

IDAHO DISEASE Bulletin



IDAHO DEPARTMENT OF
HEALTH & WELFARE

Office of Epidemiology and
Food Protection
Idaho Department of
Health and Welfare

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Tuberculosis and Travel: lessons from the recent international incident

The recent uproar over the patient with suspected extensively drug-resistant tuberculosis (XDR-TB) has increased awareness about the risks of TB and travel. This situation was unusual because of concern over the drug-resistant strain that was initially diagnosed, but international travelers with TB are not uncommon, due to the increasing frequency of travel in general. General guidance on TB and air travel was published by the World Health Organization (WHO) in 2006. Following is a brief review of some of the recent cases and some major points from the WHO guidance.

XDR-TB is defined as a subtype of multidrug-resistant TB (i.e. an isolate resistant to at least isoniazid and rifampin), with additional resistance to a fluoroquinolone and an injectable agent [amikacin, kanamycin, or capreomycin]. XDR-TB is rarely reported in the U.S., but has increased worldwide.

Ultimately, after further testing this case was determined to be a multidrug-resistant strain, not XDR-TB, but some of the issues brought to light by this case are relevant to all cases of TB.

It can be challenging to know when to allow persons with TB to travel. In Idaho, we have taken a conservative stance, following the WHO guidelines or even being more restrictive if there is any question as to the infectious status of a patient.

Some points from WHO:

- Since medical clearances for immigrants seeking to enter the U.S. may be valid for up to one year after clearance is obtained, a person could develop infectious TB in the period elapsing between the medical examination and travel.
- To date, no case of active TB has been identified as a result of exposure on a commercial aircraft, although some cases of latent infection have been documented following air travel.
- From 1992 to 1994, the CDC, together with state and local health departments, conducted seven contact investigations, one centered on a cabin crew member and six on passengers with infectious TB who had flown during this period. Significant findings included:
 - The number of potentially exposed passengers and cabin crew exceeded 2600 on a total of 191 flights involving nine different types of aircraft. All index patients were highly infectious, i.e. smears from spontaneous sputum specimens from all index cases were heavily positive for acid-fast bacilli (AFB) and all patients were culture-positive and had evidence of extensive pulmonary disease on chest radiography. One patient also had biopsy and culture-confirmed laryngeal TB.

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- In two instances, patients had multidrug-resistant tuberculosis (MDR-TB). Organisms isolated from the other patients were sensitive to all anti-TB drugs.
- In only two of the investigations was there evidence to suggest transmission of *M. tuberculosis* infection: one from a cabin crew member to other crew members, and another from a passenger to other passengers. In the first report, evidence of transmission was limited to cabin crew with at least 12 hours' exposure to the infectious source. In the other, transmission of infection occurred to only a few passengers seated in the same section as and in close proximity to the passenger with infectious TB, and only on one flight lasting more than 8 hours.
- Boarding can and should be denied to individuals known to have an infectious form of TB.
- When a physician is aware that a person with an infectious form of TB is planning to travel on a commercial carrier, he or she should inform the public health authority who in turn should inform the airline concerned.
- Denying boarding to all TB patients under treatment would not be justified. The majority of TB cases become non-infectious after two weeks of adequate treatment.

Notably, in the WHO guidelines, two weeks of therapy would be enough in many cases to allow air travel. In Idaho, we generally require a patient to document noninfectiousness, in addition to having received two weeks of treatment, by the following criteria: patient has a negligible likelihood of MDR-TB is receiving standard multidrug antituberculosis therapy, has demonstrated clinical improvement, and has had three consecutive AFB-negative smear results of sputum specimens collected 8 to 24 hours apart. For persons with MDR-TB, infectiousness is determined on a case-by-case basis, but generally is

more stringent, including negative cultures.

If you are managing a patient with TB or suspected TB and believe the patient traveled, or has intent to travel on any commercial conveyance, please notify your Health District's or Division of Health's TB control staff. The health department staff will work with the patient to determine whether any previous travel potentially exposed others, and whether travel is now safe. Idaho law does allow an order of isolation to be issued if there is reason to believe the patient is a threat to the public's health.

The full WHO guidelines are available at:
http://whqlibdoc.who.int/hq/2006/WHO_HTM_TB_2006.363_eng.pdf

Action underway to stem the rise of gonorrhea and chlamydia in Idaho

Gonorrhea and chlamydia are leading causes of Pelvic Inflammatory Disease (PID), a major cause of infertility. While rates of gonorrhea and chlamydia in Idaho are currently below national rates, they have been increasing here (Figures 1, 2) and in the West. Reported Idaho incidence rates in the last 5 years (2002-2006) have increased by 25% percent for chlamydia (186.6 to 274.6 per 100,000) and 105% percent for gonorrhea (7.0 to 16.8 per 100,000).

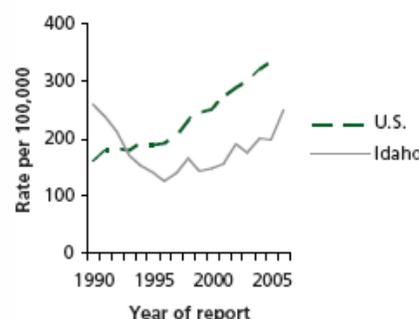


Figure 1. Reported chlamydia incidence rate—U.S. and Idaho, 1990–2006

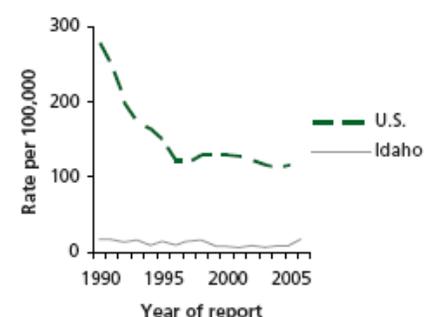


Figure 2. Reported gonorrhea incidence rate—U.S. and Idaho, 1990–2006

Due to alarming increases in the reported incidence rates of these sexually transmitted diseases (STD), Office of Epidemiology Food Protection (OEFPP) is recommending clinicians review the recommended treatment regimens, screening practices including re-screening for re-infection, and partner treatment strategies. CDC has released updated STD treatment guidelines in 2006, and in April, updated the recommended regimen for gonorrhea to exclude the use of fluoroquinolones because of widespread antibiotic resistance.

Effective clinical management of patients with treatable STD requires treatment of the patients' recent sex partners to prevent reinfection and curtail further transmission. For patients whose partners' treatment cannot be ensured or is unlikely, delivery of antibiotic therapy via prescription to their partners is an option. Providing antibiotic prescriptions for chlamydia or gonorrhea for a patient's sex partners without requiring a visit, sometimes referred to as expedited partner therapy (EPT), has been shown to reduce re-infection and is endorsed by the Centers for Disease Control and Prevention (CDC) and the American Medical Association.

This appears to be a practice sometimes used in Idaho, but not by all providers. Representatives from the Idaho Board of Medicine and the Idaho Board of Pharmacy have stated they do not believe there are any Idaho rules forbidding this practice. Use of this approach should always be accompanied by efforts to educate partners about symptoms and to

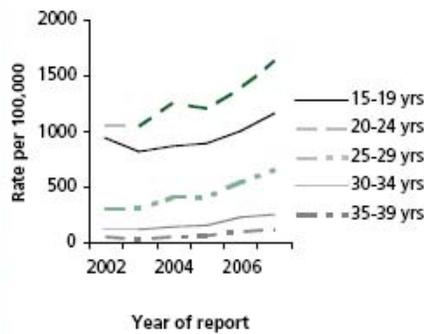


Figure 3. Reported chlamydia incidence rate by selected age group—Idaho, 2002–2007 (YTD)

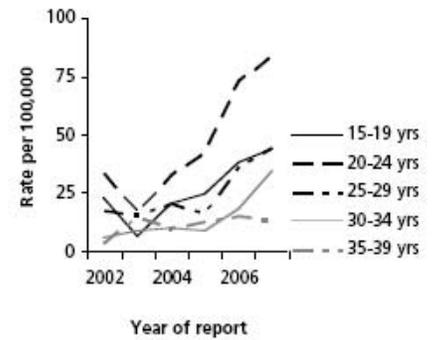


Figure 4. Reported gonorrhea incidence rate by selected age group—Idaho, 2002–2007 (YTD)

encourage partners to seek clinical evaluation.

A tool patients may use to inform partners of their potential exposure is an Internet-based service which allows patients to send anonymous email using www.InSPOT.org/idaho. To avoid misuse, the InSPOT website will not be advertised; therefore, it is imperative providers inform clients about InSPOT, especially in cases where the patient knows only a screen name or email address of sex partners.

Appropriate screening can detect asymptomatic infections for which patients may not normally seek medical attention. It is recommended sexually active women aged 15-24

years be screened annually for chlamydia; others and candidates for gonorrhea screening should be selected based on risk and local epidemiology. History of previous infection, other sexually transmitted infections, new or multiple sexual partners, inconsistent condom use, sex work, and drug use are risks for gonorrhea. Local epidemiology is outlined in following paragraphs.

Because of annual screening of women 15-24 years, chlamydia infections are reported more often among women than men (3:1 during 2000-2006). Annual screening is not a universal recommendation for gonorrhea; the ratio of females to males is 1:1 during the same time period.

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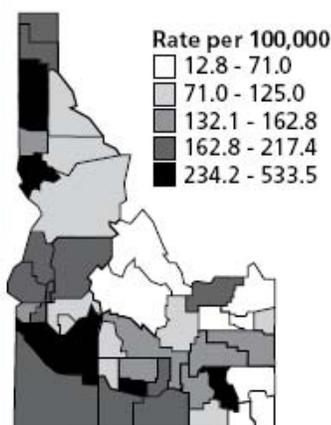


Figure 5: Reported Chlamydia incidence rate by county—Idaho, 2006

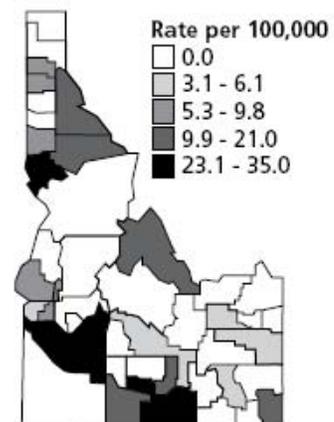


Figure 6: Reported gonorrhea incidence rate by county—Idaho, 2006

Reported chlamydia and gonorrhea incidence rates are highest in the 20-24 year age group overall and are increasing relatively more sharply in recent years compared with other age groups (Figures 3, 4). Chlamydia rates were highest in South and Southwest Idaho and in parts of Northern Idaho (Figure 5) in 2006; gonorrhea 'hot spots' existed in many of these same areas (Figure 6).

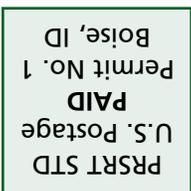
Data on persons tested in public health clinics reveal an overall positivity of 7.5% on over 16,000 tests in 2006 (for male and female visits). With regard to patient history, high percent-positive chlamydia specimens were collected from those who were a contact to chlamydia (31.4%), had gonorrhea (history of repeat

GC 14.8%, GC this visit 19.0%), had ≥ 2 sex partners in the last 60 days (10.0%), had sex for money or drugs (7.5%), intravenous drug users (IDU) (7.4%), or sexual contacts of IDU (7.3%). High percent-positive chlamydia was also observed in specimens from patients with symptomatic partners (17.1%).

In calendar year 2006, gonorrhea positivity at public health clinics was 0.5% on over 11,716 specimens. Higher than average percent positive was observed in specimens from patients with a symptomatic partner (0.6%), with repeat infection (10.0%), reported having sex for money (2.4%), who were men having sex with men (MSM) (2.2%), who were IDU (1.1%), who had another STD in the last

12 months (1.1%), with a new sex partner in the last 60 days (0.8%), or who were pregnant (0.7%).

While chlamydia and gonorrhea rates are low in Idaho compared with the national rate, the recent rise is very concerning. The Division of Health recommends careful screening, treatment as outlined in the 2006 treatment guidelines and avoidance of fluoroquinolones for gonorrhea, and effective public health interventions including consideration of expedited partner therapy to reduce risk of re-infection.



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If you are one of the randomly selected readers who have received a letter from the Office of Epidemiology and Food Protection requesting your feedback to a short questionnaire, please send us your completed questionnaire. We would greatly appreciate it if you would also complete the online web survey by June 1 so that we can better serve our readership. Thank you for your participation!

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EMERGENCY 24-Hour Reporting Line..... 1.800.632.8000

An electronic version of the Rules and Regulations Governing Idaho Reportable Diseases may be found at <http://adm.idaho.gov/adminrules/rules/idapa16/0210.pdf>



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West Nile Virus

West Nile virus is a zoonotic, vector-borne virus. Its first US detection was in the greater New York City area in the fall of 1999. Since then, the virus has moved steadily westward across the US. Idaho first detected mosquito-borne transmission within the state in 2004 (Table 1): eleven counties reported a total of three human cases and activity in a handful of positive sentinel species (*e.g.* horses and corvid and raptor bird species). In 2005, virus activity expanded slightly, with 15 Idaho counties reporting ill humans and/or affected sentinel species and positive vector mosquitoes.

Table 1. WNV Surveillance Findings – Idaho, 2004–2006

Year	Humans	Birds	Horses	Mosquito pools*
2004	3	7	22	0
2005	13	15	113	17
2006	996†	127	338	238

* A mosquito pool is defined as up to 50 *Culex tarsalis* or *Culex pipiens* mosquitoes pooled into one test.

† This does not include 20 reported asymptomatic blood donors which brings the total to 1016 reported human infections.

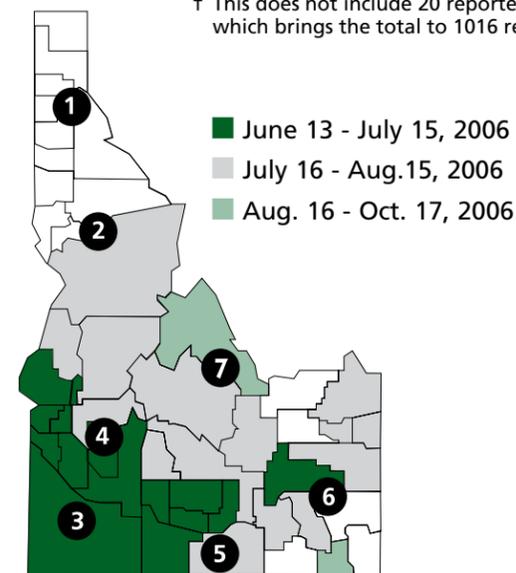


Figure 1. Timing of Initial WNV Onset Dates, in Humans, by County – Idaho, 2006*

* Counties are only shown if evidence of local transmission was reported in humans. Lemhi County is designated by diagnosis date (onset dates unavailable).

WNV in 2006

A significant geographic expansion of virus activity in Idaho was seen in 2006. Idaho recorded the nation's highest number of cases, representing 23.4% of the U.S. total. Of the 44 counties in Idaho, 38 reported human cases, positive sentinel species, or both (imported or locally-acquired). Evidence of local transmission was documented in 35 of the 38 counties, while the three remaining counties reported imported infections only (Kootenai and Clearwater [human cases] and Latah [equine case]). Counties that did not report local WNV transmission in 2006 were all located in northern Idaho. Figure 1

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depicts the 30 counties reporting locally-acquired human infections and shows the expansion across the state over the summer months, by illness onset date. Counties reporting only animal cases were Bear Lake, Caribou, Clark, Oneida, and Teton.

During 2006, the Idaho Division of Health received 996 reports of symptomatic Idaho residents (68 cases per 100,000 people, with significant local variation). Additionally, 20 asymptomatic blood donors were identified bringing the total number of reports to 1016. Of the 996 symptomatic reports, 825 were considered non-neuroinvasive (i.e., West Nile fever) and 171 were considered neuroinvasive (i.e., meningitis, encephalitis, meningoencephalitis, acute flaccid paralysis, or other neurologic symptoms). The epidemiologic curve (Figure 2) demonstrates the seasonality of WNV infections (neurologic and non-neurologic). The counties with the highest number of infections were Ada, Canyon, and Bingham; the county with the highest incidence of infection (per 100,000) was Bingham.

Selected summary data is shown in Table 2. Although illness can

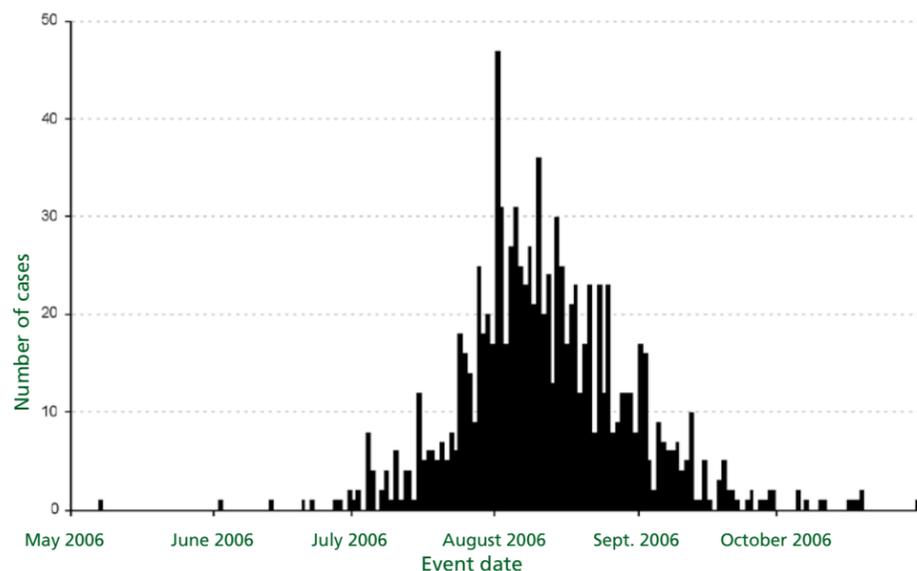


Figure 2. Epidemiologic curve of West Nile Virus infections by event date* – Idaho, 2006

* Event date refers to symptom onset date or when this is not available diagnosis date or report date

occur in people of any age, the severity of West Nile virus infections increases with age. The median age for those with any clinical manifestation of WNV infection was 48 years, ranging from three months to 92 years of age. The group with non-neuroinvasive illness had a median age of 48 years (age range: 3 mos to 89 yrs) as compared to a median age of 57 years (age range: 1 yr to 92 yrs) for those with neuroinvasive illness. Neuroinvasive illness was typically severe:

approximately 80% of these cases required hospitalization. Among neuroinvasive cases for which data are complete, 47.1% were reported with meningitis, 21.8% with meningoencephalitis, 18.5% with encephalitis and 12.6% were reported with some degree of acute flaccid paralysis. Because the clinical picture may change over time, these percentages may be underestimates of the clinical outcomes. Non-neuroinvasive cases were also severe enough to require hospitalization 11.8% of the time.

Twenty-three WNV-related deaths were reported. The people who died had a median age of 77 years (age range: 41 yrs to 92 yrs); all but three were ≥ 60 years of age and most had significant underlying medical conditions. The average difference between onset date and date of death in persons diagnosed antemortem was 45 days, with a range of 4 days to 234 days.

Table 2. WNV Summary Data — Idaho, 2006*

Condition	Non-neuroinvasive	Neuroinvasive	Fatal	All Symptomatic Reports
Total Cases	825	171	23	996
Age Range	3 mos – 89 yrs	1 yr – 92 yrs	41 yrs – 92 yrs	3 mos to 92 yrs
Median Age	48 yrs	57 yrs	77 yrs	48 yrs
Sex	53.3% female	54.7% male	70% male	52.5% female
Hospitalized	11.8%	80.5%	87.0%	24.9%

* Calculations are based on information gathered during case investigations. Blank or "unknown" responses were not included in calculations.

Emergency Declarations in 2006

In response to increasing evidence of WNV activity, six counties declared an emergency in order to access state funds to carry out extended mosquito abatement activities. Four of the counties, Ada, Bingham, Canyon and Elmore, carried out aerial adulticide spraying with the organophosphate nald (Dibrom®), while Madison and Owyhee counties carried out other enhanced activities that did not involve aerial spraying.

Preparations for the 2007 Season

Many states previously affected by WNV have seen a decline in human cases after an epidemic year, such as the epidemic year Idaho experienced in 2006. Because it is difficult to predict the impact this virus will have in Idaho in 2007, Idaho state agencies, local health districts, and counties are preparing for a year similar to 2006 with the possibility of expansion into the northern region of the state.

Changes in Laboratory Testing for West Nile Virus in 2007

New!

CDC-approved WNV-specific diagnostic tests are widely available through commercial laboratories. Healthcare providers are encouraged to use commercial laboratories for the diagnosis of all suspected cases of WNV. The only situations where diagnostic tests will be available through the Idaho Bureau of Laboratories are for those individuals with severe illness (i.e., hospitalized or neuroinvasive cases).

Abatement District Formation

On March 3, 2007 House Bill 178 was passed and is now known as Idaho Code, Chapter 28, Section 39-2812. This bill allows for the emergency formation of interim mosquito abatement districts in counties planning on moving forward with the establishment of permanent abatement districts within two years of the emergency establishment of the district. At the time of writing this newsletter, Canyon and Elmore counties had moved forward with the



emergency formation of a county-wide abatement district and other counties were considering this action.

Resources

Surveillance activities to detect WNV in sentinel species (e.g, birds, horses) and mosquitoes will be carried out again in 2007 by multiple state and local agencies. To access a complete table of 2007 WNV surveillance findings as they become available by county, go to the following web site frequently throughout the season: <http://www.westnile.idaho.gov>. Archived data tables are also available for 2004–2006. The WNV web site provides the opportunity to learn more about health concerns, pesticide use in adults and children, links to patient fact sheets about mosquito repellent use, ways to reduce mosquito breeding habitat around homes and in communities, and links to more information about WNV in horses and birds.

Safety precautions when using DEET on children can also be found at the American Academy of Pediatrics website: <http://www.aap.org/family/wnv-jun03.htm>

Updated brochures and posters in English or Spanish are available from your local public health district or can be downloaded on-line from <http://www.westnile.idaho.gov>

WNV Information Line

A new telephone information line is now available in Idaho! Statewide, callers can access this new free automated information line by dialing 1-877-333-WNV1 (9681). Callers from the greater Treasure Valley can access the same information line by dialing the local number 334-6500. Information is included on WNV disease, pesticide usage, mosquito breeding site reduction, laboratory testing and information on dead birds, horses and West Nile virus. Callers will be referred to local public health districts or health care providers if they need more information.



Statewide WNV Information Line
1-877-333-WNV1 (9681)

Treasure Valley WNV Information Line
334-6500

IDAHO DISEASE Bulletin

New Readership Survey Coming!

YOUR FEEDBACK is requested to make changes to the disease bulletin! Due to a very low response rate from the survey inserted in the April 2006 issue of this Bulletin, a new readership survey is being developed. The new survey will consist of a letter with two short questions and a link to an optional online survey sent to randomly selected people from the bulletin mailing list. Feedback is vital to making decisions about the future of the disease bulletin. Unsolicited feedback is always welcome as well and can be sent to epimail@dhw.idaho.gov.

Upcoming Continuing Education Opportunity

Sexually Transmitted Diseases Update for Clinicians

Description: This course addresses the prevention, diagnosis and management of STDs through didactic and optional practicum training and is designed for clinicians with at least 6 months of clinical STD experience. CMEs are available.

Dates: August 29-30, 2007

Location: J.R. Williams Building
700 W. State St.
Boise, Idaho

Call Annabeth Elliot at 208-334-6657 for more information.

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Norovirus and Long-term Care Facilities

In 2006, 18 outbreaks attributed to *Norovirus* were reported to the Idaho Department of Health and Welfare from across the state. The majority of *Norovirus* outbreaks were in health care or assisted living facilities: eight of 18 (44.4%) were associated with residential care facilities, four (22%) were restaurant-associated, three (16.7%) were associated with hospital or rehabilitation facilities, and three (16.7%) were from other group gatherings. District health department staff worked closely with facility staff in carrying out disease investigations and providing recommendations for disease prevention.

Noroviruses are considered the leading cause of nonbacterial, self-limiting gastrointestinal illness worldwide. Although noroviruses are thought to cause over 50% of all foodborne outbreaks of gastroenteritis in the U.S. today, a significant burden also occurs in group settings such as long-term care facilities, where the route of infection is unclear but probably due to surface contamination and person-to-person spread, rather than through the foodborne route. Managing a *Norovirus* outbreak in a long-term care facility, due to the highly contagious nature of the virus, can be a monumental undertaking.

Noroviruses (formerly called Norwalk-like viruses) are a group of viruses that belong to the family *Caliciviridae* and are sometimes referred to as the 'stomach-flu virus' or the 'cruise-ship virus'. *Norovirus* infections, including outbreaks, are reportable in Idaho within one working day of identification. They can be spread by the fecal-oral route via person-to-person spread or via ingestion of fecal-contaminated food or water. These viruses may also spread via the droplet route from vomitus. In residential facilities transmis-

sion is thought to largely occur through hand transfer of the virus to the oral mucosa via contact with materials, fomites, and environmental surfaces that have been contaminated with either feces or vomitus. These viruses are highly contagious, requiring as little as 10–100 virus particles to cause illness. Human noroviruses belong to one of three genogroups (GI, GII, or GIV), further divided into 26 genetic clusters. The GII genogroup (17 genetic clusters described) is the predominant type seen by the Idaho State Bureau of Laboratories (IBL) and across the country. Over that last year or so, it appeared that a more virulent form of *Norovirus* was emerging nationwide, causing more infections in severity and number, particularly in group settings such as hospitals, nursing homes, and college dormitories. Recently, scientists discovered a new strain of *Norovirus*, GII.4, which appears to be responsible for this wave of intense gastrointestinal infections, often accompanied by a fever and lasting much longer than a typical norovirus illness (3–4 days). There appears to be a lack of cross-protection between all genetic clusters, therefore, a person could be infected with *Norovirus* more than once in their lifetime.

Symptoms of illness caused by *Norovirus* usually begin about 24 to 48 hours after ingestion of the virus, but they can appear as early as 12 hours after exposure. The symptoms, which may be severe, usually include nausea, vomiting, watery diarrhea, and some stomach cramping. In most people the illness is self-limiting with symptoms lasting for 1 or 2 days. Serious dehydration requiring medical attention may occur in some individuals. Infections may lead to death in immunocompromised persons. People infected with *Norovirus* are contagious

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from the moment they begin feeling ill to at least 3 days after recovery. Some people may be contagious for as long as 2 weeks after recovery. Therefore, it is particularly important for people to use good handwashing and other hygienic practices after they have recently recovered from norovirus illness.

Stool samples collected within the first 48 to 72 hours of illness are most useful for laboratory testing, although good results can be obtained by using RT-PCR on samples taken as long as seven days after symptom onset. Serology is not routinely used for a diagnosis of *Norovirus* infection. The IBL will test individuals associated with a suspected or confirmed outbreak; commercial laboratories should be used for the sporadic individual suspected to have a norovirus infection.

