

# Disease Bulletin



IDAHO DEPARTMENT OF  
HEALTH & WELFARE

- Bed Bugs: Where are they in Idaho?
- Missed Opportunities for HIV Testing Costly to Idahoans
- Idaho's Immunization Registry (IRIS) is Changing

VOLUME 18 NUMBER 2 • JUNE 2011

## Bed Bugs: Where Are They In Idaho?

The common bed bug in the United States, *Cimex lectularius*, is a small insect, about the size of an apple seed, that feeds exclusively on blood, usually at night. Bed bugs will feed on a variety of animals, but prefer humans. The adult bed bug is brownish, approximately ¼ inch in length, and has a flattened oval body. There are five nymphal instars, or developmental stages, each requiring a blood meal before molting to the next stage (Figure). Under optimal conditions, adults may feed every few days and live for up to a year. Evidence of bed bug infestation includes the presence of adults, nymphs, droppings (rust-colored spots, often readily seen on bedding), exoskeleton castings, and eggs.

The presence of bed bugs is not limited to those with poor hygiene or low socioeconomic status. They have been detected anywhere people can be found, including 5-star hotels, private homes, and homeless shelters. Bed bugs

like to hide anywhere close to a food source including mattress seams, bed frames, furniture, picture frames, outlets, baseboards, and cracks in walls.

Bed bugs are found worldwide. In the United States, they were common pests until the pesticides DDT (dichlorodiphenyltrichloroethane) and malathion, introduced after World War II all but eliminated them. However, DDT was banned in 1972 and hotels have moved away from the practice of applying residual pesticides indoors.

In the last few years, reports of bed bug infestations have increased alarmingly nationwide. Multiple reasons for this resurgence are suspected, including increased resistance of bed bugs to available pesticides, the use of ineffective bait-style pesticides for bed bug control, increased worldwide transportation of bed bugs through domestic and international travel, lack of awareness about bed bugs and their control,

and the continuing decline or elimination of effective vector and pest control programs at state and local public health agencies.

### Public Health Concerns

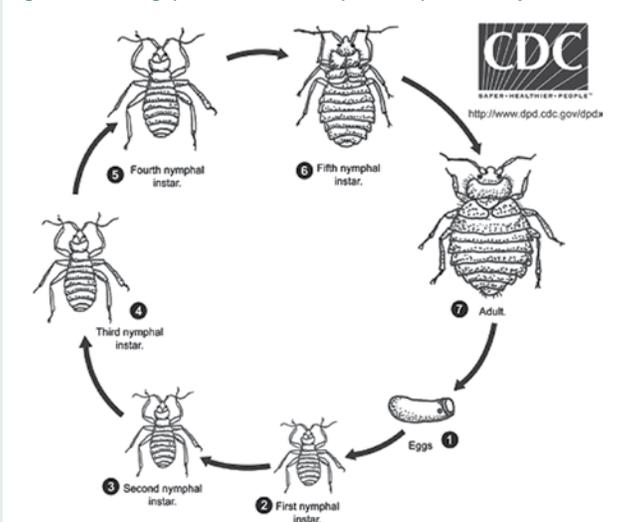
Even though bed bugs draw blood while biting, they are not known to transmit disease. Bed bug-associated health effects include allergic reactions to components of the saliva, anxiety, and sleeplessness. Exposure to certain pesticides used for bed bug control could pose a potential secondary health risk, particularly if they are applied improperly.

### Bed Bugs in Idaho

In an effort to document the burden of bed bugs in Idaho, pest

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Figure. Bed Bug (*Cimex lectularius*) developmental cycle.



From [http://www.dpd.cdc.gov/DPDx/HTML/ImageLibrary/A-F/Bedbugs/body\\_Bedbugs\\_il2.htm](http://www.dpd.cdc.gov/DPDx/HTML/ImageLibrary/A-F/Bedbugs/body_Bedbugs_il2.htm)

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control operators (PCOs) across Idaho were surveyed via telephone in 2009. They were asked about frequency of bed bug-related calls, preferred control measures, and typical costs associated with control efforts. Of the 35 PCOs contacted, 30 (86%) reported a noticeable increase in the frequency of bed bug-specific calls during the prior 12 months. Most PCOs employed the integrated pest management (IPM) approach, charged on average \$183 per visit, and considered control measures for small infestations successful after an average of three visits.

IPM is a stepwise approach employing a series of evaluation, decision, and

pest-control steps considered most economical and least hazardous to people, pets, property, and the environment. The IPM approach includes pest identification and development of a plan for appropriate control based on the burden of infestation. Control methods include heat, encasement of mattresses, vacuuming, insecticide use (pyrethroid insecticides, nicotine insecticides, insect growth regulators), or use of silica-based products. If used improperly, pesticides can pose a health risk for people and pets; therefore, hiring a licensed PCO to apply pesticides is recommended.

Bed bugs are here in Idaho, and appear to be on the rise. Although there are no

known risks of disease transmission, bed bugs are of public health concern, and owners of infested premises can suffer economic losses. Eradication could be costly, particularly if the infestation has spread from room to room or to different floors in a building.

*To learn more about bed bugs, visit the IDHW web site which provides general bed bug information, Idaho resources for insect identification, and links to patient fact sheets and safe use of pesticides:*

<http://healthandwelfare.idaho.gov/health/DiseasesConditions/BedBugs/tabid/1591/Default.aspx>.

# Missed Opportunities for HIV Testing Costly to Idahoans

Routine opt-out HIV testing in health-care settings has been recommended by the Centers for Disease Control and Prevention (CDC) since 2006. However, several HIV cases diagnosed in Idaho in recent years have histories of prior missed opportunities for HIV testing.

In 2008, a case of perinatal HIV infection was reported in Idaho. The mother, with only a brief history of prenatal care outside of Idaho and unknown HIV status, presented to an emergency department (ED) while in labor and did not receive an HIV test. An HIV test, which was positive, was not performed until 2009 when the mother was hospitalized with a parasitic infection. Testing of the child, then 8 months of age, revealed detectable HIV-1 RNA. HIV testing guidelines state that any woman with undocumented HIV status at the time of labor should be screened with a rapid HIV test unless she declines. If the screening test is reactive she should be offered antiretroviral postexposure prophylaxis without waiting for the result of a confirmatory test. In this case, intravenous antiretroviral therapy of the mother during labor and prophylaxis of the infant immediately after birth might have prevented transmission.

A middle aged Idahoan was diagnosed with progressive squamous cell skin cancer

on the head and neck in 2007. Presentation on the head and neck has been described and is associated with HIV infection. The individual was not tested for HIV at the specialty clinic where he received care. His illness progressed and he died in 2010 due to advanced invasive disease caused by the cancer. Tissue was donated, requiring post-mortem testing, and HIV was detected. No tissues from this patient were accepted for transplant. Routine testing might have resulted in earlier detection of HIV, and subsequent initiation of antiretroviral therapy against HIV could have improved the patient's survival time after cancer diagnosis.

A male in his 30s was diagnosed with HIV in 2011 after several visits to EDs for oral candidiasis (thrush) and recurring bacterial pneumonia. At the last ED visit prior to HIV diagnosis, he presented with shortness of breath, several weeks of progressive chronic cough, and several months of oral candidiasis. An HIV test was positive and he was admitted to inpatient care. His CD-4 T-helper Cell (CD4) count was 3 (absolute) and he was diagnosed with *Pneumocystis carinii* pneumonia (PCP). HIV testing in accordance with CDC recommendations could have caught the infection months before and reduced a significant

amount of suffering and medical costs accrued during the multiple ED visits.

Recommended routine testing protocols do work. For example, during a routine family planning visit for birth control at an Idaho public health district clinic in 2011, a woman in her 20s received a rapid HIV test, which was positive. A Western blot test was subsequently performed and confirmed the result. The woman reported low risk heterosexual risk factors and had no history of injection drug use, so would not have been screened under previous CDC recommendations for testing persons at high risk for HIV. This routine screening led to early detection of HIV infection and prompt enrollment in HIV specialty care.

The CDC recommendations state, "HIV infection is consistent with all generally accepted criteria that justify screening:

- 1) HIV infection is a serious health disorder that can be diagnosed before symptoms develop;
- 2) HIV can be detected by reliable, inexpensive, and noninvasive screening tests;
- 3) infected patients have years of life to gain if treatment is initiated early, before symptoms develop; and
- 4) the costs of screening are reasonable



in relation to the anticipated benefits.

Among pregnant women, screening has proven substantially more effective than risk-based testing for detecting unsuspected maternal HIV infection and preventing perinatal transmission.”

Individuals with HIV infection often encounter healthcare settings years before receiving an HIV diagnosis. In most cases, persons infected with HIV decrease behaviors that transmit infection to sex or needle-sharing partners once they are aware of their positive HIV status. Additionally, early detection of HIV confers a greater survival advantage when therapy can be initiated before severe immunologic compromise occurs.

The Idaho Department of Health and Welfare (IDHW) recommends physicians

screen patients for HIV in accordance with the most recent CDC recommendations (<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5514a1.htm>).

For all healthcare settings, routine opt-out screening for HIV is recommended for all patients aged 13–64 years. Assessment for risk of HIV infection should be incorporated into routine primary care for all sexually active persons to determine the frequency of rescreening.

Healthcare providers should test all persons likely to be at high risk for HIV at least annually. Individuals considered high risk include, but are not limited to:

- injection-drug users and their sex partners,
- persons who exchange sex for money or drugs,
- sex partners of HIV-infected persons,

- sexually active men who have sex with men (MSM), and
- heterosexual persons who or whose sex partners have had more than one sex partner since their most recent HIV test.

Additional situations in which testing may be warranted include:

- persons considering engaging in a new sexual relationship,
- patients with newly diagnosed active tuberculosis,
- patients with medical conditions consistent with Acquired Immune Deficiency Syndrome (AIDS), and
- patients presenting with acute viral illnesses of unexplained etiology who have risk factors for HIV.

## Idaho's Immunization Registry (IRIS) is Changing

The Idaho Immunization Reminder Information System (IRIS) is turning 12 years old this year, having been authorized in Idaho statute in 1999. IRIS has been referred to as one of the most robust and mature immunization registries in the country, and enhancements and new functionality have been coming online nearly every month over the last few years. Through a change to the Idaho immunization registry statute in 2010, IRIS became an opt-out system which eliminated the need to providers to collect and maintain opt-in paperwork, and made it easier for providers to record immunizations in IRIS through electronic exports. IRIS now contains immunization information for over one million Idahoans.

Medical practice, including the use of electronic health records, is changing rapidly; a new immunization registry system for Idaho is part of our effort to keep pace with the changes. The technology for the new system was developed for the Wisconsin immunization registry and won the prestigious national “Davies Award of Excellence” for excellence in healthcare information technology in 2010.

The system has been successfully deployed in several states.

The new registry system is anticipated to be implemented in March of 2012. In the weeks leading up to the go-live day, in-person and online training opportunities will be offered. During the coming year as the system is customized, tested and brought online, the Idaho Immunization Program will be sharing information with Idaho immunization providers, other system users, and the public in a variety of ways:

- Critical Notices faxed to Vaccine for Children (VFC) providers: These notices are rare, appearing only once or twice per year, and contain the most urgent immunization-related information such as vaccine recalls, shortage information or changes to immunization laws or rules.
- Important Notices faxed to VFC providers: These notices are released every 4–6 weeks as needed, and contain information about immunization program changes, immunization news from the Centers for Disease Control and Prevention, and other less critical information related to the Idaho Immunization Program.

- Continuous online messaging (available at <http://www.ImmunizeIdaho.com>).

These communications will include updates and information regarding the switch-over to the new IRIS system. For faxed notices, a routing box at the top of the first page requests that each notice be directed to the Office Manager, medical staff, nursing staff, and the Immunization Coordinator. If you do not routinely see these notices and would like to, please ask the person in your practice who is in charge of distributing faxes to include you on the list of recipients. These notices are also sent to professional medical organizations such as the Idaho chapters of the AAP, AAFP, and the IMA, and are posted to the web at <http://www.ImmunizeIdaho.com> under the “Healthcare Providers” link.

Information about the new IRIS system was shared during the Shot Smarts conferences held the last week of April. Updates will be included in the Booster Shots conferences later this year. For more information regarding Shot Smarts and Booster Shots conferences please visit <http://www.ImmunizeIdaho.com>.



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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>.

Current and past issues are archived online at [www.idb.dhw.idaho.gov](http://www.idb.dhw.idaho.gov).

## Measles Outbreak in Utah—Idahoans Exposed

A case of measles in an unvaccinated traveler returning from Poland led to a measles outbreak involving nine cases in Utah residents. Four Idahoans residing in two Idaho public health districts were reported to have been exposed. Exposures occurred in healthcare and religious event settings. Investigation by Idaho public health district epidemiologists found that two exposed adults had been previously vaccinated with a measles, mumps, and rubella-containing vaccine (MMR) and two exposed children aged <5 years had never received MMR. The family of the exposed children cooperated with the public health district recommendation to keep the children home and monitor and report signs of illness during the incubation period. Notification was not received within the 72-hour window for post-exposure vaccination to prevent illness; however, unimmunized family members intend to obtain vaccination with MMR to provide immunity should future

exposures occur.

Clinicians should counsel potential overseas travelers on the advisability of immunity to measles, and should consider measles in the differential diagnosis for rash illness among unvaccinated persons, especially in those with recent travel to Utah; European countries experiencing measles outbreaks\*; or developing countries in which measles is common, such as parts of Africa and Asia. Suspected measles cases must be reported within one working day to state or district public health officials to ensure prompt initiation of control measures. To prevent acquisition and transmission of measles in health-care facilities, the Advisory Committee on Immunization Practices (ACIP) recommends that all persons who work in healthcare facilities have acceptable evidence of measles immunity, as updated in 2009 (<http://www.cdc.gov/vaccines/recs/provisional/downloads/mmr-evidence-immunity-Aug2009-508.pdf>).

\*See World Health Organization *Epidemiological Brief*, [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0008/135188/EPI-BRIEF-13.pdf](http://www.euro.who.int/__data/assets/pdf_file/0008/135188/EPI-BRIEF-13.pdf).

**Idaho Disease Bulletin  
Now Available Electronically—  
See Our New IDB Website!**

In January 2011, the Idaho Disease Bulletin (IDB) website (<http://www.IDB.dhw.idaho.gov>) was redesigned to include searchable indices of issues from the last 10 years, the ability for you to suggest topics, and the ability for you to sign up to receive an electronic copy of the IDB. Electronic distribution of the IDB is a new feature this year. If you would like to receive a link to new issues of the IDB by e-mail please go to [www.IDB.dhw.idaho.gov](http://www.IDB.dhw.idaho.gov) to submit a request or send an email to [IDB@dhw.idaho.gov](mailto:IDB@dhw.idaho.gov).



IDAHO DEPARTMENT OF  
HEALTH & WELFARE

# Disease Bulletin

- CDC Updates  
STD Treatment Guidelines
- Update on STDs  
In Idaho
- Data Snapshot:  
Hansen's Disease  
(Leprosy)

VOLUME 18 NUMBER 1 • MARCH 2011

## CDC Updates STD Treatment Guidelines

The Centers for Disease Control and Prevention (CDC) has updated guidelines for the treatment of sexually transmitted diseases (STDs), which were last published in 2006: [www.cdc.gov/mmwr/preview/mmwrhtml/rr5912a1.htm?s\\_cid=rr5912a1\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5912a1.htm?s_cid=rr5912a1_w).

Notable changes are highlighted in the box. General topic areas included in the guidelines are outlined below.

### Education

The guidelines outline the use of high-intensity behavioral prevention counseling for all sexually active adolescents and adults at increased risk for STDs and HIV based on recommendations published in 2008 by the United States Public Health Task Force. Prevention counseling is an interactive approach to determine the patient's personal risk factors and work with them to reduce their risk. Prevention counseling is most effective if delivered in "a non-judgmental and empathetic manner appropriate to the patient's culture, language, sex, sexual orientation, age, and developmental level."

### Prevention Methods

The guidelines include the latest CDC

vaccine recommendations for hepatitis B virus, human papilloma virus (HPV), and hepatitis A virus. Both the bivalent Cervarix® and quadrivalent Gardasil® HPV vaccines are recommended for adolescent and young adult females in the appropriate age groups for cervical cancer prevention. Gardasil®, with its quadrivalent composition covering the most common cancer-causing and wart-causing HPV types, can also be used with both males and females aged 9–26 years to prevent genital warts.

A section addressed male circumcision for reducing risk of male heterosexual acquisition of HIV and certain other STDs. The guidelines cite studies performed in Sub-Saharan Africa that demonstrate male circumcision reduced the risk for HIV acquisition among men by 50–60%; however, these results have not been demonstrated for men who have sex with men (MSM), and recommendations for male circumcision as a risk-reduction measure in the United States remain under review.

### Special Populations

Recent studies indicate that some women who have sex with women (WSW) might be at increased risk for STDs and HIV. HPV has

been demonstrated to be transmitted between women during sex. All women, regardless of sexual preference, should be offered HPV vaccine in accordance with current guidelines. Bacterial vaginosis (BV) is more common among women with female partners than among women in general; however, routine screening for BV or

#### Notable changes in the recommended or alternative therapy for STDs.

- Increased ceftriaxone dosage for gonorrhea: 250 mg IM in a single dose should now be used for cervical, urethral, rectal, or pharyngeal gonorrhea infection in adolescents and adults. Quinolones should not be used.
- Additional treatment for non-gonococcal urethritis (NGU): NGU due to *Mycoplasma genitalium* can be effectively treated with 400 mg moxifloxacin orally once daily for 7 days.
- Additional treatment option for episodic herpes outbreaks: 500 mg famciclovir orally once, followed by 250 mg twice daily for 2 days. Other primary, episodic, or suppressive therapies are described.
- New patient-applied treatment for genital warts is available: sinecatechin 15% ointment 3 times daily until cleared.
- New alternative regimen for bacterial vaginosis: 2 g tinidazole orally once daily for 2 days, or 1 g orally once daily for 5 days.

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treatment of partners of women with BV is not recommended.

The incarcerated population has exploded in size in the last three decades, and with the United States prison population nearly 2.3 million persons in 2009, it may not be surprising that a new Special Populations section focusing on persons in correctional facilities was added. The guidelines state persons entering correctional facilities have higher rates of STDs and viral hepatitis, and many had limited access to medical services prior to incarceration. This section recommends universal screening at intake for chlamydia and gonorrhea for all adolescents, and for adult females up to 35 years of age (or on the basis of local institutional prevalence). Universal screening for syphilis should be conducted based on local epidemiology and institutional prevalence of early infectious syphilis. See the article "Update on STDs in Idaho" included in this issue of Idaho Disease Bulletin describing the latest Idaho syphilis data.

### Chlamydia and Gonorrhea

Chlamydia management recommendations remain largely unchanged.

The ability of *Neisseria gonorrhoea* to develop antimicrobial resistance has led to a to a single class of drugs now available for the reliable treatment of gonorrhea: cephalosporins. Quinolones have not been recommended since 2007. The recommended ceftriaxone dosage has been increased to 250 mg IM in a single dose for uncomplicated gonorrhea infection in adults or adolescents. Ceftriaxone at the recommended dosage is effective in curing uncomplicated gonorrhea in all anatomic sites. Clinicians should be aware that other antimicrobial regimens listed as therapies for uncomplicated urogenital or anorectal gonorrhea infection are less reliable for curing pharyngeal infections and are not recommended.

Nucleic acid amplification tests (NAATs) are the most reliable tests to detect pharyngeal or rectal infection, but because this use is not FDA-approved, the testing must be performed by a laboratory which has validated the method for these specimens, such as the Idaho Bureau of Laboratories. A list of public health

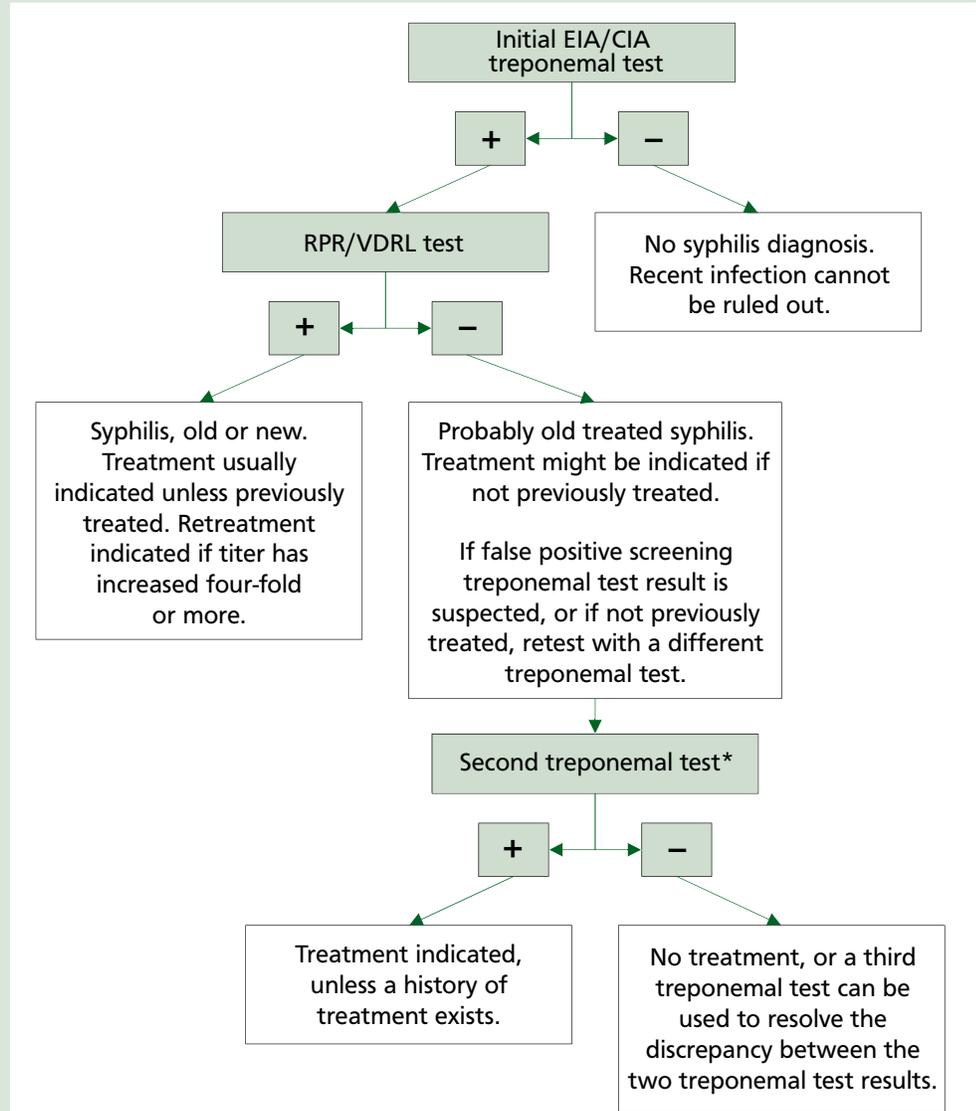
laboratories that can perform these tests is available at: [www.aphl.org/aphlprograms/infectious/std](http://www.aphl.org/aphlprograms/infectious/std). Private laboratories that perform the tests and have validated their methods are noted at: [www.cdc.gov/std/general/dcl-ng-ct-testing-7-13-2009.pdf](http://www.cdc.gov/std/general/dcl-ng-ct-testing-7-13-2009.pdf). The proper ordering codes may be obtained from [www.stdcheckup.org/provider/screen\\_testing.html](http://www.stdcheckup.org/provider/screen_testing.html). Culture remains the preferred method for diagnosis in prepubertal children.

