
- Re-evaluate screening tools used in the immunization clinics to ensure that no LTBI is missed
- Development of guidelines to evaluate clients with reactive TB skin tests
- Assess value of providing Quatiferon – Gold testing
- Implement targeted-testing guidelines for the community