Controlling *Norovirus* in Long-term Care Facilities

Extensive contamination of environmental surfaces may play a role in prolonged *Norovirus* outbreaks in long-term care facilities and should be addressed in control interventions.

CDC states that patients with suspected norovirus infection should be managed with standard precautions with careful attention paid to hand hygiene practices. However, contact precautions should be used when caring for diapered or incontinent persons, during outbreaks in a facility, and when there is the possibility of splashes that might lead to contamination of clothing. Persons cleaning areas heavily contaminated with vomitus or feces should wear surgical masks as well.

Challenges with Disinfection

Quaternary ammonium compounds are often used for sanitizing surfaces or disinfecting large surfaces (e.g., countertops and floors). However, because noroviruses are non-enveloped virus particles, most quaternary ammonium compounds (which act by disrupting viral envelopes) will have no significant activity against them. Quaternary ammonium compounds which have proven efficacy against feline calicivirus (a proxy for human noroviruses) may be approved for use against *Norovirus* by

the Environmental Protection Agency. Approved product labels can be checked by entering the EPA registration number on the EPA's Pesticide Product Label System Search website at <http://oaspub.epa.gov/pestlpl/ppls.home>.

Products with potassium peroxy-monosulfate also have proven efficacy against feline calicivirus and are better-tolerated by facility residents and staff than chlorine bleach. Such products that are approved by the EPA can be found by searching for potassium peroxy-monosulfate at <http://ppis.ceris.purdue.edu/htbin/epachem.com>.

Chlorine bleach should be applied to hard, non-porous, environmental surfaces at a minimum concentration of 1000 ppm (generally a dilution 1 part household bleach solution to 50 parts water). In areas with high levels of soiling and resistant surfaces, up to 5000 ppm chlorine bleach may be used.

More information on norovirus in healthcare facilities is available through the CDC web site: http://www.cdc.gov/ncidod/dhqp/id_norovirusFS.html.

Periodontal Disease and Pregnancy

THE MAJORITY OF RECENT STUDIES, especially those carried out in economically disadvantaged populations, suggest that periodontal disease is associated with increased risk of adverse pregnancy outcomes such as preterm birth and low birthweight. This has led to interest in testing interventions to see if these outcomes could be improved.

A study published in the November, 2006, *New England Journal of Medicine* of women with periodontal disease during pregnancy failed to show an impact from root planing and scaling during pregnancy on the rates of preterm birth, low birth weight, fetal growth restriction, or preeclampsia. Despite this disappointing outcome, dental care was shown to be safe in pregnancy, and an accompanying editorial maintains that future studies may show that periodontal treatment can help reduce other adverse outcomes including "late miscarriage, early stillbirth, and spontaneous preterm birth before 32 weeks, rather than all preterm births before 37 weeks." The American Dental Association continues to recommend good periodontal care for pregnant women. Another ongoing study includes 1,800

women from a broader range of socioeconomic classes, as well as women with less severe periodontal disease. Results from that study are expected within the next two years.

According to the 2005 Idaho Pregnancy Risk Assessment Tracking System, a survey of women who have recently given birth, only 44% of mothers surveyed reported receiving information about the importance of dental care during pregnancy from their prenatal care provider. Of these 44%, 58% received routine dental care during their pregnancy. More than half of the surveyed mothers who did not seek routine dental care during pregnancy reported that they did not have the money or insurance needed to pay for the visit and 20% felt that they did not need a dental visit. Other reported reasons for not seeking dental care during pregnancy included busy schedules and lack of time, fear about baby's safety, and time since last dental visit was less than one year.

For more information and practice guidelines on oral health care during pregnancy: <http://www.cdhp.org/Projects/PPMCH.asp>.

Scarlet Fever in Idaho Draws Attention to Group A *Streptococcus* (GAS) Disease

Local Clusters

IN FEBRUARY, LOCAL MEDIA ATTENTION focused on clusters of scarlet fever in two Idaho schools. An elementary school in Jerome had an unreported number of students out of school with "scarlet fever" while a charter school in Garden City closed its doors for a week when half of the teachers and nearly 20% of the students were sick, many with "strep throat" and "scarlet fever." This attention has brought increased public attention to scarlet fever and other Group A *Streptococcus* (GAS) disease.

GAS

GAS, or *Streptococcus pyogenes*, is a ubiquitous, gram positive, hemolytic bacterium that causes primary mucosal and cutaneous infections and can lead to invasive disease and/or autoimmune-mediated post-infection sequelae including acute rheumatic fever, glomerulonephritis, reactive arthritis and neuropsychiatric disease. In Idaho, only invasive GAS infections and streptococcal toxic-shock syndrome are reportable to public health. Non-invasive GAS disease, however, is much more common. The most common non-invasive GAS diseases are acute pharyngitis

("strep throat") and isolated impetigo; scarlet fever is a rare, non-invasive GAS disease. Since these non-invasive GAS infections are not reportable, little data exist illustrating trends in GAS infection in Idaho.

Scarlet Fever

Scarlet fever is an exotoxin-mediated, generally self-limited rash illness that is most often associated with acute GAS pharyngitis and less commonly with other GAS infections. Nearly all cases of scarlet fever are in children less than 18 years old. The rash begins 12–48 hours after the onset of fever and sore throat, appearing as patches of erythema on the neck and trunk. The rash evolves over the next 24 hours to include punctuate papules on an erythematous base, giving the skin a "sandpaper-like appearance." Characteristically it is most prominent in body folds and spares the face, including a region of perioral pallor. A marked feature of scarlet fever is the characteristic desquamation of rash-affected areas approximately one week following resolution of the rash. Scarlet fever, itself, is not independently associated with greater risk of post-streptococcal sequelae and is worked-up and treated like acute GAS pharyngitis.

GAS Pharyngitis

15–30% of acute pharyngitis in children is attributable to GAS, while only 5–10% of acute adult pharyngitis is caused by GAS. GAS pharyngitis is most often spread by person-to-person contact but can be spread via contaminated food products. Concerns about acute rheumatic fever, invasive complications and spread of GAS infection to others inform clinical guidelines recommending all cases of acute GAS pharyngitis be treated with an appropriate antibiotic course.

Since clinical criteria alone have been shown to overestimate GAS pharyngitis, only confirmed cases should be treated, avoiding unnecessary overuse of antibiotics. While pharyngeal culture is considered the gold standard, rapid direct antigen tests ("rapid strep tests") are commonly used in outpatient settings. Direct antigen tests have a specificity of 90–95% and a sensitivity ranging from 60–90%, depending on the product and user. Due to the wide range of sensitivity, throat culture is recommended for pediatric cases in which clinical suspicion exists but the direct antigen test is negative. Throat culture following a negative

direct antigen test, however, is not recommended in adults due to both the lower incidence of GAS pharyngitis and lower risk of acute rheumatic fever following GAS pharyngitis in adults.

Testing of asymptomatic persons in non-outbreak settings is not recommended due to the high rate of asymptomatic GAS pharyngeal carriage. Repeat testing following treatment is also not recommended except for patients at particularly high risk for rheumatic fever or who remain symptomatic. The 2002 IDSA guidelines offer more comprehensive information about diagnosis and treatment of GAS pharyngitis.

GAS M-Typing at the Idaho State Laboratory

There is currently no available direct antigen kits test for M protein, the primary virulence factor of GAS. The Idaho Bureau of Laboratories (IBL) offers M-typing and would like specimens from both non-invasive and invasive GAS outbreaks to identify and exam causative GAS strains. IBL can be reached at (208) 334-2235.

IDAHO DISEASE Bulletin

Raw Milk Consumption continued

highly visible on the packaging and the product must be altered to make the product unpalatable for human use.

Raw-milk associated *E. coli* O157:H7 infections have also been documented recently in Washington State in those consuming raw milk from a cow-share program. A cow-share program allows individuals to circumvent state laws regarding the purchase of raw milk by buying a share in ownership of a cow(s) and receiving compensation for that ownership by receiving raw milk. Thus the raw milk is not

sold. Consuming raw milk from uncertified sources, be it from a single cow, a cow-share, or an uncertified dairy, still is considered a risky food consumption practice.

Given that raw milk is still available to those knowing how to find it, patients with enteric infections such as toxigenic *E. coli*, *Campylobacter*, or *Salmonella* should be asked about raw milk consumption and counseled about the risks associated with raw milk consumption particularly for the very young and those with compromised immune systems.

HIV Screening continued

among pregnant women (none in Idaho).

Many HIV-infected persons access health care but are not tested for HIV until symptoms develop. Forty-three percent of persons having newly diagnosed HIV infections nationally during 1994–1999 developed AIDS within a year¹; in Idaho the proportion was 37% during 1994–2004². HIV testing is widely available; rapid HIV testing increases the rate at which patients receive the results of testing and learn of their HIV status. Previously recommended intensive pre- and post-test counseling proved to be an obstacle to HIV testing for patients and health care providers in some settings.

Effective treatments are available to HIV-infected individuals which extend and enhance the quality of life. Treating the HIV-infected can reduce transmission by reducing viral loads³. Further, when people learn of their HIV-positive status, they tend to modify their risk behavior, resulting in reduced transmission⁴. HIV-infected individuals unaware of their infection are estimated to be responsible for most new sexually-transmitted infections⁵. When considering secondary transmission reduction, HIV screening is cost effective even in low-prevalence populations^{6,7}.

- 1 Centers for Disease Control and Prevention. Late Versus Early Testing of HIV - 16 Sites, United States, 2000-2003. MMWR 2003;52:581-586.
- 2 Idaho Department of Health and Welfare. Unpublished data.
- 3 T Quinn et al. Viral load and heterosexual transmission of human immunodeficiency virus type 1. NEJM 342(13): 921-29 (2000).
- 4 Marks G, et al. Meta-analysis of high-risk sexual behavior in persons aware and unaware they are infected with HIV in the U.S. JAIDS. 2005;39:446.
- 5 Marks, et al. Estimating sexual transmission of HIV from persons aware and unaware that they are infected with the virus in the USA. AIDS 2006;20:1447-50.
- 6 Sanders G, et al. Cost-effectiveness of screening for HIV in the era of HAART. NEJM 2005;352:570.
- 7 Paltiel AD, et al. Expanded screening for HIV in the U.S. - an analysis of cost effectiveness. NEJM 2005;352:586.

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Risks Associated With Raw Milk Consumption

Recently, members of two Idaho families were diagnosed with *E. coli* O157:H7 infections. The isolates were indistinguishable at the molecular level by pulsed-field gel electrophoresis, suggesting a common source. An investigation revealed that ill members of both families had a history of unpasteurized (raw) milk consumption during the incubation period. In addition, it was determined that approximately 18 other families had also purchased raw milk from the same individual selling the unpasteurized product illegally in Idaho. An on-farm inspection, carried out jointly by agriculture and public health authorities, included collection and testing of milk and animal fecal samples and the placement of an order restricting all milk sales. Although laboratory testing failed to confirm that the cow in question was the source of the infections, raw milk was the most likely culprit. In addition to the recent *E. coli* infections described above, raw milk consumption has also been associated with past outbreaks of campylobacteriosis (1999, 2000) and salmonellosis (2001) in Idaho.

The potential zoonotic disease risk associated with raw milk consumption has been known for over a century. Although attempts at developing a viable pasteurization protocol for wine and dairy products were initiated in the late 1800s by Louis Pasteur and others, it was not until 1924 that the U.S. Public Health Service first developed model milk safety regulations known as the *Standard Milk Ordinance* outlining provisions governing the processing, packaging, and sale of milk and milk products. The FDA reports that in 1938, prior to widespread adoption of standardized milk pasteurization practices, milk-borne outbreaks accounted for

approximately 25% of all disease outbreaks linked to food or water, while today they represent less than 1% of such outbreaks. Milk-associated tuberculosis (*M. bovis*), Q-fever, and brucellosis were associated with significant morbidity and sometimes mortality in consumers prior to the advent of routine pasteurization. *Salmonella*, toxigenic *E. coli*, *Campylobacter*, *Listeria* and other enteric infections have also been associated with the consumption of contaminated unpasteurized milk and dairy products.

In Idaho, raw milk is not readily available. Provisions do exist for those who wish to market raw milk for human consumption in Idaho; however, the certification process for those interested in producing and processing milk for human consumption without pasteurization is very stringent. There are no certified raw milk production or processing sites legally in operation in Idaho at this time. State rules (Rules of the Department of Agriculture Governing Retail Raw Milk; IDAPA 02.04.13) classify raw milk as an adulterated product unless produced in a certified manner. According to the Retail Raw Milk Rule, it is illegal to "...produce, provide, sell, offer, or expose for sale, or have in possession with intent to sell any raw milk or raw milk product..." (not produced in a certified manner) and is punishable under Title 37, Chapter 408 which may include a fine, imprisonment, or both. Despite the illegalities associated with "black market" sales of raw milk by uncertified providers in Idaho, individuals continue to offer raw milk to small collectives or to individuals who locate them via word of mouth. Individuals are not restricted from selling or giving away raw milk for animal consumption in Idaho. The stipulation is that "Not for Human Consumption" must be

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- **CDC Updates Sexually Transmitted Disease Treatment Guidelines**
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Polio Introduction into Idaho? Public Health Evaluation of Recent Refugees.

IN 1988, THE WORLD HEALTH ORGANIZATION launched a world-wide campaign to eradicate poliovirus, but failed in its attempt to wipe out polio infections by 2005. The program suffered a setback three years ago when northern Nigeria suspended immunization for more than a year. The virus spread, re-establishing infection in countries that were once polio-free. In 2006, four countries were considered to be endemic for polio, and eight additional countries are considered re-

infected (Figure 1). Polio reappeared in Somalia in 2005 after a three-year absence. Renewed fighting between militias and the government has sent thousands of refugees to Kenya.

There has been a shift in refugee populations entering the U.S. in recent years. In 1998, only 8% of refugees entering the U.S. were from Africa, but in 2005, 39% were Africans. Refugee populations in Idaho reflect this trend; in Idaho, from April 1, 2001, to March

31, 2006, 26.4% of refugees were from an African nation. In September, Idaho received 25 refugees from Kenya, where the country has reported polio in a 3-year-old Somali girl at a refugee camp. CDC sent notices to state health departments and refugee programs that these refugees may have been exposed to polio and required immediate evaluation.

The Central District Health Department in Boise performed follow-up on refugees that had possibly been exposed to poliovirus while in the Kenyan camp. The refugees were screened for symptoms, educated about the symptoms of polio, and vaccinated with inactivated poliovirus vaccine (IPV) if indicated. No cases of polio were identified. Since it is estimated that for every diagnosed case of polio, there may be 200 persons who shed the virus asymptotically, it is possible that asymptomatic persons could have brought poliovirus into the U.S.

CDC continues to recommend that all children receive 4 doses of IPV at ages 2, 4, and 6–18 months, and 4–6 years. IPV vaccination will continue to protect children until polio is eliminated from the world.

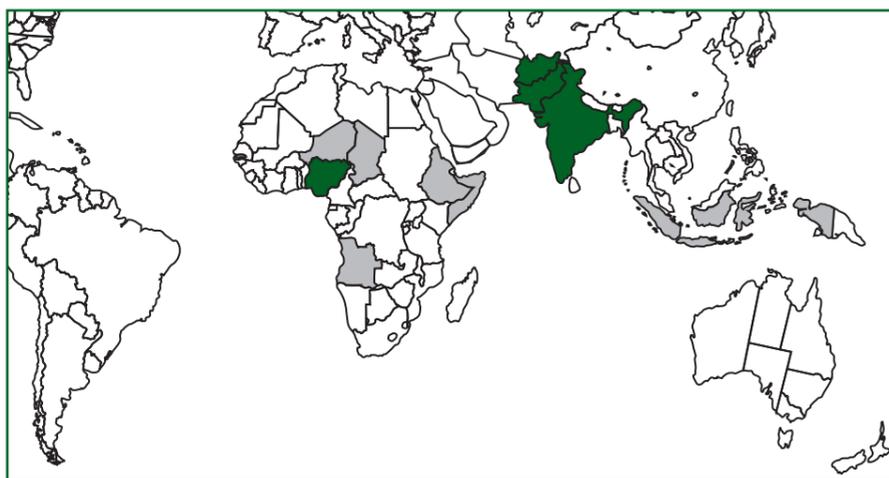


Figure 1. Map showing countries with polio, 2006. Green countries are considered endemic; grey are re-infected.

HIV Screening as a Part of Routine Medical Care

IN SEPTEMBER 2006, CDC RELEASED revised HIV testing recommendations, with the objectives of increasing HIV screening, fostering early detection of HIV infection, identifying and counseling persons with previously undiagnosed HIV infection and linking them with care and prevention services, and further reducing perinatal infection.

Major revisions from previously published guidelines are as follows:

For patients in all health-care settings:

- At least one-time HIV screening is recommended for all 13–64 year old patients in all health-care settings after the patient is notified that testing will be performed unless the patient declines (opt-out screening). Repeat screening of low-risk persons should be based on clinical judgment.
- Persons at high risk for HIV infection should be screened for HIV at least annually. Persons at high risk are defined as injection drug users and their partners, persons who exchange sex for money or drugs, sex partners of HIV positives, and persons who themselves or whose sex

partners have had more than one sex partner since their most recent HIV test.

- Separate written consent for HIV testing should not be required; general consent for medical care should be considered sufficient.
- Prevention counseling should not be required with HIV diagnostic testing or as part of HIV screening programs in health-care settings.

For pregnant women:

- HIV screening should be included in the routine panel of prenatal screening tests for all pregnant women.
- HIV screening is recommended after the patient is notified that testing will be performed unless the patient declines (opt-out screening).
- Separate written consent for HIV testing should not be required; general consent for medical care should be considered sufficient to encompass consent for HIV testing.
- Repeat screening in the third trimester is recommended in certain jurisdictions with elevated rates of HIV infection

CDC Updates Sexually Transmitted Disease Treatment Guidelines

IN AUGUST 2006, THE CENTERS for Disease Control and Prevention (CDC) updated the guidelines for treating sexually transmitted diseases (STDs) for the first time since 2002. Updates were made by CDC in consultation with experts in the field. The guidelines advocate the prevention and control of STDs by health care providers based on the following major strategies:

- education and counseling of persons at risk on ways to change sexual behavior;
- identification of asymptotically infected persons and of symptomatic persons unlikely to seek diagnostic and treatment services;
- effective diagnosis and treatment of infected persons;
- evaluation, treatment, and counseling of sex partners of persons who are infected with an STD; and,
- pre-exposure vaccination of persons at risk for vaccine-preventable STDs.

Updated information in these updated guidelines includes:

Safety and efficacy of azithromycin during pregnancy

The guidelines acknowledge clinical experience related to the safety and efficacy of azithromycin during pregnancy for the treatment of chlamydia and now recommend its use. Repeat testing 3 weeks post-therapy is recommended to ensure therapeutic cure.

Expanded discussion of the criteria for spinal fluid examination to evaluate for neurosyphilis

Unless clinical signs or symptoms of neurologic or ophthalmic involvement are present, CSF analysis is not recommended for routine evaluation of patients who have primary or secondary syphilis. Because treatment failure usually cannot be reliably distinguished from reinfection, a CSF analysis should be performed when early symptoms persist or recur or when nontreponemal titers increase 4-fold (*i.e.*, 1:8 to 1:32) after treatment or do not decrease 4-fold within 6 months after treatment. When latent syphilis is diagnosed in an HIV-positive individual or tertiary symptoms are present, CSF examination is recommended.

Emergence of azithromycin-resistant *Treponema pallidum*

Preliminary data suggest azithromycin in a single oral dose of

2 g might be effective against primary or secondary syphilis, but azithromycin treatment failure and resistance have been documented. Close follow-up of patients treated with azithromycin is essential to ensure treatment efficacy.

Increasing prevalence of quinolone-resistant *Neisseria gonorrhoeae* (QRNG)

QRNG is common in parts of Europe, the Middle East, Asia, and the Pacific. CDC has advised quinolones not be used in Hawaii and California because of high prevalence of QRNG (20% and 5.6%, respectively, in 2001.) QRNG infection prevalence is also high among men who have sex with men (MSM.) QRNG was detected in 23.9% of isolates from MSM versus 2.9% from heterosexual men in the CDC's Gonococcal Isolate Surveillance Project. QRNG was detected in 23.9% of isolates submitted to the CDC's Gonococcal Isolate Surveillance Project versus 2.9% among heterosexual men. Quinolones should not be used for treatment of MSM or infections in or acquired in California or Hawaii, or patients with recent foreign travel or recent partner foreign travel.

Oregon Department of Human Services and Washington State Department of Health advise against using quinolones because of high prevalence of QRNG. At this time, we are obtaining data on QRNG preva-

lence in Idaho, but given the increasing rates in neighboring states, Idaho Department of Health and Welfare advises caution when using quinolones until resistance data can be evaluated in Idaho.

Emergence of lymphogranuloma venereum (LGV) proctocolitis among men who have sex with men (MSM)

During an outbreak of LGV among MSM in Europe beginning in 2003, predominant symptoms were gastrointestinal (*e.g.*, bloody proctitis with a purulent or mucous anal discharge and constipation); fewer had symptoms usually associated with LGV (*i.e.*, inguinal adenopathy and a painful genital ulcer). For additional information, please see our April 2005 Idaho Disease Bulletin article on LGV and laboratory testing recommendations.

Shorter-duration options for episodic treatment of recurrent genital herpes

New famciclovir 1000 mg twice daily for one day and acyclovir 800 mg three times daily for 2 days oral regimens have been added. The valacyclovir 500 mg oral twice daily recommendation has been shortened from 3–5 days to 3 days. The 5-day 200 mg acyclovir orally 5 times daily regimen has been dropped. Other recommended regimens for episodic treatment of recurrent herpes are unchanged.

Several other topics are discussed in the guidelines including the availability of vaccine against types of human papilloma virus (HPV) associated with cervical cancer, the role of *Mycoplasma genitalium* and trichomoniasis in urethritis/cervicitis and treatment-related implications, expanded diagnostic evaluation for cervicitis and trichomoniasis, new antimicrobial recommendations for trichomoniasis, and a revised discussion concerning the sexual transmission of hepatitis C. The guidelines may be accessed on the CDC web site at: <http://www.cdc.gov/std/treatment/#tg2006>.

IDAHO DISEASE Bulletin

Tuberculosis Outbreak continued

have matching genotypes, although few direct links between them have been found by interview. Aggressive efforts have been made to find any additional cases, including posting notices in areas where homeless persons congregate, offering free skin testing at homeless shelters and day

centers, and ongoing efforts to require skin testing of all persons staying overnight at local area shelters.

In at least one case, the diagnosis was initially missed on presentation. Please consider tuberculosis in any homeless patient presenting with pneumonia or other febrile illness with

weight loss. If your suspicion is high, please notify an epidemiologist at your public health district or Dr. Christine Hahn at the state TB control program immediately so we can assist with patient isolation, treatment, and investigation as quickly as possible to prevent additional cases.

Morgellons: Disease or Delusion?

PEOPLE WHO EXPERIENCE SENSATIONS of something crawling on or biting their skin, skin lesions, and sometimes fibers or granules coming out of their skin have usually been diagnosed with delusional parasitosis; but a new name and media interest in the condition has recently developed, leading to more inquiries from patients. Patients seek assistance from providers and public health agencies to gain information on the condition, to learn what is being done to address the problem, to request environmental sampling of their living spaces, and to receive health education.

“Morgellons” was coined by a patient advocate after reading about a

disease with similar symptoms mentioned in a 16th-century medical text. The syndrome has been described as a constellation of symptoms which include crawling, stinging, and biting sensations; non-healing skin lesions with associated fiber-like structures, seed-like granules or black speck-like material; fatigue; cognitive difficulties such as short term memory and attention deficit; and behavioral effects such as Attention Deficit Disorder and Obsessive-Compulsive Disorder¹.

No peer-reviewed findings of this syndrome have ever been published. Therefore, little information is available for health care providers and public health on an appropriate

course of action.

The Centers for Disease Control and Prevention has formed a task force to gather information on Morgellons reports. Inquiries may be directed to morgellonssyndrome@cdc.gov. The Idaho Department of Health and Welfare is not pursuing investigation of Morgellons reports, but will wait for additional information to be collected and reported upon by the CDC. Valuable information on delusional parasitosis (and human skin parasites) can be found at <http://delusion.ucdavis.edu/delusion-al.html>.

¹ Morgellons Research Foundation Web Site. <http://www.morgellons.org/casedef.html>. Accessed 10/2/2006.

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 - **Influenza Season 2006-2007**
 - **Morgellons: Disease or Delusion**

West Nile Virus in Idaho in 2006

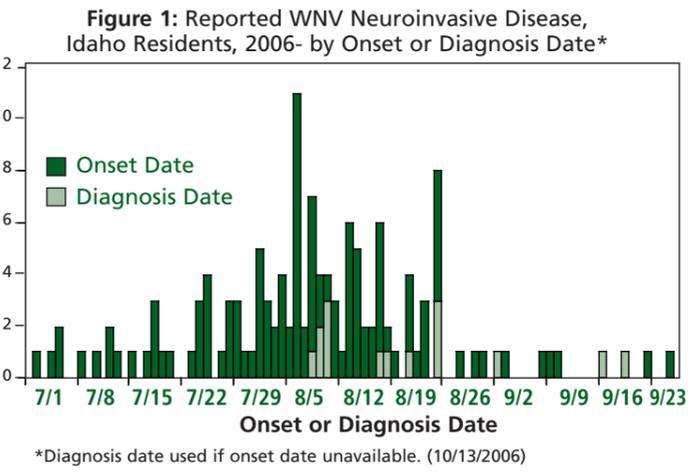
In 2006, Idaho led the nation in reported cases of West Nile Virus (WNV) infection with 909 reported human cases as of 11/13/2006. The cases were classified by syndrome; 766 were non-neuroinvasive WNV fever and 143 were considered neuroinvasive. All WNV infections, neuroinvasive and non-neuroinvasive, are reportable in Idaho. Deaths of 17 individuals were counted as being at least in part due to WNV. This was the third year of local WNV transmission in Idaho. Given that many other states experienced an upsurge in cases the second or third year WNV became established in those states, an epidemic of WNV was not unexpected in Idaho. West Nile virus activity was reported from 37 of 44 Idaho counties, sparing most of the northern region of the state to date. Ada (n = 246), Canyon (n = 180), Elmore (n = 64), and Bingham (n = 75) Counties collectively reported 62% of the cases this year.

Neuroinvasive Cases

About 1 in 150 infections result in neuroinvasive disease, including meningitis, encephalitis, acute flaccid paralysis (AFP) due to poliomyelitis-like syndrome or an illness similar to Guillain-Barré syndrome, or cranial neuropathies. Onset of neuroinvasive disease is probably the most reliable indicator to use for tracking the timing and peak of human WNV infections in a community, given the severity of symptoms and the likelihood that those individuals will seek medical attention and subsequently be reported.

