Prevention bulletin

Publication of the Division of Public Health Services May/June 2006, Vol. 20, No. 3

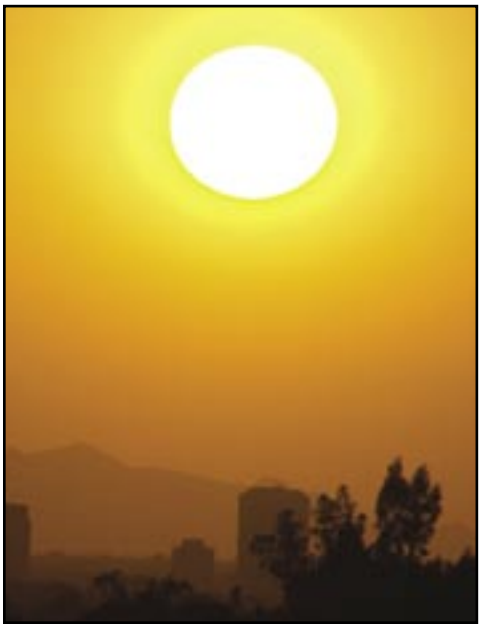
Table of Contents

Visit the ADHS Web site at www.azdhs.gov

Arizona Department of Health Services

Remember, It's Hot Out There!

By Don Herrington



Why do you need to remember it's hot? It is quite obvious and doesn't require that you remember it, right? Of course, but what people often forget is that heat related illnesses can occur before a person realizes they are in danger. Constant monitoring and an awareness of the causes, symptoms, and preventative measures can reduce or eliminate the possibility of a heat related illness occurring.

Heat Related Illnesses and Symptoms

Common heat-related illnesses are: heat stroke, heat exhaustion, heat cramps, heat rash, and sunburn. The Centers for Disease Control and Prevention along with the Arizona Department of Health Services offers the following information on these illnesses and symptoms.

Heat Rash is a skin irritation caused by sweating during hot, humid weather. It can occur at any age, but is most common in young children. It appears as a cluster of red pimples or small blisters. It is more likely to occur on the neck and chest, in the groin, under the breasts, and in elbow creases.

Heat Cramps are muscular pains and spasms due to overexertion and an early warning that the body is having trouble cooling.

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. It is the body's response to an excessive loss of the water and salt contained in sweat. Those most prone to heat exhaustion are elderly people, people with high blood pressure, and people working or exercising in a hot environment. Heat exhaustion is exhibited by heavy sweating, paleness, cramps, weakness, and skin being cool & moist. Heat exhaustion can become heat stroke if warning signs ignored.

Heat stroke occurs when the body is unable to regulate its temperature. The body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided. Warning signs or symptoms of heat stroke vary but may include an extremely high body temperature (above 103°F, orally), red, hot, and dry skin (no sweating), a rapid, strong pulse, throbbing headache, dizziness, nausea, confusion, and unconsciousness.

Sunburn should be avoided because it damages the skin. Although the discomfort is usually minor and healing often occurs in about a week, a more severe sunburn may require medical attention. Symptoms of sunburn are well known: the skin becomes red, painful,

Continued on page 2

Remember, It's Hot Out There!

continued from page 1

and abnormally warm after sun exposure. Chronic sun burns can lead to an increased risk of developing skin cancer.

At Risk Populations

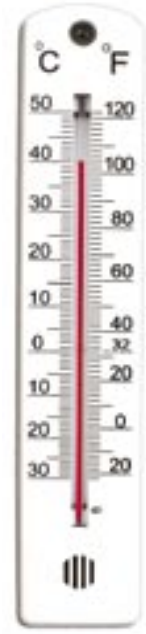
- For people ages 65+, excessive heat ranked 5th among accidental deaths (1992-2002). Medical and Health experts report that elderly are often less likely to sense or respond to changes in heat.
- People with heart disease or high blood pressure.
- People taking certain medication for depressions, insomnia, or poor circulation may be adversely affected by heat. Medications (such as those described in the table to the right) may make a person more prone to adverse health effects.
- People who are overweight may be at risk because of a tendency to retain body heat.
- People who overexert themselves during work or exercise may become dehydrated and susceptible to heat sickness.
- Infants and small children are sensitive to heat and rely on others to regulate their environments and provide adequate liquid.
- People who use illicit drugs such as cocaine, amphetamines, and methamphetamines.
- Homeless people.
- Migrants.