Reinfection rates after detection and successful treatment of uncomplicated urogenital chlamydia or gonorrhea infection range from 7–24%. Therefore,

rescreening at 3–6 months to detect reinfection is recommended. Rescreening is distinct from test of cure. Test of cure is usually done 3–4 weeks after treatment for the purpose of detecting treatment failure and is not necessary when using any of the recommended or alternate chlamydia and gonorrhea regimens with uncomplicated infections.

Patients with detected chlamydia or gonorrhea should refer sexual contacts from 60 days prior to onset of symptoms (or diagnosis, if asymptomatic) for evaluation and treatment. Patient-delivered partner therapy (PDPT), synonymous

Figure. Algorithm for interpretation of syphilis test results using EIA/CIA as the initial screening test.



Adapted from: Centers for Disease Control and Prevention. Syphilis Testing Algorithms Using Treponemal Tests for Initial Screening — Four Laboratories, New York City, 2005–2006. *MMWR* 2008;57:872–875 and Centers for Disease Control and Prevention. Discordant results from reverse sequence syphilis screening—five laboratories, United States, 2006–2010. *MMWR* 2011;60:133–137.

\**Treponema pallidum* particle agglutination (TPPA) or fluorescent treponemal antibody (FTA) tests. Because FTA-ABS has lower specificity and probably lower sensitivity, in addition to inherent subjectivity and the need for trained personnel and a dedicated fluorescence microscope, TPPA is considered the most suitable confirmatory test.



with Expedited Partner Therapy (EPT), should be considered for heterosexual partners if there is a concern that partners referred to evaluation and treatment will not seek these services. PDPT or EPT is not recommended for MSM; because of the possibility of coinfection with other STDs or HIV, MSM should receive front-line evaluation.

### Syphilis Screening Tests

Although CDC continues to recommend the traditional algorithm of

screening<sup>1</sup>, in recent years, large reference laboratories' preference of syphilis screening tests has shifted to enzyme immunoassays (EIAs). EIAs and chemiluminescence immunoassays (CIAs) to detect *Treponema pallidum* antibody are more automated and less costly to perform than rapid plasma reagin (RPR) titers at many large laboratories. A positive result from the EIA cannot distinguish between old, previously treated, or new infection. Clinicians should seek a quantitative reflexive RPR/Venereal Disease

Research Laboratory test result (titer) and possibly a second treponemal test<sup>2</sup> to guide management. See the algorithm (Figure) for help with interpreting results using EIA/ CIA as the initial screening test. 

### Footnotes

<sup>1</sup> The traditional algorithm uses non-treponemal tests (Venereal Disease Research Laboratory [VDRL], rapid plasma reagin [RPR]) followed by confirmation using treponemal tests.

<sup>2</sup> *Treponema pallidum* particle agglutination (TPPA) or fluorescent treponemal antibody (FTA) tests.

# Update on STDs in Idaho

Sexually transmitted diseases (STDs) are a continuing burden on Idaho residents and medical resources. STDs are among the most frequently reported of all Idaho reportable diseases. Monitoring the trends and characteristics of effected populations and communicating the results can help improve programs aimed at preventing STDs and health care providers' understanding of the scope of the burden to make informed decisions about testing, treatment, and counseling of patients. This article aims to effectively communicate information about some notable emerging patterns in Idaho STDs: recent increases in gonorrhea and early syphilis among men who have sex with men (MSM).

In 2010, there was an increase in reports of gonorrhea after two years of significant decline. From a high of 269 cases in 2007, counts returned to baseline in 2009 with 110 cases. In the last quarter of 2010, however, gonorrhea cases increased substantially, pushing the 2010 rate 30% over the rate in 2009 (Figure). Most of the 4th quarter increase in 2010 was in Central public health district which had a 230% increase over the average quarterly number of reportable cases since 2009. Notable increases were also observed in North Central and Southwest public health districts.

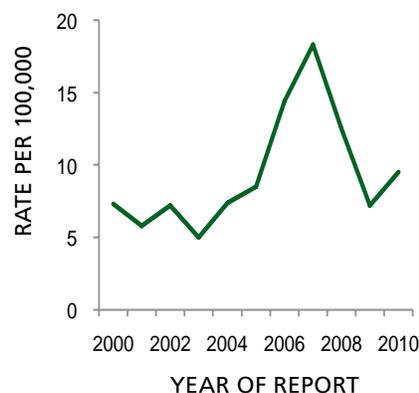
Although the total number of reported syphilis cases decreased in 2010, the number of those cases classified as early syphilis (primary, secondary, or early latent syphilis) increased. Cases were spread

widely across age groups. Nine of the ten cases of recently-acquired syphilis occurred in males, all of whom reported having sex with other males (MSM). Five had HIV coinfection, which serves to remind clinicians that individuals with syphilis infection should also be tested for HIV, and vice versa. This distribution is similar to CDC's STD Surveillance Network trends, where over half of primary and secondary syphilis is reported among MSM and a median 44.4% HIV coinfection exists among MSM reported with primary and secondary syphilis. One case of congenital syphilis was reported, an uncommon but nevertheless troubling occurrence. There is some disparity in regard to ethnicity: 9 (53%) of 17 reported syphilis cases for which ethnicity was known occurred among persons of Hispanic ethnicity, although

only 11% of Idaho's population self-identifies as Hispanic or Latino.

Please note that these preliminary data have been provided in the interest of increasing awareness of the scope, distribution, and basic epidemiologic characteristics of recently-reported STDs in Idaho. Office of Epidemiology, Food Protection, and Immunizations will publish more detailed tables of finalized 2010 data in the annual publication, "Idaho Reported STD" later this year. The current version, containing 2009 data, is available on the Idaho Department of Health and Welfare web site by going to [www.safesex.idaho.gov](http://www.safesex.idaho.gov) and clicking on "STD Statistics" on the left side of the screen. 

Figure. Incidence rate of reported gonorrhea in Idaho, 2000–2010.\*



\*Per 100,000 population. 2010 data are preliminary.

## Idaho Disease Bulletin Now Available Electronically— See Our New IDB Website!

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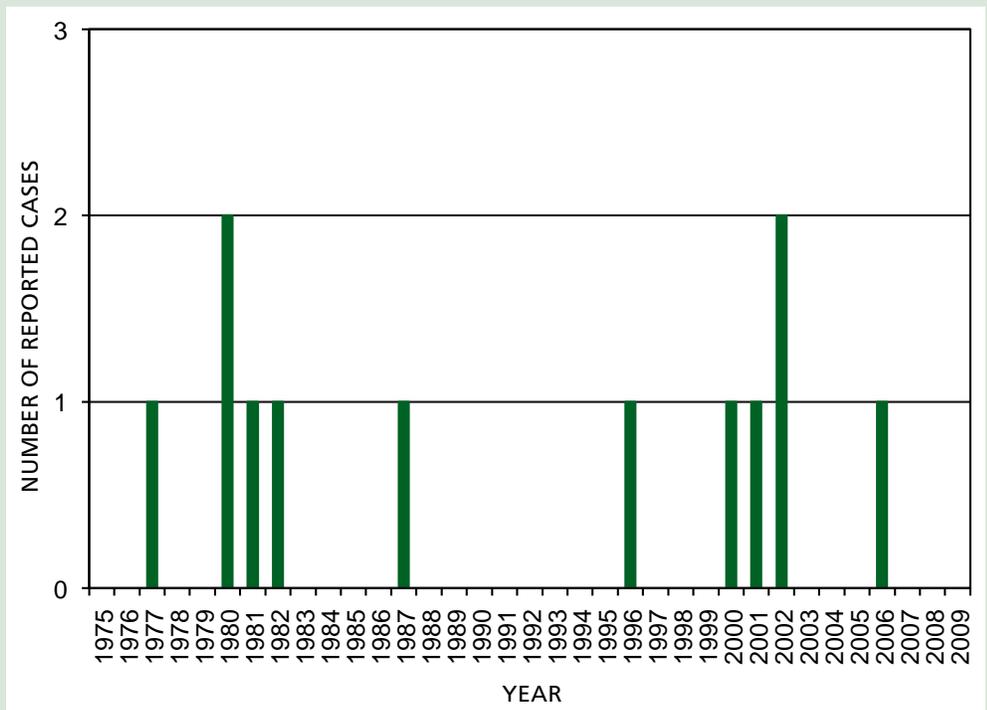
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## Data Snapshot: Hansen’s Disease (Leprosy)

Hansen’s disease (leprosy) is a chronic, bacterial infectious disease caused by *Mycobacterium leprae* and mainly affects the skin, peripheral nerves, mucosa of the upper respiratory tract, and eyes. Treatment with multiple antibiotics including rifampin, dapson, and sometimes clofazimine is effective. Duration of treatment is up to 24 months, depending on whether the infection is paucibacillary (shorter treatment) or multibacillary (longer treatment). Hansen’s disease has become increasingly rare in the United States. Since the mid-1990s, fewer than 200 cases per year have been reported in the United States, mostly from California, Florida, Hawaii, Texas, and New York City. Most cases reported in the United States are in foreign-born persons. In Idaho, only 12 cases have been reported since 1975. In 2010, Idaho was contacted by another state to report that a child aged 11 years who had multibacillary Hansen’s

disease was moving to Idaho. This child is currently completing a two-year regimen of antibiotics under the care of an Idaho physician. 🏠

Figure. Reported Hansen’s disease (leprosy) cases by year—Idaho, 1975–2009.





IDAHO DEPARTMENT OF  
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# Disease Bulletin

- Diphtheria in Idaho
- Idaho Public Health and Meaningful Use of Health Information Technology
- Data Snapshot: Rabid Bats—Idaho, 2010

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## Diphtheria in Idaho

**D**iphtheria is a clinical illness usually caused by toxin-producing strains of *Corynebacterium diphtheriae*, but also rarely due to *Corynebacterium ulcerans*. Respiratory diphtheria presents as a sore throat with low-grade fever and an adherent membrane of the tonsils, pharynx, or nose. Severe clinical manifestations result from absorption of toxin (either local or systemic) produced by infection at an epithelial site (usually pharynx, occasionally nasal lining, or skin). The onset of disease is insidious. Following an incubation period of 1–5 days, low-grade fever begins and a pharyngeal pseudomembrane develops over 2–3 days, along with lymphadenopathy and diffuse systemic toxicity, resulting in tachycardia, weakness, and irritability. Although the systemic effects of diphtheria can occur in the first week of illness, they usually occur later (1–2 weeks after onset for myocarditis, 2–8 weeks for neuritis). The hallmark of suspected diphtheria is a febrile, membranous pharyngitis of insidious onset. In a minority of instances, diphtheria can result from an isolated diphtherial infection in the larynx, nasal lining, or skin. Other diseases that can occasionally produce a similar membranous pharyngitis include streptococcal pharyngitis and infectious mononucleosis.

Neck swelling is usually present in severe disease. In addition to myocarditis and polyneuritis, complications include airway obstruction: death occurs in 5%–10% of respiratory cases. Cutaneous diphtheria presents as infected skin lesions without a characteristic appearance and has a milder course. Treatment consists of antitoxin and antibiotics: penicillin or erythromycin are most commonly used. Swabs or membrane tissue for culture, and serum for measurement of antibodies to diphtheria toxin should be obtained prior to treatment.

Diphtheria is rarely reported in Idaho (Fig-

ure) or in the United States. Since the wide use of vaccine beginning in the 1940s, incidence has decreased from 100–200 cases to 0.001 cases per 100,000 population. From 1980 to 1989, only 24 cases of respiratory diphtheria were reported in the United States: 2 cases were fatal, and 18 (75%) occurred among persons greater than or equal to 20 years of age.

Only 0–5 cases a year have been reported annually in the United States since 1990. Diphtheria remains endemic in many parts of the developing world, including some countries of the Caribbean and Latin America, Eastern Europe, Southeast Asia, and the sub-Saharan belt in Africa.

In the pre-vaccine era, children were at highest risk for respiratory diphtheria. Recently, diphtheria has primarily affected adults in the sporadic cases reported in the United States and in large outbreaks in Russia and other countries in the former Soviet Union. A complete vaccination series substantially reduces the risk of developing diphtheria, and vaccinated persons who develop disease have milder illnesses. Protection lasts at least ten years. Vaccination does not, however, eliminate carriage of *C. diphtheriae* in the pharynx or nose or on the skin.

In August 2010, an elderly Idaho resident was diagnosed with diphtherial illness due to *C. ulcerans* after presenting with nasal congestion and bilateral soft tissue obliteration of his nasal cavities. The patient received debridement, antibiotics, and diphtheria antitoxin with good clinical response. He was not sure if he had been vaccinated with any diphtheria-containing vaccines. Unlike *C. diphtheriae*, *C. ulcerans* is not known to be spread from person-to-person.

Diphtheria antitoxin (DAT) was first produced in the 1890s and is still produced using serum from horses hyperimmunized with diphtheria toxoid. The evidence for efficacy of

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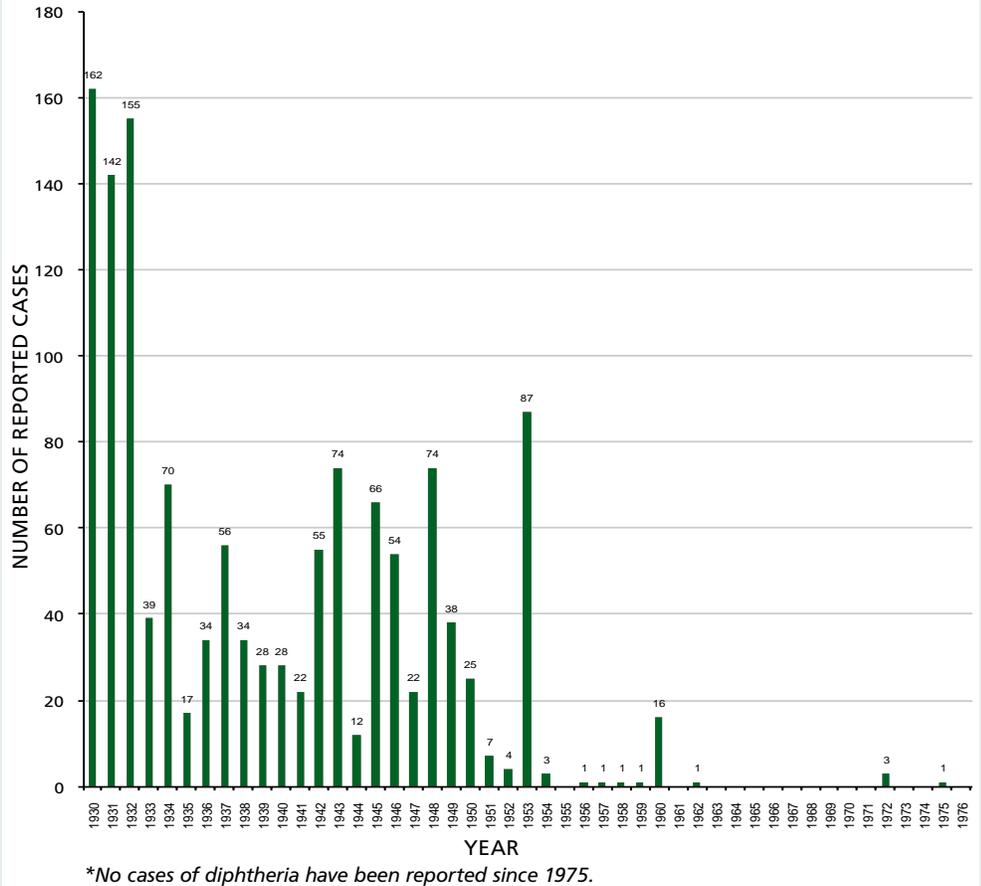


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DAT is based on observations and studies done several decades ago. Mortality rates for clinical diphtheria frequently exceeded 50% in the pre-antitoxin era. Almost as soon as antitoxin was available, clinical experience showed dramatic declines in mortality in groups of patients treated with antitoxin compared to historical control groups or groups treated at hospitals not using antitoxin. In 2008, the Centers for Disease Control and Prevention (CDC) sought and obtained Investigational New Drug (IND) approval for a DAT product manufactured by the Instituto Butantan in São Paulo, Brazil since DAT is no longer manufactured in the United States.

This case underscores the need for providers to consider diphtheria in the differential diagnosis of cases of membranous pharyngitis, and to ensure that adult patients remain up to date on their diphtheria-containing vaccines (either Td or Tdap as appropriate). Diphtheria is reportable in Idaho. Suspected cases should be reported to public health epidemiologists, who can assist in arranging for the organism to be sent to CDC, obtaining diphtheria antitoxin from CDC, and evaluating the need for immunization and prophylaxis of contacts.

Figure. Reported Diphtheria in Idaho, 1930–1976\*



## Idaho Public Health and Meaningful Use of Health Information Technology

The American Recovery and Reinvestment Act (ARRA) was signed on February 17, 2009 by President Barack Obama. Title XIII of ARRA, entitled “Health Information Technology for Economic and Clinical Health Act” (HITECH) focuses on health system reform to improve patient outcomes and reduce costs. Specifically, HITECH includes provisions for the use of health information technology (HIT) to meet health reform goals. The goals of HITECH are to improve the quality, safety, and efficiency of the health system while reducing health disparities; engage patients and families; improve care coordination; ensure adequate privacy and security protections for personal health information; and improve population and public health<sup>1</sup>.

The vision and goals outlined in HITECH are a tall order, especially in

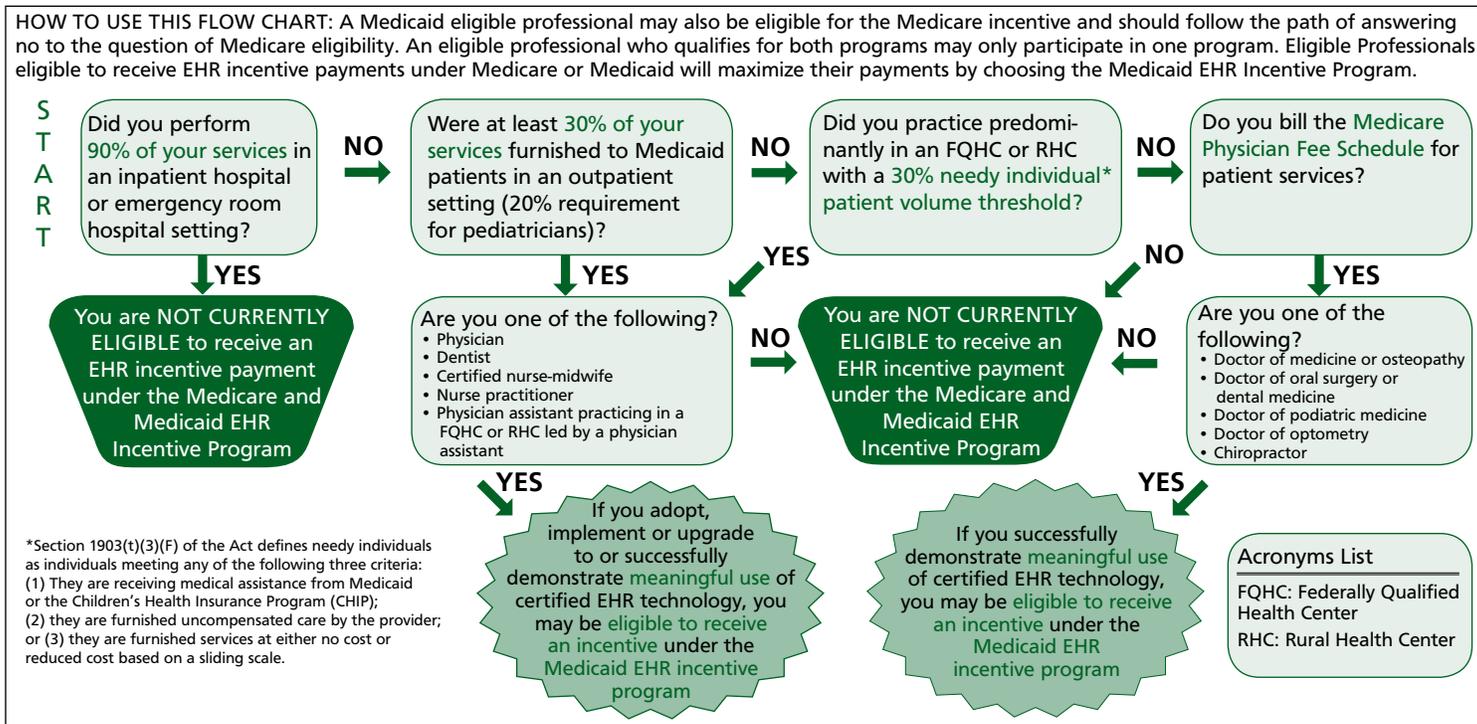
light of the current state of HIT across the nation. Based on data from the National Ambulatory Medical Care Survey conducted by the National Center for Health Statistics, it is estimated only about 6.3% of physicians had a fully functional electronic health record (EHR) system in 2009, although 43.9% were using EHR technology for billing<sup>2</sup>. One major barrier to adoption of EHR use in providers’ offices is the cost associated with a comprehensive EHR system, which can be \$30,000 or more per physician<sup>3</sup>. Similarly, a recent survey among AMA members published in the *New England Journal of Medicine* reported only 1.5% of U.S. hospitals have comprehensive EHR systems (e.g., present in all clinical units) and an additional 7.6% have a basic or non-comprehensive system<sup>4</sup>. Barriers for hospitals, like providers, include high upfront costs as well as ongoing maintenance costs

and future costs for upgrades<sup>5</sup>.