Based on reported neuroinvasive disease in Idaho, WNV activity appeared to peak during early August (Figure 1).

Although some investigations are still being finalized, reports of neuroinvasive disease received to date include meningitis (n=54), encephalitis (n= 30), meningoencephalitis (n= 25), and AFP (n=6). The remainder (28) remain unclassified.



Prognosis

In 2003, Sejvar *et al.*¹ published an article examining neurologic manifestations of WNV infection that might distinguish WNV from other viral encephalitides and also examined long-term neurologic effects of WNV infection. They found that at approximately 8 months after onset of illness, all those with West Nile meningitis had a generally favorable outcome, and those with West Nile encephalitis displayed a low incidence of persistent severe sequelae. However, persistent fatigue, headache and myalgia were common among both groups. Patients with encephalitis or acute flaccid paralysis frequently experienced tremor and parkinsonism was common, with persistence of parkinsonism in

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E. coli O157:H7 Outbreak Related to Spinach: Impact in Idaho

ON SEPTEMBER 14, 2006, THE FDA ADVISED CONSUMERS not to eat fresh bagged spinach after CDC officials reported clusters of *E. coli* O157:H7 cases associated with fresh spinach consumption from several states, including Idaho (Figure 1). As of this printing, over 200 cases have been linked to this outbreak, including eight confirmed cases from Idaho. The death of a 2-year old child from Chubbuck increased national attention on the outbreak and Idaho's state and local health departments. Idaho cases were identified through molecular testing performed at the Idaho Bureau of Laboratories (IBL) and the State of Utah Public Health Laboratory. In several reported cases of *E. coli* O157:H7 infection, clinical laboratories did not forward bacterial isolates to the IBL for molecular analysis; therefore, it could not be determined if the patient had the outbreak strain of *E. coli* O157:H7. Laboratories should be encouraged to send all *E. coli* O157:H7 isolates or shiga-toxin positive stools to IBL for molecular analysis.

The cause of the spinach contamination is still under investigation. Samples of cattle feces on one of the four implicated ranches tested positive for the outbreak strain of *E. coli*

O157:H7. The four implicated fields are not currently being used to grow any fresh produce. According to the FDA, "There has been a long history of *E. coli* O157:H7 outbreaks involving leafy greens from the central California region. Spinach processed by other manufacturers has not been implicated in this outbreak, but based on discussions with industry, and given the past *E. coli* O157:H7 outbreaks, FDA and the State of California still expect the industry to develop a comprehensive plan which is designed to minimize the risk of another outbreak due to *E. coli* O157:H7 in spinach grown in central California. While this plan is under development, FDA and the State of California reiterate previous concerns and advise firms to review their current operations in light of the agency's guidance for minimizing microbial food safety hazards."

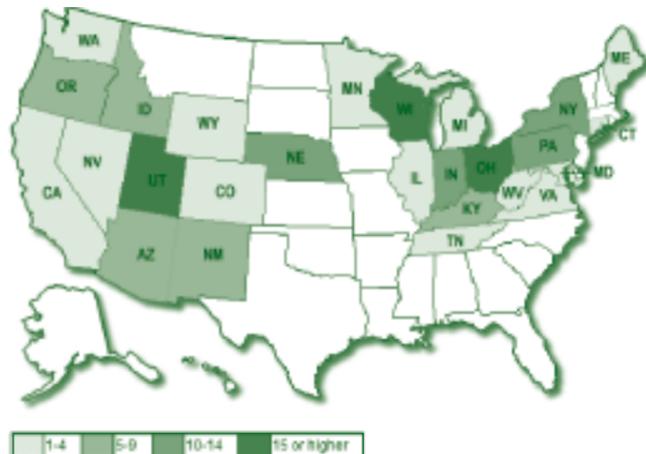


Figure 1. *E. coli* O157:H7 Outbreak Case Counts by State (As of October 6, 2006). Source: Centers for Disease Control and Prevention. http://www.cdc.gov/foodborne/ecolispinach/casecount_us_map.htm

Consumers are being advised that many pre-cut, bagged produce items like spinach and lettuce are pre-washed. If so, it will be stated on the packaging. This pre-washed, bagged produce can be used without further washing, according to the FDA. See <http://www.fda.gov/oc/opacom/hot-topics/spinach.html> for more information on spinach recalls and the spinach investigation, and <http://www.cdc.gov/foodborne/ecolispinach/100606.htm> for more information on the investigation of human cases.

West Nile Virus in Idaho continued

half of patients at follow-up. Patients with acute flaccid paralysis had a very poor prognosis for return to limb function. Of the three patients examined with AFP in this article, all showed chronic denervation and motor axon loss in affected limbs at the 8-month follow-up. No improvement in limb weakness occurred over that time.

Carson et al² published a review in 2006 of long-term clinical and neuropsychological outcomes of WNV infection. The authors assessed a small population of laboratory-confirmed WNV cases (neuroinvasive [n=11] and WN fever [n= 38]) a mean of 13 months after diagnosis. The most frequent long-term affects included fatigue, memory problems, extremity weakness, joint pain, word-finding difficulties, headaches, tremor, and other abnormalities in motor skills. Patients with milder illness, including West Nile fever, were just as likely as patients with more severe illness to experience adverse outcomes.

Summary

Based on 1 neuroinvasive illness per 150 infections, it is estimated that there were approximately 21,450 WNV

infections in Idaho this season; the majority were asymptomatic. Although a significant number, this also is a reminder that the vast majority of Idahoans are probably still nonimmune and another epidemic year could occur next year. It is expected that WNV will continue to expand into northern regions of Idaho in years to come.

We continue to encourage healthcare providers to promote the "Fight the Bite" campaign, and educate patients on the value of avoiding mosquito bites in 2007. See www.Westnile.idaho.gov for more information on this campaign.

1 Sejvar, James J, Haddad, M.B., Tierney, B. C., et al. Neurologic Manifestations and Outcome of West Nile Virus Infection JAMA, July 23/30 2003 -Vol 290, No. 4, pp 511- 515
 2 Carson, Paul J, Konewko, P, Wold, K. S., et al. Long-Term Clinical and Neuropsychological Outcomes of West Nile Virus Infection. *Clinical Infectious Diseases* 2006;43:723-730

Tuberculosis (TB) Outbreak in Treasure Valley

AN INCREASE IN TB CASES IN IDAHO IN 2005 was noted, in part due to a rise in reported cases among foreign-born individuals statewide, but also due to an outbreak of TB in the Treasure Valley. It's not clear that this outbreak is over yet.

In January 2005, a case of TB was

reported in a 50-year old homeless male in Boise. He was treated successfully with directly observed therapy, a process in which public health staff observe the patient taking their medication each day to assure compliance. In October 2005, a second case of TB, also in a homeless male, was reported.

The initial interview revealed no clear connections between the two other than their living homelessness, but molecular genotyping of the tuberculosis isolate revealed a match between the two organisms. Since then, three more cases have been reported, all in Boise-area homeless men. All five

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Influenza Season 2006-2007

INFLUENZA VACCINE MANUFACTURERS have produced approximately 110-115 million doses of influenza vaccine for the 2006-07 influenza season, an amount that is approximately 16% more doses than were available for the 2005-06 season. Despite this increase in production, early distribution delays leading to cancelled vaccination clinics were a common occurrence this October. Notwithstanding delays in some shipments, it is expected that there will be an ample supply of flu vaccine available so everyone who wants to get a flu shot this year can receive one.

Persons considered at high risk for complications associated with an influenza infection or persons who commonly have contact with those who are at high risk should receive the influenza vaccine.

People at high risk for complications from the flu include:

- Children aged 6-59 months of age,
- Pregnant women,
- People 50 years of age and older,
- People of any age with certain chronic medical conditions such as congestive heart failure, asthma, or diabetes, and
- People who live in nursing homes and other long term care facilities.

People who live with or care for those at high risk for complications from flu and who should receive a flu vaccination include:

- Health care workers,
- Household contacts of persons at high risk for complications from the flu (see above), and
- Household contacts and out of home caregivers of children less than 6 months of age (these children are too young to be vaccinated).

Vaccine Options

Vaccines to be used in the 2006-07 season in the U.S. target the following three influenza viruses:

- an A/New Caledonia/20/99 (H1N1)-like virus;
- an A/Wisconsin/67/2005 (H3N2)-like virus (A/Wisconsin/67/2005 and A/Hiroshima/52/2005 strains); and,
- a B/Malaysia/2506/2004-like virus (B/Malaysia/2506/2004 and B/Ohio/1/2005 strains)

Different influenza vaccine preparations have different indications as licensed by the FDA. Table 1 lists the currently available influenza vaccine options in the U.S. for the 2006-2007 influenza season.

TABLE 1*. Influenza Vaccine Manufacturers for the 2006-07 Influenza Season

MANUFACTURER	VACCINE	FORMULATION	THIMEROSAL PRESERVATIVE	AGE INDICATION
sanofi pasteur, Inc.	Fluzone®, Inactivated TIV	Multi-dose vial	Yes	≥ 6 months
		Single-dose pre-filled 0.5 mL syringe or vial	None	≥ 36 months
		Single-dose pre-filled 0.25 mL syringe	None	6-35 months
MedImmune Vaccines, Inc	FluMist™ LAIV	Single-dose sprayer	None	Healthy persons 5-49 years
Novartis Vaccine (formerly Chiron Corporation)	Fluvirin™ Inactivated TIV	Multi-dose vial	Yes	≥ 4 years
		Single-dose 0.5 mL syringe	<1µg Hg/0.5mL dose), preservative free	≥ 4 years
GlaxoSmithKline, Inc.	Fluarix™ Inactivated TIV	Single-dose pre-filled syringe 0.5 mL	<1 µg Hg/0.5mL dose, preservative free	≥ 18 years
	FluLaval™ Inactivated TIV (FDA-approved 10/5/2006)	Multi-dose vial	Yes	> 18 years

* From the Centers for Disease Control and Prevention <http://www.cdc.gov/flu/about/qa/vaxprioritygroups.htm>

To learn more about the vaccines or seasonal, avian or pandemic influenza, search the Centers for Disease Control and Prevention flu home page at <http://www.cdc.gov/flu/>, visit our website at <http://healthandwelfare.idaho.gov>, or search <http://www.pandemicflu.gov/>

Asthma Reduction Efforts In Idaho continued

ications to use when, and how to reduce exacerbations and emergency room visits. The NHLBI recommendations state: "It is the opinion of the expert panel that use of written action plans as part of an overall effort to educate patients in self-management is recommended, especially for patients with moderate or severe, persistent asthma, and for patients with a history of severe exacerbations."

The Asthma Coalition of Idaho (ACI), a multidisciplinary group of healthcare providers, not-for-profit organizations, and public health professionals (among others), developed an asthma patient action plan for use in Idaho. The Idaho action plan uses a traffic light analogy of green for "go," yellow for "caution," and red for "medical alert." The IRHP is beginning to distribute these statewide to encourage consistent patient management in Idaho.

For a copy of the Idaho asthma patient action plan, or additional questions regarding asthma surveillance in Idaho, please contact Stacy Berry at (208) 334-5947 or berrys2@idhw.state.id.us

Box 2: What is the Healthy People 2010 initiative?

In January 2000, the Department of Health and Human Services launched Healthy People 2010, a comprehensive, nationwide health promotion and disease prevention agenda. Healthy People 2010 contains 467 objectives designed to serve as a road map for improving the health of all people in the United States during the first decade of the 21st century. More information may be found at <http://www.cdc.gov/nchs/about/otheract/hpdata2010/abouthp.htm>

Healthy People 2010 Asthma Objectives:

- Reduce asthma emergency department visits, hospitalizations and deaths;
- Reduce activity limitations and school or work days missed; and,
- Increase the proportion of persons with asthma who receive appropriate asthma care according to NAEPP (National Asthma Education and Prevention program) guidelines.

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West Nile Virus Update

The number of reported West Nile virus (WNV) infections in humans in Idaho in 2006 has surpassed reported infections in 2004 and 2005 combined. The reason for the increased number of reported infections in 2006 is unclear, but may be related to more mosquito breeding habitat due to a particularly wet spring, ongoing infections in wild birds, increased surveillance and testing, and improved clinical recognition and reporting.

To view WNV surveillance findings in Idaho and the nation, which includes positive test findings in humans, horses, birds, and pooled mosquitoes, please access the Idaho Department of Health and Welfare WNV website at <http://westnile.idaho.gov>. Idaho WNV surveillance findings are updated several times a week during the peak of the WNV season; the first report of WNV activity in a county for the year is updated the same day it is reported.

Limited laboratory testing is available through the Idaho Bureau of Laboratories (IBL) to healthcare providers with suspected human cases of West Nile infection, at no charge. Because WNV testing is available through commercial laboratories, testing at the IBL is offered for neuroinvasive cases, or cases in which initial testing gives unclear results. Tests are available to detect IgM and IgG in serum and/or CSF. IgM is generally detectable within the first 5 - 7 days of illness onset; IgG becomes detectable a week or so later. The most efficient diagnostic method is detection of IgM antibody to WNV in serum collected within 8 to 14 days of illness onset or CSF collected within 8 days of illness onset. CSF IgM testing is recommended if neuroinvasive disease is suspected, otherwise, serum is sufficient for testing. Contact Colleen Greenwalt at (208) 334-2235 if you have questions on testing.

Avian Influenza Surveillance in Wild Birds to Start in Idaho in September

THE IDAHO DEPARTMENT OF FISH AND GAME (IDFG) is working with other state and federal agencies in Idaho and neighboring western states to establish regional avian influenza surveillance in resident and migratory wild birds. Surveillance activities will begin in the fall of 2006 coinciding with the southern migration of certain wild waterfowl species for the winter. Once surveillance efforts commence, you may receive calls from hunters and other citizens interested in the surveillance efforts and in learning more about personal safety precautions. It is important to note that wild birds are theorized to play a role in expanding the territory of H5N1; however, infected domestic poultry, smuggled birds, and

human movement may also play a significant role in disease introduction and transmission.

Background

All influenza viruses are of avian origin. There are currently 16 hemagglutinin (H) and 9 neuraminidase (N) known envelope proteins, resulting in 144 possible H-N combinations or subtypes of influenza. The H5N1 (Asian lineage) is a particularly virulent subtype to certain bird species. Only a few avian influenza subtypes have crossed the species barrier to infect humans; subtype H5N1 (Asian lineage) has caused a large number of detected cases of severe disease with a high case-fatality rate (see Box 1). Of all the

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Avian Influenza Surveillance continued

avian influenza viruses known, the current H5N1 (Asian lineage) subtype is of greatest pandemic concern. Early detection through wild bird surveillance is a critical public health, wildlife health, and poultry health activity, and may provide early warning that avian influenza has entered the United States.

Surveillance Activities

The wild waterfowl avian influenza surveillance effort in Idaho will be timed to coincide with the southern migration of waterfowl that spend their summers in Alaska and winter in the southern areas of the western U.S. Birds that spent the summer on breeding grounds in Alaska may have commingled with Asian birds that migrated across the Bering Straits to the same breeding grounds. In theory, if the birds from the Asian continent are infected with H5N1, they may transmit H5N1 to birds that would then migrate and carry the virus into the lower U.S. in the fall. Depending on the species, birds tend to start their southern migration from Alaska in the late summer to fall, and winter within the Pacific Flyway along the western-most United States. Idaho does not receive a large contingent of waterfowl from Alaska, but some may enter Idaho and surveillance efforts will be focused on those species.

The Idaho avian influenza surveillance effort will have three components: early surveillance of certain resident waterfowl species (mallards, pintails and swans) prior to the influx of migratory birds in order to establish a baseline; surveillance of hunter-killed birds, primarily mallards and pintails; and environmental surveillance through collection of waterfowl feces in urban settings. Surveillance findings will be posted on the Idaho Department of Fish and Game website (<http://fishandgame.idaho.gov/>) regularly during the surveillance period, which is scheduled to continue through December 2006.

Prevention Messages for Your Patients

- The H5N1 virus is not currently found in the U.S.
- Birds can carry a number of diseases, including Salmonella and avian influenza, which can be shed in feces. It is good practice to avoid direct contact with wild birds and their feces to minimize the potential for disease transmission. Thorough hand-washing is encouraged, should contact occur.

- The Idaho Department of Health and Welfare and IDFG recommend that hunters take the following precautions to minimize the potential for contacting disease agents from harvested waterfowl: do not kill obviously sick or unhealthy waterfowl, handle dead birds with caution by wearing latex or rubber gloves while cleaning the birds, clean contaminated surfaces and equipment with dilute bleach after handling or cleaning carcasses, and wash hands thoroughly afterwards.
- There currently is no scientific evidence that people have been infected with avian influenza by eating safely handled and properly cooked poultry or eggs. Recent studies have shown that the cooking methods that are already recommended by the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA) for poultry and eggs (cooking poultry at 165° F) to prevent other infections will destroy influenza viruses.

Box 1: Human H5N1 Infections

According to the World Health Organization (WHO) between 2003 and 2006 (as of 8/14/2006) there have been 238 documented human cases of H5N1 from 10 countries (Azerbaijan, Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, Thailand, Turkey, and Vietnam); 139 (58%) were fatal.

- Transmission to humans is typically due to direct or close contact with H5N1-infected poultry or H5N1-contaminated surfaces.
- Infection from wild birds has been documented under rare circumstances (feather picking from infected swans in Azerbaijan).
- Human-to-human spread of H5N1 has been very limited, inefficient and unsustainable.
- Unlike seasonal flu, most cases have occurred in previously healthy children and young adults.

The WHO published a summary of the epidemiology of the first 205 cases of H5N1, which may be found in: **Epidemiology of WHO-confirmed human cases of avian influenza A(H5N1) infection**, *Weekly Epidemiological Record*, vol. 81, 26 pp 249-260, June 30, 2006). This article and other information on avian influenza may be accessed through the following web site: http://www.who.int/csr/disease/avian_influenza/en/index.html

Asthma Reduction Efforts in Idaho

ASTHMA IS A CHRONIC CONDITION that is poorly understood, often difficult to manage, and a challenge to track in the population. Efforts are underway in Idaho to measure the impact of asthma in the state and to provide educational asthma management tools for patients and healthcare providers.

Tracking Asthma in Idaho

The Idaho Respiratory Health Program (IRHP) and the Office of Epidemiology and Food Protection, both located within the Idaho Department of Health and Welfare, work together to identify and gather available surveillance data to evaluate asthma prevalence, severity, and mortality. Surveillance efforts also are meant to evaluate both the economic and quality-of-life impact associated with asthma. Surveillance efforts are carried out to estimate the current burden of asthma in Idaho and are compared to **Healthy People 2010** asthma objectives (see Box 2), which function as benchmarks to help guide priority areas and efforts at reducing asthma in the community.

Because neither asthma disease nor hospitalizations are reportable in Idaho, the availability of data to evaluate the burden of asthma is limited. The available surveillance tools are geared toward adults, and include the Behavioral Risk Factor Surveillance System (BRFSS) and vital records; in the past, they have included the Medicaid Behavioral Risk Factor Survey (MBRFS). Consistent questions regarding asthma risk factors have been included in the BRFSS and MBRFS since 2003. A limited childhood asthma module has also been included since 2003 in both surveys to estimate the burden of asthma in children.

Asthma Surveillance Highlights from 2003 Surveys

- Eight percent of Idaho adults and an estimated nine percent of children currently have asthma, according to self-reports in BRFSS
- Adult females were nearly twice as likely to report current asthma than males
- Estimated asthma prevalence increased with increasing body mass index
- Idaho adults with asthma were almost twice as likely

as males to report diabetes or arthritis as a co-morbidity than adults without asthma

- More than 10,000 adults with asthma visited an emergency department in 2003 for worsening symptoms or acute exacerbations
- More than 25 percent of adults in households with an annual income less than \$20,000 reported current asthma, when compared to approximately 10 percent of adults reporting asthma in households with greater than \$20,000 annual income.

Asthma-associated deaths can occur in all age groups. Idaho vital record reports showed that the most severely impacted age group were residents aged 65 and older, with an average annual death rate attributed to asthma between 2001 and 2003 of 82 deaths per million residents. This rate is above the Healthy People 2010 benchmark of 60 deaths per million residents for that age group.

2003 surveillance findings can be found in their entirety at the IRHP website at <http://healthandwelfare.idaho.gov/site/3395/default.aspx>. A compilation of 2004 surveillance findings will be found on this site in September 2006.

Educational Opportunities

One goal of the IRHP is to promote and provide education for physicians and other healthcare professionals, in accordance with the goals of the Healthy People 2010 initiative. Healthcare providers are encouraged by IRHP and the National Asthma Education and Prevention program to diagnose and treat asthma using the latest clinical practice guidelines from the National Heart, Lung and Blood Institute (NHLBI). According to the Centers for Disease Control and Prevention, NHLBI guidelines for diagnosis and management of asthma are the clinical "gold standard" for care of patients with asthma. The 2002 revised guidelines can be found online at <http://www.nhlbi.nih.gov/guidelines/asthma/execsumm.pdf>.

The IRHP has particularly focused on the NHLBI guideline related to asthma action plans. Asthma action plans are self-management instruments for people with asthma. They can help patients monitor lung function, learn which med-

—continued on back page

Autopsy of Suspected CJD or vCJD Patients

CONFIRMATION OF PRION DISEASES such as Creutzfeldt-Jakob Disease (CJD) and variant CJD (vCJD) requires brain tissue. To ensure detection of variant CJD, should it occur in Idaho, the Idaho Legislature passed a law requiring that as of July 1, 2006, under Section 39-277 of the Idaho Code, the Idaho State Epidemiologist is required to ensure an autopsy is per-

formed when CJD or variant CJD is suspected in relation to a person's death. This requirement is in effect provided the person or persons having the highest authority to control the disposition of the deceased person's remains under Section 54-1142 Idaho Code (<http://www3.state.id.us/cgi-bin/newidst?scid=540110042.K>) do not refuse the performance of such autopsy.

If you suspect CJD or vCJD in a patient, please discuss autopsy with the patient, or other person with authority, at an appropriate time prior to death. We have found that approaching the family after the patient's death has a low success rate, due to the family's lack of information on the necessity of autopsy, the difficulty in coordinating an autopsy within

the optimal time for sample collection, the lack of time to address the concerns of mortuary directors, and other logistics.

The family or other person with authority should be informed that if they agree to an autopsy, they will not incur costs for autopsy or testing, because the National Prion Disease Pathology Surveillance Center

(<http://www.cjdsurveillance.com>) currently covers the costs of post mortem brain tissue collection, including transport of the body to a collaborating facility, return of the body to the original location, and complete laboratory testing for prion diseases.

A checklist for healthcare providers regarding suspected CJD cases and a list of CJD resources is

available on the IDHW website at <http://epi.idaho.gov>.

"WHO Guidelines on Tissue Infectivity Distribution in Transmissible Spongiform Encephalopathies" was recently published and is available on the World Health Organization website at <http://www.who.int/entity/blood-products/tse/WHO%20TSE%20Guidelines%20FINAL-22%20JuneupdatedNL.pdf>

Reportable Disease Rules 101

ON 4/11/2006 CHANGES to the Rules and Regulations Governing Idaho Reportable Diseases (Rules), adopted during the 2006 legislative session, went into effect.

The changes pertinent to health-care providers include the following:

- 1** Norovirus infection is now reportable. Reports must be made within one working day after diagnosis.
- 2** Reporting time frames have been altered for several pathogens:
 - Tularemia: reportable immediately day or night (previously reportable within 24 hours), and
 - Shigellosis: reportable within 1 working day (previously reportable within 3 working days).
- 3** Management of ill food employees (including work restrictions and testing requirements to remove work restrictions) has been clarified.

The current reportable disease list may be downloaded from <http://epi.idaho.gov/>.

The complete rules may be found at <http://adm.idaho.gov/adminrules/rules/idapa16/16index.htm>.

The Value of Reporting

1 Do I need to report?

- It's the law. Reportable disease rules may be enforced according Idaho Code and other applicable statutes and rules. Penalties could be

civil or criminal in nature. Penalties are referenced in 16.02.10.995 <http://adm.idaho.gov/adminrules/rules/idapa16/16index.htm>.

2 Is it OK for me to report?

- The privacy rule, HIPAA, strikes a balance between protecting patient information and allowing traditional public health activities to continue. According to HIPAA, patient information may be collected by a public health authority that is authorized by law to collect or receive such information for disease surveillance, prevention, investigation, and intervention purposes. You can learn more about HIPAA by accessing the following web sites: <http://www.hipaa.org/> or http://www.cdc.gov/nip/policies/hipaa/hipaa_factsheet.htm.
- All public health activities in Idaho are carried out to protect confidentiality.

3 What's the point of timely reporting?

Reporting, according to the rule, allows public health staff to investigate disease reports and engage in intervention and prevention activities quickly to reduce the spread of disease in the community. Examples of such activities are:

- Health education or counseling to the patient and patient contacts
- Restriction or exclusion of infectious persons from work, school,

- or daycare
- Referral of patient contacts for diagnosis, treatment, or other preventive service
- Inspection or notification of day-care or workplace
- Recommendations for environmental testing or decontamination
- Prevention messages for the public

Physician reporting in addition to laboratory reporting is essential and may provide advance warning prior to receipt of a laboratory report. In addition, laboratory testing is not indicated or required for confirmation of all reportable diseases.

4 What happens to the data?

- Local public health districts and the Office of Epidemiology and Food Protection (OEFP) track disease counts locally and statewide to evaluate trends in disease incidence.
- OEFP transmits deidentified data to CDC on Idaho reportable diseases that are nationally notifiable.
- Tracking of disease trends and sharing data with public health and healthcare partners contributes to strategic planning for local and state public health programs.

If diseases are not reported, public health cannot respond to protect the health of the community. Questions or concerns regarding disease reporting? contact your local public health district or OEFP.

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Multistate Outbreak of Mumps

Between 2001 and 2003, fewer than 300 cases of mumps were reported annually nationwide. A multi-state outbreak of mumps infections has been under investigation in 11 states since December, 2005¹. Between January 1 and May 2, 2006 a total of 2,597 cases of mumps (49% classified as confirmed) have been reported in Colorado, Illinois, Iowa, Kansas, Minnesota, Mississippi, Missouri, Nebraska, Pennsylvania, South Dakota, and Wisconsin (Figure 1). Although the original source of the current US outbreak is unknown, it may have started on an Iowa college campus. The outbreak is considered ongoing; however, it seems to have peaked the first week of April, 2006 in Iowa, the state with the highest number of cases (approximately 1,487 probable and confirmed cases). In outbreak states the frequency of mumps was highest in those 18–24 years of age, possibly reflecting the college student population initially affected, but cases have been seen in all age groups. Data has been collected from 1,192 cases from Iowa. Of those affected, 6% were unvaccinated, 12% had received one dose of MMR, and 51% had received two doses of MMR, while 31% had an unknown vaccination status. Contributing factors considered include vaccine efficacy below 100%, waning immunity in the affected population, transmission facilitated through crowded living conditions on college campuses, vaccination less effective at reducing asymptomatic or atypical infections, and delayed recognition and diagnosis of the rare condition by health-care providers.