Preventative Measures

Preventative measures include drinking plenty of water, wearing appropriate clothing, using liberal amounts of sunscreen, pacing yourself during strenuous activities, staying cool indoors, scheduling outdoor activities carefully, and monitoring those at high risk. People can also prevent heat related illness through better acclimating to the climate by limiting physical activity until they do acclimate, allowing several days before vigorously exercising in a hot climate while traveling, and being aware that a sudden onset of heat can trigger heat illness.

Heat Advisories and Heat Warnings

To assist Arizona residents, the Arizona Department of Health Services has developed a heat plan which can be accessed at www.azdhs.gov/phs/oeh/pdf/heatplan506.pdf . The plan is tied to National Weather Service Advisories and Warnings, which can be accessed at http://www.wrh.noaa.gov/psr/. The advisories and warnings are divided into three categories, Heat Advisories, Excessive Heat Watches and Excessive Heat Warnings.



Heat advisories make recommendations to counties to prepare to initiate emergency response plans, drafts heat health alert messages for the public, notifies the Department of Education, Behavioral Health Authorities, Licensed Care Facilities, and sends heat and other health alerts to various groups via the Health Alert Network (HAN) and to hospital emergency departments statewide via the EMSystem.

Excessive Heat Watches make recommendations to counties to begin implementing emergency response plans, notifies affected Tribal/Regional Behavioral Health Associations to increase outreach efforts and contact outreach teams as applicable, and informs T/RBHAs that conditions are likely to result in a life–threatening heat emergency within the next 24 to 48 hours. The Excessive Heat Watch encourages county health departments to activate their agency's Heat Emergency Response plan and increase surveillance efforts pertaining to heat-related deaths and injuries.

Excessive Heat Warnings makes recommendations to counties to initiate emergency response plans, notifies affected T/RBHAs to initiate outreach efforts and use clinic staff to assist with welfare checks for clients who may be at risk of severe health impacts due to extreme heat. The work is done in conjunction with local providers to advise area hospitals of the excessive heat warning and urge them to consider the extreme weather conditions when discharging patients.

Under the Excessive Heat Warning, ADHS staff will coordinate actions when there are any reports of a facility exceeding temperatures or experiencing air conditioning operational issues, and T/RBHA will assist in relocation of residents if needed. The ADHS Licensing Services group will serve in any capacity necessary to assist consumers and providers of health care and child care in licensed facilities during a response to extreme heat. Additionally, ADHS will coordinate with partners to provide Crisis Intervention Specialists and behavioral health screening at cooling stations, hydration centers, emergency shelters or other locations established by the city or county as a result of the emergency.

The heat of summer can be deadly, but taking proper precautions can reduce the danger and make for a more enjoyable summer season.

West Nile Virus

By Craig Levy

Another mosquito season is underway in Arizona, and state and local health officials have initiated surveillance efforts to detect and monitor arbovirus activity. Once again, field staff will be trapping mosquitoes, and laboratory staff will be testing mosquitoes, sick horses, dead birds and chicken blood samples. This year, 2006, will be our fourth year dealing with West Nile virus (WNV) in Arizona. WNV is now considered to be endemic in the area. Last year, 113 human cases were reported in Arizona, of which 61 were classified as West Nile fever, 23 were encephalitis, 22 were meningitis, and seven were acute flaccid paralysis. This represents a 71 percent decrease from the previous year, 2004, when 391 cases were reported.

WNV is a reportable condition in Arizona by both physicians and laboratories. Ordering appropriate diagnostic tests and reporting cases of arboviral disease is a vital part of the surveillance program. Surveillance data helps health officials to identify areas/communities at higher risk for disease and helps them to prioritize and target vector control efforts. Laboratory testing is available through commercial laboratories. If necessary, it can also be done at the Arizona State Health Laboratory (ASHL). The ASHL currently performs an IgM capture ELISA for WNV and St. Louis encephalitis (SLE). Testing can be performed on serum or CSF. Specimens can be sent to:

Arizona State Health Laboratory
Attn: Virology
250 North 17th Avenue
Phoenix, Arizona 85007

The following information must accompany specimens: patient name, age or date of birth, onset of symptoms, specimen collection date, primary symptoms/clinical picture and contact information for submitting physician.