To help offset the financial burden the HITECH objectives might place on providers and facilities to implement EHR technology, HITECH legislation includes provisions for a financial reward for eligible providers and facilities for adopting use of qualified, certified EHRs used in a meaningful way to achieve significant improvements in care. These payments will be administered by the federal Medicare and state Medicaid programs, depending upon which program(s) providers and facilities are eligible to participate in. The federal agency overseeing the payments is the Centers for Medicare and Medicaid Services (CMS). Rules were released in July 2010 defining criteria for determining which providers (see Figure) and facilities are eligible for payments as well as the criteria for EHR certification.



Figure. Flow Chart to Help Eligible Professionals Determine Eligibility for the Medicare and Medicaid Electronic Health Record (EHR) Incentive Program.



**What is Meaningful Use?**

As part of the incentive payment criteria, EHRs must be certified to meet the standards of "Meaningful Use" or, simply put, using EHR technology to achieve significant improvements in care. To standardize the criteria, the Office of the National Coordinator for Health Information Technology (ONC) published standards, specifications, and measurement criteria for receiving certification for EHR technology in July this year. These rules complement the rules published by the CMS and outline exactly how meaningful use objectives will be measured (see Table for a list of the objectives). Very recently, ONC named specific bodies that are authorized to evaluate a physician or hospital EHR system and certify it as meeting Meaningful Use criteria.

While Idaho cannot currently support efforts to receive syndromic (clinical) surveillance data, we can receive both immunization data and electronic laboratory report (ELR) data. Idaho public health has been on the leading edge in adopting of the ability to receive ELR data for some time now, but with the adoption of Meaningful Use, we expect more facilities will approach us with plans to implement ELR from their hospital laboratories. We have capacity to receive ELR in HL7 2.5.1

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**Table. Stage 1 Meaningful Use core and menu objectives for Eligible Professionals (EP) and Hospitals (H)**

Core Objectives – must meet all	Entity	Menu Objectives – must meet 5	Entity
Use CPOE for medication orders	EP; H	1 must be a public health objective (denoted with an *)	
Implement drug-drug and drug-allergy checks	EP; H	*Submit electronic immunization data to immunization registries or immunization information systems	EP; H
Maintain current problem list of current / active diagnoses	EP; H	*Submit electronic syndromic surveillance data to public health agencies	EP; H
Record smoking status of patients 13 years of age and older	EP; H	*Submit electronic data on reportable laboratory results to public health agencies	H
Provide clinical summaries or electronic copy of discharge instructions	EP; H	Incorporate clinical lab test result into EHR	EP; H
Provide electronic copy of health information	EP; H	Implement drug formulary checks	EP; H
Record and chart changes in vital signs	EP; H	Send reminders for prevention / follow-up	EP
Record demographics	EP; H	Record advance directives for patients 65 years of age or older	H
Capability to electronically exchange clinical info with other providers	EP; H	Provide summary of care record for patients transitioned to another provider or setting	EP; H
Implement one clinical decision support rule along with the ability to track compliance with that rule	EP; H	Generate lists of patients by specific conditions for quality improvement, disparity reduction, research or outreach	EP; H
System protects privacy / security of patient data in EHR	EP; H	Use EHRs to identify patient-specific education resources and provide as appropriate	EP; H
Report clinical quality measures to CMS or states	EP; H	Provide patients with timely electronic access to health information	EP
Maintain active medication list	EP; H	Perform medication reconciliation between care settings	EP; H
Maintain active medication allergy list	EP; H		
Generate / transmit electronic prescriptions	EP		

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message format that meets Meaningful Use criteria. The Idaho Immunization Reminder Information System (IRIS) is being upgraded to support immunization data provided using HL7 2.5.1 and the ability to exchange data with providers on patient immunization history.

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- <sup>1</sup> HITECH Programs. Office of the National coordinator for Health Information Technology. <http://healthit.hhs.gov/>. Updated October 7, 2010. Accessed October 20, 2010.
- <sup>2</sup> Hsiao C-J, Beatty PC, Hing ES, Woodwell DA, Rechtsteiner EA, Sisk JE; Division of Health Care Statistics; National Center for Health Statistics. Electronic Medical Record/Electronic Health Record Use by Office-based Physicians: United States, 2008 and Preliminary 2009.
- <sup>3</sup> Torda P, Han ES, Scholle SH. Easing the adoption and use of electronic health records in small practices. *Health Affairs*. 2010;29:668-675.
- <sup>4</sup> Jha AK, DesRoches CM, Campbell EG, Donelan K, Rao SR, Ferris TG, et al. Use of electronic health records in U.S. hospitals. *N Engl J Med*. 2009;360:1628-38.
- <sup>5</sup> Jha AK, Desroches CM, Shields AE, Miralles PD, Sheng J, Rosenbaum S, Campbell EG. Evidence of an emerging digital divide among hospitals that care for the poor. *Health Affairs*. 2009;28:W1160-W1170.

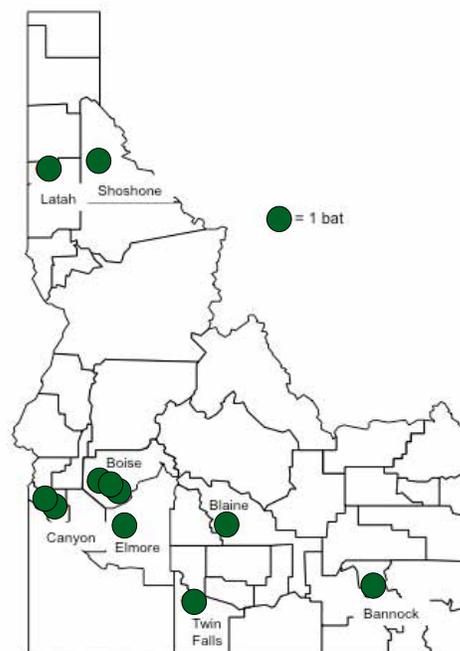
## Data Snapshot: Rabid Bats—Idaho, 2010

Bats are the only rabies reservoir in Idaho, although other animals can be infected by bat strains. This summer, three fishermen reported daytime exposures to aggressive bats in separate incidents. Aberrant, daytime bat activity is unusual, suggesting illness. One of the bats was captured and tested positive for rabies. According to the Centers for Disease Control and Prevention, human rabies deaths in the United States are most often associated with a bat rabies variant. Careful questioning of circumstances surrounding bat exposures is prudent: in high-risk exposures, such as these fishermen experienced, rabies post-exposure prophylaxis is indicated even if the bat is not captured and tested.

The Idaho Bureau of Laboratories (IBL) accepts bats or other mammals for rabies testing only if a human exposure to the animal has or is likely to have occurred. Prior approval from public health district or state-level epidemiologists is required. As of October 15, 2010,

11 rabid bats have been identified by the IBL. (Figure).

Figure. Location of Identified Rabid Bats, by County—Idaho, 2010\*



\*As of December 1, 2010.

## *Campylobacter* and Guillain-Barré Syndrome

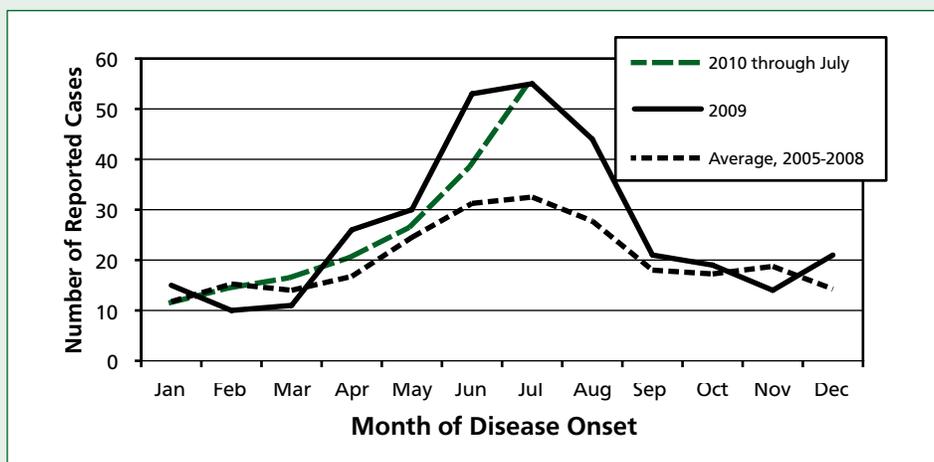
**C**ampylobacteriosis, caused by Gram-negative bacteria of the genus *Campylobacter*, is considered the most common foodborne illness in the developed world.<sup>1</sup> Most human cases are caused by *Campylobacter jejuni* and *Campylobacter coli*, although cases can be caused by other species, including *Campylobacter laridis* and *Campylobacter fetus* ssp. *fetus*. Although most infections are thought to be asymptomatic, symptomatic *Campylobacter* infections can result in diarrhea (sometimes bloody), cramping, abdominal pain, and fever, which last approximately one week. Infected persons can shed organisms in their stool for up to three weeks. Human infections with *Campylobacter* can result from eating raw or undercooked poultry, although outbreaks in Idaho have typically been associated with exposure to infected stool from dogs, cats, and calves, as well as contaminated raw milk and water sources. Campylobacteriosis is diagnosed by isolation of the bacterium

from a clinical specimen; the Idaho Bureau of Laboratories (IBL) can perform subtyping to assist with outbreak detection.

During 2005–2008, an average of 242 cases of campylobacteriosis was reported annually to the Idaho Department of Health and Welfare (IDHW); the actual number of persons infected is probably higher due to underdiagnosis, underreporting, and asymptomatic cases. The median age of persons with campylobacteriosis was 27 years (range, 1–93 years); 57% were male. The majority (53%) of the 968 cases reported during this time occurred in the Central and South Central Public Health Districts. Consistent with nationwide trends, cases were reported more frequently during May–August (Figure).

During 2009, a total of 319 cases of campylobacteriosis were reported to IDHW; 187 have been reported during January–July 2010. Of these 506 cases, 55% came from the Central and Southwest Public Health Districts, in which 44% of the state’s population resides. During

Figure. Number of reported cases of campylobacteriosis in Idaho by month of disease onset January 2005–July 2010.



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January–July 2010, approximately 7% of reported *Campylobacter* infections were associated with five reported outbreaks of campylobacteriosis. In comparison, during 2005–2009 a median of three outbreaks were reported annually, and 3% of all reported infections were associated with outbreaks. Although outbreaks in Idaho are frequently associated with infected animal stool, outbreaks associated with contaminated water have the potential to generate substantial numbers of infections. For example, an outbreak along the Idaho-Montana border identified during July 2010, has involved  $\geq 96$  cases among persons from  $\geq 8$  states, and is linked to exposure from contaminated well water at a local resort.

Although the majority of *Campylobacter* infections resolve without treatment, campylobacteriosis can result in serious and life-threatening disease. One severe complication associated with *Campylobacter* infection is Guillain-Barré syndrome (GBS), a serious neurologic disorder involving acute inflammatory demyelination of the peripheral nerves.<sup>2</sup> GBS most often manifests as progressive, symmetrical weakness,

beginning in the legs and progressing to the arms and bulbar muscles. Weakness is associated with decreased or absent deep tendon reflexes. Paresthesias, involvement of cranial nerves, and paralysis of respiratory muscles can also occur. Approximately 4%–15% of patients with GBS die, and 20% have disabilities lasting more than one year after onset.<sup>3</sup>

Although GBS has been linked to influenza vaccinations in some years,<sup>3</sup> it is less well known that approximately two-thirds of GBS cases are preceded by bacterial or viral infections, including influenza. Approximately 40% of all GBS cases are thought to be associated with *Campylobacter* infection. The mechanism by which campylobacteriosis triggers GBS is unknown, but is thought to involve molecular mimicry, whereby *Campylobacter* antigens generate antibodies that cross-react with peripheral nerve proteins. Approximately 1/1,000 reported *Campylobacter* infections results in GBS, but the risk for GBS after infection with specific *C. jejuni* serotypes is estimated to be as high as 1/158.<sup>4</sup>

GBS, which has an annual incidence

of 1–2 per 100,000 population nationally,<sup>3</sup> is not a reportable disease in Idaho unless it is thought to occur as a complication of immunization; therefore, the burden of GBS in Idaho is unknown. Because of the increasing prevalence of *Campylobacter* infections during the past two years (Figure), clinicians should be aware that Idaho might experience a concomitant increase in GBS cases. *Campylobacter* is reportable in Idaho; cases are investigated by public health staff to identify the source and to prevent further exposures. *Campylobacter* isolates should be forwarded to IBL for subtyping to assist with outbreak detection and to improve our understanding of the epidemiology of *Campylobacter* in Idaho.

<sup>1</sup> Ailes EL, Demma Hurd S, et al. Continued decline in the incidence of *Campylobacter* infections, FoodNet 1996–2006. *Foodborne Pathog Dis* 2008;5:329–37.

<sup>2</sup> Hughes RAC, Cornblath DR. Guillain-Barré syndrome. *Lancet* 2005;366:653–66.

<sup>3</sup> Iskander J, Broder K. Monitoring the safety of annual and pandemic influenza vaccines: lessons from the US experience. *Expert Rev Vaccines* 2008;7:75–82.

<sup>4</sup> Allos BM. Association between *Campylobacter* infection and Guillain-Barré syndrome. *J Infect Dis* 1997;176(Suppl 2):S125–8.

## New Seasonal Influenza Vaccine Recommendations: Special Considerations

In July 2010, the Centers for Disease Control and Prevention's (CDC's) Advisory Committee on Immunization Practices (ACIP) updated recommendations regarding the use of influenza vaccine. Influenza vaccine is now recommended for all persons aged  $\geq 6$  months for the 2010–11 influenza season. The 2010–11 seasonal influenza trivalent vaccine will contain strain A/California/7/2009 (H1N1), which was available as a monovalent vaccine and widely used during 2009–2010, leading to questions about proper use of trivalent vaccine in the upcoming flu season. This is particularly confusing for providers and parents of the 240 (preliminary data) children reported with H1N1 infection and the more than 65,000 children aged 6 months–8 years who were reported in the Idaho Immunization Reminder

Information System to have received at least one dose of Influenza A (H1N1) 2009 monovalent vaccine during April 2009–July 2010.

### Seasonal influenza vaccination following 2009 H1N1 influenza monovalent vaccine

For the 2010–11 influenza season, children aged 6 months–8 years who did not receive at least one dose of an influenza A (H1N1) 2009 monovalent vaccine should receive two doses of a 2010–11 seasonal influenza vaccine, regardless of previous influenza vaccination history. Children aged 6 months–8 years for whom the previous 2009–10 seasonal or influenza A (H1N1) 2009 monovalent vaccine history cannot be determined should receive two doses of a 2010–11 seasonal influenza vaccine. A second dose is not necessary for

children being vaccinated for the first time who were aged 8 years at the time of the first dose but who are seen again after they have reached age 9 years. (See Figure for further information on number of recommended doses.)

### Seasonal influenza vaccination following laboratory-confirmed 2009 H1N1 influenza

There is no known harm in providing one or two doses of 2010–11 seasonal influenza vaccine to a child who has been infected previously with the 2009 influenza A (H1N1) virus. At immunization provider discretion, children who had **laboratory-confirmed** 2009 H1N1 influenza (RT-PCR or virus culture specific for 2009 H1N1 influenza, NOT a rapid flu test) can receive the appropriate number of 2010–11 seasonal vaccine doses (one



or two) without regard to previous receipt of the influenza A (H1N1) 2009 monovalent vaccine; however, providers should also determine whether two doses are indicated on the basis of seasonal vaccine history (Figure, see footnote).

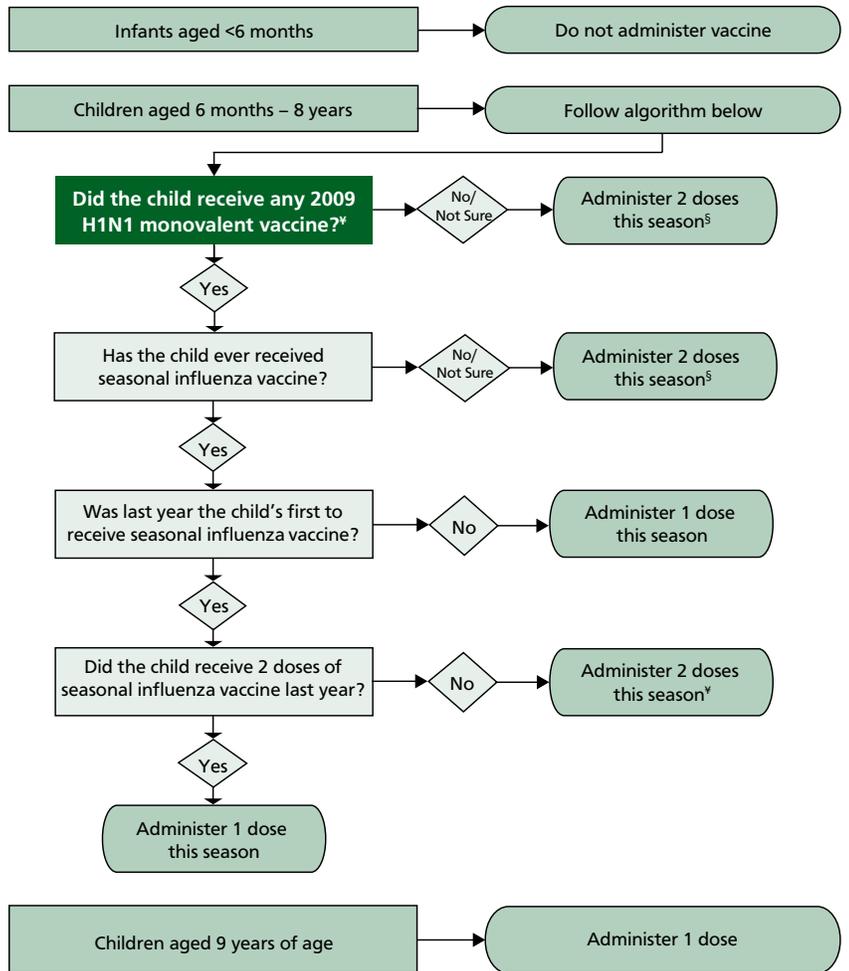
**New ACIP recommendation regarding use of CSL seasonal influenza vaccine (Afluria®)**

Afluria® is a trivalent inactivated influenza virus vaccine for persons ages 6 months and older. On August 5, 2010, ACIP voted to update recommendations on the use of Afluria® because of data suggesting: 1) an increased risk of febrile seizures in children aged 6 months–4 years following 2010 Fluvax® or Fluvax Jr® (vaccine manufactured with the same process and antigenically equivalent to 2010 Afluria®), 2) a higher frequency of reported fever in children aged 5 years–8 years following Fluvax® compared to previous seasons, and 3) a higher frequency of fever in children aged 5 years–8 years following Afluria® in one clinical trial in 2009. For the 2010–11 influenza season in the United States, ACIP recommends:

- Afluria® should not be used in children aged 6 months–8 years (see exception below for children aged 5–8 years).
- Other age-appropriate, licensed seasonal influenza vaccine formulations should be used for prevention of influenza in children aged 6 months–8 years.
- If no other age-appropriate, licensed seasonal influenza vaccine is available for a child aged 5–8 years who has a medical condition that increases their risk for influenza complications, Afluria® can be used; however, providers should discuss with the parents or caregivers the benefits and risks of influenza vaccination with Afluria® before administering this vaccine.
- Afluria® may be used in persons aged ≥9 years.

While data are limited, no increase in febrile seizures has been reported to date with administration of other trivalent inactivated influenza vaccine products during the 2010 influenza season in the Southern Hemisphere. See [www.cdc.gov/mmwr/preview/mmwrhtml/mm5931a4.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5931a4.htm) for more information.

Figure. Number of 2010–2011 seasonal influenza vaccine doses recommended for children.



\* Figure developed by CDC with the American Academy of Pediatrics, Committee on Infectious Diseases.

<sup>†</sup> Children who had a laboratory-confirmed 2009 pandemic H1N1 virus infection (e.g., reverse transcription-polymerase chain reaction or virus culture specific for 2009 pandemic influenza A(H1N1) virus) are likely to be immune to this virus. At provider discretion, these children can have a “Yes” entered at this box, and proceed down the path to the next box to determine whether two doses are indicated monovalent vaccine was administered, enter “No” here.