Twelve samples from six affected states all yielded the genotype G mumps strain, the same genotype circulating in the United Kingdom (UK), where an out-

break involving > 70,000 cases has been ongoing from 2004 to 2006. Most UK cases have occurred among unvaccinated young adults. The G genotype is not an unusual or rare genotype and, like the rest of known genotypes of mumps, it has been circulating globally for decades or longer.

Idaho has had seven sporadic cases of mumps reported between 2001 and 2005 (range: 0–3 cases per year). Several suspect cases have been under investigation in Idaho since January of 2006. At this time, three cases have been confirmed, one in a two-year old child, one in a 13-year old child and one in a 49-year old woman. None of the reported cases to date appear epidemiologically linked with the outbreak in the Midwest.

Public Health Challenges Revealed

A number of public health challenges have arisen from the current outbreak, including:

- 1** Clinical recognition of the disease;
- 2** Interpreting serology in previously vaccinated individuals;
- 3** Vaccine recommendations; and
- 4** Prevention.

Clinical Recognition

Unilateral or bilateral self-limiting swelling of the parotid or other salivary glands lasting 2 or more days, without other apparent cause, is considered the clinical definition of mumps but these symptoms may be absent in more than 30% of cases. Some mumps infections are associated with nonspecific or primarily respiratory symptoms with or without glandular swelling, and approximately 20% of infected persons are asymptomatic. Confirmed infections have laboratory evi-

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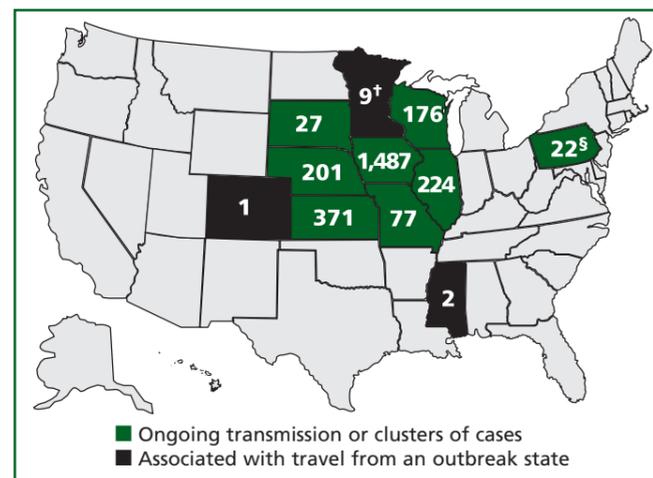
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Multistate Outbreak of Mumps continued—

Figure 1. Number* of reported mumps cases linked to multistate outbreak, by state – United States, January 1-May 2, 2006.



* N = 2,597

† Three cases related to the outbreak

§ Twelve cases related to the outbreak

dence to support the clinical diagnosis or are epidemiologically linked to another case of mumps. Other conditions can cause parotid swelling, including cytomegalovirus, parainfluenza virus types 1 and 3, and influenza A virus. Thus, the absence of parotid swelling does not rule out mumps in an exposed person with nonspecific respiratory symptoms, and the presence of parotid gland swelling is not diagnostic of mumps.

Laboratory Findings

Available tests through the Idaho Bureau of Laboratories include virus culture from buccal swabs (urine culture has low yield and will no longer be offered) and serology. PCR antigen detection tests are under development at CDC and are being field-tested in Iowa during the outbreak; however, PCR is not available at this time for routine diagnostic work.

The presence of IgM antibodies, which occur early in infection, peaking within 1 week, and/or a 4-fold rise in IgG antibodies is considered diagnostic in an unvaccinated individual. With previous vaccination, serum IgM may be negative in 50–60% of acute serum samples, and IgG levels might already be elevated at the onset of symptoms and consequently may not demonstrate a rise in paired sera, making serologic interpretation more difficult.

Vaccine Recommendations and Prevention

The measles-mumps-rubella (MMR) vaccine is apparently effective against the circulating strain currently blamed for the outbreak. According to CDC, outbreaks can occur in highly immunized populations. Two doses of MMR vaccine provide protection for mumps in approximately 90% of recipients while a single dose protects approximately 80% of recipients. CDC and OEPF recommends that unvaccinated

or inadequately vaccinated individuals speak to their health-care providers about vaccination.

On May 17, 2006, the Advisory Committee on Immunization Practices (ACIP) convened a special session to discuss updating the 1998 recommendations for the control and elimination of mumps, in light of this recent outbreak. On June 1, an MMWR² was released describing the updated recommendations that emerged from this meeting. Key changes from the 1998 ACIP recommendations (see box²) are described for school aged and college students, healthcare workers, international travelers and others in routine and outbreak settings.

Mumps virus has been isolated from saliva from between two and seven days prior to onset of symptoms until nine days after onset of symptoms. Anyone with mumps should not go back to childcare, school, or work for 9 days after symptoms begin. Non-immune healthcare workers exposed to mumps virus are restricted from patient care for 26 days after exposure, due to the long incubation period of mumps. This lengthy restriction is costly and disruptive for healthcare facilities, thus ensuring mumps immunity in healthcare workers is vital. CDC has recently updated specific prevention guidelines for healthcare workers, including immune status assessment and exclusion criteria. These guidelines may be found at <http://www.cdc.gov/nip/diseases/mumps/control-hcw.htm>.

Key changes to 1998 ACIP recommendations on mumps – May 17, 2006

Acceptable Presumptive Evidence of Immunity

- Documentation of adequate vaccination is now 2 doses of a live mumps virus vaccine instead of 1 dose for
 - School-aged children (i.e., grades K-12)
 - Adults at high risk (i.e., persons who work in health-care facilities, international travelers, and students at post-high school educational institutions).

Routine Vaccination for Health-Care Workers

- Persons born during or after 1957 without other evidence of immunity: 2 doses of a live mumps virus vaccine.
- Persons born before 1957 without other evidence of immunity: consider recommending 1 dose of a live mumps virus vaccine.

For Outbreak Settings

- Children aged 1-4 years and adults at low risk: if affected by the outbreak, consider a second dose³ of live mumps virus vaccine.
- Health-care workers born before 1957 without other evidence of immunity: strongly consider recommending 2 doses of live mumps virus vaccine.

* Minimum interval between doses = 28 days.

¹ CDC. Update: multistate outbreak of mumps - United States, January 1-May 2, 2006. MMWR 2006;55:1-5.

² CDC. Notice to Reader: Updated Recommendations of the Advisory Committee on Immunization Practices (ACIP) for the Control and Elimination of Mumps. MMWR 2006;55 (Early Release);1-2

Additional information: CDC Mumps home page: <http://www.cdc.gov/nip/diseases/mumps>

Idaho Study Suggests Non-O157:H7 *E. coli* Infections are More Common Than Expected

SHIGA-TOXIN PRODUCING *E. COLI* (STEC) are known to cause diarrheal illness and are thought to be associated with hemorrhagic colitis and hemolytic uremic syndrome (HUS). *E. coli* O157:H7 is considered the most common serotype associated with STEC outbreaks in the U.S; however, there are approximately 50 other non-O157 STEC serotypes accounting for 36–57% of shiga-toxin producing strains, which could also cause significant illness and outbreaks. An association has been described between the development of HUS and prior antibiotic therapy for the treatment of STEC-associated disease¹. Because of a lack of routine screening for the non-O157 STECs in Idaho and nationwide, the burden of illness attributable to these non-O157 STEC pathogens is unclear.

Under-detection of STEC could arise through two common practices: using blood in diarrhea as a testing determinant and sole reliance on Sorbitol-MacConkey agar (SMAC) plates by clinical laboratories to detect STEC². One CDC study reported that only 27% of STEC-positive specimens were positive for blood, and serotypes other than O157:H7 (non-O157 STEC) cannot be easily distinguished using only SMAC plates as a screening tool.

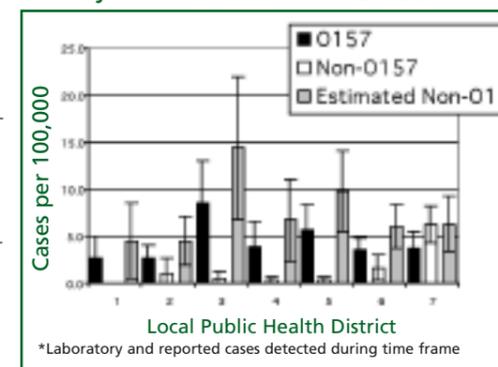
The Idaho Bureau of Laboratories (IBL) was interested in determining if a significant number of STEC infections were undetected, and thus unreported in Idaho, by the current testing paradigm used by most health care workers and clinical laboratories. Beginning in 2002, IBL began offering free STEC testing for all clinical laboratories in Idaho on stools from which no other enteric pathogens were recovered, bloody or not. Fourteen participating hospitals throughout the state were asked to collect a culturette from diarrheal samples at the time of culture set-up. If the routine stool culture was negative in their hands, the swab was forwarded to IBL for further analysis. In addition, the Eastern Idaho Regional Medical Center (EIRMC) clinical laboratory in health district 7, which already routinely screens stool samples for STEC with a culture-independent toxin-screening method, also worked with IBL for further characterization of toxin-positive samples. Between 2002 and 2004, IBL analyzed EIRMC samples and those from the additional 14 those stool samples from submitting hospital laboratories to determine if a significant number of STEC infections were being overlooked.

IBL inoculated the submitted stool samples from the 14 clinical labs from all participating laboratories into GN or MacConkey broth overnight and screened broths for the presence of Shiga-toxin (stx) by an enzyme immunoassay (stx-EIA)³ Shiga-toxin positive broths (including those submitted from EIRMC) were characterized further biochemically, serotyped, and evaluated by multiplex PCR for toxin genetic sequences. Samples from which an isolate was not recovered in the initial broth phase were characterized by STEC multiplex PCR alone. The findings suggested that STEC infections were clearly being missed by the routine methods of testing. Between 2002 and 2004, 2813 stool samples were submitted to IBL from the 14 clinical laboratories and 2904 samples were evaluated by EIRMC approximately 6000 stool samples from across the state were evaluated for evidence of Shiga-toxin (either by IBL or submitting hospital laboratory) and characterized further, when possible, by IBL as described above. IBL found that 88 stool samples tested positive for STEC by stx-EIA between all submitting participating agencies. Isolates were recovered from 56 of 88 enrichment broths and included the following serotypes: (22) O157:H7, (11) O26:H11, (7) O111:NM, (5) O145:NM, (4) O^{undetermined}:NM, (1) O^{undetermined}:H34, (1) O121:H19, (1) O121:NM, (1) O103:H2, (1) O103:H25, (1) O146:H21, and (1) O165:NM.

Routine toxin screening by EIRMC carried out in the Idaho Falls (District 7) region detected a significant increase in numbers of non-O157 STEC cases, when compared to other local public health districts where hospital laboratories did not routinely use toxin-screening methods. In fact, 2% of EIRMC stool samples examined in the District 7 region tested positive for STEC and 53% of those were found to be non-O157 serotypes. In addition, non-O157 STEC were also found through enhanced screening efforts in the other 14 submitting hospital laboratories. These data estimate a low but significant presence of STEC in diarrheal stool samples from which other enteric pathogens were not recovered and which would have been missed by traditional testing approaches.

Figure 2 represents mean rates of O157:H7 and non-O157 STEC infections in Idaho between 2002 and 2004, based

Figure 2: *E. coli* O157, non-O157 STEC* and Estimated Mean Rates of Procedurally Missed STEC-Associated GI illness by Idaho Health District – 2002-2004



on routine disease reports sent to the health districts and those found independently through this study. In addition, the graph depicts an estimate of the STEC infections which may have been procedurally missed by current testing methods.

These data suggest that a low but significant number of non-O157 STEC infections may be detected in diarrheal stool samples from which other enteric pathogens were not recovered and which would have been missed by traditional testing approaches. This study suggests the value of routine screening for Shiga-toxin producing bacteria in all diarrhea samples. The Office of Epidemiology and Food Protection and IBL encourage Shiga-toxin testing of stools from all persons with diarrhea or HUS already being examined for other enteric pathogens, where other pathogens have been ruled out.

For further information on managing infectious diarrhea, the "Practice Guidelines for the Management of Infectious Diarrhea" by Guerrant, et al. is available from the Infectious Diseases Society of America (CID 2001;21 (1 Feb), pp 331-351) or through their web site <http://www.journals.uchicago.edu/CID/>.

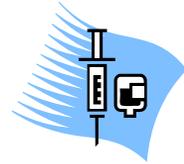
This article was contributed by Vivian Lockary, Walt DeLong, and Richard Hudson from the Idaho Bureau of Laboratories.

¹ Wong CS, Jelacic S, Habeeb RL, Watkins SL, Tarr PI. The risk of the hemolytic-uremic syndrome after antibiotic treatment of *Escherichia coli* O157:H7 infections. N Engl J Med 2000;342(26):1930-6.

² *E. coli* O157:H7: Procedure for Isolation and Identification from Stool Specimens Foodborne and Diarrheal Diseases Branch, Centers for Disease Control and Prevention Publication: 08/01/1994 <http://wonder.cdc.gov/wonder/prevguid/p0000445/p0000445.asp>

³ Premier™ EHEC test, Meridian Bioscience, Inc., Cincinnati, OH

BULLETIN



Pandemic Planning for Medical Offices and Ambulatory Clinics

Planning for pandemic influenza is critical for ensuring a coordinated healthcare response. The U.S. Department of Health and Human Services (HHS) and Centers for Disease Control (CDC) have developed a preparedness checklist for medical offices and ambulatory clinics available at <http://www.pandemicflu.gov/plan/medical/html>. This tool will help healthcare providers identify the strengths and weaknesses of current pandemic influenza planning efforts. Individual medical offices and clinics may need to adapt this checklist to meet their unique needs. Local and state influenza planning information is necessary to complete the plan for medical offices and ambulatory clinics. Idaho's public health pandemic influenza response plan is available from a link located on the right side of <http://www.healthandwelfare.idaho.gov/site/3657/default.aspx>. It supports the overall Idaho Department of Health and Welfare Public Health Preparedness and Response Plan and will be carried out in collaboration with District Health Departments, the Idaho Bureau of Homeland Security, and other local, state, and federal agencies and organizations. All public and private sectors in Idaho are encouraged to develop their own influenza pandemic response plans that coordinate with the state and local efforts.

Idaho and U.S. Pertussis Rates On the Rise; New Vaccines Available for Adolescents and Adults

The incidence of reported pertussis infections in the U.S. has steadily risen since the 1980s.

In 2004, the Centers for Disease Control and Prevention (CDC) reported the highest number of cases of pertussis since 1959, with an incidence of 8.5 cases/100,000 persons nationwide. In 2005* Idaho reported approximately 15.5 cases/100,000 persons †, a provisional 2005 rate approximately twice the national rate of 2004 (see Figure 1).

Although infants have the highest reported incidence of pertussis of any age group nationwide, according to CDC, adolescents and adults account for the majority of reported cases. This is thought to be due to waning immunity from childhood pertussis vaccination, leaving adolescents and adults susceptible. Increased awareness about pertussis in older age groups among providers may also account for an increase in reports in those age groups. According to CDC, in 2004 adolescents 11–18 years of age made up 35% and adults 19–64 years of age accounted for 27% of pertussis reports. In 2005, in Idaho, 22% of reported pertussis cases were in adolescents 11–18 years of age, while 32.8% of cases were in adults 19–64 years of age.

Adults and adolescents with pertussis can transmit this illness to others, including infants, who are at highest risk for serious complications and death. Therefore, providing some protection to the adolescent and adult population may not only reduce disease in those age groups but also reduce the risk to very young infants.

*Provisional 2005 year-end data.

† U.S. Census Bureau 2005 estimated Idaho state population: 1.43 million

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New Vaccines

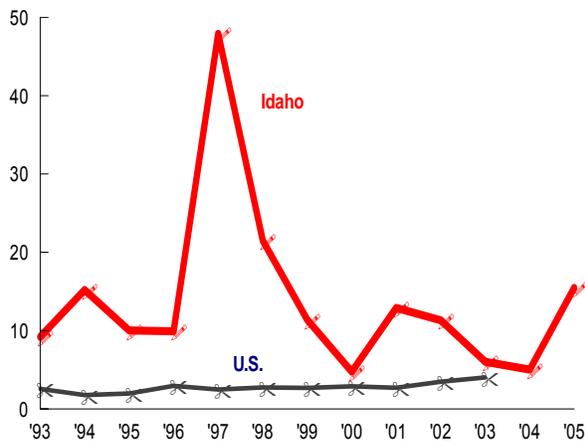
In the spring of 2005, two new adsorbed vaccines (Tdap) (Tetanus toxoid, reduced diphtheria toxoid and acellular pertussis), formulated for adolescents and adults, were licensed by the FDA. BOOSTRIX® (GlaxoSmithKline Biologicals, Rixensart, Belgium) was licensed for those 10-18 years of age, and ADACEL™ (sanofi pasteur, Toronto, Ontario, Canada) was licensed for

are adolescents a potential source of pertussis for infants, outbreaks in schools are disruptive and can lead to significant public health control efforts. Final recommendations for adolescent vaccine can be found at:

<http://www.cdc.gov/mmwr/preview/mmwr.html/rr55e223a1.htm>.

Fig. 1

Rate of pertussis per 100,000: Idaho and U.S., 1993–2005*



*2005 data are provisional.

those 11–64 years of age. In the past, pertussis vaccine was available only for those aged six years and younger.

New Vaccine Recommendations Available

A full description of provisional and final Advisory Committee on Immunization Practices (ACIP) recommendations for adolescent and adult pertussis vaccination (including precautions, contraindications, and other special vaccine considerations) may be found at:

<http://www.cdc.gov/nip/recs/provisional/recs/default.htm>.

Highlights are listed below:

- **Adolescent Recommendations**

In June 2005, the ACIP voted to recommend a single dose of Tdap for adolescents aged 11–18 years. Not only

- **Adult Recommendations**

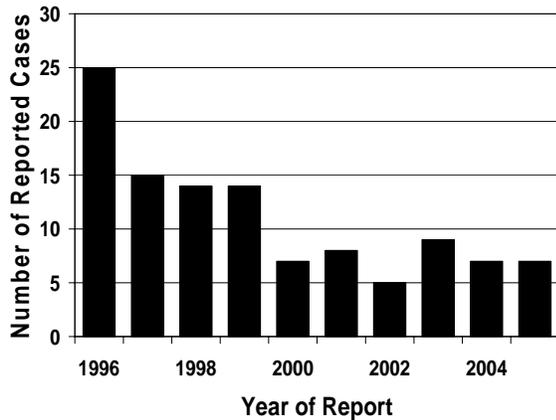
In October 2005, ACIP recommended the routine use of a single dose of Tdap to replace the next Td booster for adults aged 19–64 years, if the previous Td vaccine was received ≥ 10 years earlier. Shorter intervals are possible according to the extended ACIP recommendations. Because adults may pass pertussis to infants, ACIP also recommended that Tdap be used by adults with close contact with infants <12 months of age (e.g. parents, child care providers, and health care providers). Ideally, Tdap should be given at least one month before beginning close contact with infants. Women should receive a dose of Tdap in the immediate post-partum period if they have not previously received Tdap. Any woman who might become pregnant is encouraged to receive a single dose of Tdap according to ACIP recommendations.

Additional recommendations for use of Tdap in health care providers, pregnant women, and those >65 years will be considered during future ACIP meetings.

Menactra®

Various serogroups of *Neisseria meningitidis* (A, B, C, Y, and W-135) are known to cause invasive disease including meningitis, septicemia, and pneumonia. Most infections in the U.S are caused by serogroups B, C, and Y. Every year approximately 2,500 cases of invasive meningococcal disease are reported in the U.S. with a case-fatality rate of 10%. According to CDC 11–19% of survivors have permanent sequelae including seizures, loss of limbs, kidney disease, deafness or mental retardation.

Meningococcal Disease, Invasive
Idaho, 1966-2005



Although there is a downward trend in invasive meningococcal disease in Idaho (see graph), many infections occur in younger persons. In 2005, 71% of reported infections were in those less than 20 years of age.

Immunization is the most effective preventive measure to reduce the incidence of death and sequelae caused by meningococcal infections, with the exception of serogroup B infections which are not covered by the vaccine. On January 17, 2005, licensure for Menactra[®], a meningococcal (Groups A, C, Y and W-135) polysaccharide diphtheria toxoid conjugate vaccine produced by sanofi pasteur, was approved for use in those 11–55 years of age.

Non-conjugate *N. meningitides* vaccines used prior to Menactra[®] do not stimulate a T-cell response, are poorly immunogenic in children < 2 years and do not lead to a memory or anamnestic response after subsequent challenge. These drawbacks of available meningococcal vaccines have now been overcome.

Conjugation of proteins with the vaccine antigen changes its antigenic properties such that it will elicit a T-cell response, leading to a strong primary response, a significant anamnestic response, and better protection in children.

The new vaccine provides the following:

- Immune response in infants (FDA licensure pending)
- Long-term immune memory
- Booster effect
- Reduced incidence of nasopharyngeal carriage in population
- Herd immunity

CDC's ACIP recommended Menactra[®] for the following groups:

- Adolescents entering middle school (11–12 year olds) or high school (15 years old)
- Children and adults without a spleen
- Children and adults who lack serum complement proteins
- College freshmen living in dormitories
- People exposed to someone infected with meningococcus during an outbreak of the type A, C, Y, or W-135
- Children and adults who will travel to sub-Saharan Africa between December and June.

The 2006 Idaho Legislature recently approved funding for the addition of tetanus toxoid, diphtheria toxoid and acellular pertussis vaccine (Tdap) and the new meningococcal conjugate quadrivalent adolescent vaccine Menactra[®] to Idaho's Vaccines for Children Program. These vaccines are expected to be available for ordering in limited quantities from the Idaho Immunization Program beginning in late April. The Program will offer these vaccines for adolescents through 18 years of age as recommended by ACIP. For questions regarding these or any other vaccines, please contact the Idaho Immunization Program at 208-334-5931.

What About Guillain-Barré Syndrome (GBS) and Menactra[®]?

On September 30, 2005, FDA issued an alert about a potential link between Menactra[®] and GBS in five vaccine recipients. FDA also reported that, upon statistical review, the rate of GBS based on the number of cases

reported following administration of Menactra[®] was similar to what might have been expected to occur by coincidence, even without vaccination. FDA made the announcement because of the timing of GBS occurrence post-vaccination but made no changes in the use recommendations. CDC reiterated in the April 7, 2006 MMWR (55(13); 364-366) that the risk for serious meningococcal disease still exists, and a causal relationship could not be established between Menactra[®] and GBS, therefore they recommended the continuation of current vaccine strategies.

A CDC fact sheet for healthcare providers may be found at:

<http://www.cdc.gov/nip/vacsafe/concerns/gbs/gbs-menactra-facts.htm>.

Suspected adverse vaccine events are to be reported to VAERS (www.vaers.hhs.gov or 1-800-822-7967).

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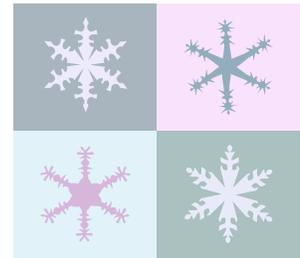
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BULLETIN



Antiviral Resistance Emerges in Seasonal Influenza Strain: CDC Announces New Recommendations for Antiviral Use for the Remainder of the Flu Season

On January 14th, 2006, the Centers for Disease Control and Prevention (CDC) announced that, due to the development of drug resistance, clinicians should no longer prescribe the adamantane antivirals, amantadine and rimantadine, to treat or prevent influenza for the remainder of the 2005–2006 influenza season.

As of the January 14th announcement, CDC found that 109 of 120 (91%) influenza A(H3N2) cultures submitted from across the nation during the current influenza season were resistant to adamantanes. This represents a sharp increase in adamantane resistance over the last two influenza seasons: 11% of isolates were resistant during the 2004–2005 season and only 1.9% of isolates were resistant during the 2003–2004 season. Three influenza A(H1N1) viruses have been tested by the CDC this season and all demonstrated susceptibility to these drugs.

It is important to note that all H3 and H1 isolates tested to date by CDC are sensitive to the neuraminidase inhibitors oseltamivir (Tamiflu[®]) and zanamivir (Relenza[®]), the other two antivirals used against influenza.

The Idaho Bureau of Laboratories has identified 48 influenza A(H3) viruses and one influenza B virus since October of 2005. A subset of these has been forwarded to CDC for further characterization, including antiviral susceptibility testing; results are pending.

CDC states that adamantane resistance develops readily with drug use, but neuraminidase inhibitor resistance appears much less likely to arise with antiviral usage. CDC states that amantadine-resistant viruses are cross-resistant to rimantadine and vice versa but that virulence and transmissibility do not appear altered.

Adamantane Derivatives (AD)

- Amantadine and Rimantadine
- Inhibits influenza A viral replication only, not influenza B
- **AD resistance found in A(H3N2)**
- Discontinue use this season

Neuraminidase Inhibitors (NI)

- Oseltamivir (Tamiflu[®]) and zanamivir (Relenza[®])
- Inhibits influenza A and B release from infected cells
- A(H3N2) sensitive to NI.
- Prescribe for prophylaxis (oseltamivir) or treatment (oseltamivir and zanamivir) when indicated.

Influenza vaccination remains the primary method for preventing influenza and its severe complications. Should antivirals be indicated during this flu season, CDC recommends Tamiflu[®] or Relenza[®] be prescribed for the treatment or prevention of influenza.

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The new antiviral use recommendations are explained further in the January 17th MMWR: *High levels of Adamantane Resistance Among Influenza A(H3N2) Viruses and Interim Guidelines for Use of Antiviral Agents—United States, 2005-2006 Influenza Season.*

MMWR Dispatch, Vol 55 /January 17th, 2006
http://www.cdc.gov/mmwr/mmwr_dispatch.html

CDC's influenza web site <http://www.cdc.gov/flu/> has numerous updated references, including antiviral indications, dosages, and potential adverse reactions.

If you did not receive a Health Alert on this subject through the Health Alert Network and you are interested in receiving such Health Alerts, please contact your local public health district to sign up for the Health Alert Network.