Clinical Suspicion

- WNV, or other arboviral diseases such as St. Louis encephalitis, should be strongly considered in persons who develop unexplained encephalitis or meningitis in summer or early fall.
- The local presence of WNV enzootic activity or other human cases should further raise suspicion.
- Contact your local health department to report suspect cases and inquire about laboratory testing.

Clinical Features of WNV Infections

- Approximately 70-80% of WNV infections are clinically inapparent.
- Approximately 20% of those infected develop a West Nile fever. West Nile fever can range from mild to severe. West Nile fever can be characterized by sudden onset of fever often accompanied by one or more of the following: malaise, headache, anorexia, nausea, vomiting, eye pain, myalgia, maculopapular rash or lymphadenopathy. Some symptoms may persist from days to months.
- Approximately 1% of infections will result in neurological disease such as meningitis and/or encephalitis.
- The incubation period is thought to range from 3 to 14 days in immunocompetent individuals, and up to 21 days after organ transplantation.
- The most significant risk factor for developing severe neurological disease is advanced age.
- In recent outbreaks, symptoms occurring among patients hospitalized with severe disease included fever, weakness, gastrointestinal symptoms and change in mental status; also reported were severe muscle weakness and flaccid paralysis, maculopapular or morbilliform rash involving neck, trunk, arms or legs, ataxia and extrapyramidal signs, cranial nerve abnormalities, myelitis, optic neuritis, polyradiculitis and seizures.


Arizona State Health Laboratory

Laboratory Findings Among Patients in Recent Outbreaks

- Total leukocyte counts in peripheral blood were mostly normal or elevated, with lymphocytopenia and anemia also occurring.
- Examination of the cerebrospinal fluid (CSF) showed pleocytosis, usually with a predominance of lymphocytes.

Also noteworthy: recent studies (www.jem.org/cgi/doi/10.1084/jem.20051970) indicate that the CCR5Δ32 genotype, a defective CCR5 allele shown to be associated with resistance to HIV, may play an opposite role in WNV infection. Thus, CCR5-blocking agents now under development for the treatment of HIV/AIDS could render patients more susceptible to WNV disease.

Fluoridation in Arizona Water

By Joyce Flieger BSDH, MPH

Fluoridation Facts[1]:

- Fluoridation of community water supplies is the single most effective health measure to prevent dental decay. Throughout more than 60 years of research and practical experience, the overwhelming weight of credible scientific evidence has consistently indicated that fluoridation of community water supplies is safe.
- The Centers for Disease and Prevention has proclaimed community water fluoridation (along with vaccination and infectious disease control) as one of ten great public health achievements of the 20th century.
- Studies prove water fluoridation continues to be effective in reducing dental decay by 20-40%, even in an era with widespread availability of fluoride from other sources, such as fluoride toothpaste.
- Community water fluoridation benefits everyone, especially those without access to regular dental care. It is the most efficient way to prevent one of the most common childhood diseases- dental decay (5 times as common as asthma and 7 times as common as hay fever in 5-17-year-olds). Without fluoridation, there would be many more than the estimated 51 million school hours lost per year in this country because of dental-related illnesses.
- Community water fluoridation is the adjustment of fluoride that occurs naturally in water to optimal levels to protect oral health.
- Water that has been fortified with fluoride is similar to fortifying salt with iodine, milk with vitamin D and orange juice with vitamin C.
- Be aware of misinformation on the Internet and other junk science related to water fluoridation.
- The American Dental Association maintains Fluoride and Fluoridation Web pages at www.ada.org/goto/fluoride.

Fluoridation Facts: Arizona[2]

Arizona communities that adjust fluoride to the level that prevents tooth decay: *

Bisbee	Peoria
Chandler	Phoenix
Gilbert	Tempe (since 1965)
Glendale	Yuma
Mesa	

- Nearly all of the metropolitan Phoenix area, with the exception of Avondale, has enough fluoride to prevent tooth decay.
- Flagstaff's municipal water supply does not have enough fluoride to prevent tooth decay.
- Tucson's municipal water supply has variable levels, most of which are below the range to prevent tooth decay.
- Information on other community systems may be obtained by calling the water company serving that area.