<sup>§</sup> Interval between 2 dose is >4 weeks.

Reference: CDC. MMWR Recommendations and Reports. August 6, 2010; 59(rr08):1–62

## Investigation of Deaths by Using Postmortem Nasopharyngeal Swabs for Influenza Testing—Idaho, 2009

During autumn 2009, Idaho experienced several unattended or unexplained deaths suspected to be related to 2009 influenza A (H1N1). To facilitate cause of death determination for deaths investigated by coroners or pathologists, the Idaho Department of Health and Welfare implemented distribution of nasopharyngeal (NP) swabs through public health districts for sampling by coroners

and pathologists. Swabs were tested for influenza virus at the Idaho Bureau of Laboratories and the Washington State Public Health Laboratory; CDC and commercial pathology laboratories examined tissues.

During September 1–December 1, 2009, coroners or pathologists investigated 13 suspected influenza-related deaths: 6 by swab, 3 by autopsy, and 4 by both swab

and autopsy. Median time between death and receipt of results from swabs was 4 days (range: 2–41 days) and from tissues, 41 days (range: 23–72 days). Four of the 13 coroner- or pathologist-investigated deaths had samples positive for 2009 H1N1 influenza virus: two had positive postmortem swabs, one initially had an equivocal antemortem swab that retested positive, and one deceased had both posi-



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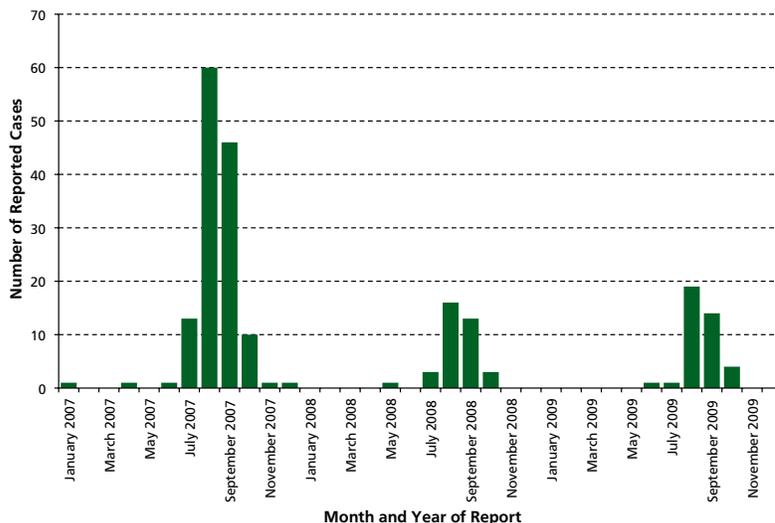
tive postmortem swab and tissue samples.

Four of Idaho's twenty-three 2009 H1N1 influenza-related deaths during autumn 2009 were investigated by coroners or pathologists. NP swabs provided rapid results and detected four 2009 H1N1 influenza-related deaths that might otherwise have been missed; the swabs contributed to coroner decisions that 2009 H1N1 influenza was not a contributing factor in nine deaths. NP swabs should be considered in postmortem investigations where influenza is suspected, although the length of time that influenza virus can be recovered by NP swabs following death is unknown. Because the sensitivity of rapid flu tests for detecting 2009 influenza A (H1N1) ranges from 10–70% in comparison to RT-PR, postmortem NP swabs should be sent to public health or commercial laboratories for influenza virus detection and characterization.

## West Nile Virus Data Snapshot

West Nile virus (WNV) activity has been well-documented in Idaho since 2004, most often in southwestern counties. Certain mosquito species and avian hosts function as long-term reservoirs while mammalian species are typically dead-end hosts. Surveillance is conducted on WNV in mosquitoes, sentinel avian species, horses, and humans. Idaho reported the highest number of human cases nationwide in 2006 with 996 cases and 23 deaths. Since that year, annual reported case counts and deaths have dropped precipitously. From 2007 through 2009, the average annual reported case count was 66 (Figure) and the average number of deaths was one per year. As of September 30, 2010, one human case with onset in 2010 has been reported. Annual prevention activities throughout Idaho include seasonal promotion of the print, television, and radio “Fight the Bite” campaign and updating the state WNV website [www.westnile.idaho.gov](http://www.westnile.idaho.gov).

Figure: Reported human cases of West Nile virus by report week and year—Idaho, 2007–2009





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# Disease Bulletin

- Pertussis Rising in Idaho
- Influenza-associated Hospitalizations
- Electronic Laboratory Reporting

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## Pertussis Rising in Idaho

In late June of this year, California health authorities declared an epidemic of pertussis (commonly known as whooping cough) in the state. From January through June of 2010, four times more cases of pertussis were reported in California than had been reported for the same period in 2009; seven infant deaths have also been attributed to pertussis there since January. Increased pertussis activity has been reported in other states, including Michigan, Minnesota, North Carolina, South Carolina, and Idaho.

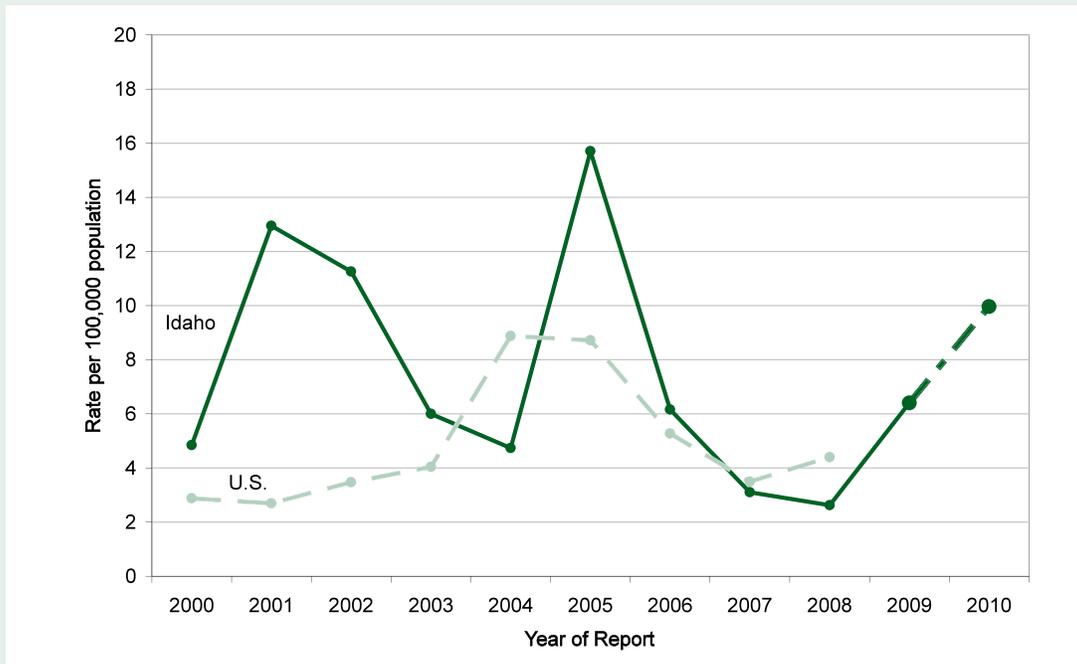
Pertussis incidence in the United States typically follows a cyclical pattern, with the number of cases peaking every three to five years as a result of waning immunity in the population and increased bacterial circulation. Typically, pertussis rates have been higher in Idaho relative to national rates (Figure). In Idaho, after a sharp increase in pertussis incidence during

2005, rates of the disease gradually decreased until 2009. The 2009 annual incidence rate of 6.4 cases of pertussis per 100,000 population is the highest reported since 2005, indicating a potential cyclical increase in cases; the unexpectedly high number of cases reported thus far in 2010 supports this hypothesis.

During the first 6 months of 2010, 77 cases of pertussis were reported to the Idaho Department of Health and Welfare (IDHW), compared with 45 during the same period in 2009. If the number of cases reported for the remainder of 2010 follows the current trend, the 2010 projected annual incidence will be 10.0 cases per 100,000 population (Figure).

The majority (60%) of reported cases of pertussis in Idaho this year come from the Panhandle region, unlike 2009, when most cases were reported from central and south central Idaho (Table). Nearly half (43%) of all cases

Figure. Annual rate of pertussis per 100,000 population, Idaho and United States, 2000–2010\*



\* 2010 data are projected based on preliminary case counts for January–June, 2010.

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reported in 2010 to date have been among children aged 5–14 years. The proportion of cases in children aged 10–14 years increased by 57% since 2009; nearly one in three reported cases are in this age group. Although no deaths have been reported in Idaho in 2010, an infant death due to pertussis was reported in 2009.

The diagnosis of pertussis is often delayed or missed. In young infants, atypical presentation contributing to missed or delayed diagnoses is common—the cough may be minimal or absent, and the infant might present with apnea, hypoxia, or seizures. Because pertussis can progress rapidly in young infants and result in hospitalization or death, infants having suspected or confirmed pertussis should be treated promptly. Misdiagnoses of bronchitis or asthma are common in adolescents and adults. Testing relies on nasopharyngeal swab for PCR and culture, although serology can also be helpful, especially in cases presenting later in the clinical course. For more information regarding pertussis tests see [www.afpl.org/afplprograms/infectious/Documents/Pertussis\\_Brochure-Final3.pdf](http://www.afpl.org/afplprograms/infectious/Documents/Pertussis_Brochure-Final3.pdf).

The best prevention for pertussis is vaccination, but in Idaho, vaccina-

tion coverage is lower than the national average. Infants too young to receive vaccination or young children not fully vaccinated are susceptible to infection from older siblings and adults with incomplete vaccine protection, making up-to-date vaccine coverage important for individuals, families, and communities. Adolescents should receive a single booster dose of tetanus, diphtheria, and pertussis (Tdap); regular check-ups or physical exams for school athletics are opportune times to boost adolescents. Adults who were not given Tdap as an adolescent or teenager should receive Tdap rather than the Td booster regularly administered before 2005. Women who have not received Tdap should receive a dose in the immediate postpartum period, before leaving the hospital or birthing center, if two or more years have elapsed since the last Td. Other family members or caregivers who will have close contact with an infant should also consider Tdap vaccination to protect themselves and the infant from

Table. Selected demographic characteristics of patients diagnosed with pertussis and reported to IDHW, 2009 and 2010\*

	2009 (N=99)	2010 (N=77)
<b>Public Health District</b>		
Panhandle	8.1	59.7
North Central	3.0	1.3
Southwest	8.1	7.8
Central	40.4	18.2
South Central	36.4	6.5
South Eastern	1.0	3.9
Eastern	3.0	2.6
<b>Age (years)</b>		
<1	13.1	11.7
1-4	11.1	13.0
5-9	10.1	14.3
10-14	18.2	28.5
15-19	24.3	7.8
20-44	11.1	14.3
45+	12.1	10.4

\*2010 data are preliminary and only include cases reported January 1 – July 1, 2010

pertussis. Pregnancy is not a contraindication for Tdap and clinicians may recommend Tdap to pregnant women in certain circumstances, such as during a community pertussis outbreak. Providers should make sure patients of all ages are up to date on pertussis-containing vaccines (see immunization schedules at [www.cdc.gov/vaccines/recs/schedules/default.htm](http://www.cdc.gov/vaccines/recs/schedules/default.htm)).

## Influenza-associated Hospitalizations Identified Through Idaho's Enhanced Influenza Surveillance: September 1, 2009–May 1, 2010

### Overview

On September 1, 2009 Idaho initiated a hospital-based influenza surveillance system using protocols developed by the Centers for Disease Control and Prevention (CDC) Emerging Infections Program (EIP), which is fully implemented at sites in 10 states (CA, CO, CT, GA, MD, MN, NM, NY, OR, and TN) to measure the burden and severity of the 2009–2010 flu season. The Idaho surveillance system collected basic demographic and laboratory information on hospitalized patients from all acute care hospitals in Idaho and additional demographic and in-depth clinical data about

hospitalized residents of Ada, Bingham, and Kootenai counties. These three counties were chosen based on geographic representation and the expectation that hospitals in these areas would receive the majority of influenza patients hospitalized in their respective counties.

### Influenza-associated hospitalizations defined

For Idaho's surveillance system, hospitalizations were considered influenza-associated when any influenza-specific test was positive within 14 days before to 3 days after hospitalization. Influenza-

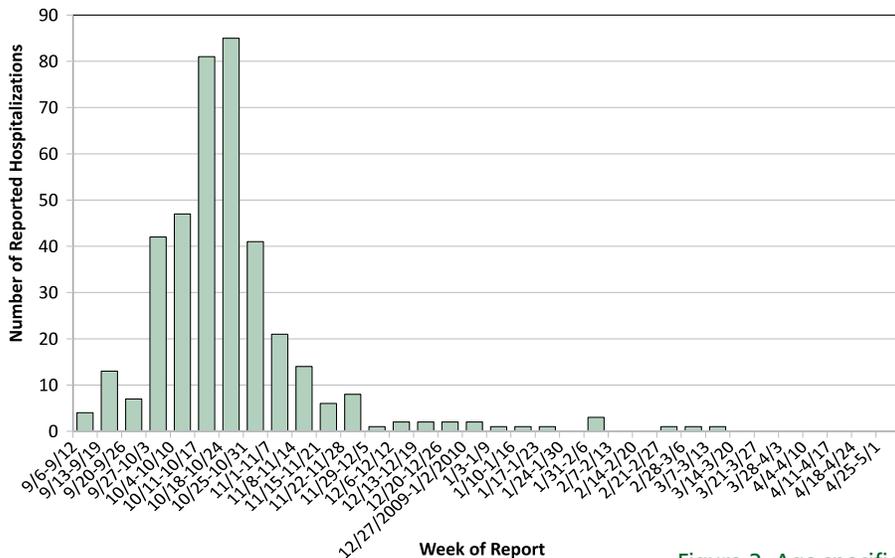
specific tests included the following: a rapid influenza test, a direct fluorescent antibody (DFA) test, or an H1N1 confirmatory test such as the 2009 H1N1-specific polymerase chain reaction (PCR).

### Basic demographic data for influenza-associated hospitalizations from all Idaho acute care hospitals

During September 1, 2009 through May 1, 2010, 389 influenza-associated Idaho resident hospitalizations in Idaho were reported through Idaho's surveillance system; the peak of hospitalizations occurred during the second week



**Figure 1. Influenza-associated hospitalizations reported into Idaho’s enhanced influenza surveillance system, by week of report—September 6, 2009–May 1, 2010.**



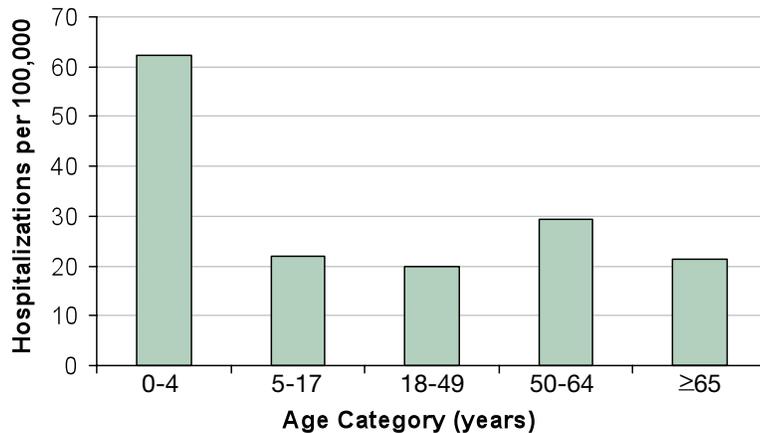
of October, similar to the end of October peak seen nationally (Figure 1). Among these patients, 46.5% were male, 53.5% were female, and the median age was 29 years (range: <1–87 years). The overall incidence rate of hospitalizations in Idaho for this time period was 27.2 per 100,000 population. Children aged <5 years had the highest age-specific incidence rate of influenza-associated hospitalization during this period (Figure 2). In this age group in Idaho over 60 hospitalizations per 100,000 population were reported. This incidence rate is slightly lower than the average incidence rate reported for all CDC EIP sites in the nation in the same age group (66 hospitalizations per 100,000 population).

**In-depth clinical data from Ada, Bingham, and Kootenai counties**

In-depth case investigations were performed for Ada, Bingham, and Kootenai County residents hospitalized for influenza-associated illness. Detailed information on underlying medical conditions, intensive care unit (ICU) admissions, and median hospital stays (in days) are presented unstratified and stratified by patient age in Table.

Underlying respiratory disease was documented with a high frequency in those hospitalized with an influenza-associated illness; 30% of all patients had asthma

**Figure 2. Age-specific incidence rates of reported influenza-associated hospitalizations, per 100,000 population—Idaho, September 1, 2009–May 1, 2010.**



**Table. Clinical characteristics of patients with influenza-associated hospitalizations in Ada, Bingham, Kootenai Counties—September 1–May 1, 2010.**

	All patients (N=149)	Patients aged 0–17 years (N=40)	Patients aged ≥18 years (N=109)
<b>Underlying medical conditions, No. (%)</b>			
Asthma	44 (30)	4 (10)	40 (37)
Chronic lung disease	37 (25)	4 (10)	29 (27)
Cardiovascular disease	25 (25)	1 (5)	24 (22)
Chronic metabolic disease (including diabetes)	25 (17)	1 (3)	27 (33)
Immunosuppressive condition	17 (11)	4 (10)	13 (12)
Pregnant	10 (7)	0	10 (9)
Developmental delay	8 (5)	8 (20)	0
Renal disease	7 (5)	0	7 (6)
<b>Other characteristics, No. (%)</b>			
ICU admission	28 (19)	4 (10)	24 (22)
Median hospital stay, in days (mean stay in parenthesis)	3 (4.6)	2 (3)	3 (4.9)

and 25% of all patients had chronic lung disease. Respiratory disease was reported with greater frequency in those ≥18 years of age. In addition, 25% of patients had underlying cardiovascular disease. This was also more common in adults. Of note, developmental delay was common in children (20%) was more than twice that observed for all CDC EIP sites during the same time period (8%). The median hospital stay was three days and 19% required admission to the ICU.

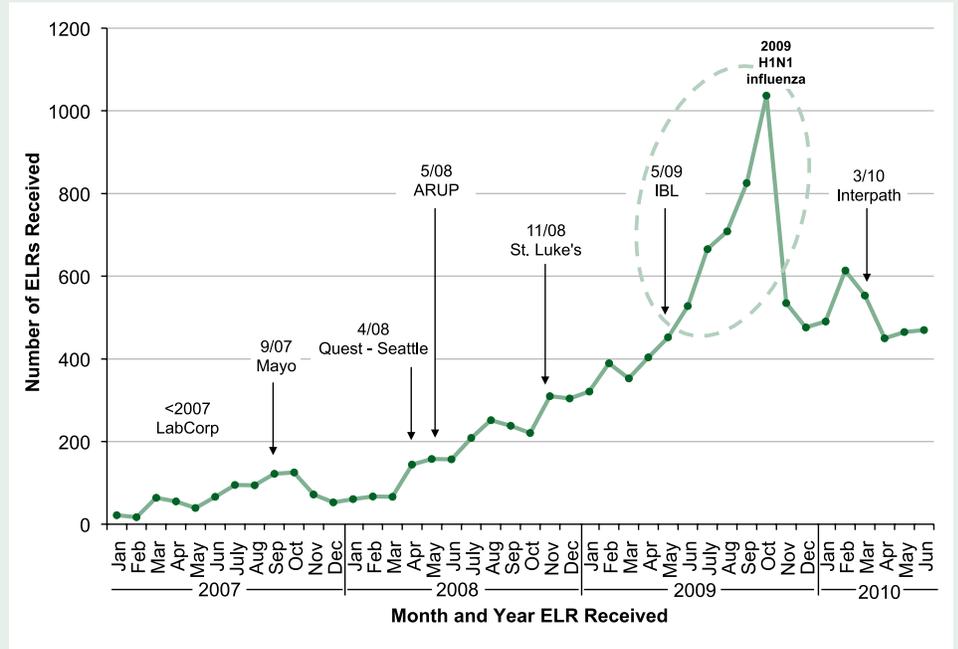
Planning is underway for influenza surveillance for the upcoming season to monitor disease severity and trends.



# Idaho's Continued Success with Electronic Laboratory Reporting

Idaho is a leader among states in implementing electronic laboratory reporting (ELR) to public health for surveillance of reportable diseases and conditions. The percentage of laboratory reports on reportable diseases received via ELR has increased from less than 1% in 2007 to nearly 75% today, not including lab reports for STDs. Data are received via ELR from seven diagnostic laboratories, the Idaho Bureau of Laboratories (IBL), one regional hospital laboratory, and five commercial laboratories (two regional, three national). A third regional commercial laboratory and second hospital laboratory are expected to implement ELR by the end of the year. We estimate that by January 2011, approximately 90% of Idaho reportable disease laboratory reports to Idaho public health will be received via ELR.

Figure: Number of ELRs received by month of receipt



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## *Echinococcus*: Focus on Idaho

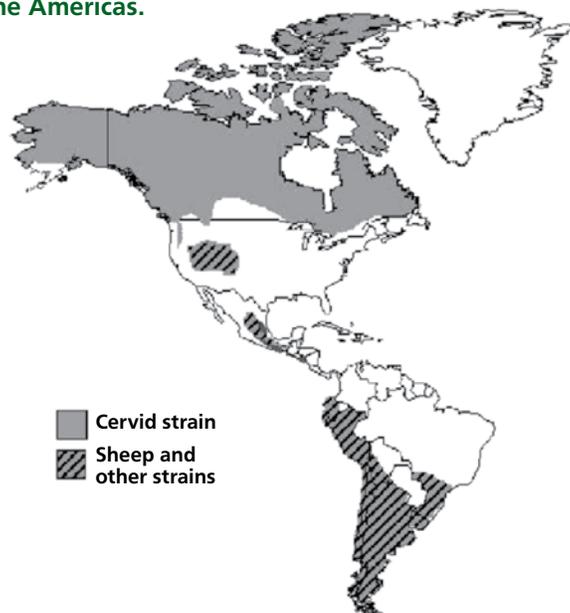
*Echinococcus granulosus* is a zoonotic, diminutive tapeworm that causes hydatid (unilocular) cyst disease in humans. *E. granulosus* occurs worldwide, including in many regions of the Americas (Figure 1). Several species of *Echinococcus* have been identified. Because *E. granulosus* is the species described in Idaho wildlife, this article will focus on the human health risks, clinical features, diagnosis, and management of hydatid cyst disease. In the continental United States, *E. granulosus* is found in holarctic tundra, boreal forest, other northern latitudes with favorable conditions, and in sheep husbandry areas of the western United States.