Reporting Adverse Events Associated with Drugs or Vaccines

Drugs, biologics, medical devices, or dietary supplements



Health care professionals and consumers can report serious adverse events, product quality problems, or product use errors that they suspect are associated with the use of a Food and Drug Administration (FDA)-regulated drug, biologic, medical device, or dietary supplement to the FDA through MedWatch. The FDA relies on voluntary reporting of these events to maintain safety surveillance of all FDA-regulated products. Your report may be the critical action that prompts a modification in use or design of the product, improves the safety profile of the drug or device and leads to increased patient safety.

There are three ways that health care professionals and consumers may submit voluntary reports to MedWatch:

- 1) Submit the voluntary form 3500 online at the MedWatch web site <http://www.fda.gov/medwatch/>;

- 2) Download a copy of the voluntary form 3500 from the MedWatch web site and either fax it to MedWatch at 1-800-FDA-0178 or mail it back using the postage-paid addressed form; or
- 3) Call MedWatch at 1-800-FDA-1088 to report by telephone.

Forms for mandatory reporting of events that occur during IND clinical trials or other clinical studies are available at <http://www.fda.gov/medwatch/getforms.htm>

Vaccines

The Vaccine Adverse Event Reporting System (VAERS) is a cooperative program for vaccine safety by the Centers for Disease Control and Prevention and the FDA.



VAERS is a post-marketing safety surveillance program, collecting information about adverse events that occur after the administration of U.S.-licensed vaccines.

The VAERS web site <http://vaers.hhs.gov/> provides a nationwide mechanism by which adverse events following immunization may be reported, analyzed, and made available to the public. The VAERS web site also provides a vehicle for disseminating vaccine safety-related information to parents/guardians, healthcare providers, vaccine manufacturers, state vaccine programs, and other constituencies.

VAERS encourages reporting of any clinically significant adverse event that occurs after the administration of any vaccine licensed in the United States. You should report clinically significant adverse events even if you are unsure whether a vaccine caused the event. The National Childhood Vaccine Injury Act (NCVIA) requires health care providers to report: (1) any event listed by the vaccine manufacturer as a contraindication to subsequent doses of the vaccine, and (2) any event listed in the Reportable Events Table that occurs within the specified time period

after vaccination. A copy of the Reportable Events Table can be obtained by calling VAERS at 1-800-822-7967 or downloading it from <http://vaers.hhs.gov/pubs.htm>.

There are two ways that health care providers and consumers may submit reports to VAERS:

- 1) Submit VAERS report online via secure web site accessed through <http://vaers.hhs.gov/>; or
- 2) Submit VAERS reporting form by mail to: Vaccine Adverse Event Reporting System P.O. Box 1100 Rockville, MD 20849-1100
(Note: Providers who receive VAERS report forms from the IDHW Immunization Program are welcome to continue mailing forms to the Immunization Program).

A copy of the VAERS reporting form and instructions for how to submit it can be obtained by calling toll-free 1-800-822-7967, by toll-free fax at 1-877-721-0366, or via e-mail to info@vaers.org.

Severe or unusual reactions to any immunization must be reported to the local Public Health District or the Idaho Department of Health and Welfare within one working day after diagnosis (IDAPA 16, Title 02, Chapter 10, "Rules and Regulations Governing Idaho Reportable Diseases").

Idaho Newborn Screening

Idaho contracts with the Oregon Public Health Laboratory to test newborns for more than 30 metabolic and endocrine disorders. All tests by tandem mass spectrometry (MS/MS) are run from a single blood spot. Five of the disorders have been reportable in Idaho since 2003 and include biotin deficiency, congenital hypothyroidism, galactosemia, maple syrup urine disease and PKU (see Table 1). The most common conditions detected in 2003–2005 were congenital hypothyroidism, PKU and galactosemia. Congenital hypothyroidism has a nationwide incidence of 1:3,000 births, and can result in

mental retardation and other brain damage if it is not diagnosed and treated early in life. Galactosemia, which appears in approximately 1:60,000 births, can cause sudden infant death if untreated within days. The enzyme deficiency leading to phenylketonuria (PKU) occurs in about 1:10,000-15,000 births, and also may lead to varying degrees of mental retardation.

Only five percent of the cases identified by MS/MS in Idaho were suspected by primary care physicians before results of the screening were known. Although specific conditions are individually rare, Idaho's experience over the past three years suggests that as many as one in 700 newborns will have a disorder (reportable or not) that can be identified by MS/MS screening, translating to approximately 30 babies each year whose lives could be saved or improved by early testing.

Additional information about newborn screening in Idaho can be obtained from the Children's Special Health Program at 208-334-5962.

Conditions	2003	2004	2005*
Biotin Deficiency	0	1	0
Congenital Hypothyroidism	10	11	13
Galactosemia	1	2	0
Maple Syrup Urine Disease	0	0	1
PKU	3	4	0
*2005 data is provisional			



Next issue:

- New pertussis vaccines for adolescents and adults.
- Short survey to provide feedback on the content of the Idaho Disease Bulletin.

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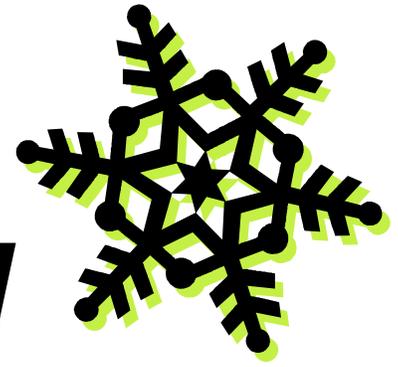
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BULLETIN



Seasonal Epidemics of Respiratory Syncytial Virus

Every winter outbreaks of respiratory syncytial virus (RSV) occur, and the timing of these seasonal outbreaks is predictable to a limited extent. Of all infants hospitalized for any cause, the leading diagnosis is RSV bronchiolitis, responsible for greater than 120,000 hospitalizations annually in the US, and these hospitalizations are concentrated in January through March. By their second birthday, virtually all children have had a respiratory illness with RSV, and half of children have had RSV twice. Immunity is short-lived, so that RSV causes upper and lower respiratory tract infection at all ages.

Measures to prevent RSV infection are limited. Infants exposed to school-age siblings or day care are much more likely to develop RSV infection. Contact precautions are used for isolation of children hospitalized with bronchiolitis. No vaccine has been successfully developed: an alum-precipitated formalin-inactivated vaccine used in clinical trials in the 1960s led to enhanced disease in vaccinated children during subsequent RSV infections. Passive immunoprophylaxis with antibody has been a successful approach but the expense of these products has restricted their use to the highest risk infants with prematurity, congenital heart disease, or chronic lung disease. The human immunoglobulin RespiGam has been replaced by the monoclonal antibody palivizumab (Synagis®). Synagis® must be given monthly by intramuscular injection, and indications for its use have been published.¹

The Centers for Disease Control and Prevention has strongly encouraged the development of local and regional systems to alert clinicians to the onset and end of the RSV outbreak in their area. These systems have used either laboratory or hospitalization data. Across our region, three systems are currently active:

- Boise, Idaho: Graphs of data from the laboratory at St. Luke's Regional Medical Center are posted on the Idaho State Chapter website for the American Academy of Pediatrics www.idahoAAP.org
- Spokane, Washington: Data from PAML laboratories are compiled by the hospital epidemiologist at Sacred Heart Hospital and emailed to interested providers.
- Salt Lake City, Utah: Graphs of data from the laboratory at Primary Children's Hospital are posted on University of Utah Pediatric Infectious Diseases website http://www.ped.med.utah.edu/GeneralInfo/InfDis_files/ID.htm

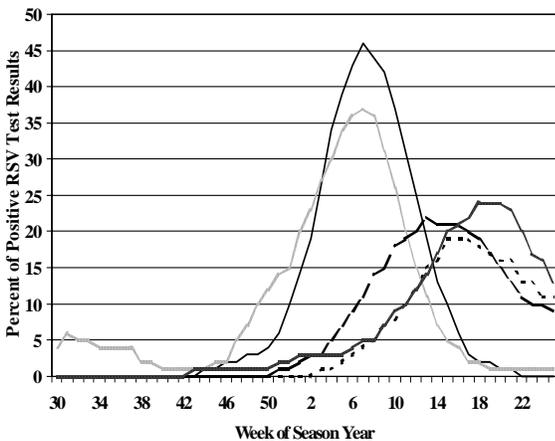
The timing of RSV outbreaks varies between different parts of the US, and within an individual site timing of outbreaks varies from year to year. RSV activity starts earlier in southern and coastal areas. Florida has a notoriously long RSV season because of both climate and frequent travel.

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The northern interior of the US has the shortest RSV season. National data² indicate median duration of RSV activity is 15 weeks. Data from Boise from 2000–2005 indicate median duration of RSV

Activity is 11 weeks. During this period, onset of the season varied from December 28 to January 23 (median January 14), and end of the season varied from March 7 to April 10 (median April 1). Figure 1 illustrates the year-to-year variability of RSV season with data from a laboratory in Omaha, Nebraska, a site similar to Idaho in the epidemiology of RSV².

Anyone is welcome to visit the website www.idahoap.org then proceed to the Infectious Diseases Monitoring page that includes graphs of influenza and RSV activity and recommendations. Efficient use of preventive measures and planning for hospitalizations will be promoted by epidemiologic data within our region.



--Thomas H. Rand, MD PhD

Figure 1. Example of year-to-year RSV season variability. Seven-week moving average of positive RSV antigen test results for selected RSV seasons (1991 through 1998, excluding the 1994-1995 season) from a laboratory in Omaha, Nebraska participating in the National Respiratory and Enteric Virus Surveillance System. The 1991/1992 season was the most severe season represented by the solid line. Reprinted with permission.² (See reference for more details).

References:

¹American Academy of Pediatrics Policy Statement. 2003. Revised indications for the use of palivizumab and respiratory syncytial virus immune globulin intravenous for the prevention of respiratory syncytial virus infections. *Pediatrics* 112:1442-1452.

²Mullins, JA, et al. 2003. Substantial variability in community respiratory syncytial virus season timing. *Pediatric Infectious Diseases Journal* 22:857-862.

Seasonal and Pandemic Influenza Surveillance 2005–2006

Because sporadic, fatal infections with the H5N1 subtype of avian influenza have occurred in humans with poultry contact in Asia, concern is high that this H5N1 virus may become the influenza subtype to give rise to the next pandemic. As of November 2005, there has been no sustained human-to-human transmission of this H5N1 virus anywhere in the world and no recognized H5N1 virus, of the type found in Asia, anywhere in the United States; however, a novel strain of influenza could emerge at any time. Healthcare providers' participation in surveillance activities for seasonal influenza may help detect new strains or changes in disease patterns.

Seasonal influenza strain surveillance:

The first laboratory-confirmed case of influenza this season was collected the last week of October. The confirmed isolate was an influenza B. A handful of positive rapid influenza tests for influenza A also have been reported sporadically from several areas of the state during the first few weeks of November, but these have not been laboratory-confirmed. Although influenza infections are not reportable in Idaho, it is important to determine circulating virus strains. The Idaho Bureau of Laboratories (IBL) will test respiratory specimens, at no charge, from rapid-test positive individuals to determine which influenza strains are circulating in Idaho. Representative samples

should be collected throughout the influenza season, especially early and late in the season. IBL is also interested in obtaining samples from individuals with unusual clinical presentations or severe infections, and from those with influenza-like illness outside the normal influenza season. If you wish to receive free swab kits and shipping instructions, contact Colleen Greenwalt at the IBL, 208-334-2235 x 228.

Avian influenza surveillance: What if you suspect a human case of avian influenza?

The Department of Health and Human Services has recently published clinical and epidemiologic guidelines for healthcare providers who suspect they might be dealing with a case of avian influenza. A summary of this information is presented below. More details may be found at www.hhs.gov/pandemicflu/plan/. Additional information on seasonal influenza, pandemic influenza, and avian influenza may be found at www.healthandwelfare.idaho.gov.

The Office of Epidemiology and Food Protection (OEFP) recommends consideration of testing for a novel influenza virus only in patients who meet the following clinical and epidemiologic criteria:

- Clinical criteria: temperature >38° C and at least one of the following: sore throat, cough, or dyspnea;
AND
- Epidemiologic criteria: These criteria are designed to focus on the likelihood of an exposure to a novel strain of influenza virus within 10 days of onset of illness. These include travel and occupational risk criteria:

Travel: Those individuals who recently traveled from or lived in an area currently experiencing outbreaks of highly pathogenic avian influenza in domestic poultry or where a human case was recently diagnosed, and either had direct contact with poultry while there or direct contact with a confirmed or

suspected case of disease due to a novel influenza virus.

Occupational risks: Those working in the poultry industry or live bird markets or who process poultry suspected of having avian influenza, laboratory workers potentially exposed to a novel virus, or healthcare providers caring for an individual having or suspected of having a novel influenza infection.

If new developments in pandemic influenza occur, you will receive update information on case recognition and screening recommendations through the Idaho Health Alert Network (HAN).

Based on the above guidelines, if you suspect that you have a patient with avian influenza, please call your local public health district or the OEFP, IDHW, to discuss possible testing.

Free Bioterrorism Course (6.5 hours CME) Available on the Web

“Bioterrorism: What you need to know” is a new continuing medical education course for primary care physicians and other health-care professionals. The web-based course is being offered to Idaho physicians at no cost. Course objectives include identification of bioterrorism agents and symptoms, prevention, and initial management of exposed patients.

Visit www.ahecibt.org or contact Dana Ellis (danae@u.washington.edu) with the WWAMI (Idaho) Office for Clinical Medical Education at 208-327-0641 for more information. This activity has been reviewed and is acceptable for up to 6.5 Prescribed Credits by the American Academy of Family Physicians.

WNV Summary, 2005

As of November 1, 2005 there were 2581 reported human cases of WNV infection and 165 deaths nationwide. West Nile virus (WNV) activity in Idaho, during the summer of 2005, expanded from 11 affected counties in 2004 to 15 affected counties in 2005 (Ada,

Adams, Blaine, Canyon, Elmore, Gem, Gooding, Jefferson, Jerome, Lincoln, Owyhee, Payette, Twin Falls, Valley, Washington). There were 13 reports of ill persons for 2005 with no fatalities. The Idaho State Department of Agriculture reported 113 positive horses between July 19th and October 7th. Additional surveillance findings included one (1) positive dog (Jerome County), 17 positive mosquito pools of *Culex tarsalis*, *Culex erythrothorax*, and *Culex pipiens* (Ada, Canyon, Gem, Payette, and Washington Counties), and 15 positive birds. WNV activity again predominated in the southwest and south central parts of the state.

The best defense continues to be education around mosquito bite avoidance, which was promoted during the 2005 season with the "Fight the Bite" campaign.

The Idaho WNV site can be found at www.westnile.idaho.gov

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BULLETIN



Reported Creutzfeldt-Jakob Disease (CJD) in Idaho

CJD was not reportable in Idaho until 2004. Prior to that, information on the number of cases was based entirely on death certificates. Among Idaho residents in the last 20 years, there have been 25 deaths reported on death certificates as caused by CJD (2004 data is preliminary). The annual number of reported CJD deaths ranged from zero to three. CJD deaths were reported from 17 Idaho counties. From 1985 to 2004, only 10 of 25 (40%) persons with CJD on their death certificate received an autopsy to confirm the clinical diagnosis. Nationally only about 30 percent of cases are autopsied.

CJD in Idaho: 2005

South Central Idaho

Five possible CJD cases reported between February and July 2005 have been under investigation by the South Central District Health Department and the Idaho Department of Health and Welfare, Office of Epidemiology and Food Protection (OEFPP). All five patients are deceased.

Of the five people who died from possible CJD, autopsies were conducted on three, and brain samples were sent to the National Prion Disease Pathology Surveillance Center (NPDPSC) for testing. Results as of 10/11/2005 are:

- Preliminary results indicated a prion disease, likely CJD in one person.
- Final results indicated that one person did not have a prion disease and one person had sporadic CJD.

Investigation continues on the two patients who have not been autopsied. This includes a review of medical records and interviews with treating physicians. A survey on residence, travel, dietary habits, occupation, surgeries, and other experiences was conducted with family members.

South Central Idaho Investigation Findings

Of the four possible CJD cases still under investigation, all patients were white females, over 55 years of age (mean 70.8 years). No common ethnic population of origin could be identified. The estimated time from onset of illness to death ranged from 1.4 to 10.6 months (mean 4.3 months); however, the exact date of onset of illness could not be established in some cases.

All patients lived in Twin Falls or Minidoka County in the South Central public health district at the time of death; one patient also lived in a third Idaho county earlier in life. The number of years of continuous residence in Idaho prior to death ranged from less than one year to 72 years (mean 49 years). One patient lived for 18 months in Great Britain prior to 1980. No other travel to Europe was reported for any patient, and no travel in common to all four patients was found.

No reported surgical procedures were common to all four patients, and no patients had neurologic surgery or transplants. The number of reported surgeries over a patient's lifetime ranged from 1 to 3 (mean 2). No patients had been injected with growth hormone.

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Additional reports of possible CJD

A possible case of CJD in an Elmore County male over 55 was reported to the Central District Health Department in August. This patient is deceased, and brain tissue tested negative for prion disease by the NPDPS. Two reports from southeastern Idaho about deceased patients over age 55, one female and one male, neither of whom was autopsied, are being investigated by the Southeastern District Health Department. A report from northern Idaho about a female patient under age 55, who is deceased, was being investigated and initial results from NPDPS are consistent with prion disease.

For further information and updates, see the Idaho Department of Health and Welfare's CJD web page at: <http://www.diseaseinfo.idaho.gov>

Diagnostic Services for Prion Disease Evaluation

Currently prion diseases can be definitively diagnosed only by examination of brain tissue, usually obtained at autopsy. Barriers to autopsy include lack of patient and family education about the necessity for autopsy to obtain a definitive diagnosis, religious beliefs and personal wishes of the patient or patient's family, cost considerations, and difficulty finding pathologists willing to autopsy a suspect case of transmissible spongiform encephalopathy (TSE). The OEFP and local public health districts are collaborating with the NPDPS to help remove some of the barriers to autopsy of suspected TSE cases.

The NPDPS was established by the Centers for Disease Control and Prevention and the American Association of Neuropathologists in 1997. It is the national reference center for prion diseases, providing advanced neuropathologic and biochemical diagnostics including histopathology, immunohistochemistry, Western blot, and prion gene analysis, which is used to distinguish the type of prion disease (familial, sporadic, or acquired). To augment antemortem prion disease diagnostics, CSF can be submitted to determine the presence of the protein marker 14-3-3, though this is not a confirmatory test.

All testing at NPDPS is free of charge.

Results are reported to the health care provider and, as required by state law, to the OEFP. In addition, NPDPS can help make arrangements for a brain-only autopsy, including providing a pathologist if none is available locally. All expenses including transporting of the body to the reference institution, collecting brain tissue, returning the body, shipping tissues to the NPDPS, and testing brain tissue at NPDPS will be covered, when necessary.

Improving Prion Disease Surveillance

Health care providers can work to improve prion disease surveillance in Idaho by following these steps:

1. Report all suspected cases of human prion disease to the OEFP (208-334-5939) or your local public health district within three days of when the diagnosis is suspected or confirmed, and participate in a confidential case investigation to document demographic and clinical information and help determine possible sources or risk factors for illness.
2. Discuss autopsy with the patient's family. With their permission, post-mortem arrangements can be made through the NPDPS for a brain-only autopsy at a referral institution.
3. Call the NPDPS (216-368-0587) if you would like to use their laboratory or autopsy services. Specimen collection and shipping instructions can be found at <http://www.cjdsurveillance.com>.
4. Please indicate on the patient's death certificate the diagnosis of CJD or other TSE when applicable and whether or not an autopsy was performed. If awaiting autopsy results, the entry in the *Cause of Death* section may be entered as "Pending autopsy results"; the *Manner of Death* must be completed as "Natural". Upon completion of autopsy, a Supplemental Information for Cause of Death form, provided by the Idaho Department of Health and Welfare Bureau of Health

Policy and Vital Statistics, should be completed and submitted by the physician who signed the death certificate.

Resources for Families of CJD Patients

To support patient families, the CJD Foundation operates a national toll-free line (800-659-1991) and a web site: <http://www.cjdfoundation.org/>. Other family support resources can be found at http://www.rarediseases.org/search/rdbdetail_abstract.html?disname=Creutzfeldt+Jakob+Disease.

CJD Reference Material

Centers for Disease Control and Prevention: <http://www.cdc.gov/ncidod/dvrd/cjd/>

The National Creutzfeldt-Jakob Disease Surveillance Unit (UK): <http://www.cjd.ed.ac.uk/index.htm>

Medscape article on prion diseases (must register to view): www.medscape.com/viewarticle/410863

Influenza: A New Strategy for Prioritizing Vaccinations

The vaccine supply for the 2005-06 influenza season is still up in the air because of uncertainties regarding production of vaccine, exact number of available doses, and timing of vaccine distribution. Four manufacturers expect to provide vaccine to the U.S. market. Sanofi Pasteur, Inc., projects production of up to 60 million doses of inactivated influenza vaccine; Chiron Corporation 18–26 million doses; GlaxoSmithKline, Inc., eight million doses. MedImmune Vaccines, Inc., producer of the nasal-spray influenza vaccine (also called live attenuated influenza vaccine, or LAIV), projects having approximately three million doses available for distribution.

To ensure that people who are at highest risk of complications from influenza have access to vaccine, CDC recommends certain priority groups receive inactivated influenza vaccine

until Oct. 24, 2005. Beginning Oct. 24, 2005 all persons were eligible for vaccination.

The following are the priority groups which should have been targeted to receive inactivated influenza vaccine prior to Oct. 24, 2005:

- Persons aged 65 years and older, with and without chronic health conditions;
- Residents of long-term care facilities;
- Persons aged 2–64 years with chronic health conditions;
- Children aged 6–23 months;
- Pregnant women;
- Health care personnel who provide direct patient care;
- Household contacts and out-of-home caregivers of children under 6 months; and
- Evacuees from hurricane Katrina.

It should be noted that vaccination with the live, nasal-spray flu vaccine (FluMist[®]) is always an option for healthy people 5–49 years who are not pregnant. This vaccine is not subject to prioritization and can be given to healthy individuals 5–49 years at any time.

Demand for influenza vaccine typically falls off quickly after November, even when there is a shortage. The current approach was developed to balance two competing priorities: (1) Ensuring an ample opportunity to vaccinate people at highest risk of complications from influenza, providers who care for them, and close contacts of children under 6 months of age; and (2) Allowing ample time to vaccinate other priority groups and those desiring vaccination before demand declines. Community vaccinators and health officials generally need at least four to five weeks for optimal planning efforts. Oct. 24, 2005, was selected as the best date to achieve a balance between these priorities, and, therefore, the priority group restrictions were lifted on this date.

Thank You to Hurricane Katrina Volunteers

Public health staff at the IDHW and the local public health districts would like to thank the many physician and other health care provider

volunteers who signed up to assist with evaluating and treating evacuees from Hurricane Katrina. While the crowds did not materialize in Idaho as anticipated, individuals and families have arrived through faith-based organizations, family contacts, permanent relocation, and other means. Some ongoing activities have occurred to assure these displaced people receive health care. We are very grateful to the private provider community for stepping forward to assist when requested on short notice. It is our hope that you will remain available in the future if surge capacity is required in response to another public health crisis.

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Idaho Disease

BULLETIN

Special Zoonotic Disease Edition, September 2005

Idaho Department of Health and Welfare, Office of Epidemiology and Food Protection

Letter from the Editor

Many of you recently responded to a zoonotic disease questionnaire distributed by our office. A summary of responses is presented later in this document. What we learned from your collective responses is that there is an overwhelming interest in learning more about the following:

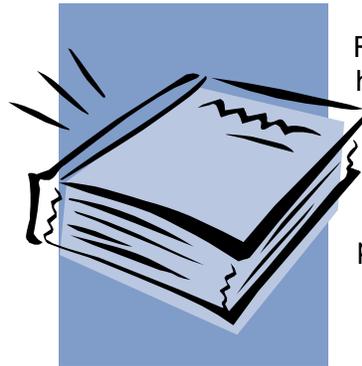
- Reportable diseases in Idaho;
- Professional resources regarding zoonotic diseases;
- The occurrence of zoonotic diseases in Idaho;
- Specific details about rabies in Idaho;
- Current packaging and shipping requirements for clinical samples;
- Opportunities to participate in veterinary emergency response activities;
- Interfacing with district health department epidemiologists; and,
- The Health Alert Network.

We hope that this special edition of the Idaho Disease Bulletin — tailored for the veterinary community — addresses some of your needs. The Idaho Disease Bulletin is generated every two months and targets issues of interest to the healthcare provider community. Special veterinary editions will be published periodically.

Idaho Disease Bulletins from 1997 to the present may be found at <http://www.epi.idaho.gov>.

Leslie Tengelsen, PhD, DVM
Deputy State Epidemiologist

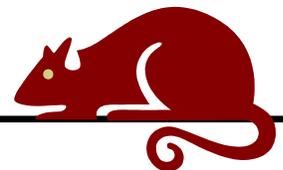
Reportable Diseases in Idaho



Reportable diseases of humans and animals are listed on the following web sites. There is some overlap with regard to zoonotic pathogens.

Human: Idaho Department of Health and Welfare (IDHW), <http://www.epi.idaho.gov>.

Animal: Idaho State Department of Agriculture, (ISDA), <http://www.agri.state.id.us>. From this page select from the column on the left “Animals”, then “Animal Health”, then “Animal Disease”. Reportable and notifiable disease lists are found on the Animal Disease page.



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Zoonotic Disease Summary–Idaho, 1999–2004

Healthcare providers and laboratorians are required by law to report suspicion or diagnosis of a reportable disease in Idaho, many of which are zoonotic. The table below lists the number of probable or confirmed human cases of 16 different zoonotic diseases received by the Office of Epidemiology and Food Protection (OEFP) between 1999 and 2004. Clearly, enteric infections including toxigenic *E. coli*, Salmonella, Campylobacter, giardia and cryptosporidiosis were the most commonly reported zoonotic diseases.

Human Zoonotic Infections Reported in Idaho, 1999–2004

	1999	2000	2001	2002	2003	2004
Anthrax	0	0	0	0	0	0
Brucellosis	0	0	0	2	0	0
Campylobacter	198	252	248	208	244	238
Cryptosporidiosis	8	28	23	30	27	28
<i>E.coli</i> (O157:H7 and other toxigenic <i>E. coli</i>)	78	73	86	63	101	74
Giardia	134	139	172	137	206	212
Hantavirus	3	0	2	1	2	1
Leptospirosis	1	1	1	0	1	0
Lyme disease	3	4	5	4	3	6
Plague	0	0	0	0	0	0
Psittacosis	0	0	0	0	1	0
Q-fever	0	1	0	2	1	1
Rabies/all species	6	10	29	38	15	8
Rocky Mountain Spotted Fever	0	1	1	0	2	4
Salmonella	135	132	146	184	181	159
Tularemia	1	0	0	0	0	1

Although rare, other zoonotic diseases have been documented in Idaho over the years.