*Many non-adjusted systems have naturally occurring levels that are optimal.

Bottled Drinking Water Facts

Bottled drinking water rarely contains enough fluoride. Although fluoride has no taste or smell, the reverse osmosis process used to filter the water removes it. Some dentists have anecdotally reported a rise in tooth decay in their patients and they blame the lack of fluoride in bottled water and high intake of sports drinks.

[1] American Dental Association Council on Access Prevention and Interprofessional Relations. Fluoridation Facts. Chicago IL,2005

[2] Arizona Department of Health Services, Office of Oral Health data.

Joyce Flieger BSDH, MPH is ADHS Office Chief for Office of Oral Health.

Communicable Disease Statistics

Monthly and year-to-date statistical summaries for selected reportable infectious diseases can be found on our website at: http://www.azdhs.gov/phs/oids/stats/index.htm.

These summaries are updated monthly to reflect the most up-to-date data. All data contained in these reports are provisional.

Other reports and publications of the Office of Infectious Disease Services can be referenced through: http://www.azdhs.gov/phs/oids/reports.htm.

Epi's Corner

The State

David Engelthaler,
State Epidemiologist

Disease Surveillance Anemia

Any health care provider who diagnoses, treats, or detects a case or suspect case of a communicable disease listed on the Arizona Communicable Disease Rules (R9-6-202, see enclosed list) is required by law to report it to the local public health department[1] within the specified amount of time. I hope this doesn't come as a surprise to any reader, as this often overlooked regulation has profound impact on Public Health.

Infectious disease reporting is the lifeblood of Public Health and disease control. By reporting infectious diseases, the medical practitioner also becomes a public health practitioner. Public Health efforts to assess burden of disease and its distribution and monitor trends for purposes of disease prevention and control hinge upon this reporting. Success stories like the elimination of smallpox and the eradication of diseases like polio from the U.S. are due in large part to the strong connection between health care and public health.

However, national studies show us that less than 10% of reportable diseases are actually reported to Public Health by health care providers[2], and the majority of acute communicable diseases are not reported within one incubation period[3]. Unfortunately, this is true for health care provider reports of infectious diseases in Arizona (unpublished data). Most data on infectious diseases in Arizona is coming only from clinical laboratories, which typically have no useful information about the patients themselves. Without the critical patient information, little to no epidemiology can be performed, leading to inappropriate analyses and interventions.

In turn, we, in Public Health, have not made reporting easy for the provider, especially the private practice physician. The 1940's style paper-based surveillance system doesn't cut it anymore. Public Health has also done a poor job of getting information back to providers. We realize that this is a give and take, and we've concentrated more on the "taking" than the "giving".

Recent paradigm shifts in electronic information management in health care and public health should help us to bridge the gaps.

The Arizona Health-e Connection Roadmap

As health care is grappling with the coming age of electronic heath records, Arizona is in the forefront of embracing this technological advancement for the improvement of medical care through the secure and appropriate sharing of patients' medical information between providers. The Arizona Health-e Connection Roadmap was recently developed by an alliance of Arizona's private and public sector leaders in health care, information technology, policy, and public health[4].

Major components of the Roadmap include:

- Encouraging health information technology adoption among health care providers;
- Identifying key infrastructure components that enable providers to securely exchange health information;
- Implementing both regional and centralized initiatives;
- Developing a not-for-profit, public-private governance organization with representation from all major stakeholders groups to provide leadership implementing the Roadmap; and,
- Creating a funding structure that is value-driven and self-sustaining with many costs borne by those receiving benefit.

MEDSIS - Electronic Disease Surveillance

The Arizona Department of Health Services has recently developed, and is now implementing, the Arizona electronic disease surveillance system - known as MEDSIS[5]. This secure, Internet-based system allows for state and local public health to share a unified data system that also connects to hospitals, labs, and soon clinics and private practice offices. When complete, this system will allow for two way flow of information between public health and health care, essentially changing the face of public health practice in Arizona. As a result, MEDSIS promises to improve the accuracy, completeness, and timeliness of disease reporting to state and local health departments thereby improving the quality and utility of the information provided back to the provider.