The majority of documented human infections in the United States have been acquired in endemic countries or in persons whose cultural practices allowed close contact with a definitive parasite host<sup>1</sup>. In 2009, Foreyt *et al*<sup>2</sup> reported finding *E. granulosus* in 62% of Idaho wolves

evaluated between 2006 and 2008. *E. granulosus* was also detected in elk, deer, and a mountain goat. The authors consider this the first report of *E. granulosus* in a wildlife cycle in Idaho.

*Echinococcus* spp. have a complex two-host life cycle. Carnivores, the definitive host, and herbivores, the typical intermediate host, are required to complete the cycle (Figure 2). Definitive hosts shed in their feces eggs or gravid proglottids produced by adult worms residing in their gastrointestinal tract (GIT). The egg-containing feces may contaminate grazing grounds or local waterways. *E. granulosus* eggs survive for only short periods of time if they are exposed to direct sunlight and dry conditions, but may remain viable for several months under moist conditions and in moderate temperatures. Intermediate hosts consume viable eggs while grazing or drinking, initiating the second phase of the life cycle.

**Figure 1. Approximate geographic occurrence of *Echinococcus granulosus*, agent of cystic echinococcosis, in the Americas.**



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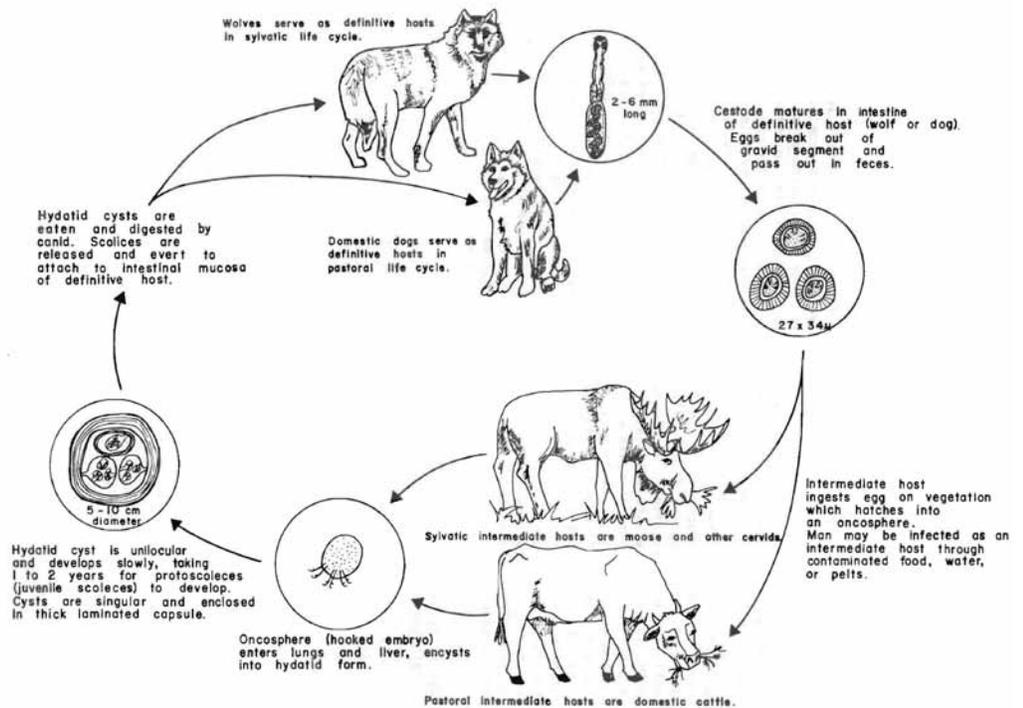
In this phase, the eggs hatch and larvae migrate throughout the body, eventually lodging in tissues, usually the lung or liver. The larvae reproduce, generating fluid filled brood cysts containing numerous immature parasites (protoscolices). The life cycle is complete when a definitive host consumes the brood cyst during predation of the intermediate host, allowing for the establishment of adult worms once again in the definitive host GIT. Intermediate hosts cannot transmit the parasite by casual contact. Eight defined strains (G1–3, G6–10) of *E. granulosus* have been described to date, often aligning with specific intermediate and definitive host cycles, morphology, and molecular characteristics<sup>3</sup>. Two *E. granulosus* life cycles have been described in the United States. The sylvatic (wild, or northern) (G8) cycle is maintained in nature generally between wild ungulates (*e.g.*, elk, mule deer, moose) which are the intermediate hosts, and wild canids (*e.g.*, wolves, coyotes) which are the definitive hosts. In the United States the sylvatic cycle is predominantly found in northern tier states, Alaska, and Canada. The synanthropic (G1) cycle is also known as the pastoral or domestic cycle. In this cycle, the parasite is maintained primarily between domestic dogs (*e.g.*, herding dogs) and sheep. Hydatid cysts were reportedly found in domestic sheep from Idaho that were sent to California for slaughter in the late 1960s and early 1970s<sup>4</sup>.

### Risk factors for human infection

Humans are considered incidental intermediate hosts.

- *Eggs shed by definitive hosts are considered infectious to humans.* Eggs are transmitted through the fecal-oral route by direct transfer of fecal material of canids or by consuming contaminated food or water.
- *Fertile (brood) cysts found in intermediate hosts are not considered a direct human health risk.* The greatest zoonotic disease risk from *E. granulosus* G8 and G1 strains appears to be associated with feeding working and domestic dogs (*e.g.*, sled dogs, herding dogs) affected tissues from intermediate hosts (*e.g.*, moose, caribou, elk, sheep), with subsequent peridomestic shedding of eggs

Figure 2. Lifecycles of *Echinococcus* spp.



Reprinted from Dietrich RA (ed). *Alaska Wildlife Diseases*. University of Alaska Institute of Arctic Biology; 1981 with permission from the University of Alaska Institute of Arctic Biology.

and zoonotic transmission. Changes in cultural practices, including increased awareness of the parasite life cycle, hand hygiene and the elimination of feeding offal to dogs, have been documented to significantly reduce zoonotic disease transmission<sup>5</sup>.

### Incidence

Human echinococcosis is not reportable in most states in the United States, including Idaho. Because of this, the incidence of human infection in the United States is unknown. According to the Centers for Disease Control and Prevention (CDC), most documented cases in North America are diagnosed in immigrants or travelers returning from endemic countries, rather than in persons with no such history. Autochthonous transmission of *E. granulosus*, primarily of the sylvatic strain, has been reported rarely in Alaska<sup>5,6</sup>. Rare reports of locally-acquired human illness have also come from Arizona, California, New Mexico and Utah and were primarily of the sheep-associated pastoral strain and associated with cultural practices allowing working dogs to feed on sheep carcasses. *E. granulosus* has been present in Minnesota wolves for over

thirty years. Surveillance data collected there have revealed no evidence of *E. granulosus* infection in humans or livestock (Dr. J. Scheffel, MN State Public Health Veterinarian, personal communication). In Idaho, human cases of hydatidosis are rarely reported.

### Clinical illness in humans

*E. granulosus* causes hydatid disease, also known as hydatidosis, cystic echinococcosis or unilocular echinococcosis<sup>1,8</sup>. Infected persons may remain asymptomatic for many years or permanently. Many human infections are detected incidentally during imaging studies. Clinical manifestations are determined by the site and size of the slowly enlarging brood cyst. In approximately 90% of cases, cysts are located in the liver or lung; the remaining 10% could be found in any organ of the body, including brain, heart, and bones. Mass effect can cause a variety of conditions such as biliary, bronchial, or renal outflow obstruction. Allergic reactions, including anaphylaxis have been described, with cyst leakage or rupture. Clinical manifestations might be *Echinococcus* strain-dependent. G8 infections are characterized by predominantly pulmonary localization, slower and more benign growth, and less frequent



occurrence of clinical complications than reported for other forms<sup>5</sup>.

### Diagnosis

There is no standard, highly sensitive, and specific serological test for antibody detection in cases of human cystic echinococcosis. Seroconversion is poor in the absence of brood cyst leakage or rupture (CDC personal communication); therefore, serologic testing (which is commercially available) in the absence of suspicious imaging results has marginal sensitivity and predictive value and should be considered only as an adjunct method of diagnosis. Diagnosis usually requires ultrasound, CT, or MRI to detect the location of one or more brood cysts<sup>1</sup>. Diagnosis can also be confirmed by examining cyst tissue or contents for evidence of the parasite, but cyst rupture is a risk with this method. The Office of Epidemiology, Food Protection, and Immunization (OEFI) is available to discuss the epidemiologic features of any suspected case, and, upon prior approval, the Idaho Bureau of Laboratories, in association with the CDC, could assist in sample evaluation.

### Treatment

Treatment options may include surgical removal of brood cysts and/or use of anti-parasitic drugs such as albendazole or benzimidazole. Recent advances have included combination approaches, including albendazole initiation for one month followed by percutaneous aspiration of cyst contents and injection of a protoscolicidal agent, followed by re-aspiration. Consultation with an infectious disease or tropical medicine specialist for diagnosis and treatment is recommended.

### Education and prevention

No human vaccine is available; therefore, education about avoiding parasite eggs is key to disease prevention, particularly for persons who might come in close contact with definitive hosts. Messages for your patients who hunt wolves or elk, or who have working sheepdogs or hunting dogs include:

- When handling feces, pelts, or carcasses from live or dead canines (including wolves) suspected to carry *Echinococcus* eggs, wear disposable gloves and thoroughly wash your hands after handling the material.

- Manage your pet and working dogs appropriately.
  - To avoid passive carriage of eggs, do not allow dogs to roll in wild canid feces.
  - To prevent dogs from becoming infected, do not allow them to consume internal organs from wild herbivores. *Echinococcus* cysts found in herbivores can infect dogs.
  - Once infected, dogs can be a source of infection to you and your family. If you think your dog might have been exposed, talk to a veterinarian about testing and treatment for your dog.
- Because fecal matter can contaminate food or water, use safe food and water practices in the field. Heat potentially contaminated food and water at 140° F (>60° C) for at least 30 minutes to destroy the eggs<sup>1</sup>.

For more information on the disease in wildlife, visit the Idaho Department of Fish and Game web site: [http://fishandgame.idaho.gov/cms/wildlife/manage\\_issues/echinococcus.cfm](http://fishandgame.idaho.gov/cms/wildlife/manage_issues/echinococcus.cfm).

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## Rabies Post-exposure Vaccine Schedule Update

The Advisory Committee on Immunization Practices (ACIP) recently updated their recommendations for post-exposure prophylaxis (PEP) to prevent human rabies in immunocompetent persons. Previously, ACIP recommended a 5-dose rabies vaccination regimen. These new recommendations reduce the number of vaccine doses to four by eliminating the last dose in the series. The series now consists of doses at day 0, 3, 7, and 14. These recommendations do not alter ACIP's guidance for the use of human rabies immune globulin, to be given on day 0. The recommendation was based on evidence from rabies virus pathogenesis data, experimental animal work, clinical studies, and epidemiologic surveillance. A 5-dose vaccine series is still recommended for those with altered immunocompetence.

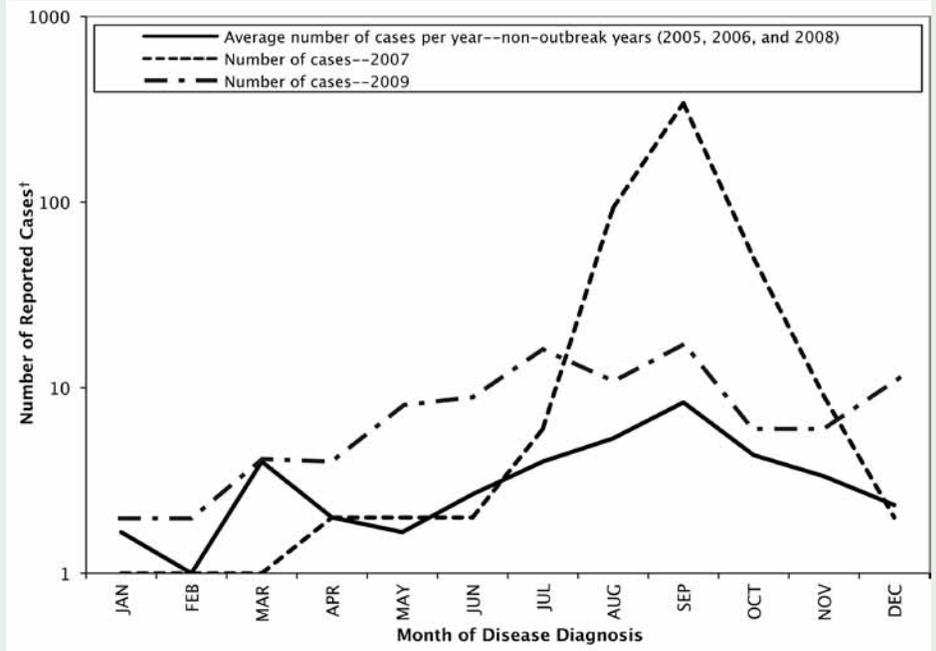
The full ACIP report is found at the following web site: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5902a1.htm>. In the report, Table 3 outlines the rabies PEP schedule for both those not previously and those previously vaccinated.



# Rise in Cryptosporidiosis in Idaho

In 2007, a large increase in the number of reported cryptosporidiosis cases was due in part to outbreaks associated with recreational water venues. In 2008, case reporting declined to background levels. In 2009, the number of reported cases remained low, but was higher than the average for the preceding three non-outbreak years (Figure), raising concern about the potential for an outbreak in summer 2010. Among cases reported during 2006–2009 where information was complete, 46% were in children aged <12 years. Hospitalization was required in 26% of patients aged 50 years and older and 8% of all patients. The mean time from onset of illness to diagnosis was 12 days. Cryptosporidiosis should be considered when patients present with watery diarrhea and can be misdiagnosed as viral gastroenteritis in children presenting with vomiting and fever. Routine ova and parasite tests do not always detect the oocysts: *Cryptosporidium*-specific tests are available. See <http://www.rwi.dhw.idaho.gov>.

Figure. Reported cryptosporidiosis cases by month of diagnosis\*—Idaho, 2005–2009.



\* 17 (2%) of 752 reported cases excluded due to missing diagnosis date.  
 † Y-axis is log scale

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## Idaho Immunization Program Vaccine Funding Update

This article provides a brief history of the Idaho Immunization Program (IIP)'s funding for vaccines and an update on the program's ability to continue providing vaccines for all children in Idaho.

The Vaccines For Children (VFC) program is a federally-funded program that provides vaccines at no cost to children aged 0 through 18 years who might not otherwise be vaccinated because of inability to pay. VFC was created by the Omnibus Budget Reconciliation Act of 1993 as a new entitlement program to be a required part of each state's Medicaid plan. The program was officially implemented in October 1994.

Children qualify for the VFC program if they:

- are enrolled in Medicaid, or
- are American Indian/Alaska Native, or
- do not have health insurance, or
- are underinsured, or are insured, but the insurance does not cover vaccines.

With the implementation of the VFC program in 1994, Idaho chose to provide vaccines for all children, not just VFC-eligible children, thus creating a "universal" immunization program. With the addition of the human papillomavirus (HPV) vaccine and the increasing costs of vaccines, Idaho did not add HPV to the universal program, but began supplying this vaccine only for VFC-eligible children. As a result, Idaho became what is categorized as a "universal-select" state.

Due to reduced state budgets, by July 1, 2009, Idaho was no longer able to provide vaccine for all children to remain a universal-select state and was only able to provide free

vaccines to children eligible through the VFC program. On August 4, 2009 the Governor allocated \$2.1 million in one-time funds for the purchase of vaccine for non-VFC children, restoring Idaho's status as a universal-select state through January 2010. The temporary transition back to a universal-select state allowed healthcare providers to administer state-supplied vaccine to all children aged 0 through 18 years, regardless of VFC-eligibility status (with the exception of the HPV vaccine).

The funding that allowed Idaho to remain a universal-select state will be exhausted during the first part of 2010. The Legislative Health Care Task Force, healthcare providers, insurance providers, and concerned citizens worked very hard to draft a bill that was approved by the legislature and signed by the governor on March 4, 2010. This new law provides for continued funding of vaccines for all children in Idaho by establishing an assessment of insurance carriers for the purposes of funding a universal-select vaccine program. As more information becomes available, the IIP will provide updated information on their website ([www.immunizeidaho.com](http://www.immunizeidaho.com)) and fax important notices to VFC providers and selected medical professional associations.

### Idaho immunization program history

- 1994: federal VFC program implemented, Idaho contributes funds to cover all children.
- 2007: Idaho becomes a universal-select state; all children aged 0 through 18 years are eligible for state-supplied vaccine with the exception of HPV vaccine.

### OFFICE OF EPIDEMIOLOGY, FOOD PROTECTION, AND IMMUNIZATION

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CONTINUED FROM FIRST PAGE

- July 2009: budget cuts lead Idaho to transition to a VFC-only state (only children who qualified for the federal VFC program could receive state-supplied vaccine).
- August 2009: the Idaho Immunization Program receives \$2.1 million in one-time funds to maintain a universal select status through January 2010.
- September 2009 to date: the Legislative Health Care Taskforce and others work on a long-term private sector funding solution for Idaho to remain a universal-select state
- March 4, 2010: House Bill 432 establishing funding mechanisms to maintain universal-select status signed by the Governor.

# Pertussis Remains a Serious Public Health Concern in Idaho

Recent pertussis-associated hospitalizations of two Idaho children from different parts of the state, and a pertussis-associated death in an Idaho infant, are a reminder that this vaccine-preventable disease continues to circulate in Idaho. Communities with under-vaccinated and unvaccinated persons are particularly at risk for widespread morbidity. The number of reported pertussis cases doubled from 40 in 2008 to 99 in 2009. The majority of cases were reported during the winter and spring months (Figure).

In December 2009, South Central Public Health District investigated reports of pertussis in several communities. One outbreak in Jerome County included 14 individuals who required post-exposure prophylaxis and involved extended families and school contacts. A second outbreak, involving four families, occurred in Minidoka and Cassia Counties. There were 4 laboratory-confirmed cases in this outbreak, including 1 hospitalization; 23 individuals required post-exposure prophylaxis. Of the 37 individuals in these 2 outbreaks who required post-exposure prophylaxis, only 7 were vaccinated. A third outbreak

investigated by Southwest District Health occurred in January 2010 in Canyon County, and included three ill household members including a hospitalized infant and a severely ill toddler. The majority of individuals in this outbreak were also unvaccinated or too young to receive the full vaccine series, making them more vulnerable to infection.

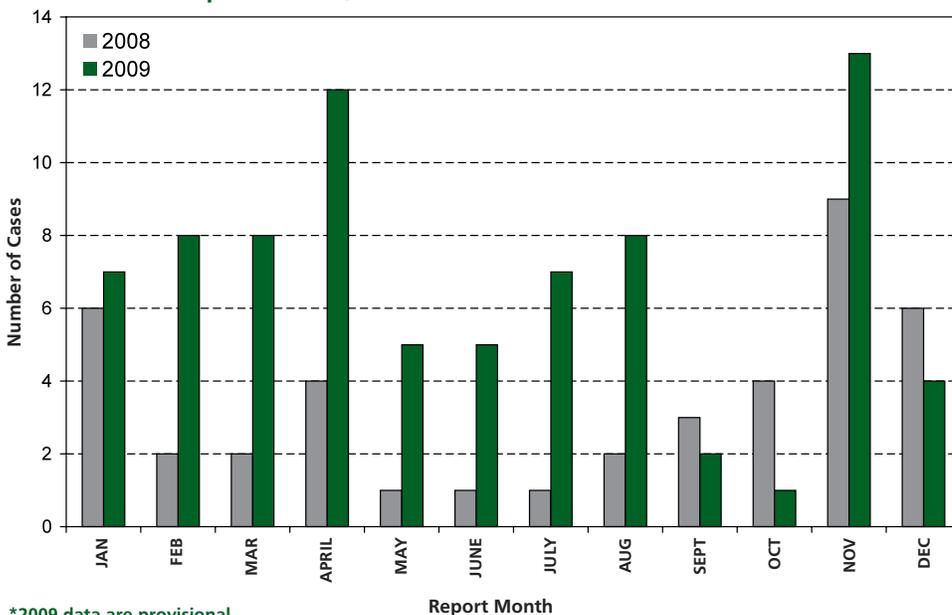
## The public health impact of pertussis

Pertussis is extremely contagious. Up to 90% of susceptible household contacts develop clinical disease following exposure to an index case. Major complications are most common among infants and young children and include hypoxia, apnea, pneumonia, seizures, and encephalopathy. Pertussis can result in hospitalization and death among young children. Most deaths occur among unvaccinated children or children too young to be vaccinated (<2 months of age). Among infants in this age group, the case fatality rate is approximately 1%. In Idaho, pertussis vaccination coverage among children aged 19–35 months was 78% in 2008, below the national average of 85%. Pertussis vaccination coverage among Idaho children of kindergarten age is also considered low at 87%. Published estimates of thresholds for community immunity (sometimes called “herd” immunity) for pertussis are 92–94%. Improved vaccination coverage among Idaho’s children and adults is important to prevent morbidity and mortality and to protect those too young to receive vaccination.