Anthrax

- Human cases in Idaho: 2 in 1945, 1 in 1946, and 1 in 1964.
- Animal cases in Idaho: The last known outbreak was in 1983 in cattle in Caribou County.

Lyme disease

- Lyme disease, caused by *Borrelia burgdorferi*, is of great concern for veterinary practitioners in states known to harbor the vector ticks (*Ixodes scapularis* in the east and *Ixodes pacificus* in the west). *Ixodes pacificus* has been found in many western states, although it has not been detected to date in Idaho. Despite what little we know about the vector in Idaho, a handful of human cases are reported annually, some of which may have acquired their infection out-of-state. Whether in animals or people, laboratory diagnosis of Lyme disease is complicated. In humans, a two-tiered

testing approach is required to confirm a case. The initial screening test is an ELISA (enzyme linked immunosorbent assay) for IgM and IgG which shows cross-reactivity with other similar agents. The confirmatory test is a Western blot (WB). Many cases are reported to IDHW in the absence of WB confirmation. It appears that the risk for Lyme disease in animals in Idaho is low.

Plague

- Human cases in Idaho: 1 in 1987, 1 in 1991, and 1 in 1992.

Tularemia in Idaho

- Six human cases have been reported between 1990 and 2004. One case was documented in a veterinarian who acquired the infection from a cat.

West Nile Virus

- West Nile virus (WNV) is nearly ubiquitous across the nation and across south and southwestern Idaho. The Centers for Disease Control and

Prevention (CDC) web site posts weekly updates of nationwide disease activity at <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>. Currently WNV data for Idaho may be accessed through <http://www.westnile.idaho.gov>. In 2004, 11 of 44 Idaho counties documented some level of WNV activity beginning around August 24, 2004. By the end of the 2004 mosquito season 3 humans, 22 horses, and 7 birds had been reported with the virus. In 2005, as of this printing there have been 14 horses (all unvaccinated) reported; 57% (8 of 14) died or were euthanized. Numerous positive mosquito samples and positive birds have also been detected by the Idaho Department of Health and Welfare public health laboratory so far in 2005.

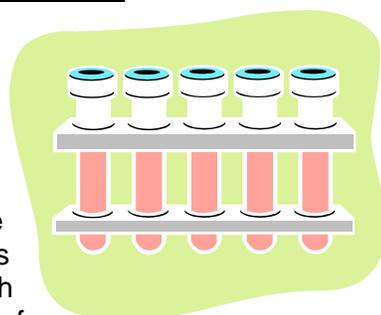
Although seroconversion has been documented, with rare exception, WNV does not seem to cause demonstrable clinical illness in dogs, cats, or cattle. The following article has useful information about the infection in dogs and cats.

Experimental Infection of Cats and Dogs with West Nile Virus, Emerging Infectious Diseases Vol 10, No. 1, January 2004
<http://www.cdc.gov/ncidod/EID/vol10no1/02-0616.htm>.

More information on WNV and horses can be found on the USDA/APHIS website:
<http://www.aphis.usda.gov/vs/na/ps/equine/wnv/>

Laboratory Specimen Shipment for Veterinary Purposes

Regulations regarding safe packaging and proper labeling and shipping seem to change frequently. It is the responsibility of the shipper to keep up with these changes. In the United States, laboratory specimen shipment is governed by regulations issued by the Department of Transportation (DOT) and the U.S. Postal Service. International air shipment is governed by technical instructions from the International Civil Aviation Organization and published annually in the International Air Transport Association (IATA) Dangerous Goods Regulations manual. A person shipping laboratory specimens must be certified to comply with regulations set forth by the DOT and IATA. Training is available from a variety of commercial sources and may involve only reviewing an educational CD periodically. Some commercial laboratories may provide information on proper packing and shipping to their clients. Other training may be available through companies that provide certified packaging materials for safe transport of laboratory specimens. The following information should assist you in locating appropriate training for your purposes. These regulations do apply to veterinary samples.



ARUP Laboratories 500 Chipeta Way SLC, Utah 84108 800.522.2787 www.aruplab.com	Saf-T-Pak, Inc. 182 Street Edmonton, AB, T5S 1J5, Canada 800.814.7484 www.saftpak.com
Dangerous Goods Advisory Council 1100 M. St., NW Suite 740 Washington, DC 20005 800.634.1598 http://www.hmac.org	National Assn. of Safety Professionals 1101 30 th St. NW Suite 500 Washington, DC 20007 800.922-2219 http://www.naspweb.com
IATA Home Page http://www.iata.org IATA Dangerous Goods Regulation Manual http://www.iata.org/ps/publications/9065.htm	

Focus on Rabies



Rabies is probably the most well-known and feared zoonotic disease. Rabid bats are the greatest risk for human infection in the United States and Idaho. Nationally, between 1990 and 2001, there have been 36 human cases of rabies: 75% of them (27/36) had a bat strain of rabies. The remaining nine human cases had a dog or coyote strain of rabies (seven from dog exposures while traveling to foreign countries and the remaining two from coyote exposures in Texas). The CDC rabies web site can be accessed through <http://www.cdc.gov/ncidod/dvrd/rabies/Professional/professi.htm>.

Detection year	Number of rabid bats
2004	7
2003	15
2002	38
2001	28
2000	10
1999	5
	Other species having a bat strain
2004	Skunk
2001	Bobcat
1999	Horse
1992	Cat
1991	Cat
1968	Raccoon
1967	Cat
1967	Skunk

In Idaho, only bats are known to be a natural reservoir for rabies. Rabid bats have been found every year across the state from May to November. Bats submitted for testing by the state public health laboratory do not represent the bat population as a whole, rather they represent bats that were impaired enough to be captured and submitted for testing. Of submitted bats, an average of 11 percent annually test positive for rabies. The adjacent table lists rabid bats diagnosed between 1999 and 2004 in Idaho. Even though bats are the only known reservoir for rabies in Idaho, all mammals should still be considered potentially rabid when an exposure to saliva or central nervous tissue occurs. Examples of other species found to have a bat strain of rabies in Idaho also are shown in the table. Bats pose an additional challenge for medical management of exposed persons and animals because of the seemingly insignificant exposures that may lead to an infection. In fact, unlike other potentially rabid species, bats have been implicated in fatal cases with no known documented bite, including waking in the presence of a bat. The last known human case of rabies in Idaho occurred in 1978 from a contaminated corneal transplant.

Rabies Protocols

A rabies protocol was jointly developed between the Idaho Department of Health and Welfare and the Idaho State Department of Agriculture, among others, to provide guidance to practitioners dealing with issues related to rabies exposures. The Rabies Protocol includes guidance for the most common scenarios which are encountered in veterinary practice involving exposure between animals and between animals and people. The Rabies Protocol attempts to provide guidelines on situation management, and relies heavily on documents like the Compendium of Animal Rabies Prevention and Control (2005 or current). The Rabies Protocol is updated regularly. The Rabies Protocol may be found at <http://www.epi.idaho.gov> under "Communicable Diseases Resources", along with other information on rabies in Idaho, including maps of locations where rabid animals were found in Idaho between 2001 and 2004.

Pre- and Post-exposure Prophylaxis

Advisory Committee on Immunization Practices (ACIP) guidelines exist for rabies pre- and post-exposure prophylaxis for people. Veterinarians and others in high risk occupations, such as spelunkers and rabies researchers, should protect themselves from the risk of rabies exposure by receiving the pre-exposure rabies vaccination series. The immediate implementation of rabies post-exposure prophylaxis according to the ACIP guidelines in humans exposed to rabid animals appears quite efficacious and life-saving. Find the latest ACIP document from 1999 at: (<http://www.cdc.gov/mmwr/preview/mmwrhtml/00056176.htm>).

Serologic Testing of Animals for Export to Rabies-free Countries

Demonstration of anti-rabies antibodies is often required to export animals to rabies-free countries. There is not an established protective rabies antibody titer level in animals, but many countries require proof of anti-rabies antibodies as confirmation of rabies vaccination. Kansas State University College of Veterinary Medicine has a web site with information about rabies antibody testing in animals at <http://www.vet.ksu.edu/depts/rabies/>. NOTE: Testing for rabies infection still requires brain tissue.

Professional Resources On-line

A broad range of topics of interest were identified through questionnaire responses. The following compilation of web sites and on-line resources provides information on many of those topics.

IDHW Web Sites

http://www.diseaseinfo.idaho.gov (communicable disease resource page)	http://www.foodsafety.idaho.gov (food protection program)
http://www.epi.idaho.gov (epidemiology home page)	http://www.healthandwelfare.idaho.gov (Division of Health home page)
	http://www.westnile.idaho.gov (West Nile Virus page)

<http://www.cdc.gov>

The CDC has an extensive web site on just about anything related to infectious diseases. From the homepage, select Health Topics A–Z to find a particular disease.

<http://www.cdc.gov/healthypets/>

“*Healthy Pets / Healthy People*” is a CDC site for veterinarians and other healthcare providers. You may browse the site by animal or by disease. It is not all-encompassing, but it has a lot of valuable information for you to view or share with your clientele. Some examples of articles found on this site include:

- Guidelines for Veterinarians: Prevention of Zoonotic Transmission of Ascarids and Hookworms of Dogs and Cats;
- Toxoplasmosis: An Important Message for Cat Owners;
- Reptile-associated Salmonellosis; and
- Leptospirosis and Your Pet.



<http://www.nasphv.org/>

The National Association of State Public Health Veterinarians (NASPHV) publishes a standard set of guidelines (compendia) which are updated as needed as resource materials for public health and veterinary professionals. Available compendia include the following:

- Compendium of Animal Rabies Prevention and Control, 2005;
- Compendium of Measures To Control *Chlamydomphila psittaci* (formerly *Chlamydia psittaci*) Infection among Humans (Psittacosis) and Pet Birds, 2005; and
- Compendium of Measures to Prevent Disease Associated with Animals in Public Settings, 2005.

<http://www.aphis.usda.gov/lpa/issues/bse/bse.html>

BSE is in the news on a regular basis. This USDA/APHIS website has information on testing and surveillance.

Links for those working with immunocompromised pet owners

Immunocompromised persons owning pets may have zoonotic disease concerns. The following documents address many of these unique issues.

- Preventing zoonotic diseases in immunocompromised persons: The role of physicians and veterinarians. <http://www.cdc.gov/ncidod/eid/vol5no1/grant.htm>; and
- Preventing infections from pets. A guide for people with HIV infection. http://www.cdc.gov/hiv/pubs/brochure/oj_pets.

Cats and Zoonotic Disease

An article was published in the March 2005 CAT FANCY magazine by Janice Willard, DVM and Marty Becker, DVM of Idaho. The article, “Reduce Your Risk, Could Your Cat Make You Sick? 4 Things You Can Do to Stay Safe”, has information for the lay person on feline zoonoses. This might be a handy information sheet for your clients.

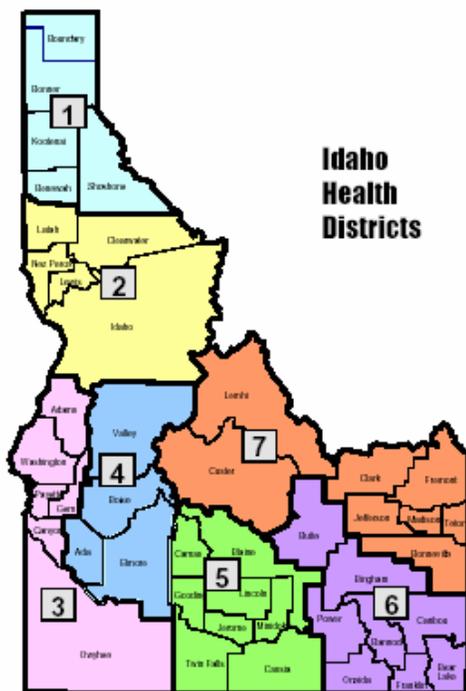
Turtle-associated Regulations

Occasionally, veterinarians receive questions about immature turtles. Since 1975 there has been Food and Drug Administration (FDA) regulation banning the sale of turtles with a carapace length of less than four inches (except for teaching purposes) because of the public health impact of turtle-associated salmonellosis. This regulation is enforced by the FDA in cooperation with state and local health jurisdictions. Experts estimate that the regulation has prevented about 100,000 cases of salmonellosis per year. There are some pet stores and web-based animal dealers that do not comply with this regulation, which can impact Idaho residents. To read about the FDA regulation see: <http://www.fda.gov/cvm/Documents/Turtlereq.doc>.

Avian Influenza

During the last few decades, the typical annual human influenza season has been characterized by infections with the H3N2 or H1N1 subtype of influenza A. Each year, these subtypes “drift” or change their surface protein characteristics slightly due to point mutations, but are basically the same subtypes year after year. If a completely different influenza subtype, such as H5N1, which is a highly pathogenic strain found in avian species, moves through the human population, morbidity and mortality may be far greater than a typical influenza season. The complete replacement of the H or the N is known as a “shift” resulting in a new subtype. A shift may have devastating effects on the population. A noteworthy shift caused the influenza pandemic of 1918, which killed millions globally. Pandemics are thought to happen by several mechanisms and may include a jump from an animal host to a human, the ability of that subtype to cause disease in that human, and the ability of that virus to then be readily transmissible from person-to-person. To date, H5N1 infections are occurring in Asia in birds and people. H5N1 appears to have jumped from infected birds to people on several occasions and has caused significant mortality in those affected. Efficient person-to-person spread has not been demonstrated yet. If H5N1 developed the ability to spread from person-to-person, a pandemic could ensue. To learn more about avian influenza from CDC, see <http://www.cdc.gov/flu/avian/index.htm>, or from the World Health Organization, see http://www.who.int/topics/avian_influenza/en/.

HEALTH ALERT NETWORK



The Health Alert Network (HAN) in Idaho is an automated system which provides a means by which critical, urgent health-related information is distributed rapidly to designated health partners, including veterinarians, for their immediate attention. HAN was established in Idaho under a cooperative agreement with the CDC.

When a health threat is identified, the Idaho Department of Health and Welfare or the health district in your area will send an email or a fax message to healthcare providers, veterinarians, and other appropriate partners, depending on the threat. HAN is an alerting mechanism and is not a route for routine updates or educational material. The number of health alerts sent out is minimal. The health districts are very interested in including veterinarians and can direct the alerts to the appropriate HAN recipients. Veterinarians should not receive extraneous information on topics of no relevance to the veterinary community. Examples of topics of past health alerts of interest to veterinarians are West Nile virus and an outbreak of *Salmonella* in people and cats.

If you have not already done so, consider registering for the Idaho HAN by accessing: <https://health.dhw.state.id.us/IDHAN/>

If you wish to discuss the Idaho HAN or zoonotic disease issues, please contact your local public health district epidemiologist. District epidemiologist contact information may be found at: <http://www.epi.idaho.gov> under Health Districts.

Idaho Veterinary Emergency Response Team (IVERT) Seeks Additional Members

Idaho State Department of Agriculture (ISDA), Division of Animal Industries, in conjunction with the United States Department of Agriculture (USDA), is continuing to develop a plan of action for response to large-scale animal disease emergencies. The creation of an Idaho Veterinary Emergency Response Team (IVERT) in 2002 was a result of initial planning efforts. IVERT veterinarians and veterinary technicians undergo training in foreign animal disease recognition and animal health emergency management response. Approximately 100 veterinarians and 25 veterinary technicians from Idaho have attended IVERT trainings over the last three years. ISDA would like to identify additional veterinarians who would be willing to join IVERT. IVERT participation is critical in Idaho, as the combined staff of ISDA Animal Industries and USDA Veterinary Services would not be adequate to conduct all of the activities that would be required to quickly and efficiently respond to an incursion of a foreign animal disease, such as Foot and Mouth Disease. A cadre of trained, private-practice veterinarians could effectively aid the state disease response. During an animal health emergency, IVERT members would be considered for temporary duty as Deputy State Veterinarians. Idaho law provides that veterinarians employed as Deputy State Veterinarians must be

graduates of a veterinary college recognized by the United States Department of Agriculture. Veterinarians would be compensated for time spent in training, as well as “on the job” if they are needed to respond to an animal health emergency. Those who complete an application and agree to take advantage of on-going regional or national training opportunities would become members of IVERT. Continuing education credits are typically available.

Training topics covered include the following: emergency planning*, foreign animal disease recognition, epidemiology, aspects of bioterrorism/agroterrorism recognition, disease reporting and surveillance, biosecurity issues, and compensation.

* National incident management system / incident command system

An application for membership in IVERT can be obtained through the ISDA website at www.idahoag.us under “Animals”, then “Emergency Management”, or by calling Dr. Marilyn Simunich at 208.332.8547 for a hard copy of the application form. Please fax the application to 208.334.4062 or mail to the Division of Animal Industries at PO Box 7249, Boise, ID 83707. Both active and retired (currently licensed) veterinarians who are interested in being a part of the Idaho Veterinary Emergency Response Team are encouraged to respond.

Zoonotic Disease Questionnaire Responses

All licensed veterinarians practicing in Idaho (559) were sent a questionnaire in July, 2005, in order to learn more about laboratory usage and zoonotic disease management. Not all questions were answered 100% of the time by all respondents, so the information is presented as the percentage of actual respondents for each question. Responses were received from 171 veterinarians (30%) and the majority of respondents were either small or mixed animal practitioners (40.9% and 37.4%, respectively).

Reportable Diseases Lists and Disease Reporting

Less than half (42.5%) of respondents had seen or had access to the ISDA reportable and notifiable lists, while less than one third (29.7%) of respondents had seen the IDHW reportable diseases list. Ninety percent of respondents reported that they would contact an ISDA veterinarian if they suspected a zoonotic disease in a patient.

Interactions with District Health Epidemiologists

During the last year only 10.9% of respondents had discussed public health issues with district health epidemiologists. Interestingly, 75% of respondents stated that they were very interested in meeting with district health staff in the future.

Zoonotic Disease Exposures in Clinic Settings

30.5% encountered one or more situations in their practice involving human exposures to zoonotic pathogens over the last year; 90.2% of the time exposed persons were referred for medical consultation with a

Questionnaire responses continued:

healthcare provider. 42.3% of the time the veterinarian reported providing some sort of information or literature to the exposed person. Only 5.7% of the time was someone from the district health department consulted on the zoonotic disease exposure.

Laboratory Testing

83 respondents reported that in the last year they submitted samples to a diagnostic laboratory for a suspected zoonotic pathogen. The majority of samples went to either ISDA or WADDL.

Shipping Regulations

The majority (76.9%) of respondents (or their staff) had not been trained in 2005 federal regulations regarding proper packaging and shipping of diagnostic samples.

Emergency Response and Communications

Thirty-five of 169 respondents were IVERT members. Only 22.5% of respondents were receiving health alerts from their health districts and less than half (43.3%) of respondents were receiving regular emails from ISDA, but 34% stated that they wanted to sign up to receive e-mail in the future.

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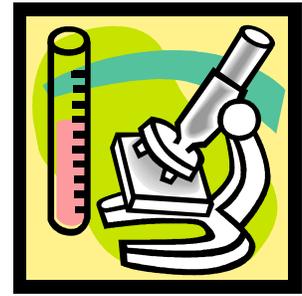
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West Nile Virus in Idaho

Locally-acquired West Nile virus (WNV) infections began appearing in Idaho during the fall of 2004, ultimately affecting 11 counties with three symptomatic people, seven positive birds and 22 positive horses. Surveillance occurred statewide; however, the virus was only found in southern and southwestern regions of the state. It has been shown, by observing the behavior of WNV in other affected states, that a surge in case-counts during the second year after evidence of the virus is discovered should be expected; therefore, 2005 should see a rise in cases for Idaho.

WNV infections are reportable in Idaho. To learn more about the varying clinical manifestations of WNV go to www.cdc.gov or www.westnile.idaho.gov.

The “Fight the Bite” community education campaign will again be used this season. Free copies of brochures in English and Spanish and posters on WNV risk factors may be acquired by contacting your district health department.

Laboratory testing for WNV

Acute and convalescent serum samples taken 7 to 14 days apart are ideal for WNV diagnosis. IgM levels in serum or CSF may not be detectable until after the first week of clinical illness. Diagnosis of WNV may include one of the following: the detection of a 4-fold or greater change in WNV-specific serum neutralizing antibodies in paired sera; isolation of WNV from or detection of viral antigens or genomic sequences in tissue, blood, CSF; WNV-specific IgM in CSF; or

WNV-specific IgM antibodies confirmed by the presence of WNV-specific IgG antibodies in the same or later serum sample by another assay. Due to the potential longevity of WNV-specific IgM, paired sera would help solidify the diagnosis. The Idaho Bureau of Laboratories (IBL) will test serum specimens for IgG or IgM WNV-specific antibodies. IgM-positive samples will also be evaluated for cross-reactivity to the St. Louis encephalitis virus (SLE). CSF is generally tested for WNV-specific IgM antibodies only. If more than one ml of CSF is received, then the sample also can be evaluated for SLE-specific IgM antibodies.

A number of commercial laboratories do offer WNV serologic testing. Healthcare providers are encouraged to utilize commercially available testing for suspected cases of West Nile fever. The IBL serologic testing is offered preferentially for those with neurologic manifestations of WNV.

Serologic Testing for Infectious Diseases

Introduction

Serologic tests are frequently requested to aid in the diagnosis of infectious diseases; however, occasionally inappropriate tests are requested, adequate samples are not obtained, or test results are misinterpreted or confusing. The goal of this article is to improve the utility of serologic testing for

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infectious diseases in Idaho.

Antibody basics — a refresher

Serologic tests for diagnosing infectious diseases evaluate IgG, IgM, or, rarely, IgA. IgG comprises about 80–85 percent of the total immunoglobulins in the body and has a half-life of 21–23 days. Most bacterial, virus-neutralizing, or precipitating antibodies, hemagglutinins, and hemolysins are IgG. IgG is the only immunoglobulin to cross the placenta: at birth, most IgG in the newborn's serum is from the mother. IgM comprises about ten percent of total immunoglobulin and has a half-life of 5–6 days. IgM is the antibody most often formed in response to stimulus by gram-negative bacteria, and is most often the first antibody to appear after a primary antigenic stimulus. There are two types of IgA: serum and secretory. Serum IgA comprises about six percent of total immunoglobulin and has a half-life of 5–6.5 days. Its function is not well understood. In secretions (e.g., CSF, synovial fluid, colostrum, respiratory mucus, *etc.*), IgA serves as the first line of defense against invasion of microorganisms; its concentration in secretions is much higher than that of IgG or IgM.

Free antibody is usually detectable in the blood from 5–10 days after a primary antigenic stimulus. The total antibody titer gradually increases over a few days to a few weeks, plateaus, then begins to drop. IgM appears first, then IgG. In a secondary response (AKA memory, anamnestic, or booster response), there is at first a sharp drop in circulating antibody because it is complexing with antigen. Usually within 2–3 days the titer increases and continues to rise for several days, ultimately exceeding the titer attained in the primary response. The secondary response produces more IgG than IgM. Secondary responses may be induced by cross-reactive antigens and may be repeated many times, even years after a primary titer has dropped to zero.

Sampling and sample submission

In general, serum for detection of antibodies should be drawn as early as possible during the acute phase of illness or when first discovered and again during the convalescent period, usually two weeks later. When the first specimen is submitted, be sure to notify the laboratory that you expect to submit a convalescent phase sample. Single samples may be sufficient for diagnosis of some diseases. (e.g., IgM for hantavirus, hepatitis A, measles, mumps, or rubella; elevated serum antibody titers for *Yersinia pestis* or *Franciscella tularensis* in a patient with no history of vaccination). Typically, samples are sent to commercial laboratories for testing. The IBL is mandated to support state and local health departments in their duties and supply testing which supports and confirms private physicians and clinical laboratory efforts. The IBL supports testing during disease outbreaks, provides tests that are not commercially available, (e.g., SARS serology and PCR, *Norovirus* PCR, West Nile virus PRNT, avian influenza PCR, orthopox PCR) and forwards samples to the CDC for specialized testing (e.g., confirmation of rickettsial titers, enterovirus subtyping, *Salmonella* phage typing, rabies virus subtyping, influenza virus subtyping, multiplex PCR on genital ulcer swabs). The IBL sampling and submission guide can be found by navigating through the IDHW website at www.healthandwelfare.idaho.gov.

General test interpretation

For most pathogens, a fourfold increase in the patient's titer, for example, from a positive result of 1:8 to a positive result or 1:32 over two to four weeks is considered to be diagnostic of a current infection. For diagnosis of Q-fever, samples are best taken 3–6 weeks apart.

Testing of serum samples for comparative purposes (e.g., acute and convalescent samples) should be done with the same technique, at the same laboratory, preferably on the same day with the same equipment, to avoid intra- and inter-laboratory variability that

could result in a false difference between titers and subsequent errors in diagnostic interpretation.

Clinical diagnosis vs. reportable diseases

The Council of State and Territorial Epidemiologist and the CDC collaborate to establish case definitions for infectious diseases under public health surveillance (available at the following website <http://www.cdc.gov/epo/dphsi/casedef/index.htm>). This website provides updated uniform criteria for public health professionals to use when reporting nationally notifiable infectious diseases. It should be recognized that physicians may diagnose and treat a case of infectious disease without the case meeting these criteria; cases that meet diagnostic criteria but do not meet public health case definitions may be reported as “suspected” cases to CDC.

Diagnostic testing issues related to specific diseases

1. Syphilis

An ongoing syphilis outbreak in southwestern Idaho has drawn attention to the importance of correctly ordering serologic tests for syphilis. Syphilis testing is confusing because of the variety of tests available and the different purposes to which they are used. Common non-treponemal syphilis screening tests are USR, RPR, and VDRL. Common treponemal confirmatory tests include FTA-abs, TP-PA, and MHA-TP. Blood banks usually screen using the automated PK-TP, then follow up with the RPR and Captia Syphilis G EIA for confirmation. For persons presenting with symptoms suggestive of syphilis, a nontreponemal screening test should be ordered, and confirmed with a treponemal test if positive. Testing for evaluation of mother-infant transmission and treatment efficacy is the most problematic in Idaho. Idaho law mandates screening pregnant women for syphilis at their first prenatal visit or within 15 days thereafter. For women at high risk for acquiring syphilis during pregnancy, testing in the 3rd trimester and at delivery is recommended. In mothers

with suspected syphilis or positive serologic tests during pregnancy, specimens should be collected from the mother and infant at delivery for comparison. A four-fold or higher neonatal titer compared with the maternal titer suggests neonatal infection, although an infected neonate may have a lower titer than the mother or no titer at all. Nontreponemal antibody titers in neonates should decline by 3 months of age and should be nonreactive by 6 months of age if the infant’s reactive test result was caused by passive transfer of maternal IgG antibody. Testing is recommended for seroreactive infants every 2–3 months until the test becomes nonreactive or the titer has decreased fourfold. Because titers obtained from different types of tests (e.g., VDRL, RPR, USR), are *not* comparable (for example, titers are generally two- to four-fold higher on the RPR card test than in the VDRL), a true difference in titer may not be detected, or a false difference in titer may be observed if the same type of test is not ordered for both mother and infant, or for each sequential test on the infant. The same problem arises with sequential testing for follow-up on adequacy of treatment for all patients. The same type of test must be requested from the same laboratory for proper comparison of titers. If you are unsure which test was performed previously, please verify the test type and laboratory prior to submitting samples for comparison. Note that infection with HIV may alter the clinical presentation and performance of serologic tests for syphilis. The US Public Health Service Task Force’s *Guide to Clinical Preventive Services, Second Edition* has an excellent discussion on syphilis screening at <http://cpmcnet.columbia.edu/texts/gcps/gcps0036.html>.