With these two concurrent strategies, Arizona is on a trajectory to true electronic health information exchange. This will provide for better informed public health and health care systems, achieving better personal and population health. This mission is more important now than ever before, with the backdrop of emerging infections, bioterrorism and other public heath threats.

In the meantime, we will look for more effective ways to get disease-related information back to the providers. This information is developed from the data, the surveillance system lifeblood, provided by the front-line practitioners. We can ill-afford the public health surveillance anemia caused by under-reporting. Please continue to do your public health duty, and we will try to do ours.

1. http://www.azdhs.gov/phs/oids/contacts.htm#L
2. Doyle, et al. 2002.Completeness of Notifiable Infectious Disease Reporting in the United States: An Analytical Literature Review. Am J Epid 155 (9):866-874 (http://aje.oxfordjournals.org/cgi/reprint/155/9/866)
3. Jajosky and Groseclose. 2004. Evaluation of reporting timeliness of public health surveillance systems for infectious diseases. BMC Public Health 2004, 4:29 (http://www.biomedcentral.com/1471-2458/4/29)
4. http://www.azgita.gov/tech_news/2006/Arizona%20Health-e%20Connection%20Roadmap.pdf
5. http://www.azdhs.gov/medsis/

See Chart on Page 6

Reporting Requirements for a Health Care Provider or an Administrator of a Health Care Institution or Correctional Facility

📝*,O	Amebiasis	📝	Hantavirus infection	📝*,O	Salmonellosis
☎	Anthrax	☎	Hemolytic uremic syndrome	O	Scabies
📝	Aseptic meningitis: viral	📝*,O	Hepatitis A	☎	Severe acute respiratory syndrome
📝	Basidiobolomycosis	📝	Hepatitis B and D	📝*,O	Shigellosis
☎	Botulism	📝	Hepatitis C	☎	Smallpox
◑	Brucellosis	📝*,O	Hepatitis E	📝	Streptococcal Group A: Invasive disease
📝*,O	Campylobacteriosis	📝	Herpes genitalis	📝	Streptococcal Group B: Invasive disease in infants younger than 90 days of age
📝	Chancroid	📝	HIV infection and related disease	📝	*Streptococcus pneumoniae* (pneumococcal invasive disease)
📝	*Chlamydia* infection, genital	📝	Kawasaki syndrome	📝	Syphilis
◑*	Cholera	📝	Legionellosis (Legionnaires' disease)	📝*,O	Taeniasis
📝	Coccidioidomycosis (valley fever)	📝	Leptospirosis	📝	Tetanus
📝	Colorado tick fever	☎	Listeriosis	📝	Toxic shock syndrome
O	Conjunctivitis: acute	📝	Lyme disease	📝	Trichinosis
📝	Creutzfeldt-Jakob disease	📝	Lymphocytic choriomeningitis	◑	Tuberculosis
📝*,O	Cryptosporidiosis	📝	Malaria	◑	Tuberculosis infection in a child younger than 6 (positive test result)
📝	*Cyclospora* infection	☎	Measles (rubeola)	☎	Tularemia
📝	Cysticercosis	☎	Meningococcal invasive disease	☎	Typhoid fever
📝	Dengue	◑	Mumps	◑	Typhus fever
O	Diarrhea, nausea, or vomiting	☎	Pertussis (whooping cough)	☎	Unexplained death with a history of fever
☎	Diphtheria	☎	Plague	◑	Vaccinia-related adverse event
📝	Ehrlichiosis	☎	Poliomyelitis	📝	Vancomycin-resistant *Enterococcus* spp.
☎	Emerging or exotic disease	📝	Psittacosis (ornithosis)	☎	Vancomycin-resistant or Vancomycin-intermediate *Staphylococcus aureus*
◑	Encephalitis, viral or parasitic	◑	Q fever	☎	Vancomycin-resistant *Staphylococcus epidermidis*
☎	Enterohemorrhagic *Escherichia coli*	☎	Rabies in a human	📝	Varicella (chickenpox)
☎	Enterotoxigenic *Escherichia coli*	📝	Relapsing fever (borreliosis)	📝*,O	*Vibrio* infection
📝*,O	Giardiasis	📝	Reye syndrome	☎	Viral hemorrhagic fever
📝	Gonorrhea	📝	Rocky Mountain spotted fever	☎	West Nile virus infection
📝	*Haemophilus influenzae*: invasive disease	◑*	Rubella (German measles)	☎	Yellow fever
📝	Hansen's disease (Leprosy)	◑	Rubella syndrome, congenital	📝*,O	Yersiniosis