## Diagnosis

Laboratory-diagnosis of *Bordetella pertussis* infections in a timely, accurate, and standardized fashion is a challenge. Culture, long held to be the gold standard for pertussis, is considered no more than 50% sensitive because the microorganism is fragile, because of antibiotic use prior to sample collection, and because of problems associated with specimen collection and/or transport.

Figure. Reported confirmed and probable pertussis cases by month of report—Idaho, 2008–2009\*



\*2009 data are provisional



Alternatively, polymerase chain reaction (PCR) testing, which does not require viable organisms, is much faster and significantly more sensitive than culture. However, detection of pertussis DNA sequences by PCR may or may not indicate a diseased state in the patient as some PCR assays may detect *B. holmesii* sequences rather than *B. pertussis* sequences, yielding a false positive result. The Idaho Bureau of Laboratories has recently begun to offer a more specific PCR test for *B. pertussis*, in support of outbreak investigations, which

includes more *B. pertussis*-specific PCR target sequences, eliminating potential false positive results due to *B. holmesii*.

### Prevention

Children should get 5 doses of DTaP, 1 dose at each of the following ages: 2, 4, 6, and 15–18 months and 4–6 years. Adolescents and adults become susceptible when childhood immunity wanes, but they can receive a booster shot of the Tdap vaccine. A single dose of Tdap is recommended for adolescents aged 11 or 12

years, or in place of one tetanus-diphtheria booster in older adolescents and adults aged 19–64 years. Healthcare providers are strongly encouraged to discuss Tdap vaccine with their patients who are considering becoming pregnant, post-partum women, individuals caring for small children, and healthcare workers.

To learn more about pertussis and the Tdap vaccine, visit the following CDC web site: <http://www.cdc.gov/vaccines/vpd-vac/pertussis/default.htm>.

## The Role of Race and Ethnicity Data in Public Health Decision Making

Race and ethnicity can be an important factor affecting outcome of infection with some diseases. Because of this, the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP) has developed specific guidelines for certain populations, such as American Indian/Alaskan Natives (AI/AN).<sup>1</sup> One disease that has shown variation with disease outcome and race and ethnicity is 2009 H1N1 influenza. A recent MMWR article<sup>2</sup> found that AI/ANs had a mortality rate four times higher than persons in all other racial and ethnic populations combined, prompting CDC to initiate a series of studies to determine the causes of this elevated mortality rate.

Many of these and similar studies rely on state-collected data, such as that collected through Idaho's hospital-based influenza surveillance system. Unfortunately, 27% of the cases collected through this system had race marked "unknown" and 47% had ethnicity missing or marked "unspecified." Consequently, the Idaho Division of Public Health has been unable to evaluate routine surveillance data for racial and ethnic disparities.

Race and ethnicity data are typically collected at the point of care, that is, from private providers, hospitals, or community health centers. Despite increasing atten-

tion to health disparities, the availability of racial and ethnic data from these settings remains limited, complicating efforts to calculate state birth, mortality, and morbidity rates. A primary difficulty in obtaining race and ethnicity data is that in the U.S., many doctors, nurses, and front line staff are reluctant to collect it. The chief reasons given for this are: 1) it is seen as unnecessary, and 2) the belief that asking about it would offend the patient.<sup>3</sup> The remainder of this article will attempt to address each of these reasons.

### Why collect race and ethnicity data?

Among the more common popular ideas for collecting this data is the mistaken perception that race/ethnicity is a means through which to identify biologically-based risk factors.<sup>4</sup> While these risk factors vary geographically due to the partial isolation of human population groups in the past, it is precisely because these populations were only partially isolated that there is substantial genetic overlap between traditionally conceived racial groups.<sup>5</sup> Simply put, one's ancestry and one's race are not equivalent. To illustrate, in the United States African Americans are widely considered to exhibit a higher prevalence of sickle-cell disease. Yet, so too are populations from the circum-Mediterranean, as well as parts of the

Indian subcontinent and Middle Eastern populations. Depending on how race is classified, individuals with ancestry in these regions represent two, or more, different races. Unawareness of this shared nature of genetic variation amongst racial populations can result in diagnostic errors (such as failing to diagnose sickle-cell disease in a White individual).<sup>5</sup> Further, apart from monogenic diseases such as sickle-cell, "...the causes of health disparities have little to do with genetics." Rather, they are largely a result of differences in "...culture, diet, socioeconomic status, access to health care, education, environmental exposures, social marginalization, discrimination, stress and other factors."<sup>6</sup> Thus, the rationale for collection of race and ethnicity data at the point of care is not to identify genetic risk factors but to identify and rectify health inequities for the purpose of more equitable health care. Not reporting race and ethnicity means that disparities in health outcomes (as illustrated with H1N1) remain invisible.

### How are race and ethnicity data defined?

Despite their widespread use, 'race' and 'ethnicity' are famously ambiguous terms. Along with other federal agencies, the Office of Management and Budget (OMB) developed categories to provide consistent data

on race and ethnicity throughout the federal government. The OMB categories are more commonly known as the “census categories” for race and ethnicity. These include two ethnicity categories (“Hispanic or Latino,” “Not Hispanic or Latino”), which OMB recommends asking before race, and a minimum of five race categories (“American Indian or Alaska Native,” “Asian,” “Black or African American,” “Native Hawaiian or Other Pacific Islander,” “White”).

The government’s stated purpose for collecting this information is “...to monitor equal access in housing, education, employment, and other areas, for populations that historically had experienced discrimination and differential treatment because of their race or ethnicity.”<sup>7</sup> OMB states that these categories are not scientifically based and therefore should not be interpreted as being primarily biological or genetic in reference.

## How can race and ethnicity data be collected?

OMB guidance recommends that respect for individual dignity should guide the data collection process and that an individual should never be told how they should classify themselves. For this reason, self-report is considered the “gold standard” for collecting race and ethnicity data and (barring instances where it is not feasible, such as completing a death certificate) should trump all other methods of determination.

The belief among point of care staff that asking about race and ethnicity might offend patients is not without merit. In the United States, it is simply not possible to implement collection of race/ethnicity data without invoking some anxieties about racism and racist classifications. Nevertheless, in a survey of physicians and medical staff, the majority felt collecting

race and ethnicity information would not be problematic if they could adequately explain why it was being done.<sup>3</sup> To diffuse any anxieties it is crucial that the front-line staff collecting this information are fully knowledgeable as to why it is being asked, as well as able to explain why to patients and address their responses.

To assist in this regard, the Health Research and Educational Trust (HRET), an affiliate of the American Hospital Association, has developed an extensive web-based toolkit on collecting race and ethnicity (as well as primary language) information from patients. The website can be found at [http://www.hretdisparities.org/index.php](http://www.hret disparities.org/index.php). Following OMB guidance, the toolkit includes a script for explaining why this information is being collected, real world examples of questions patients have asked, as well as suggested responses for staff.

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## 2009–2010 Influenza Season Update

### Vaccine

As of 12/11/2009, 432,900 doses of 2009 H1N1 vaccine have been allocated to Idaho. Enough vaccine has been distributed that vaccination is now available to everyone in Idaho six months of age or older for whom vaccine is not contraindicated. Public mass immunization clinics and school-based clinics continue to be held throughout the state. In some areas, vaccine is available at retail pharmacies. Anecdotal reports of vaccine uptake among hospital healthcare workers indicate concern over the use of live attenuated influenza vaccine (LAIV) (nasal spray) in hospital settings. LAIV is a very good option for most health care providers who are healthy, younger than 50 years of age, and not pregnant. However, health care providers should not get LAIV if they are providing medical care for patients who require special environments in the hospital because they are profoundly immunocompromised (e.g., those who work in bone marrow transplant units). See [http://www.cdc.gov/h1n1flu/vaccination/nasalspray\\_qa.htm](http://www.cdc.gov/h1n1flu/vaccination/nasalspray_qa.htm) for more information.

### Antivirals

The Centers for Disease Control and Prevention (CDC) recommends that all *hospitalized* patients with suspected or confirmed 2009 H1N1 influenza receive antiviral treatment with a neuraminidase inhibitor – either oseltamivir or zanamivir – as early as possible after illness onset. Although antiviral treatment is most effective when begun within 48 hours of influenza illness onset, studies

have shown that hospitalized patients still benefit when treatment with oseltamivir is started more than 48 hours after illness onset. Outpatients, particularly those with risk factors (see <http://www.cdc.gov/h1n1flu/highrisk.htm>) for severe illness who are not improving, might also benefit from treatment initiated more than 48 hours after illness onset. Treatment should not be delayed while waiting for laboratory confirmation by RT-PCR, nor deterred by a negative rapid flu test: the sensitivity of rapid flu tests for detecting 2009 H1N1 influenza is estimated to range from 10–70%. See <http://www.cdc.gov/H1N1flu/recommendations.htm> for further information.

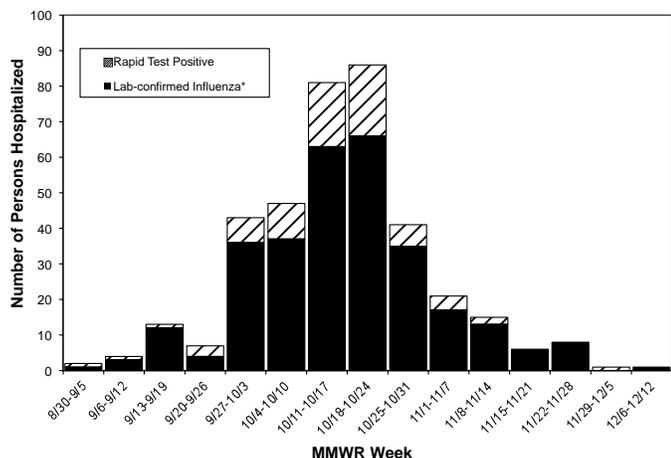
Intravenous peramivir has been made available under an Emergency Use Authorization through CDC for the treatment of certain patients hospitalized with influenza. Licensed clinicians with prescribing privileges may request Peramivir IV directly from the CDC. As of 12/11/09, CDC has had over 950 requests for peramivir, including several requests from Idaho providers. Supplies are expected to remain sufficient for demand. See <http://www.cdc.gov/h1n1flu/eua/peramivir.htm> for more information.

### Hospitalizations

During the week of 12/6–12/12, there was one hospitalized patient who had a laboratory-confirmed test for influenza of any strain; this represents the second consecutive week with only one hospitalized flu case (Figure 1). Since September 1st, young people have represented the largest percentage of hospitalized cases:

–continued next page

Figure 1. Hospitalized cases in Idaho with any positive influenza test, as reported to IDHW, by MMWR week



\* Confirmed by culture, viral Ag DFA or RT-PCR

70% of hospitalized cases have been younger than 50 years of age, 38 % have been less than 19 years of age, and 19% have been younger than 5 years of age.

### N-95 Respirators in Healthcare Settings

While the national debate about the use of N-95 respirators for protection from 2009 H1N1 influenza in healthcare settings continues, the IDHW Office of Epidemiology, Food Protection, and Immunization recommends that healthcare facilities review CDC’s “Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel” at [http://www.cdc.gov/h1n1flu/guidelines\\_infection\\_control.htm](http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm) and prioritize respirator and face-mask use accordingly, as needed. See also [http://www.cdc.gov/h1n1flu/guidelines\\_infection\\_control\\_qa.htm](http://www.cdc.gov/h1n1flu/guidelines_infection_control_qa.htm).

On 11/02/2009, Idaho received over 275,000 N-95 respirators from CDC’s Strategic National Stockpile, which were shipped to local public health districts. These masks are available to assist healthcare workers supplement supplies when local shortages occur in healthcare settings.

### Summary

While influenza activity is dropping off at the time of this printing, it is still unknown whether seasonal influenza viruses will emerge as an important factor this fall and winter in the U.S. population. In addition, the future activity of the 2009 novel H1N1 virus is uncertain; additional waves of illness may yet occur this influenza season. Therefore, persons are urged to continue to obtain influenza vaccine when it’s available for them in their communities.

## Initial Appearance of 2009 Novel H1N1 Influenza in Idaho: Data Summary from Spring/Summer 2009

In Idaho, 341 confirmed cases of 2009 H1N1 were reported from April through August, none of them fatal. H1N1 cases were consistently reported through the summer. As is shown in Figure 2, there was a steady rise in case reports throughout the summer.

Among all 341 reported cases, 54% were male and 46% were female. The age groups most affected by H1N1 influenza tended to be younger than those traditionally hardest hit by classic seasonal influenza. The median age of confirmed H1N1 cases was 20.0 years (range: <1 years–69 years).

A total of 15 confirmed 2009 H1N1 cases were reported hospitalized. Hospitalized cases were 53% male and 47% female. The median age of hospitalized, confirmed cases was 22.0 years (range: 0–74 years). The most common reported comorbid condition in hospitalized cases, where known, was asthma. Other conditions included other chronic disease, other chronic lung disease, chronic heart or circulatory disease, metabolic disease (including diabetes), and neurologic disease (Table).

Figure 2. Confirmed 2009 H1N1 reported cases by event date—Idaho, 4/24/2009–8/31/2009

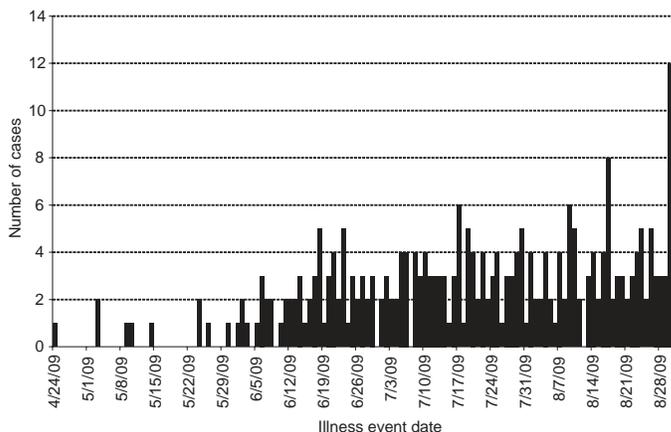


Table. H1N1 cases by reported co-morbid condition*—Idaho, 4/26/2009–8/31/2009						
Comorbid conditions	Yes	No	Unknown	Missing	Total	% yes of known
Asthma	12	63	33	233	341	16.0%
Other chronic disease	4	69	34	234	341	5.5%
Other chronic lung disease	3	72	31	235	341	4.0%
Chronic heart or circulatory disease	3	74	32	232	341	3.9%
Metabolic disease (including diabetes)	3	73	31	234	341	3.9%
Neurological disease	1	71	34	235	341	1.4%
Cancer in last 12 months	0	78	29	234	341	0.0%
Kidney disease	0	73	33	235	341	0.0%
Immunosuppressive condition	0	0	0	341	341	--

\*132 (39%) of 341 case-records had missing or unknown values for every co-morbid condition

## Ophthalmia Neonatorum Prophylaxis Shortage Update

**Shortages of erythromycin (0.5%) ophthalmic ointment for prophylaxis of ophthalmia neonatorum have existed since August 2009.** Medical providers have been advised to review and reserve supplies for neonatal prophylaxis use. When erythromycin ophthalmic ointment is not available, CDC recommends using AzaSite (azithromycin ophthalmic solution 1%, Inspire Pharmaceuticals). If neither are available, CDC lists several other acceptable alternatives: gentamycin ophthalmic ointment 0.3%, tobramycin ophthalmic ointment 0.3%, and if none of these recommended or alternative options are available, ciprofloxacin ophthalmic ointment 0.3%.

Notably, the FDA continues to receive reports of mostly mild adverse reactions associated with the use of gentamicin ophthalmic ointment from several lots. The latest communication posted to CDC's web site states:

"Until the etiology is known, it may be reasonable to limit the contact exposure of gentamicin ophthalmic ointment on the skin. Gentamicin ophthalmic ointment should be used with caution and used only if acceptable alternatives...are not available. These adverse events will continue to be investigated by the FDA. Providers should continue to report adverse events to FDA MedWatch

(<http://www.fda.gov/Safety/MedWatch>)."

"Erythromycin ophthalmic ointment is currently available through the major wholesalers and should be the first option for prophylaxis of ophthalmia neonatorum. Providers are strongly encouraged to locate and obtain this product. Bausch and Lomb has increased its production of erythromycin ophthalmic ointment (1 gm tube) and is expected to meet demand. In an effort to ensure equitable distribution of product and to minimize spot shortages, providers should order product based on short term need only. Alternative recommendations should only be used if erythromycin ophthalmic ointment can not be obtained. See the FDA website (<http://www.fda.gov/Drugs/DrugSafety/DrugShortages/ucm050792.htm>) for more information on obtaining erythromycin ophthalmic ointment."

Medical providers are cautioned that the efficacy data of alternate regimens are unavailable, and there may be the possibility of prophylaxis failure. Infants should be examined closely for ophthalmia neonatorum at their first post-natal visit 48–72 hours after discharge from the hospital. Infants presenting with ophthalmia neonatorum should be tested for *N. gonorrhoeae*.

## Healthcare Acquired Infections Grant

**The United States Congress recently allocated \$40 million in American Recovery and Reinvestment Act (ARRA) funding through the Centers for Disease Control and Prevention (CDC) to support healthcare associated infection (HAI) surveillance and prevention activities.** The funding provided to state health departments will enhance state capacity for HAI prevention. Potential target areas include MRSA, *Clostridium difficile* infections, bloodstream infections, and urinary tract infections.

The funding Idaho has received will be used to enhance infrastructure for hospitals to implement or improve HAI surveillance activities. Facilities across the state need assistance in the design and improvement of effective and efficient active surveillance processes and reduction strategies for HAI rates. With a surveillance infrastructure in place, Idaho healthcare facilities will eventually be able to sustain an ongoing HAI surveillance and prevention program, evaluate efforts, compare their efforts to statewide targets, and make improvements.

Currently, the Idaho Department of Health and Welfare (IDHW) epidemiology staff are drafting a five-year plan

to address HAI surveillance and prevention in Idaho. The draft plan is being reviewed by a group of stakeholders to provide input and recommendations for the statewide plan, which will cover the following broad objectives:

1. Establishing and defining objectives, criteria, and standards for HAI reporting.
2. Developing an action plan to implement statewide HAI surveillance using the National Healthcare Safety Network.
3. Identifying specific infections and indicators for surveillance and reporting.

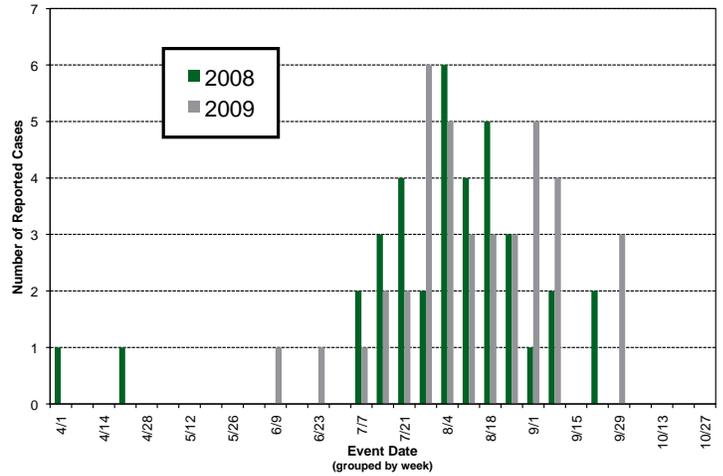
Once the statewide plan has been drafted, ARRA funding will be used to implement the plan. Initial work will focus on facilitating and providing technical assistance to facilities that volunteer to participate in this initiative. For more information about the HAI initiative, please contact OEFI at 208-334-5939. For more information about the CDC's National Healthcare Safety Network (NHSN), see <http://www.cdc.gov/nhsn/>.

# West Nile Virus in Idaho, 2009

**West Nile virus (WNV) caused low-level morbidity and mortality in Idaho in 2009.** WNV infections were reported in 41 individuals in 2009: two were asymptomatic blood donors. The median age of reported cases was 53 years of age (range 14 years to 86 years) and 57.5% were male. Of the symptomatic cases (n=39), 16 (41%) were hospitalized, and 12 (31%) had neurologic involvement (*i.e.*, meningitis, encephalitis, meningoencephalitis, or other neuroinvasive conditions including flaccid paralysis). Two deaths were attributed to WNV in 2009, both in persons over 65 years of age. Seasonality is shown in the figure. The majority of 2009 WNV infections occurred between June and October—similar to the 2008 WNV season. WNV was detected in nine horses, two birds, one dog and numerous mosquito pools. Evidence of human, mammal, and mosquito WNV activity appears to be limited to central and southern Idaho. Idaho surveillance data, “Fight the Bite” WNV prevention campaign materials,

and other guidance documents for health care providers, local government entities and the public at large are found at <http://www.westnile.idaho.gov>.

Figure. WNV human cases, by week—Idaho, 2008–2009



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## Influenza Update: Surveillance, Testing, and Vaccine Safety Monitoring

**P**roviders seeing patients with suspected influenza this fall may ask themselves whether testing for H1N1 is necessary for clinical purposes, desired from a public health standpoint, or even required under certain circumstances. Clinical decision-making is left up to the provider, but in general it is likely that in most circumstances, a positive rapid test might be helpful, but a negative test is not sufficient to rule out influenza disease, and treatment and prophylaxis decisions will need to be made prior to any culture or H1N1 confirmatory results being available. The public health surveillance strategy for this influenza season is outlined on this page and the next page. In no circumstances is testing required, although providers are now required to report patients with probable and confirmed novel H1N1 infection if hospitalized (see next page). As always, feel free to call Dr. Christine Hahn at the Office of Epidemiology, Food Protection, and Immunization (208-334-5939) if you have any clinical questions; Dr. Leslie Tengelsen and Dr. Kris Carter are also available at the same number to answer questions about testing, surveillance, vaccination, or other issues surrounding H1N1.