2. Pertussis

CDC requires a positive PCR or culture for confirmation of a pertussis case for public health surveillance purposes. Serologic tests that are not FDA approved are commercially available to clinicians; however, caution should be used in making the diagnosis of pertussis infection with serology alone because antibodies to filamentous

hemagglutinin and pertactin due to infection with *B. parapertussis* or other *Bordetella* species can also occur. In addition, detectable levels of IgG antibodies to *B. pertussis* may be seen in the serum of vaccinated individuals of all ages and in early infancy as the result of placental transfer. IgG antibodies can only be used for diagnosis of active infection when paired sera are available and a rise in antibody level can be demonstrated. A significant rise may not always be demonstrated as peak levels of IgG may be reached before the first sample is collected; therefore, IgA and IgM antibody levels should be measured to help diagnose active disease by serology. Please contact your diagnostic laboratory for help with interpretation of test results.

3. Varicella

For the diagnosis of acute varicella infection, serologic confirmation would include a significant rise in varicella IgG by any standard serologic assay. The CDC states that testing using commercial kits of IgM antibody is not recommended because available methods lack sensitivity and specificity, and that false positive IgM results are common in the presence of high IgG levels. The National VZV (varicella zoster virus) Laboratory at CDC has developed a reliable IgM capture assay; e-mail vzvlab@cdc.gov for details about collecting and submitting specimens for testing.

Routine postvaccination serologic testing is not recommended for varicella because of the potential for false negative results. Some evidence suggests that the latex agglutination method may result in false positive tests that could mistakenly categorize a susceptible person as immune; less sensitive commercial ELISAs are recommended for the purpose of screening if screening is indicated.

4. Hepatitis A

Serologic testing is required to confirm the diagnosis of hepatitis A. Acute hepatitis A virus (HAV) infection is confirmed during the acute or early convalescent phase of infection by the presence of **anti-HAV IgM** antibody in serum. IgM generally becomes detectable 5–

10 days before the onset of symptoms and can persist for up to 6 months. The antibody test for total anti-HAV measures both anti-HAV IgG and anti-HAV IgM; therefore, a positive total anti-HAV test can be either an indicator of recent infection, past infection, or vaccination. If acute hepatitis A is suspected, anti-HAV IgM should be requested rather than total anti-HAV to avoid unnecessary re-testing.

5. Hepatitis B

Several markers in combination are used for accurate interpretation and staging of hepatitis B virus infection (see table below).

The presence of hepatitis B surface antigen, **HBsAg**, indicates that a person is infectious, regardless of whether the infection is acute or chronic. Screening for HBsAg to detect active (acute or chronic) hepatitis B virus (HBV) infection is recommended for all pregnant women at their first prenatal visit. The test may be repeated in the third trimester in women who are initially HbsAg negative and who are at increased risk of HBV infection during pregnancy. Routine screening for HBV infection in the general population is not recommended. Pre-vaccination screening in low-prevalence groups, such as health professionals in training, is usually not cost-effective.

Total anti-HBc (anti hepatitis B core antibody) develops in all HBV infections, but does not develop from vaccination. Anti-HBc indicates infection at some undefined time in the past. Anti-HBc generally persists for life and is not a serologic marker for acute infection.

IgM anti-HBc appears in persons with acute disease about the time of illness onset and indicates recent infection with HBV. IgM anti-HBc is generally detectable for four to six months after onset of illness and is the best serologic marker of acute HBV.

Anti-HBs (anti hepatitis B surface antibody) is a protective neutralizing antibody. The presence of anti-HBs following acute HBV infection generally indicates recovery and

immunity from reinfection. Anti-HBs develops in response to hepatitis B vaccine and can also be acquired through passive transfer by administration of HBIG. Post-vaccination testing, when recommended, should be performed 1–2 months following the third dose.

Interpreting the Hepatitis B Panel

Tests	Results	Interpretation
HBsAg anti-HBc anti-HBs	negative negative negative	Susceptible
HBsAg anti-HBc anti-HBs	negative negative positive with \geq 10mIU/ml*	Immune due to vaccination
HBsAg anti-HBc anti-HBs	negative positive positive	Immune due to natural infection
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	Acutely infected
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	Chronically infected
HBsAg anti-HBc anti-HBs	negative positive negative	Four possible interpretations†

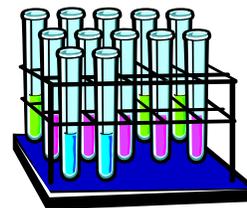
*Postvaccination testing, when it is recommended, should be performed 1–2 months after the last dose of vaccine. Infants born to HBsAg-positive mothers should be tested 3–9 months after the last dose.

- †1. May be recovering from acute HBV infection
 2. May be distantly immune and the test is not sensitive enough to detect a very low level of anti-HBs in serum
 3. May be susceptible with a false positive anti-HBc
 4. May be chronically infected and have an undetectable level of HBxAg present in the serum

HBeAg is a useful marker associated strongly with the number of infective HBV particles in the serum and a higher risk of infectivity. The IBL does not offer testing for HBeAg.

6. Hepatitis C

CDC has recommended that a person be considered to have serologic evidence of HCV infection only after an anti-HCV screening-test-positive result has been verified by a more specific serologic test (e.g., the recombinant immunoblot assay [RIBA®; Chiron Corporation, Emeryville, California]) or a nucleic acid test (NAT); however, laboratories may report a positive anti-HCV result based on a positive screening test result alone, and may not verify these results with more specific serologic or nucleic acid testing unless ordered by the requesting physician. Although the specificity of FDA-licensed or approved anti-HCV enzyme immunoassay screening test kits is >99%, among a population with a low prevalence of infection, such as among immunocompetent populations with anti-HCV prevalences <10% (e.g., volunteer blood donors, active duty and retired military personnel, persons in the general population, healthcare workers, or clients attending sexually transmitted disease clinics), the proportion of false-positive results may range from 15%–60%. Among immunocompromised populations (e.g., hemodialysis patients), the proportion of false-positive results averages approximately 15%. For this reason, it is critical to not rely exclusively on anti-HCV screening-test-positive results to determine whether a person has been infected with HCV. Rather, screening-test-positive results should be verified with an independent supplemental test with high specificity.



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*Several commercial laboratories perform *Bordatella pertussis* antibody tests. The IDHW does not endorse any commercial laboratory.

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BULLETIN

Lymphogranuloma Venereum (LGV) Outbreak in Europe has Potential for International Spread

From April through November 2003, 13 cases of lymphogranuloma venereum (LGV) were diagnosed among men who have sex with men (MSM) in the Netherlands. As of September 2004, that number had risen to 92 case-patients. Many reported having multiple sex partners in cities in Europe and the United States. STD and HIV co-infections have been prevalent, and participation in casual sex gatherings and unprotected anal sex has been reported by a majority of these individuals.

Of note, only one patient had symptoms usually associated with LGV (i.e., inguinal adenopathy [buboes] and a painful genital ulcer); all other patients had gastrointestinal symptoms (e.g., bloody proctitis with a purulent or mucous anal discharge and constipation).

LGV is a systemic, sexually transmitted disease caused by a type of *Chlamydia trachomatis* (serovars L1, L2, L3) that rarely occurs in the United States and other industrialized countries. *C. trachomatis*, regardless of the serovar, is a reportable disease in Idaho: suspected LGV cases should be reported to the district health department for epidemiologic follow-up.

Diagnosis is still based primarily on clinical findings. Serologic tests for *C. trachomatis* (i.e., microimmunofluorescence or complement fixation) can support diagnosis.

A list of laboratories that perform serologic tests for *C. trachomatis* and might provide a titrated result is available at <http://www.cdc.gov/std/lgv-labs.htm>.

Health care providers should be vigilant for LGV, especially among MSM exposed to persons from Europe, and be prepared to diagnose the disease and provide appropriate treatment to patients and their exposed sex partners. A summary of the outbreak and the etiology, clinical manifestations, diagnosis, and recommended treatments for LGV are available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5342a2.htm>.

Influenza Season Update

Influenza is not reportable in Idaho; however, information on influenza in Idaho is gathered from laboratory submissions and sentinel sites across the state. This influenza season, like 43% of influenza seasons nationwide examined between 1976 and 2004, appeared to peak the last week of February and the first week of March 2005. The Idaho State Bureau of Laboratories (IBL) identified the circulating A and B subtypes through laboratory surveillance. The influenza A (H3N2) subtype predominated this season, followed by influenza B/Yamagata. The Centers for Disease Control and Prevention is currently evaluating the strain(s) of submitted Idaho A isolates to determine if the

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A (H3N2)/ Fujian-like strain, the newer A(H3N2)/California strain (which emerged this season in the western hemisphere), or if some other A strain predominated this season in Idaho. Additional findings to date included one A (H1N1) and five B/Victoria isolates.

The World Health Organization has decided, in light of the emerging A(H3N2)/California strain, to change the formulation of the influenza vaccine for the 2005–2006 influenza season for the northern hemisphere by replacing the A(H3N2)/Fujian-like strain with the A(H3N2)/California/7/2004 reference strain. The other components will not change from the 2004–2005 vaccine.

Influenza-associated mortality in Idaho was low in the 2004–2005 season. There were six deaths reported in Idaho as of March 22, 2005, all in individuals over 50 years of age.

On October 5, 2004, Chiron Corporation announced that they would not be delivering 50% of the U.S. vaccine supply. This announcement alerted the world to a pending serious vaccine shortage for the 2004–2005 influenza season. Altered vaccine recommendations were quickly communicated to healthcare providers and the public in an attempt to restrict the use of vaccine to those that were considered at highest risk for serious side effects from influenza infection. MMWR, October 8, 2004 /53(39):923-924
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5339a6.htm>

Because of these new recommendations and the lack of available vaccine, newly created questions were added to a routine phone survey (Behavioral Risk Factor Surveillance Survey) to assess vaccine usage patterns of Idahoans in light of this shortage. The BRFSS survey was administered between November 1, 2004 and February 28, 2005. Based on telephone survey responses, approximately 16% of Idaho adults received influenza vaccine this season, a decrease from 37% last year.

Among the 75 persons aged 65 and older surveyed, 50 had received the vaccine last season and 44 had received the vaccine this season. Among those elderly who did not receive the vaccine this season, the leading reasons were the perception that they did not need to be vaccinated, concern about the vaccine’s efficacy or side-effects, and the vaccine shortage.

Pertussis on the Rise in Idaho 2004–2005: Hope on the Horizon

Cases of pertussis (whooping cough) have recently increased in Idaho, with outbreaks declared in northern, south central, and southeastern Idaho since December 2004. Recent outbreaks have included clusters in sports teams, daycare facilities, and the general community. Outbreaks of pertussis are frustrating for families, providers, and public health staff alike because several factors make pertussis infections more difficult to diagnose, treat, and control than most other vaccine-preventable diseases.

Factors include incomplete (although substantial) protection from the disease, even in fully immunized persons, symptoms that are not always distinguishable from other causes of cough illness, poor sensitivity and specificity of available tests, and a lack of long-lasting immunity after immunization or natural infection. Waning immunity allows adults to become infected with this disease and spread it to vulnerable infants.

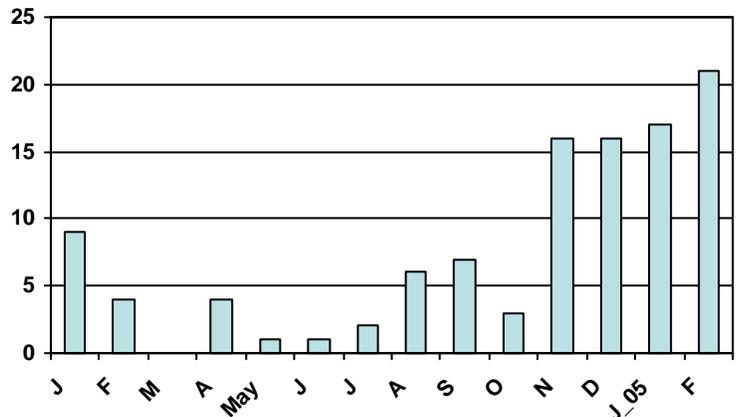


Figure 1. Number of reported cases of pertussis by month, Idaho, Jan. 2004– Feb. 2005.

The recent outbreak, described below, illustrates some of these challenges.

Seven players on a south central Idaho high school girls' basketball team were diagnosed with pertussis after one coughing player had culture-confirmed disease, reported December 27, 2004. Although two of the seven epidemiologically-linked cases were tested, neither of the two cases had positive cultures. Interviews of the coughing girls revealed that the first case had begun coughing months earlier on approximately October 6, 2004.

Very young children are the primary victims of this disease; adolescents and adults with waning immunity are the primary reservoir. The incidence of reported cases of pertussis in the U.S. among infants increased 49% in the 1990s compared with the incidence in the 1980s. A recent study in the Pediatric Infectious Disease Journal demonstrated that for infants with a known source of pertussis, other family members were the most common source. In the 1990s 103 pertussis deaths were reported in the U.S.; 93 deaths (90%) were among infants, including 84 among infants <4 months of age. Hope is on the horizon, however, as two new pertussis vaccines which will be licensed for administration to adolescents are expected to be approved by the FDA this spring. Vaccination of adolescents may decrease pertussis transmission in older children and adults significantly, thus increasing protection of all children, even those who are too young to have completed their vaccination series.

Learning Management System

The Idaho Department of Health and Welfare (IDHW) and the Institute of Emergency Management have joined forces to implement a web-based preparedness Learning Management System (LMS) for all Idaho's first responders. This includes personnel in healthcare, public health, emergency management, emergency medical services, fire, hazardous materials, law enforcement and public safety communications.

Found at www.idahoprepares.com, this system allows users to enroll in emergency preparedness and public health classes, sign up to be public health/health care volunteers, take online courses, download materials from the library, and order videos and CD-ROM-based courses. The LMS also tracks and maintains the course records of all users, allowing site users to produce on demand transcripts so they can submit their course records for credit from accrediting organizations.

In order to take advantage of all the new LMS site has to offer, potential users must first register at the site. Once they are part of the system, participants will be able to access the master calendar of all course offerings, sign up to become public health/healthcare volunteers if they are interested, and enroll in the classes they want 24 hours a day, 365 days a year.

Eventually the LMS system will provide learners with the ability to take classes online and print their own certificates when courses have been completed.

For more information on the Idaho Preparedness Learning Management System, please visit the site at <https://www.idahoprepares.com> or contact Maureen Welcker the IDHW Health Preparedness program at welckerm@idhw.state.id.us.



**Use of *Norovirus* Testing at the Idaho
Bureau of Laboratories**

The Idaho State Bureau of Laboratories (IBL) performs testing for *Norovirus* by RT-PCR. The IBL follows the Centers for Disease Control and Prevention's protocols and guidelines when examining stool samples from individuals potentially associated with an outbreak of *Norovirus*. This assay was developed only for use in the investigation of outbreaks of gastroenteritis, and is not offered for individual testing in the absence of an outbreak. If you suspect a *Norovirus* outbreak, please contact an epidemiologist at your district health department. They will investigate the outbreak and facilitate sample testing through the IBL.

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Idaho Disease

BULLETIN



Special Edition: Mass Exposures to Chemicals

Volume 12 Number 1

Division of Health

February 2005

Recognition of Chemical Exposures

Physicians and other health care providers have a vital role in recognizing epidemiologic clues and clinical patterns of illness associated with the covert release of a chemical agent. The following clues might suggest the release of a chemical agent.

- 1) *Rapid onset of symptoms after exposure to potentially contaminated medium.* Many chemicals have a latency period of less than one hour after ingestion before signs and symptoms are seen, whereas symptoms from enteric infection generally develop half a day or longer after ingestion of contaminated food.
- 2) *An unusual increase in the number of patients seeking medical care for potential chemical-related illness, either clustered on the same day or spread out over time.* Querying your clinic's records for the number of like diagnoses in a similar time period may help you determine if you have a higher number of cases than usual.
- 3) *Clustering of illness among people who are found to have a common exposure, such as drinking water or eating food from the same source.* Taking a good history of food and beverage consumption, event attendance, and recent travel before onset of illness is necessary to find common exposures. Your local health department will investigate histories of patients having a reportable disease, which includes extraordinary occurrence of illness, such as a case included in a syndromic cluster with or without an identified etiologic agent.

The following incident from 2003 illustrates how clues #1–3 above led to detection of an intentional chemical contamination. Several persons having signs and symptoms of gastroenteritis arrived at a local emergency department after 16 become acutely ill at a church bake sale in New Sweden, Maine; at one point, five were in the ICU for hypotension, an atypical presentation for foodborne gastroenteritis. Epidemiologic investigation suggested coffee as the source of illness. The state public health laboratory in Maine detected high levels of arsenic in the coffee and in the patients.

- 4) *Unexplained deaths among young or healthy people.*

For example, during November 1995 through July 1996, 109 previously healthy children were admitted to the University hospital in Port-au-Prince, Haiti, for acute renal failure. No children had been admitted for acute renal failure in the previous five years. Investigators determined that use of a locally manufactured acetaminophen syrup containing diethylene glycol-contaminated glycerin was responsible for the outbreak.

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- 5) *Unexplained death of plants or animals.*
- 6) *Emission of unexplained odors by patients.*
 For example, the smell of garlic suggests arsenic or organophosphates, the smell of tobacco suggests nicotine, a rotten egg odor suggests hydrogen sulfide, and the smell of freshly cut hay suggests phosgene; however, not every exposed patient will have a characteristic odor.

- 7) *A syndrome suggesting a disease associated commonly with a known chemical exposure.*

See table below for selected clinical syndromes and possible chemical etiologies.

Table Source: Centers for Disease Control and Prevention. Recognition of Illness Associated With Exposure to Chemical Agents— United States, 2003. MMWR 2003;52:938-940.

TABLE. Selected* clinical syndromes and potential chemical etiologies

Category	Clinical syndrome	Potential chemical etiology
Cholinergic crisis	<ul style="list-style-type: none"> Salivation, diarrhea, lacrimation, bronchorrhea, diaphoresis, and/or urination Miosis, fasciculations, weakness, bradycardia or tachycardia, hypotension or hypertension, altered mental status, and/or seizures 	<ul style="list-style-type: none"> Nicotine[†] Organophosphate insecticides[†] <ul style="list-style-type: none"> decreased acetylcholinesterase activity Carbamate insecticides Medicinal carbamates (e.g., physostigmine)
Generalized muscle rigidity	<ul style="list-style-type: none"> Seizure-like, generalized muscle contractions or painful spasms (neck and limbs) and usually tachycardia and hypertension 	<ul style="list-style-type: none"> Strychnine <ul style="list-style-type: none"> intact sensorium
Oropharyngeal pain and ulcerations	<ul style="list-style-type: none"> Lip, mouth, and pharyngeal ulcerations and burning pain 	<ul style="list-style-type: none"> Paraquat[†] <ul style="list-style-type: none"> dyspnea and hemoptysis secondary to pulmonary edema or hemorrhage; can progress to pulmonary fibrosis over days to weeks Diquat Caustics (i.e., acids and alkalis) Inorganic mercuric salts Mustards (e.g., sulfur)
Cellular hypoxia	<ul style="list-style-type: none"> Mild: nausea, vomiting, and headache Severe: altered mental status, dyspnea, hypotension, seizures, and metabolic acidosis 	<ul style="list-style-type: none"> Cyanide[†] (e.g., hydrogen cyanide gas or sodium cyanide) <ul style="list-style-type: none"> bitter almond odor[§] Sodium monofluoroacetate (SMFA)[†] <ul style="list-style-type: none"> hypocalcemia or hypokalemia Carbon monoxide Hydrogen sulfide Sodium azide Methemoglobin-causing agents
Peripheral neuropathy and/or neurocognitive effects	<ul style="list-style-type: none"> Peripheral neuropathy signs and symptoms: muscle weakness and atrophy, "glove and stocking" sensory loss, and depressed or absent deep tendon reflexes Neurocognitive effects: memory loss, delirium, ataxia, and/or encephalopathy 	<ul style="list-style-type: none"> Mercury (organic)[†] <ul style="list-style-type: none"> visual disturbances, paresthesias, and/or ataxia Arsenic (inorganic)[†] <ul style="list-style-type: none"> delirium and/or peripheral neuropathy Thallium <ul style="list-style-type: none"> delirium and/or peripheral neuropathy Lead <ul style="list-style-type: none"> encephalopathy Acrylamide <ul style="list-style-type: none"> encephalopathy and/or peripheral neuropathy
Severe gastrointestinal illness, dehydration	<ul style="list-style-type: none"> Abdominal pain, vomiting, profuse diarrhea (possibly bloody), and hypotension, possibly followed by multisystem organ failure 	<ul style="list-style-type: none"> Arsenic[†] Ricin[†] <ul style="list-style-type: none"> inhalation an additional route of exposure; severe respiratory illness possible Colchicine Barium <ul style="list-style-type: none"> hypokalemia common

* Not intended as a complete differential diagnosis for each syndrome or a list of all chemicals that might be used in a covert chemical release.

[†] Potential agents for a covert chemical release based on historic use (i.e., intentional or inadvertent use), high toxicity, and/or ease of availability.

[§] Unreliable sign.

Medical care providers are often taught the principle of Occam's Razor (*i.e.*, one cause typically explains the entire clinical picture); however, with malicious poisoning, multiple agents may be introduced into the environment. Symptomatic treatment may be required initially; considering a wider differential and making use of available screening tests may be prudent. In general, treating the clinical syndrome rather than treating for a specific

agent may be the most pragmatic approach to the treatment of illness caused by chemical exposures. A treatment algorithm that you might find useful, "Emergency Room Procedures in Chemical Hazard Emergencies: A Job Aid" can be found at the following website

<http://www.cdc.gov/nceh/demil/articles/initialtre.htm>

Obstacles that may delay recognition of chemical-related illness:

- non-specific symptoms similar to those of natural diseases
- nonexistent or mild immediate symptoms caused by certain chemicals having delayed health effects
- exposure through a distribution network resulting in cases occurring over a long period in different locations (e.g., contamination at food distribution hubs with subsequent transfer points involved)
- simultaneous intentional use of multiple chemical agents causing a mixed clinical presentation
- health care providers unfamiliar with infrequently seen chemical-related illnesses
- lack of patient recall of some chemicals and toxins (such as ricin) that are odorless, colorless, and tasteless — ideal for deliberate contamination of food or oral medication.

Adapted from: Centers for Disease Control and Prevention “Recognition of Illness Associated With Chemical Exposure” webcast <http://www.phppo.cdc.gov/phtn/webcast/chemical-exp/> August 5, 2004; and Centers for Disease Control and Prevention. Recognition of Illness Associated With Exposure to Chemical Agents— United States, 2003. MMWR 2003;52:938-940 (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5239a3.htm>).

Analysis of Clinical Samples for Agents of Chemical Terrorism at the IBL

The mission of the Centers for Disease Control and Prevention (CDC) - Laboratory Response Network (LRN) is to integrate laboratory capabilities across the country to allow for quick response to public health threats and emergencies, which may include emerging infectious diseases and biological or chemical terrorism. The Idaho Bureau of Laboratories (IBL) has been a biological agent reference laboratory in the LRN since 2000. In late 2003, the IBL began participation in a new focus area within the LRN, one that will ultimately give Idaho the ability to detect select chemical terrorism agents and metabolites in clinical samples.

In Idaho’s LRN plan for clinical sample analysis following suspicion of chemical terrorism, hospitals and clinics collect a series of whole blood and urine samples according to available CDC guidance. The CDC “Rapid Toxic Screen” will analyze the specimens from up to 40 symptomatic patients. This series of tests looks for 150 chemical agents or metabolites with results within 36 hours after specimen receipt by the CDC. Samples from additional patients will be tested at state laboratories.

The IBL chemistry section is in the proficiency testing approval stages to analyze cyanide in blood and toxic metals in urine (*i.e.*, beryllium, cobalt, molybdenum, cadmium, antimony, cesium, barium, tungsten, platinum, thallium, lead, and uranium). These testing capabilities should be offered to healthcare providers in mid-2005. Tests slated to become available by the end of 2005 include additional chemical elements measured in clinical samples (including lead, cadmium, and mercury in blood) and new methods for measuring both nerve agent metabolites and cholinesterase levels (e.g., in association with pesticide exposures).

For detailed information on LRN clinical sample collection and shipping procedures, contact Dr. Ian Elder, IBL Chemical Terrorism Laboratory Coordinator, by e-mail at elderi@idhw.state.id.us or by phone at (208) 334-2235 x 269.

Reporting Poisonings

Case definitions for chemical poisoning were recently published by CDC in the MMWR. The citation is MMWR, January 14, 2005, 54 (RR01) 1-24, available at:

<http://www.cdc.gov/mmwr/PDF/rr/rr5401.pdf>

Clusters of extraordinary or unexplained illness are reportable to your district or state health department. The health department can provide assistance with contacting appropriate law enforcement officials if an intentional poisoning is suspected.



Poison Control Centers

We encourage health care providers to also report cases of poisoning to a poison control center. The poison control center can be reached at 1-800-860-0620 (Idaho only) or 1-800-222-1222 (national). Callers will be connected to trained poison specialists who will record information and provide triage and case management recommendations. Call data is uploaded every 4–10 minutes to the national Toxic Exposure Surveillance System (TESS) which is used to detect sudden increases in case (or syndrome) frequency and severity on a temporal or regional basis that could indicate a chemical terrorism event. More information about TESS can be found at <http://www.aapcc.org/>.

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Influenza Update

Reports of sporadic, isolated influenza cases began nationwide in October, 2004. Idaho was no exception. In early October two culture-positive influenza A (H3N2) cases were detected in eastern Idaho. Both isolates are currently at the Centers for Disease Control and Prevention (CDC) undergoing further testing to determine if they match the virus strain used in this year's vaccine. Nationally, the Fujian strain appears to be predominant early in the season.