Key:

☎ Submit a report by telephone or through an electronic reporting system authorized by the Department within 24 hours after a case or suspect case is diagnosed, treated, or detected or an occurrence is detected.

* If a case or suspect case is a food handler or works in a child care establishment or a health care institution, instead of reporting within the general reporting deadline, submit a report within 24 hours after the case or suspect case is diagnosed, treated, or detected.

◑ Submit a report within one working day after a case or suspect case is diagnosed, treated, or detected.

📝 Submit a report within five working days after a case or suspect case is diagnosed, treated, or detected.

O Submit a report within 24 hours after detecting an outbreak.

Arizona Department of Health Services

NoteWorthy

First Case of Lymphogranuloma Venerum (LGV) in AZ

In March 2006 Arizona's first confirmed case of Lymphogranuloma venereum (LGV) was reported in Maricopa County. The male patient reported multiple unprotected, anonymous sexual encounters with other men at a commercial sex venue in Maricopa County within 60 days prior to diagnosis and was co-infected with syphilis. The patient denied travel within the previous 60 days.

LGV is a systemic, sexually transmitted disease (STD) caused by a type of Chlamydia trachomatis that is endemic in Africa, India, southeast Asia, South America and the Caribbean[1]. Recent outbreaks of LGV proctitis have been reported among men who have sex with men (MSM) in the European Union[2]. Sporadic cases of LGV in the U.S. have been diagnosed among HIV-infected MSM[3]. Symptoms of LGV include mucoid / purulent anal discharge, rectal bleeding, constipation, inguinal / femoral lymphadenopathy (buboes), genital or rectal ulcer or papule, anal spasms, and / or tenesmus[4]. LGV is of concern due to the ulcerative nature of the lesions that facilitate transmission and acquisition of HIV and other STDs.

Clinicians seeing patients with these symptoms should contact their county health department or the ADHS STD Program at 602.364.4666 for guidance on specimen collection, specimen shipment, and partner notification. The Centers for Disease Control and Prevention (CDC) is assisting state and local health departments in identifying patients with LGV in cities across the United States. Specimens are submitted to CDC's chlamydia laboratory for testing through the Arizona STD Program. For updated information on the diagnosis of LGV visit the CDC Division of STD Prevention's website at www.cdc.gov/std/lgv.

1. Holmes, King. Sexually Transmitted Diseases. McGraw-Hill Companies Inc. New York, NY. 1999:423-30.
2. Centers for Disease Control and Prevention. Lymphogranuloma Venereum Among Men Who Have Sex with Men --- Netherlands, 2003--2004. MMWR. 2004: 53(42);985-988
3. "Dear Colleague Letter to California STD Controllers," December 20, 2004 - Dr. Gail Bolan, California Dept. of Health Services available at http://www.stdhivtraining.org/pdf/STD_Controllers_Letter_12.20.04.pdf
4. Division of STD Prevention, Centers for Disease Control and Prevention, LGV Information Sheet available at http://www.cdc.gov/std/lgv/LGVInfo_v16.pdf
5. Centers for Disease Control and Prevention. Sexually Transmitted Diseases treatment guidelines 2002. MMWR 2002;51 (no. RR-6):18-9.

Hantavirus Pulmonary Syndrome Update

Eight cases of Hantavirus Pulmonary Syndrome (HPS) have already been reported in Arizona in 2006, including two cases in Maricopa County and six case in Northern Arizona. 50% of these cases were fatal. Having eight cases early in the year raises concerns of increased incidence in 2006. To date, 52 cases of HPS have been reported in Arizona since 1992.