### Tracking influenza in Idaho

Influenza surveillance is a year-round activity designed to monitor illness severity and characterize circulating strains. The emergence of the 2009 H1N1 influenza virus (aka swine flu, pandemic flu) in April and subsequent designation as a pandemic virus prompted heightened influenza surveillance efforts. To that end,

regular influenza surveillance activities have been enhanced with 2009 H1N1 influenza-specific surveillance methods.

### Regular influenza surveillance

- 1. ILI sentinel surveillance.** Influenza-like illness (ILI) surveillance is designed to monitor the relative level of influenza activity. Eighteen sentinel healthcare provider sites across the state are reporting weekly the proportion of visits for ILI among all visits and participating in virologic surveillance.
- 2. Virologic surveillance.** The Idaho Bureau of Laboratories (IBL) has specific laboratory surveillance protocols for ILI sites and hospital clinical laboratories in order to characterize circulating strains. ILI sites routinely submit a sample of respiratory specimens for viral sub-typing year-round; with particular focus on sampling early, middle, and late in the influenza season. Many samples are routinely forwarded to the Centers for Disease Control and Prevention (CDC) for additional antiviral drug resistance testing and monitoring.
- 3. Mortality tracking.** The Idaho Department of Health and Welfare (DHW) receives and reviews cause of death data daily. Influenza-associated death data are tabulated by number, seasonality, and age and reported to the CDC.
- 4. State influenza activity code.** A weekly review of influenza surveillance is used to determine relative statewide influenza activity levels. The

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weekly state activity code, which is an assessment of overall influenza activity based on the data above and other reports such as media reports, school closures, *etc.*, is reported to the CDC and available at [www.cdc.gov/flu/weekly/](http://www.cdc.gov/flu/weekly/).

## Enhanced influenza surveillance activities

Novel influenza A reporting rules went into effect on September 1, 2009.

### 1. 2009 H1N1 influenza reporting.

As of September 1, 2009 all laboratories confirming the presence of 2009 H1N1 influenza (currently limited to Quest Diagnostics, LabCorp, and IBL) are required to report to Idaho local or state public health officials. Additionally, physicians and hospitals must report hospitalized probable or confirmed cases of novel H1N1. Local public health district staff may investigate any probable or confirmed case of novel influenza A. A tabulation of reported counts by county of residence is updated each Wednesday and available at [www.panflu.idaho.gov](http://www.panflu.idaho.gov).

**2. Tracking severity.** All hospitals are now required to report all hospitalized laboratory-confirmed and probable cases (those individuals with a positive influenza test of any sort) to IDHW. Among these cases, extended chart reviews will take place for Ada, Bingham, and Kootenai County residents to evaluate risk factors for severe disease.

**3. Aggregate reporting to CDC.** Currently CDC is asking all states to report the cumulative number of hospitalizations for flu-like illness and the cumulative number of deaths associated with influenza and pneumonia weekly by age group.

## Laboratory testing

Many preliminary influenza tests, which identify the presence of influenza A but do not indicate the subtype, may be done within the office or hospital clinical laboratory. They include rapid influenza diagnostic tests, which may differentiate

between influenza A and B, and other tests such as DFA, IFA, or culture. Two commercial laboratories (Quest Diagnostics [[www.questdiagnostics.com/](http://www.questdiagnostics.com/)] and LabCorp [[www.labcorp.com/wps/portal/](http://www.labcorp.com/wps/portal/)]) are offering confirmatory laboratory testing for the 2009 H1N1 influenza virus. They use an FDA-authorized real-time RT-PCR technique under an emergency use authorization.

The IBL offers confirmatory testing for the 2009 H1N1 influenza virus and circulating seasonal viruses under the following circumstances:

1. a person hospitalized with suspected influenza, or
2. a person with a fever AND either cough or a sore throat who:
  - works in a hospital setting, or
  - is pregnant (regardless of hospitalization status), or
  - is part of a possible outbreak being investigated by public health officials.

## Appropriate clinical specimens

Specimens acceptable for testing include the following: nasopharyngeal swabs, nasal aspirate or swab, or a combined nasopharyngeal/oropharyngeal swab. For patients who are intubated, an endotracheal aspirate should also be collected. Specimens collected by other methods, such as a bronchoalveolar lavage should be accompanied if possible by an approved specimen listed above. All specimens must be accompanied by the appropriate laboratory submission form which can be found on "For Providers" page of [www.panflu.idaho.gov](http://www.panflu.idaho.gov) under "Testing and Surveillance Information: Laboratory Testing."

## H1N1 vaccine safety monitoring

On September 15, 2009 the FDA approved four vaccines against the 2009 H1N1 influenza virus: three injectable products containing inactivated virus and one intranasal product containing live attenuated virus. Because clinical trials use relatively small numbers of subjects, very rare

adverse events and delayed reactions associated with a vaccine might not be detected until the vaccine is given to millions of people. Health care providers are encouraged to report any clinically significant or unexpected event (even if uncertain that vaccine caused the event) for any vaccine through the Vaccine Adverse Event Reporting System (VAERS) at [www.vaers.hhs.gov](http://www.vaers.hhs.gov). In addition, a severe reaction known or suspected to be due to any vaccine is a reportable condition in Idaho and must be reported to the Idaho DHW or your local public health district within one working day of identification. If you have any questions about adverse event reporting, you may contact the Idaho Immunization Program's Vaccine Safety Coordinator, Jeff Kingsbury, at 208-334-5967.

In addition to monitoring VAERS data in collaboration with the Food and Drug Administration (FDA), CDC will monitor Influenza A (H1N1) 2009 Monovalent Vaccine safety through:

1. the Vaccine Safety Datalink (a collaborative effort between CDC and eight large managed care organizations),
2. the Vaccine Analytic Unit (a collaboration among the Department of Defense, the CDC, and the FDA),
3. the Clinical Immunization Safety Assessment (a collaboration between CDC and six academic centers with expertise in immunization safety), and
4. active case-finding for Guillain-Barré syndrome (GBS) through CDC's Emerging Infections Program, a population-based collaboration between CDC and partners in ten states. The provisional case definition from the Brighton Collaboration (see [www.brighton-collaboration.org](http://www.brighton-collaboration.org)) will be used for GBS surveillance.

Your patients may be particularly concerned about the safety of Influenza A (H1N1) 2009 Monovalent Vaccine because of the association between the 1976 swine flu vaccine and GBS in adults (see the Institute of Medicine's Immunization Safety Review: Influenza Vaccines and Neurological Complications at [www.nap.edu/catalog.php?record\\_](http://www.nap.edu/catalog.php?record_)

**id=10822.** The CDC has developed a frequently asked question webpage (see [www.cdc.gov/h1n1flu/](http://www.cdc.gov/h1n1flu/)) for patients who have concerns about Influenza A (H1N1) 2009 Monovalent

Vaccine safety. In addition, rumors have circulated that this vaccine will be mandatory. Patients should be informed that the Advisory Committee on Immunization Practices makes rec-

ommendations on who should receive vaccine, but that vaccine is not mandatory in Idaho.

## Infant Botulism: Recognition and Resources

**Infant botulism investigations in Idaho** suggest that clinicians might have a low index of suspicion for infant botulism. Infant botulism is a rare disease that primarily affects infants aged 1–50 weeks (median 15 weeks). Although rare, infant botulism is the most common form of human botulism in Idaho and the United States. During 2004–2008, all three reported cases of botulism in Idaho were infant botulism. In the United States, approximately 65% of reported, laboratory-confirmed botulism cases are infant botulism.

Unlike classic foodborne botulism, infant botulism occurs when ingested spores of *Clostridium botulinum* colonize, grow, and produce botulinum neurotoxin in the infant's large intestine. The only spore-containing food associated with infant botulism is honey; in most cases, the source of the spores is unknown and thought to be environmental as *C. botulinum* spores are ubiquitous in soil worldwide. Infant botulism caused by toxins produced by other clostridia (*i.e.*, *C. butyricum*, *C. baratii*) has also been reported. Breastfeeding is not protective, but infant botulism tends to occur in formula-fed infants at a younger age.

Botulinum toxin binds at the neuromuscular junction; prevents release of acetylcholine; and produces a symmetrical, descending, flaccid motor paralysis.

The first indication of illness is usually a decreased frequency of defecation, or constipation (three or more days without defecation in a previously regular infant), but this sign is frequently overlooked. Typically, caregivers first notice that the infant is feeding poorly and breast-feeding mothers may experience breast engorgement because the baby's suck is weak. The infant appears listless, breathing might become shallow, and the cry is feeble. Drooling may become more noticeable, but is sometimes attributed to

teething rather than dysphagia.

On clinical presentation, in mild cases or in the early stages of illness, signs may be subtle and easily overlooked. The first signs of illness are related to the cranial nerves. Careful examination can elicit cranial nerve palsies and muscle fatigability (see Table).

On initial presentation, the patient typically has some or all of the following findings: weak cry, diminished suck and gag, drooling and/or pooling of saliva, ptosis (which may not be evident until the infant's head is held erect), dilated and/or sluggishly reactive pupils, disconjugate gaze, blunted facial expression, poor head control, decreased anal sphincter tone, hypotonia, and generalized weakness ("floppy baby"). Deep tendon reflexes may be normal or decreased. Sensation remains intact, but may be difficult to demonstrate because of the motor paralysis. Rarely death without preceding signs, resembling sudden infant death syndrome, can occur. Suspected sepsis is the most common admission diagnosis for patients with infant botulism.

### Immune globulin (BabyBIG®)

A human-origin botulinum immune globulin (BabyBIG®) for treatment of infant botulism is available from the California Department of Public Health's Infant Botulism Treatment and Prevention Program (IBTPP) at a current cost of \$45,300. According to the IBTPP, treatment with BabyBIG® is cost-effective as it reduces the mean hospital stay from approximately 5.7 weeks in untreated patients to approximately 2.3 weeks. To obtain BabyBIG®, the patient's physician must contact the IBTPP on-call physician in California at (510) 231-7600 to review indications for treatment. Treatment should be started as early in the illness as possible. See <http://infantbotulism.org> for more information.

**Table. Physical examination signs helpful in the diagnosis of infant botulism**

**Test 1.** Take the patient to a dark room. Shine a bright light into the eye; note the quickness of pupillary constriction. Remove the light when constriction is maximal; let the pupil dilate. Then immediately repeat, continuing for 2–3 minutes. Supportive findings: The initially brisk pupillary constriction may become sluggish and unable to constrict maximally.

**Test 2.** Shine a bright light onto fovea, keeping it there for 1–3 minutes even if the infant tries to deviate the eyes. Supportive findings: Latent ophthalmoplegia may be elicited, and/or purposeful efforts to avoid the light may diminish, because fatigability with repetitive muscle activity is the clinical hallmark of botulism. Also observe for initial squirming of the extremities that may diminish because of fatigability.

**Test 3.** Place a clean fifth finger in the infant's mouth, taking care not to obstruct the airway. Note the strength and duration of the reflex sucking. Supportive findings: The suck is weak and poorly sustained. The gag reflex strength also may be quickly checked (if the infant has not been fed recently).

In addition, constrictor muscle fatigability may yield a "pseudo" gibbus.

Source: Adapted from Aron SS. Infant botulism. pp. 1866 in Feigin RD, Cherry JD, Demmler-Harrison GJ, Kaplan SL, eds. Textbook of Pediatric Infectious Diseases, Sixth Edition. WB Saunders, Philadelphia, 2009 and modification of 2004 table version accessed on 6/15/2009 at <http://infantbotulism.org>

## Idaho case study

A previously well 5-month old white male was hospitalized for inability to feed and dehydration. He lived on a dairy farm and was exclusively breastfed. Two days before admission, a throat swab was positive for group A *Streptococcus* on rapid antigen testing, and he started oral amoxicillin. He had not previously taken any medications, and no toxin exposure was suspected. Because he typically had bowel movements every 5–10 days, no change in stooling was noted by his parents.

No growth was seen on culture of blood, urine, and CSF. CBC, chemistries, and CSF findings were normal. He was treated with intravenous ceftriaxone and intravenous hydration, but continued to be unable to feed. He was afebrile with normal vital signs. Intravenous fluconazole was given because of thrush.

After six days, he was transferred to the care of a pediatric gastroenterologist at a children's hospital. Upper gastrointestinal endoscopy was done to rule out esophagitis or esophageal foreign body.

Infantile botulism was considered. Examination at that time included weak cry, ptosis, poor head control, large sluggishly reactive pupils, and absence of suck and gag reflexes. He was able to lift arms or legs against gravity, was alert and attentive to his parents, had conjugate extraocular movements, and had detectable deep tendon reflexes. Stool was submitted through the Idaho Bureau of Laboratories for botulinum toxin assay. He received botulinum immune globulin (BabyBIG®) after the attending

physician contacted IBTPP. He was discharged from the hospital receiving nasogastric feedings six days after receiving botulinum immune globulin. He made a complete recovery over several months. This case illustrates the non-specific symptoms that make infant botulism challenging to diagnose, and serves as a reminder that botulism should be in the differential diagnosis of any infant with poor feeding.

## Reporting and testing

Every suspected case of botulism must be reported immediately to your local public health district or the Idaho Department of Health and Welfare (IDHW). Please be aware that contacting California's IBTPP does not constitute a report to Idaho public health officials. In addition, all requests for testing for infant botulism must be approved by the IDHW and coordinated through the Idaho Bureau of Laboratories—the IBTPP does not provide testing for Idaho patients. A stool or enema specimen is required to perform a direct toxin analysis and to isolate *Clostridium botulinum*. See [www.healthandwelfare.idaho.gov/Health/Labs/ClinicalMicrobiology/tabid/190/Default.aspx](http://www.healthandwelfare.idaho.gov/Health/Labs/ClinicalMicrobiology/tabid/190/Default.aspx) for sample submission guidelines and <http://infantbotulism.org> for detailed specimen collection procedures.

## CME

The American Academy of Pediatrics offers CME on infant botulism (AAP Grand Rounds 19:30-31, 2008 at <http://aapgrandrounds.aappublications.org/cgi/content/extract/19/3/30>).

An electronic version of the Rules and Regulations Governing Idaho Reportable Diseases may be found at <http://adm.idaho.gov/adminrules/rules/ida16/0210.pdf>. Current and past issues are archived online at [www.epi.idaho.gov](http://www.epi.idaho.gov).

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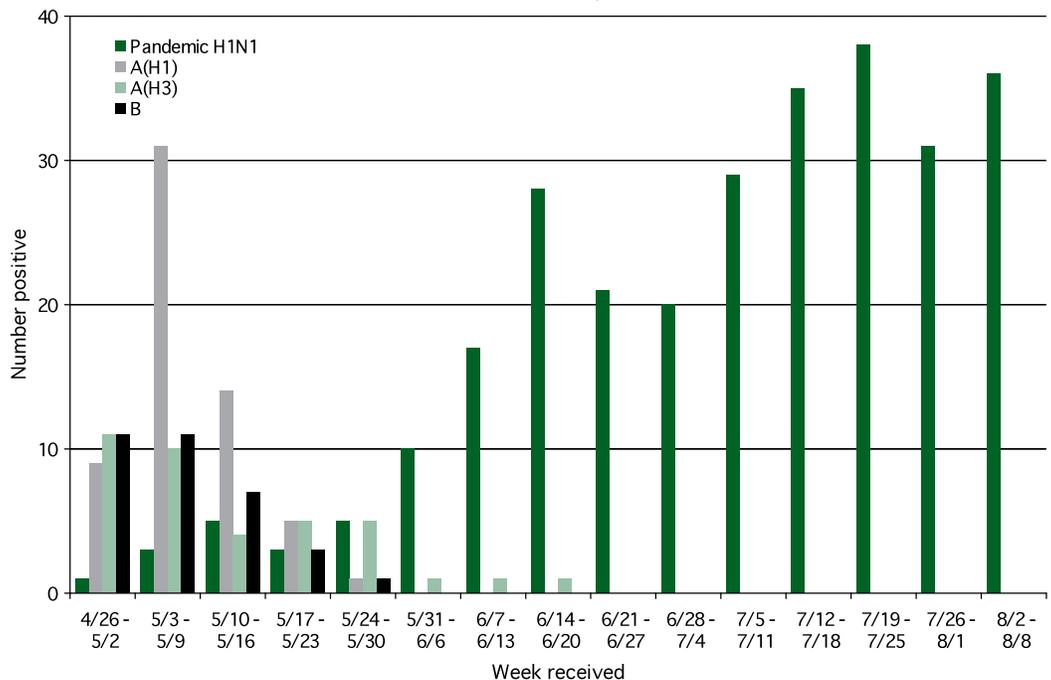
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## The Virus Formerly Known as Swine: Planning for Fall

The novel influenza virus that caused an outbreak last spring has now been declared by the World Health Organization to be a pandemic virus. Despite the lack of media interest, cases of influenza due to the pandemic (H1N1) strain continue to occur worldwide, including throughout the United States and in Idaho. The graph below illustrates recent activity, showing that as seasonal strains have disappeared, the number of cases of influenza due to the pandemic strain detected at the Idaho Bureau of Laboratories (IBL) have increased weekly.

**Figure: Influenza positive PCR results at IBL by week received, April 26, 2009–June August 8, 2009**



Among hospitalized cases reported nationwide, the median age is 37 years, with very few persons aged  $\geq 65$  years reported to have been hospitalized. Among fatal cases, 85% have a reported underlying condition, with asthma, other pulmonary disease, diabetes, and chronic cardiovascular disease the most commonly reported. What can be expected for this fall? The experts seem to agree: based on the current limited understanding of how new influenza strains enter and are sustained in the human population, it is impossible to predict how common, or severe, cases of pandemic influenza may be in the United States this fall. Planning efforts are assuming that cases will continue to occur and will probably increase; illness severity will be the same or worse than what was seen this spring; and that vaccine with a new pandemic influenza vaccine will be available sometime this fall.

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In Idaho, a temporary rule is being proposed that will go into effect September 1, 2009, requiring physicians to report HOSPITALIZED or fatal probable or confirmed cases of novel influenza. An overall influenza surveillance plan for this season is being developed in coordination with CDC, the public health districts, and Idaho hospitals to monitor the number and ages of all persons hospitalized with confirmed influenza (seasonal, pandemic, and undetermined strains) to assist hospitals, preparedness planners, and policy makers to determine how severely the influenza outbreak is impacting Idaho providers and hospitals. Physician reporting of hospitalized and fatal cases of probable and confirmed cases of novel (pandemic) influenza will assist this effort.

In addition, recent new information helpful to planning efforts includes:

A recent Science article (Enserink M, Ferrets Shed Light on New Virus's Severity and Spread. *Science* 3 July 2009: 17) demonstrated that in ferrets, a good animal model for studying human influenza infection, the new virus is more pathogenic than seasonal influenza, but not as dangerous as the 1918 pandemic virus or H5N1 avian influenza. There was less clarity on how easily the virus spreads: one team concluded it does so very well, but the other believes it is only moderately adept at spreading from one animal to the next.

Some physicians in the private sector will be asked to participate in pandemic influenza vaccination, and also will be **strongly encouraged to begin seasonal influenza vaccination as soon as vaccine is available**; some doses of seasonal influenza vaccine may be available as early as late August.

On July 29th, the Advisory Committee for Immunization Practices recommended the following 5 groups be targeted initially to receive pandemic influenza vaccine: Pregnant women, caretakers of infants <6 months of age, children and young adults age 6 months through 24 years, adults age 25 through 64 with chronic conditions placing them at high risk of severe influenza infection, and healthcare workers and emergency medical service providers. If enough vaccine is available, healthy adults age 25-64 will be added to the group; lastly, adults age 65 and over may be vaccinated if additional vaccine is available. There is still great uncertainty as to how much vaccine will be available, and what the start date for vaccination may be: currently, we are expecting that October 15th will be the most likely date, but there is still discussion at CDC of pushing out some doses of vaccine as soon as September 15th.

Significant questions remain unanswered as of this writing, with a few outlined below.

1. Will pandemic influenza vaccine be available at the same time as seasonal flu vaccine? Currently, studies are underway evaluating the safety of administering both pandemic and seasonal vaccine at the same visit. Is this even desirable, or is it better to keep vaccination efforts as separate as possible in order to track adverse events and decrease the likelihood of confusion between the vaccines?
2. Will the public be eager to accept a pandemic vaccine, or will they stay away?
3. Assuming some private healthcare providers will be asked to administer pandemic flu vaccine, will they

4. Will the vaccine be an FDA-licensed product, or be administered under an Emergency Use Authorization (which will be required if adjuvants are included that are not usually part of the seasonal flu vaccine)? This will not be determined until after initial clinical data are available, hopefully in August, although efforts are being made to avoid this scenario if possible.
5. Will two doses of pandemic flu vaccine be required for everyone (almost certainly, probably 21 days apart)?
6. Will healthcare providers be able to collect reimbursement for administration costs? (It appears that will be possible, but lots of work is being done on this issue).
7. How will administration of vaccine and adverse events best be monitored, including special surveillance for Guillain-Barre Syndrome (work is ongoing in this area, including work with medical professional associations)?
8. What protective measures will be recommended for healthcare workers evaluating persons with influenza-like illness (e.g., N-95 respirators or surgical masks)? This is very controversial area, with the HICPAC committee recommending a more modest approach; this has not yet been adopted by CDC and may not be due to concerns about employee safety).