On October 5, 2004, Chiron Corporation announced a significant disruption in their influenza vaccine supply, leading to a nationwide shortage of vaccine for the 2004–2005 season. With 50% of the vaccine unexpectedly lacking for the current influenza season, CDC, in coordination with its Advisory Committee for Immunization Practices (ACIP), issued interim recommendations for influenza vaccination during the 2004–05 season. Prioritization guidelines for healthcare providers for the remaining vaccine will continue throughout the 2004–05 flu season with little influx of vaccine from other sources expected any time soon. Influenza vaccine prioritization guidelines were described in the October 2004 Idaho Disease Bulletin and on the CDC website at www.cdc.gov/flu/professionals/vaccination/ State and local public health officials are closely working with CDC to direct remaining vaccine supplies to people most at risk of serious complications from influenza.

With rapid dissemination of the remaining supply of inactivated vaccine and the small amount of live-attenuated influenza vaccine (FluMist®) available, non-vaccine prevention messages are a very important aspect of disease management this flu season. Many resources on infection control in health care settings are available online. These include respiratory/cough etiquette and patient information at www.cdc.gov/flu/professionals/infectioncontrol/.

In response to the current vaccine shortage, CDC has developed interim recommendations on the use of antiviral medications for the 2004–05 influenza season. The document "Influenza Antiviral Medications: 2004–05 Interim Chemoprophylaxis and Treatment Guidelines" can be found at www.cdc.gov/flu/professionals/treatment/0405antiviralguide.htm

Officials are looking at ways to avoid future vaccine shortages, including having the federal government buy millions of doses each year to entice more companies to make the vaccine.



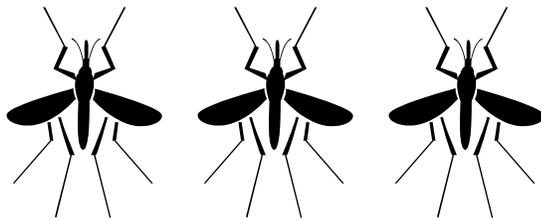
Rabid Skunk Found in Gooding County, Idaho

A rabid striped skunk recently attacked a teenager in Gooding County. This was an unprovoked attack; the skunk was tested and found to be infected with the big brown bat strain of rabies.

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The bite victim is undergoing rabies post-exposure prophylaxis. This is the first rabid skunk known to have been found in Idaho in recent history. There is a previous record from 1967 of a rabid skunk with an undetermined strain of rabies.

Idaho is one of a handful of western states that does not have any record of detection of terrestrial rabies strains (skunk, fox, coyote, or raccoon) in wildlife. The bat strain is the only strain known to have been detected in Idaho. In Idaho, the bat strain has been found predominantly in bats and also has been detected in a cat in 1991, a cat in 1992, a horse in 1999, and a bobcat in 2000. Transmission of the bat strain among skunks in Flagstaff, AZ in 2001 caused an outbreak (epizootic) in that skunk population so this may not be an isolated incident in the area. People in the Gooding area should take precautions to protect themselves and vaccinate their dogs and cats in case other rabid skunks or other rabid wildlife species are roaming the area.



West Nile virus, Idaho, 2004

It took 5 years from its detection in New York City in 1999, but the mosquito-borne arbovirus, West Nile virus (WNV), finally affected Idaho widely in the fall of 2004. Surveillance efforts directed by the Idaho Department of Health and Welfare focused on detecting WNV in humans, horses, birds, and mosquitoes. Low levels of disease in southwestern and south central Idaho were reported from August to October, with a sharp drop in reported cases after killing frosts. Three people with acute WNV infections were reported, twenty-two infected horses were reported by the Idaho State Department of Agriculture, and seven WNV-positive birds (four crows, two magpies, and one golden eagle) were detected with the assistance of the seven district health departments and the Idaho Department of Fish and Game. West Nile virus was not detected in collected mosquitoes. A lack of detection in mosquitoes suggests that the infection rate in mosquitoes was low, resulting in very low levels of disease transmission this year.

If WNV in Idaho in 2005 follows the pattern seen in most other states, more human and animal cases and significant deaths in some of the wild bird populations next summer may be expected in Idaho. Two equine vaccines are available, but human vaccines are still in development; therefore, prevention messages must be emphasized in 2005. Prevention measures include avoiding mosquito bites and reducing the source of mosquitoes by reducing mosquito breeding habitats around the home and in the local community.

Testing for humans is available from a number of commercial laboratories. The Idaho Bureau of Laboratories (IBL) will continue to offer testing for neuroinvasive disease due to both West Nile virus and St. Louis encephalitis virus (SLE), a closely related arbovirus, and hopes to introduce plaque-reduction neutralization assays (PRNT) in 2005. Healthcare providers may submit samples from neuroinvasive cases for WNV and SLE testing to IBL in 2005.

More general information on WNV is available on the Idaho State Department of Health and Welfare website at www.healthandwelfare.idaho.gov/

Tularemia in Idaho

A veterinarian recently contracted tularemia (*Francisella tularensis*) from a feline patient through a cut acquired during a necropsy. The cat had died from a debilitating condition with a respiratory component, and the veterinarian was collecting diagnostic samples for microbiologic examination. Tissue samples from the cat were sent to a regional veterinary diagnostic laboratory for analysis. When *F. tularensis* was suspected in the cat samples, preliminary cultures were forwarded to the Idaho Bureau of Laboratories for further work-up. Four days after the necropsy, the veterinarian developed swelling at the site of the cut and by day seven had axillary swelling, myalgias, arthralgias, fever, headache, and nausea. The veterinarian suspected he had tularemia, relayed that to his physician, and was treated promptly. Matching isolates were recovered from both the veterinarian and the cat.

Tularemia cases appear to be rare in Idaho or underdiagnosed. Only ten cases, including this one, have been reported between 1985 and 2004. Tularemia may be acquired from handling fluids or tissues of infected animals, the bite of an infected arthropod, ingestion of contaminated meat or

water, or inhalation of contaminated dust or aerosolized particles. It is thought to be enzootic among wildlife in Idaho, and domestic animals that frequent the outdoors, especially ones that predate upon wild rodents and lagomorphs, are at risk of infection. Risk factors for infection in Idaho have included skinning a bear and receiving a fly bite.

Tularemia has several distinct forms, including the following:

- Ulceroglandular (cutaneous ulcer with regional lymphadenopathy)
- Glandular (regional lymphadenopathy with no ulcer)
- Oculoglandular (conjunctivitis with preauricular lymphadenopathy)
- Oropharyngeal (stomatitis or pharyngitis or tonsillitis and cervical lymphadenopathy)
- Intestinal (intestinal pain, vomiting, and diarrhea)
- Pneumonic (primary pleuropulmonary disease)
- Typhoidal (febrile illness without early localizing signs and symptoms)

Symptoms usually appear 3 to 5 days after exposure to the bacteria, but can take as long as 14 days to appear.

Tularemia is listed by CDC as a possible agent of bioterrorism. All reports of tularemia are investigated by public health to confirm the diagnosis and determine the source.

Plague Module

The CDC has developed a web-based, on-line training module for healthcare professionals and veterinarians to learn important information about plague. The training module, available at <http://www.bt.cdc.gov/agent/plague/trainingmodule/index.asp>, provides a series of eight lessons describing the epidemiology of plague and how to manage both naturally occurring disease and disease caused by an intentional attack. Upon completion of the module, the participant will be able to:

- Identify areas with naturally occurring plague in order to recognize possible acts of bioterrorism.
- Identify patient symptoms indicating a diagnosis of bubonic, pneumonic, or septicemic plague.
- Describe how to rule out other diseases when diagnosing plague

- Identify the appropriate specimens to obtain in order to diagnose plague.
- Describe the medical management of confirmed plague cases.
- Describe the public health response needed for naturally-occurring versus bioterrorist-associated plague.
- Describe the diagnosis of plague in animals

Continuing education credits are available. CDs or videos of this training are not available.



Improved Food Allergen Labeling

Some consumers who suffer from food allergies can experience severe anaphylactic shock if a food allergen is consumed. Public law # 108-282, the **Food Allergen Labeling and Consumer Protection Act**, was signed into law by President Bush on August 2, 2004. The Act will provide improved food labeling information to consumers. This will be critical for those who suffer from food allergies. It requires food labels to identify, in plain English, if the product contains any of the eight major food allergens listed alphabetically below:

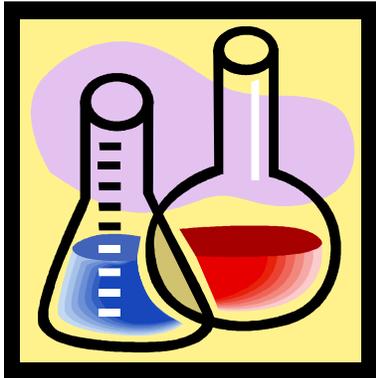
Crustacean shellfish	Peanuts
Eggs	Tree nuts
Fish	Wheat
Milk	Soybeans

The new labeling requirements should be especially helpful to children who must learn to recognize the presence of substances that should be avoided. The new labeling requirements are in place now and will be enforceable beginning in January, 2006, meaning that foods after that date will be considered mislabeled if the label doesn't declare the allergens.

Don't miss the next issue:

Chemical terrorism.

Recognizing intentional chemical exposures and procedures to manage them.



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Influenza Update

Vaccine Shortage: 2004-2005 season

On October 5, 2004, CDC was notified by Chiron Corporation that none of its trivalent inactivated flu vaccine (Fluvirin®) would be available for distribution in the United States for the 2004-05 influenza season. This will reduce the expected supply of vaccine in the United States this year by approximately one half.

In May the 2004 Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP) (MMWR 28 May 2004; 53[RR06]:1-40) was published and can be found at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm>. In light of the shortage, a new vaccine usage prioritization scheme was agreed upon during an emergency meeting of ACIP on October 5, 2004.

Provider Participation

Federal and state health officials encourage healthcare providers to follow the new prioritization guidelines in an effort to protect the most vulnerable members of the population during this shortage.

The following represent the revised priority groups for the 2004-05 season:

- all children aged 6-23 months,
- adults aged ≥ 65 years,
- persons aged 2-64 years with underlying chronic medical conditions,
- all women who will be pregnant during influenza season,

- residents of nursing homes and long-term care facilities,
- children 6 months-18 years of age on chronic aspirin therapy,
- health-care workers with direct patient care, and
- out-of-home caregivers and household contacts of children aged < 6 months.

Healthy persons who are 5-49 years of age and not pregnant, including health-care workers (except those who care for severely immunocompromised patients in special care units) and persons caring for children aged < 6 months should be encouraged to be vaccinated with intranasally administered live, attenuated influenza vaccine.

As the season progresses, if you find that you are no longer able to provide vaccine to persons in the priority groups identified above, you may consider providing them with the following vaccine locator website: <http://www.findaflushot.com/lungusa/>

Persons who are not included in one of the priority groups above should be informed about the urgent vaccine supply situation and asked to forego or defer vaccination.

Many children aged < 9 years require two doses of vaccine if they have not previously been vaccinated. All children at high risk of complications from influenza, including those aged 6-23 months, who present for vaccination should be vaccinated with a first or second dose, depending on vaccination status. However, doses should not be held in reserve to ensure that two doses will be available. Rather, available vaccine should be used to vaccinate persons in priority groups on a first come first served basis.

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Influenza Vaccine Components, 2004-05

- A/Fujian/411/2002 (H3N2)-like
- A/New Caledonia/20/99 (H1N1)-like
- B/Shanghai/361/2002-like

For more information, visit www.cdc.gov/flu

Influenza Surveillance in Idaho

Preparations are underway in Idaho to enhance influenza surveillance for both influenza-like illness (ILI) and circulating virus for the 2004-05 season. Surveillance is a tool to monitor the presence of virus, the circulating strains, and how widespread infections are in the state. Surveillance is important to determine if influenza vaccine strains match the circulating strains and also to detect novel virus strains that might cause a pandemic. Mortality rates are assessed through death certificates. Pediatric deaths will be investigated thoroughly.

Influenza-like Illness Surveillance: Sentinel Providers Needed in Idaho

The Centers for Disease Control and Prevention collect data from sentinel healthcare providers nationwide through a web-based reporting system. Data collected include the number of patients seen weekly for an influenza-like illness (ILI). We would like to increase sentinel provider participation statewide. Year-round ILI reporting aids in detecting the start of the influenza season or, potentially, a pandemic. Call the Idaho State Office of Epidemiology and Food Protection, 208-334-5939, if you are interested in participating as a national influenza surveillance sentinel.

Laboratory Surveillance

Culture and subtyping of samples throughout the influenza season aids in identifying the specific viruses circulating, determining how much protection can be expected from the season's vaccine, and planning the subsequent season's vaccine. The Idaho State Bureau of Laboratories (IBL) depends upon health care providers in Idaho to provide clinical specimens for culture and subtyping year-round. IBL will provide free collection kits and free testing to health care providers for a sampling of clinical isolates each year. Viral isolates are screened with a panel of monoclonal antibodies that will identify not only

Influenza A and B, but also Parainfluenza 1,2,3, Respiratory Syncytial Virus, and Adenovirus. The submission and culturing of specimens collected early and out of season that are positive on a rapid influenza test or are negative but the provider has a high clinical suspicion for flu, is an important aspect of normal and pandemic influenza surveillance.

If you would like to have more information about the IBL Influenza Surveillance Program or would like to receive collection kits, please contact the Virology/Serology section at 208-334-2235 or e-mail greenwac@idhw.state.id

Isolation and Quarantine in Idaho

The term "quarantine" brings to mind typhoid fever epidemics and ancient plagues. Yet quarantine, like isolation, continues to be a tool available for use by public health officials today. Although orders of isolation have been used in recent years to assist in ensuring that persons with infectious tuberculosis do not get lost to follow-up, a new law, passed by the 2003 Idaho legislature, clarifies this authority. Recently, this new law was put to use when an order of isolation was written for a patient with infectious tuberculosis who was a possible flight risk.

The terms quarantine and isolation are used in varying ways by different states and the CDC. Idaho law defines legal isolation as separation of infected persons from others to prevent spread of an infectious agent. Quarantine is defined as restriction to or from a place or premises where an infectious agent or hazardous material exists. This means a person is isolated, but a place or premises is quarantined. In either a disease outbreak or contamination of a site by an infectious agent, both isolation orders and quarantine orders could be issued by the health department.

How does this affect you? If you are treating a person with a communicable illness, particularly one that could harm others if the person were to leave the area (for example, tuberculosis, measles, or Severe Acute Respiratory Syndrome (SARS)), you may wish to communicate your concern to your district or state health department. We may issue an order of isolation if we are aware that the patient is a flight risk or if the stakes are high if the person does not agree to voluntary isolation until no longer contagious. A patient may be isolated at home or in a medical facility. If isolation orders are defied, we have legal recourse for further action. In all cases, the

least restrictive manner which enables protection of the public would be used; in most cases, patients with infectious diseases are very eager to comply and not spread their illness to others, and voluntary isolation is effective.

Genital Ulcer Disease (GUD)

In May and June, 2004, two presumptive cases of chancroid were diagnosed in Idaho. Historically, chancroid is a rare genital ulcer disease (GUD) in Idaho, last reported in 1993. In addition, the number of syphilis cases in Idaho is currently the highest since 1991. Couple these recent developments with an estimated genital herpes simplex virus (HSV) infection prevalence of 50 million persons in the United States, and it becomes prudent for clinicians to be familiar with

the various causes, available tests, and clinical characteristics of GUD.

Genital ulcer disease can be caused by several pathogens; therefore GUD can be difficult for clinicians to diagnose. The *Practitioner’s Handbook for the Management of STDs* may be a useful resource and can be accessed at: http://depts.washington.edu/nnptc/online_training/std_handbook/index.html. The table below is an excerpt from this handbook. CDC treatment guidelines can be accessed at <http://www.cdc.gov/STD>. Genital ulcers caused by syphilis, herpes, and chancroid serve as a portal for HIV and have been associated with an increased risk of infection. HIV testing is recommended for all patients with syphilis and chancroid, and should be considered in patients with HSV.

CLINICAL CHARACTERISTICS OF SELECTED SEXUALLY TRANSMITTED GENITAL ULCERS				
	Primary HSV	Recurrent HSV	Syphilis	Chancroid
PRIMARY LESION	Vesicle, papules, ulcers, typically bilateral	Grouped vesicles, papules, ulcers, typically unilateral	Ulcer, papule	Ulcer, papule
BORDER	Erythematous, "punched out"	Erythematous, "punched out"	Sharply demarcated	Violaceous, undermined
DEPTH	Superficial	Superficial	Superficial	Excavated
BASE	Red and smooth	Red and smooth	Red and smooth	Yellow to gray exudate
SECRETION	Serous	Serous	Serous	Purulent to hemorrhagic
NUMBER OF LESIONS	Bilateral, multiple, extensive lesions may coalesce	Usually unilateral, multiple clustered lesions	Usually one; occasionally multiple	Usually one to three; may be multiple
GENITAL DISTRIBUTION	Women: labia (bilateral), cervix, urethra, perianal Men: penis, urethra, rectum	Usually unilateral; labia, penis, scrotum, buttocks, perianal	Vulva, penis, anal, perianal, oral	Penis, vulva
INDURATION	None	None	Firm	Rare; usually soft
PAIN	Common	Common, less severe	Rare	Often
ITCHING	Common	Common	Rare	Rare
LYMPH NODES	Tender, firm, bilateral inguinal adenopathy	Lymphadenopathy uncommon, unilateral	Nontender, firm, enlarged	Tender, enlarged, may suppurate
INCUBATION PERIOD	2-14 days	Recurrence within 6-9 months of primary infection	10-90 days	1-14 days
TIME COURSE	21 days	7-10 days	2-3 weeks	2-3 weeks

Treatment of STD patients is not complete until management of their partners has been ensured. The GUDs syphilis and chancroid are reportable in Idaho. District Health departments follow up on partners of syphilis, chancroid, and HIV/AIDS case patients to assure treatment and referral. The Idaho STD/AIDS Program provides training opportunities for clinicians. For a current schedule of upcoming educational opportunities contact the Idaho STD/AIDS program at 208-334-6527.

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Improved surveillance for transmissible spongiform encephalopathies

Transmissible spongiform encephalopathies (TSEs) of humans, such as Creutzfeldt-Jakob disease (CJD) and variant Creutzfeldt-Jakob disease (vCJD) are reportable in Idaho as of July 1, 2004. The number of deaths in Idaho residents due to CJD, by age at death, reported from 1984–2003 is shown in Figure 1. Previously CJD only came to the attention of public health epidemiologists when death certificates were filed. This did not allow time for us to help arrange adequate ante mortem or autopsy testing for TSEs.

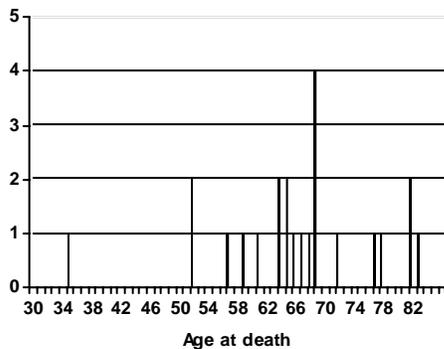


Figure 1. Number of CJD deaths by age at death—Idaho, 1984–2003.

To broaden surveillance for the variant form of CJD in the US, CDC has encouraged physicians to increase their index of suspicion for this illness and recommends investigation of CJD deaths among persons aged less than 55 years.

The National Prion Disease Pathology Surveillance Center (NPDPS) also is working with state health departments to improve surveillance for CJD and other prion diseases. This laboratory-based surveillance center, which

is located at Case Western Reserve University, Cleveland, Ohio, provides state-of-the-art prion disease diagnostic services free of charge nationally to all US clinicians and public health departments. The NPDPS is providing these prion disease diagnostic services because they are often otherwise not readily available, they serve to enhance surveillance, and the detection of emerging prion diseases has become an increasingly important public health priority. The NPDPS performs histopathology, immunohistochemistry, Western blot, and prion gene analyses of human autopsy and biopsy tissues to establish prion disease diagnoses. Such tests are necessary to most definitively establish the diagnosis of any of the classic forms of CJD, determine the specific type of prion disease, and to confirm the presence of the CJD protein marker 14-3-3. The results are reported to the health care provider, to the state health department, and to CDC.

The Office of Epidemiology and Food Protection encourages neurologists to use the diagnostic services of the NPDPS on all their clinically suspected and diagnosed cases of prion disease. For more information about the center, sampling protocols, and shipping instructions, see <http://www.cjdsurveillance.com>. If you have questions regarding the services available, please call the Office of Epidemiology and Food Protection (OEF), or the NPDPS Center directly at 216-368-0587.

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Idaho Health Alert Network

The Idaho Health Alert Network (HAN), a new web-based alerting system, is sponsored by the Idaho Department of Health and Welfare's Health Preparedness Program and was established under a cooperative agreement with the U.S. Centers for Disease Control and Prevention. HAN was developed to assure mechanisms exist for the rapid electronic receipt and broadcast, by fax or e-mail, of health advisories and alerts to healthcare providers and local response partners. For example, during the ongoing syphilis outbreak in Idaho, health alerts have been sent by district health departments through HAN to primary care providers informing them of the outbreak and recommending changes in screening practices. The Idaho HAN increasingly will be used to announce disease outbreaks or other serious events such as the intentional release of a biologic agent. Health advisories provide important information for a specific incident or situation, but may not require immediate action. Health alerts, on the other hand, convey the highest level of importance, and may include recommendations for changes in clinical practices including increased screening, prophylaxis for exposed persons, or counseling for those concerned about possible exposure to an infectious or chemical agent. Press releases and other news items will also be posted to the HAN website as a resource. Health messages will be sent to you via fax or e-mail from your local or state health department.

To register to receive faxes or e-mail notices from the Idaho HAN, if you have not already done so, log on to <http://health.dhw.state.id.us/idhan>. You will only receive alerts targeted to physicians. If you need assistance registering you may call the HAN helpdesk @ 208-334-0691.

Selected infectious disease counts — Idaho, 2002 and 2003

Final disease counts for 2002 and 2003 are shown in Table 2. A few highlights follow the table.

Table 2. Selected infectious disease counts.

Reported Disease	2002	2003
Brucellosis	2	0
Campylobacteriosis	208	244
Chlamydia	2535	2366
Cryptosporidiosis	29	27
E. coli O157:H7	45	85
E. coli, toxigenic, non-O157:H7	18	16
Giardiasis	137	206
Gonorrhea	96	68
<i>H. Influenzae</i> , invasive	2	7
Hantavirus	1	2
Hepatitis A	31	18
Hepatitis B, acute	7	8
Hepatitis C, acute	1	1
HIV	30	32
Legionella	3	7
Leptospirosis	1	1
Listeriosis	2	2
Lyme Disease	4	3
Meningitis, aseptic	4	22
viral	8	98
Mumps	1	1
<i>N. meningitidis</i> , invasive	5	9
Pertussis	151	80
Q Fever	2	1
Rabid animals (all bats)	38	15
Rabies PEP	15	10
Relapsing Fever	1	2
Rubella	3	0
Salmonellosis	184	181
Shigellosis	22	36
Strep, Group A, invasive	11	19
Syphilis (all types)	23	45
Tuberculosis	14	13
West Nile encephalitis or fever	1	3
Yersiniosis	0	6

Tracking of zoonotic diseases is an area of growing national interest, partly because of increased concerns about bioterrorism. Zoonotic diseases of bioterror potential reported in 2002 and 2003 in Idaho included brucellosis and Q-fever. No cases of anthrax were reported in 2002 or 2003. Reports of more common pathogens of animal origin included *Salmonella*, *E. coli* (O157:H7 and other toxigenic strains), and *Campylobacter*. *Campylobacter* is the most common enteric pathogen reported with an average of 238 cases per year. Outbreaks of *Campylobacter* in Idaho are frequently associated with consumption of raw dairy products.

In 2003 an outbreak of echovirus-30 was responsible for a large number of reported cases of viral and aseptic meningitis from the northern regions of Idaho. Tests on available samples were negative for West Nile virus. The single West Nile virus case in 2002 was in an Idaho resident who had traveled to the East Coast. In 2003, three human cases were reported, two in travelers to Colorado and one in a person who necropsied infected alligators. WNV was not detected in mosquitoes or birds in Idaho in either 2002 or 2003.

For a recent description of the ongoing syphilis outbreak in Idaho, see the December 2003 issue of the Idaho Disease Bulletin, <http://www.healthandwelfare.idaho.gov/DesktopModules/Articles/ArticlesView.aspx?TabID=0&Alias=Rainbow&Lang=en-US&ItemID=1345&mid=11162>.

First rabid bat of 2004 in Idaho



Rabid bats are reported annually from almost all parts of Idaho. This year the first rabid bat submitted to the Idaho Bureau of Laboratories came from northern Idaho. Rabies is enzootic in bats in Idaho and sporadic in other mammals. Only the bat strain of rabies virus has been documented in Idaho to date. Thirty-eight rabid bats were detected in Idaho in 2002 and 15 in 2003. In addition to rabid bats, since 1991 one rabid horse, two rabid cats, and one rabid bobcat have been reported in Idaho. All had the bat strain

of rabies. Exposure to rabies from a bat can be unrecognized; an overt bite is not considered the only avenue for exposure from these small mammals! Waking up and finding a bat in the room, even in the absence of any evidence of a bat bite, or having infectious material (such as saliva) from a bat get into the eyes, nose, mouth, or a wound has resulted in several human cases nationwide. If you have any doubt about a human exposure to a bat, testing of the bat, free of charge, will be facilitated by your local district health department. Testing of the bat brain will be done at the Idaho Bureau of Laboratories. The advisory committee on immunization practices (ACIP) guidelines for the prevention of rabies in humans may be found at <http://www.cdc.gov/mmwr/preview/mmwrhtml/00056176.htm> Rabies post-exposure prophylaxis (PEP) is reportable in Idaho.



Two STD training opportunities in Boise are available this August!
Great CEUs/CMEs available!
Hurry and reserve your space today!!!

These courses are designed for health care providers in Idaho who diagnose and treat patients with sexually transmitted diseases.

Course 1: STD Update Course. \$85 August 31-September 1, 2004, Boise.

Course 2: STD Intensive Course. \$100 Individually scheduled 2.5-day practicum session following Course 1 for those with at least 6 months of STD exam experience.

The agenda and all registration materials can be found at the STD/AIDS Program website http://www.healthandwelfare.idaho.gov/portal/alias_Rainbow/lang_en-US/tabID_3563/DesktopDefault.aspx

Questions? contact Annabeth Elliott with the state STD/AIDS Program at 208-334-6605.

Sponsored by the Seattle STD/HIV Prevention Training Center, CDC; Idaho State Department of Health and Welfare, STD/AIDS Program; and the Central District Health Department STD Clinic

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For details on Idaho reporting requirements, refer to the Rules and Regulations Governing Idaho Reportable Diseases (<http://www2.state.id.us/adm/adminrules/rules/idapa16/0210.pdf>). A poster version is also available free of charge. If you wish to have a copy or a poster, please contact Judi at the Office of Epidemiology and Food Protection at 208-334-5939.

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