Sin Nombre virus (SNV) is the specific hantavirus responsible for the majority of HPS cases reported in the U.S. SNV is carried by deer mice and other related species, which excrete the virus in their urine, droppings and saliva. People can become infected by inhaling aerosolized virus, and this commonly occurs when people disturb rodent contaminated dust or rodent nests during cleaning activities. People living, working or recreating in rural areas are at greater risk for exposure due to the presence of wild mice. People should be especially cautious when entering/opening cabins and trailers that have been closed-up during the winter. Appropriate prevention measures to take to reduce risk can be found at http://www.cdc.gov/ncidod/diseases/hanta/hps/noframes/FAQ.htm.


John Good

The incubation period for HPS is a few days to six weeks. Prodromal symptoms commonly include fever (usually 101° degrees F or greater), myalgias, abdominal pain, cough, nausea and vomiting. Flu-like symptoms are followed in 1-10 days by rapid onset of respiratory distress. Pharyngitis, otitis, sinusitis, rhinorrhea, and rash are rarely seen in HPS cases. Clinical findings commonly include leukocytosis with left shift. Lymphocyte count may be normal, but significant morphologic abnormalities by lymphoid cells are evident. At least 10% of lymphocytes are either immunoblasts or plasma cells. The platelet count is usually less than 150,000. Patients with HPS will most often require admission to the ICU along with hemodynamic monitoring.

Serologic testing for HPS is available at the Arizona State Health Laboratory (ASHL). Please call your county health department or the Vector-Borne & Zoonotic Diseases (VBZD) Program at (602) 364-4562 to discuss and arrange for laboratory testing. Collect blood specimens in a plain red top 10 ml tube. Do not use a tube with serum separator. The State Laboratory will centrifuge the blood to separate serum and clot. Specimens should be sent to:

Arizona State Health Laboratory
Attn: Serology
250 North 17th Avenue
Phoenix, Arizona 85007

For more information, contact the ADHS, Vector-Borne & Zoonotic Diseases Program staff at (602) 364-4562, or visit our website at www.azdhs.gov.

Prevention bulletin

Arizona Department of Health Services
Public Information Office
150 North 18th Avenue
Phoenix, AZ 85007

Janet Napolitano, Governor
Susan Gerard, Director ADHS
Niki O'Keeffe, Assistant Dir., Public Health Services

Contributors:
Ayesha Bashir MD, MPH
David Engelthaler,
Joyce Flieger,
Don Herrington
Will Humble M.P.H.,
Craig Levy
The Office of Infectious Disease Services,
The Arizona Immunization Program Office,
The Office of HIV/AIDS Services

Managing Editor:
Mary Ehlert, M.S., ABC
e-mail: ehlertm@azdhs.gov

This publication is supported by the Preventive Health and Health Services Block Grant from the Centers for Disease Control and Prevention (CDC). Its contents do not necessarily represent the views of the CDC. If you need this publication in alternative format, please contact the ADHS Public Information Office at 602.364.1201 or 1.800.367.8939 (State TDD/TTY Relay).

A Look at Norovirus

By Ayesha Bashir MD, MPH

Norovirus is a frequent cause of viral gastroenteritis in Arizona and across the U.S. Also known as "Norwalk-like virus", it is an RNA virus belonging to the Caliciviridea family that causes acute gastroenteritis in humans. Caliciviruses are the most common cause of viral gastroenteritis in the U.S. and are estimated to cause 23 million cases each year. There are five genogroups of noroviruses which are further subclassified into more then 25 genetic clusters. They are capable of surviving high chlorine concentration, freezing and heating up to 60 degrees. Disease affects all ages and occurs year round, with peaks in the winter months.

Symptoms of norovirus commonly include nausea, vomiting, abdominal cramps and loose, watery diarrhea. Vomiting is more prevalent in children while diarrhea is more prevalent in adults. The incubation period is 12 to 48 hours, and the illness usually lasts only 12 to 60 hours with no long term effects. **One complication which can be fatal if ignored or undetected is dehydration.**

The major mode of transmission of norovirus is by the ingestion of fecally contaminated food or water. Several factors facilitate the spread of infection: a low infectious dose of less then 100 viral particles; viral shedding in the stool for up to two weeks; the ability of the virus to survive in the environment for extended periods of time; and the short term human immunity against the virus. Norovirus outbreaks often occur in congregate settings, such as cruise ships, daycares or long term-care facilities and gatherings. The settings for the norovirus outbreaks confirmed in 2005 in Arizona are shown in Fig. A (provisional data). Six (31%) of the 19 outbreaks occurred in long term-care facilities.

Figure A: Norovirus Outbreaks by Setting/ Location, Arizona 2005

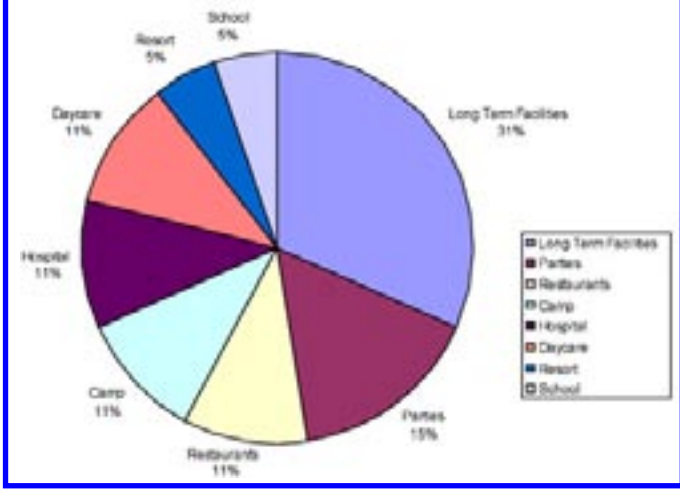
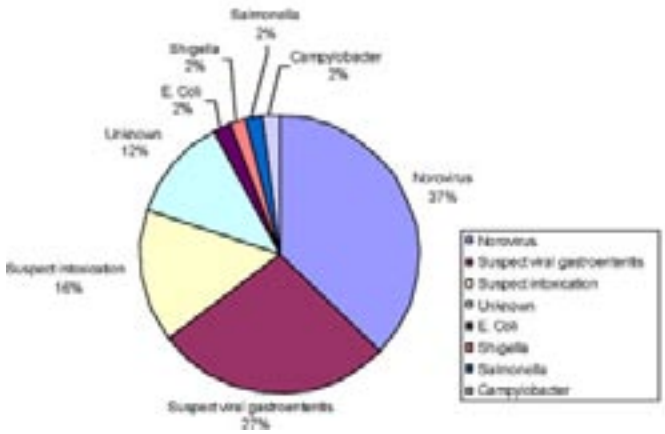


Figure B: Reported Gastroenteritis Outbreaks, Arizona, 2005 (N=51 outbreaks)



Norovirus in Arizona

Of the 51 outbreaks of gastroenteritis reported to Arizona health departments in 2005, 37% were confirmed to be norovirus as shown in Fig. B (provisional data). An additional 39% were of unknown or suspected viral etiology; many of these may have been caused by norovirus but could not be confirmed. While individual norovirus cases are not reportable in Arizona, outbreaks of nausea, vomiting and diarrhea are. Local health agencies initiate an investigation in response to these reported outbreaks to identify potential common exposures among the cases, collect specimens for laboratory testing and recommend measures for disease control. Lab testing for norovirus outbreaks is conducted at the Arizona State Laboratory, and is most commonly done by reverse-transcriptase polymerase chain reaction (RT-PCR), which may be followed by sequencing analysis to confirm outbreak strains or linked cases.

There are several reasons why norovirus is not more commonly detected and diagnosed. Oftentimes, cases of norovirus may occur sporadically and either not necessitate a visit to a health care provider, or not be reported and diagnosed as norovirus if the event involves only single cases. Even if several people do become ill and the outbreak is reported, it can be difficult to collect specimens in a timely manner and obtain positive lab results on those specimens, all contributing to the challenges of confirming outbreaks of nausea, vomiting or diarrhea as norovirus.

To report an outbreak of nausea, vomiting or diarrhea and discuss testing of specimens, please contact your local health department. Noroviruses are the most common cause of acute gastroenteritis. The key to the control and prevention of not only norovirus but also other gastroenteritis is hand wash, hand wash, hand wash and applying infection control in the appropriate settings.