These and other questions are all being actively addressed, and ongoing evaluation of influenza activity in the southern hemisphere will help inform many of these. In Idaho, active planning efforts are continuing. We will strive to keep healthcare workers apprised of new recommendations as they are made, taking care to ensure that our information is always "added value" in addition to information coming from the CDC and other entities. We expect the situation to be very dynamic, as it was this past spring, and appreciate your feedback as the situation progresses. We anticipate posting Idaho-specific guidance to our website at [www.flu.idaho.gov](http://www.flu.idaho.gov) and will be issuing health alerts and press releases as necessary to keep you up-to-date on the current situation and recommendations in Idaho. Meanwhile, what can you do? These can be done now:

Ensure that your office is enrolled to receive health alerts, including your current preference for email versus fax notification. If you have doubts, you or your staff may find enrollment and registration information on the Idaho HAN website at [https://health.dhw.idaho.gov/IDHAN/Form/Misc/contact\\_us.aspx](https://health.dhw.idaho.gov/IDHAN/Form/Misc/contact_us.aspx).

Encourage your patients with indications to consider the pneumococcal vaccine and the seasonal influenza vaccine.

Keep abreast of news on this topic, especially regarding the plans for including private sector providers in vaccination, disease screening, case reporting, treatment, prophylaxis, and isolation efforts.

We and the public health districts will continue to work together to inform you and your staff on the current severity and impact of influenza in Idaho, current recommendations on prevention including immunization, and other news important to your practice.

# Venomous Snakebites

**Approximately 2,000 venomous snakebites occur** annually according to a survey of the American Association of Poison Control Centers done by Gold BS, et al.<sup>1</sup> This figure is likely an underestimate of the true nationwide incidence because snakebites are not reportable and not all incidents are documented through poison control call centers. Snakebite calls to poison control centers usually report a bite from a rattlesnake; however, calls may also report bites from other venomous wild or privately held exotic and non-poisonous snakes. Approximately five venomous snakebite-associated fatalities occur each year in the United States.<sup>1</sup> No definitive data are available on the number of annual snakebites occurring in Idaho; however, data are available from calls made to the Rocky Mountain Poison and Drug Center (RMPDC).<sup>2</sup> As of August 3, 2009, the RMPDC received 41 calls from Idaho between 2006 and 2009 regarding snakebite management. Calls were classified by snake type: 63% crotalids (*i.e.*, rattlesnakes, unknown crotalids); 22% unknown snake type; 14.6% non-poisonous snakes. Calls were logged by the zip code of the caller (which may or may not represent the exposure location). Calls specifically for rattlesnake bites came from multiple locations across the state; calls originating from south and southwestern Idaho account for 72% of calls (Figure 1).

**Figure 1. Rattlesnake Bite-associated Rocky Mountain Poison Control Center Calls, by call zip code, 2006–2009\***



The Western Rattlesnake (*Crotalus viridis*) is the only venomous snake indigenous to Idaho.<sup>3</sup> They live primarily in dry, rocky terrain in the southern and central regions of the state and have been found at elevations up to 11,000 feet. There are three subspecies: the Prairie Rattlesnake (*Crotalus viridis viridis*), the Great Basin Rattlesnake (*Crotalus viridis lutosus*), and the Northern Pacific Rattlesnake (*Crotalus viridis oreganus*). All three have differing coloration and habitat preferences, but are otherwise similar. They may reach up to five feet in length and are thick muscular snakes with tail rattles and a classic triangular head. They become active around 60°F, with peak activity occurring between 70°F and 90°F.

The venom of the Western Rattlesnake is hemotoxic, consisting of a combination of enzymes responsible for local tissue damage and a consumptive coagulopathy.<sup>1</sup> Bites may include one or more fang marks, puncture wounds, and scratches. Upon envenomation, intense pain can develop within five minutes along with a gradual increase in swelling and bruising at the site. Onset of systemic symptoms soon follows and might include tingling of the extremities, nausea, vomiting, muscle fasciculation, and/or weakness. On rare occasions, direct cardiotoxicity, anaphylaxis, or direct envenomation of the blood stream may occur.

Outcomes appear to be dose-dependent. Fatalities occur in the very young or very old, and in individuals with multiple bites. Most bites occur on the extremities, typically resulting from deliberate attempts to handle or harm the snake. Estimates vary, but it is believed 20%–30% of all rattlesnake bites are ‘dry bites,’ involving no clinically significant envenomation.

When presented with a presumed snakebite, obtain a thorough history of the exposure circumstance to determine what type of snake was involved. Exposure during outdoor recreation is typical; however, exposures from private venomous snake collections (within facilities or from exotic snakes released into urban settings) are possible. First aid in a field setting consists primarily of cleaning and covering the wound, splinting the limb below the level of the heart, and

evacuating the patient to a medical facility quickly with as little exertion on the part of the patient as possible. Various treatments such as “cut and suck,” tourniquet, cryotherapy, or electric shock have little proven success, and in most cases prove harmful. Removal of rings, watches, and bracelets prior to the development of edema is warranted.<sup>4,5</sup>

Modern snakebite treatments have been available since the 1950s with the introduction of an equine-derived antivenin. In 2000, ovine Crotalidae immune fab-purified FabAV (CroFab®) was introduced by Savage Laboratories ([http://www.savagelabs.com/Products/CroFab/Home/crofab\\_frame.htm](http://www.savagelabs.com/Products/CroFab/Home/crofab_frame.htm)). Hypersensitivity reactions to CroFab® do occur, particularly in those with sensitivities to papaya or papain, but are thought to be much less frequent or generally less severe than those associated with the now discontinued equine-derived product. CroFab® is a highly purified polyvalent antivenin containing four monospecific antivenins made from sheep inoculated with the venom of one of three common North American rattlesnakes or the Cottonmouth. Antivenin is most beneficial if initiated in the first four to six hours for patients with minimal or moderate North American crotalid envenomation, to prevent clinical deterioration and the occurrence of systemic coagulation abnormalities.

Rattlesnakes play a crucial role in helping control the population of various rodents in Idaho. They generally pose little risk to people enjoying the outdoors if caution, particularly around rocky areas, and good sense are used.

The RMPDC provides medical consultation on management of situations involving snake envenomation.<sup>2</sup>

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# The Changing Epidemiology of Syphilis in Idaho

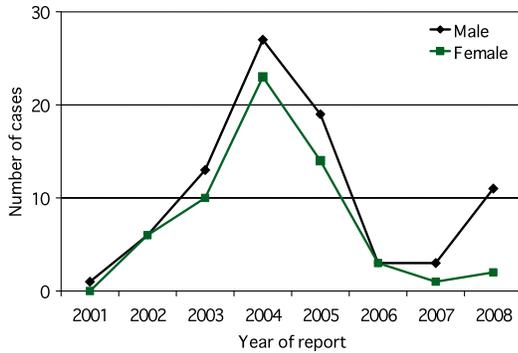
**The number of syphilis cases in Idaho is rising again** – this time in men who have sex with men (MSM). The last large outbreak of early syphilis occurred in 2004 among residents in southwest Idaho. Reported cases were mainly among young heterosexuals and reports had subsided to pre-outbreak levels by 2006.

In 2008, 11 males were reported with early syphilis, compared with only 2 females. This difference in the number of cases between the sexes has been widening since 2006 (Figure 1). Among males reported with early syphilis, an increasing proportion have been MSM (Figure 2). The median age of MSM reported with early syphilis in 2008 was 44, but ages ranged widely (23–68). This change

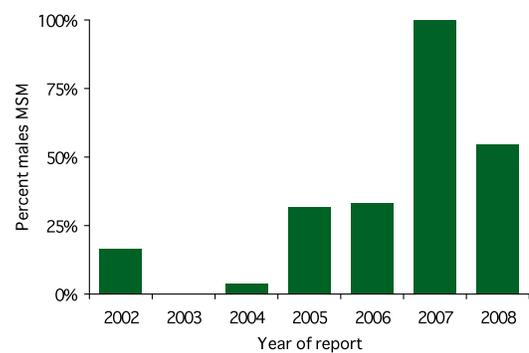
in syphilis epidemiology was preceded by national trends. National trends in syphilis have indicated incidence among MSM has been on the rise since 2000 and HIV coinfection has increased proportionately. The Centers for Disease Prevention and Control (CDC) recommends persons diagnosed with syphilis also be tested for HIV.

Unusual serologic responses have been reported among individuals with HIV, mostly in the form of higher than expected serologic titers. Coinfected individuals might be at increased risk for neurologic complications and higher treatment failure rates. Health care providers can access information in the CDC STD Treatment Guidelines at: <http://www.cdc.gov/STD/treatment/2006>.

**Figure 1. Early syphilis by sex and year of report—Idaho, 2001–2008**



**Figure 2. Proportion of male early syphilis cases reporting MSM by year of report—Idaho, 2002–2008**



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## H1N1 Influenza (Swine Flu) 2009: Impact in Idaho

**A new influenza A (H1N1) virus has entered our midst.** It is formally labeled Influenza A/California/04/2009. The first identified case in the United States was in a 10-year-old boy in San Diego, California, who came down with the flu on March 30. The virus has a hemagglutinin (H) gene from an H1N2 virus circulating in North American swine herds, a neuraminidase (N) gene and matrix (M) gene from an H1N1 virus found mostly in pigs in Eurasia, and has avian- and human-origin influenza genes as well. The introduction of this virus is ongoing: it continues to circulate in Idaho and throughout the world. The impact is as yet unclear.

As of June 5, 2009, the CDC is reporting 13,217 laboratory-confirmed human infections with this novel H1N1 flu nationally. Twenty-seven deaths in the United States have been confirmed from this outbreak. In Idaho 21 confirmed cases have been identified, and all affected persons have recovered or are recovering. It is certain that other undetected cases have occurred. Was this introduction overblown by public health and the media?

Public health is walking a fine line between alerting, but not alarming, the healthcare community and the public. Previous influenza pandemics have “announced” themselves prior to causing pandemics: the first influenza outbreaks in the spring of 1918 were relatively mild. But ongoing circulation leads to mutation, and that virus, certainly underreported during the war, was able to mutate just enough to cause severe illness the following influenza season.

Currently we are asking clinicians

to submit specimens from persons with influenza-like-illness, especially if the person is ill enough that antivirals are being prescribed, for influenza virus testing and subtyping. This will help us be aware of any severe illnesses and complications due to this novel virus, and any changes in the age or risk factors among persons with H1N1 swine influenza. For treatment, oseltamivir (Tamiflu®) or zanamivir (Relenza®) are recommended, as per the current treatment guidelines located at [www.cdc.gov/h1n1flu/recommendations.htm](http://www.cdc.gov/h1n1flu/recommendations.htm)

Since 1918, advances in medical care have occurred and there has been significant improvement in understanding how to prevent the disease. Although it will be challenging to implement, social distancing, vaccination, and treatment with antivirals (if this strain remains susceptible) will all help. As activity related to the initial wave settles, it will be important to prepare for the upcoming influenza season. In particular, physicians can advocate that their patients receive the vaccination for seasonal influenza, the pneumococcal vaccine if indicated, and consider the “swine flu” vaccine if one is available and deemed necessary. More information will be forthcoming in the next several weeks. We ask physicians to remain tuned in to this issue so that we can all be ready for an influenza season that will certainly have unique challenges.

For current information on the national situation and recommendations, see [www.cdc.gov](http://www.cdc.gov).

For current information on the Idaho situation, including information on laboratory testing, see [www.flu.idaho.gov](http://www.flu.idaho.gov).

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- ▶ **Recreational Water Illness**
- ▶ **Rabies Encounters Rise During the Summer**
- ▶ **WNV Update for 2009**

## It's That Time of Year Again—Time to Prevent Recreational Water Illness!

**Recreational water venues (e.g., swimming pools, interactive splash parks, rivers)** provide Idahoans with endless hours of fun and relaxation during the hot summer months. Unfortunately, exposure to these venues can result in recreational water illness (RWI), most often presenting as diarrheal illness caused by swallowing contaminated water. Water can become contaminated when ill swimmers have diarrheal accidents or fecal material is rinsed off of their skin into the water. The most commonly recognized etiologies of RWI include *Cryptosporidium*, *Norovirus*, *Giardia*, *Escherichia coli* O157:H7, and *Shigella*. While RWI often results in mild gastrointestinal illness, infants, elderly, and immunocompromised persons have a higher likelihood of suffering severe illness. Since 2007,

there has been a significant increase in the number of RWI outbreaks reported to the Idaho Department of Health and Welfare (IDHW) and the Centers for Disease Control and Prevention (CDC), in particular, outbreaks caused by *Cryptosporidium*, a highly infectious chlorine-resistant parasite that causes watery diarrhea.

Clinicians are encouraged to inquire about recreational water exposure in any patient that presents with gastrointestinal illness. Patients suffering from diarrheal illness should be instructed to stay out of recreational water until diarrhea resolves. Patients diagnosed with cryptosporidiosis should be instructed to stay out of recreational water for at least two weeks after diarrhea ends as patients can continue to shed oocysts after symptoms resolve. In addition, preventive

health visits are a great time to talk with parents and children about preventing RWI. All swimmers should be reminded to wash their bottoms with soap and water before entering any recreational water and to wash their hands with soap after water play. Parents should also be instructed to change diapers in the bathroom and away from the waterside.

IDHW has created RWI prevention materials for use in your clinical practice. The materials include printable brochures and posters. Please visit [www.rwi.dhw.idaho.gov](http://www.rwi.dhw.idaho.gov), where you can find out more about RWI prevention, including a complete list of available RWI prevention materials under the link “Print Materials.”

## Rabies Encounters Rise During the Summer: Options for Post-exposure Prophylaxis

**All mammals are susceptible to infection** with the rabies virus. In Idaho, bats are the only documented rabies reservoir species and only bat strains of rabies virus have been detected in infected bats and other mammals. Consequently, bites or scratches from bats and all other mammals should be considered a possible rabies risk. Rabid animals have been reported in Idaho between April and November (data from 2003–2008), but rabies is present in animals year-round. Most animals are tested only if there is an incident where a human is thought to have possibly been exposed to the animal in such a way as to present a rabies risk to the person.

### Appropriate delays of rabies post-exposure prophylaxis

If a dog, cat, or ferret bites a person, the animal should be observed for 10 days for signs of rabies under the direct supervision of a veterinarian or at an approved location.<sup>1</sup> Use of human rabies post-exposure prophylaxis (rPEP) in exposed persons may be withheld during this observation period unless the suspicion of rabies is high (e.g., unprovoked attack, animal in which rabies is endemic in that state). If the dog, cat, or ferret has no signs of rabies

during the 10-day observation period, the animal is not considered a rabies risk and human rPEP is not warranted. If the animal exhibits signs of rabies during the observation period, it should be euthanized immediately and tested for rabies. Alternatively, any unwanted animal may be euthanized immediately and tested for rabies. There are no veterinary serologic tests available for confirmation of rabies: euthanasia of the animal and testing of the brain is the only approved method.

The 10-day observation period does not apply to other domestic or wild mammals. Rabies should be considered with most wild mammal exposures, particularly bat exposure. Rodents are considered a very low risk for rabies. All bats and any wild mammals that bite or otherwise expose a person and are suspected to be rabid should be captured carefully, euthanized humanely (ideally by a veterinarian), and tested for rabies by the Idaho Bureau of Laboratories. Note that bats have very small teeth and bat bites can go unrecognized. Use of rPEP in exposed persons may be withheld until test results are available, unless there will be a significant delay to animal testing (greater than 10 days from exposure) or suspicion for rabies is high. To discuss the epidemiology of rabies or testing of wild animals

involved in an attack, contact your local public health district epidemiologist.

## Availability of rabies vaccine for rabies post-exposure prophylaxis

Post-exposure prophylaxis should be administered in accordance with recommendations made by the Advisory Committee on Immunization Practices (ACIP).<sup>2</sup> Vaccine inventory is currently low nationwide. Vaccine is released on a per-patient basis by the manufacturers according to the following protocols:

- Novartis' RabAvert<sup>®</sup> vaccine is available for both pre- and post-exposure prophylaxis without prior approval from public health. Novartis Vaccines may be reached at 800-244-7668.
- sanofi pasteur's IMOVAX<sup>®</sup> rabies vaccine is available only for post-exposure prophylaxis. To obtain IMOVAX<sup>®</sup> rabies vaccine, contact your local public health district or the state health department to

acquire a password and then contact sanofi pasteur at 1-800-VACCINE to obtain the required form.

- Rabies immune globulin remains available with no changes in supply and does not require approval from public health to acquire.

To learn more about the epidemiology of rabies in Idaho, visit [www.diseaseinfo.idaho.gov](http://www.diseaseinfo.idaho.gov) and click on "Rabies."

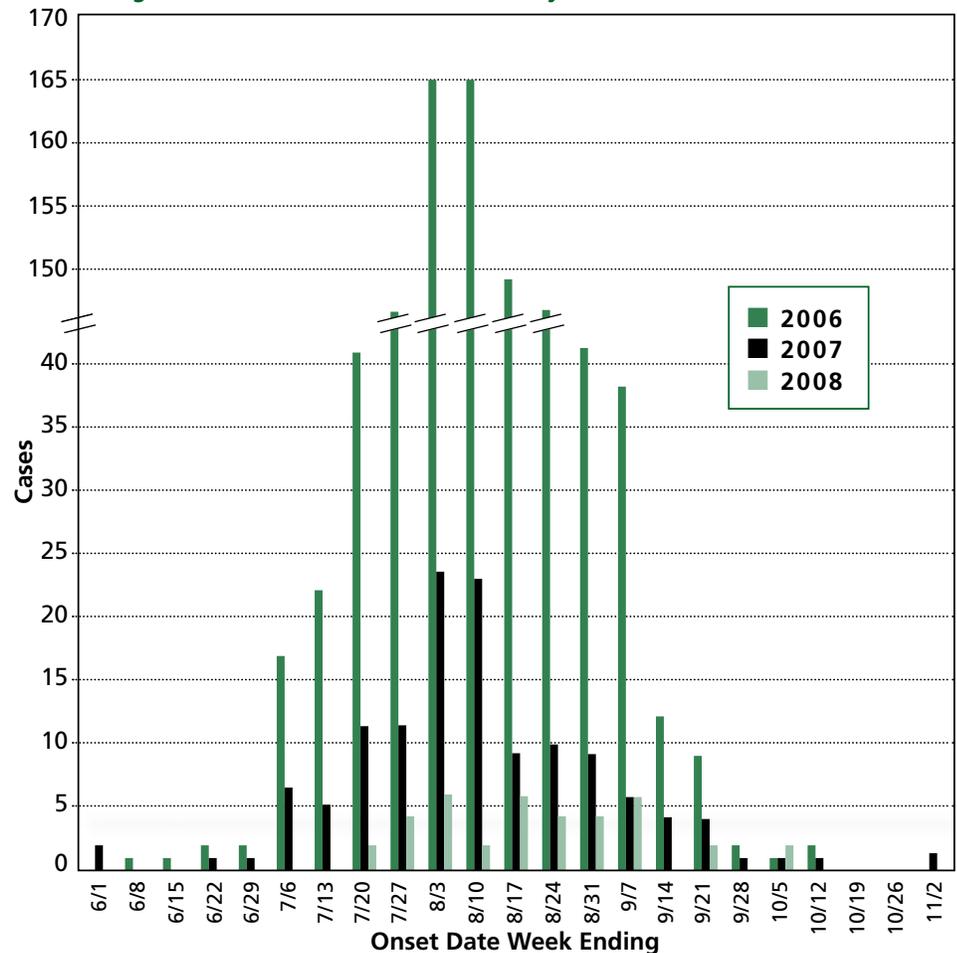
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## WNV Update for 2009

**West Nile virus (WNV) is now endemic in most states**, including Idaho. In Idaho, human case activity peaks between July and September (Figure), when vector mosquitoes are most active. Clinical illness occurs in approximately 20% of infections, varies widely in severity, and is classified as non-neurologic or neurologic. The non-neurologic febrile illness, West Nile fever, can lead to prolonged fatigue and cognitive problems.<sup>1</sup> Death has been documented in non-neurologic cases, especially in the elderly. Certain pre-existing conditions, such as diabetes mellitus or immunosuppression, may also be independent risk factors for death. Neurologic manifestations include meningitis, encephalitis, meningoencephalitis, poliomyelitis, and a parkinsonism-like illness. WNV-associated neurologic disorders can also lead to long-term cognitive problems, disability, or death. Sejvar, *et al* reported that one-third of documented WNV-poliomyelitis patients demonstrated little to no recovery 12 months post-onset.<sup>2</sup> Although described in all age groups, neuroinvasive disease tends to occur in individuals over 65 years of age. The main independent risk factors for development of encephalitis include

Figure. West Nile virus human cases, by onset week—Idaho, 2006–2008



immunosuppression, hypertension, and cardiovascular disease.<sup>3</sup> Diabetes and substance abuse may also play a role in the development of serious

neuroinvasive disease; however, the evidence is less robust for these risk factors.

—continued next page

The Idaho Bureau of Laboratories will test neurologic human cases for the presence of WNV antigen (in CSF) or WNV-specific antibodies (in CSF or serum). Samples from individuals with a non-neurologic presentation should be evaluated by a commercial laboratory. Natural infection is thought to lead to long-lived, if not life-long, immunity.

This summer, the Idaho Department of Health and Welfare will again use the “Fight the Bite” print and radio public service campaign to alert the public of methods to reduce their chance for infection. Prevention methods include wearing repellent, repairing screens, and reducing standing water. Professional mosquito control by mosquito abate-

ment districts is an important aspect of bite prevention. Currently there are approximately 24 partial-county or county-wide active abatement districts in Idaho. Active surveillance for WNV in the vector mosquito species *Culex tarsalis* and *Culex pipiens* will occur in selected communities across the state to evaluate the presence or emergence of the virus into ecosystems. Questions related to bird mortality should be directed to the Idaho Department of Fish and Game. The Idaho State Department of Agriculture will continue to support equine serologic testing.

If you have questions regarding WNV, disease reporting, or the “Fight the Bite” campaign, contact your local public health district or visit the Idaho

Department of Health and Welfare WNV web site at [www.westnile.idaho.gov](http://www.westnile.idaho.gov).

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## Mercury Spills in Schools Lead to Physician Referrals

**O**n January 27, 2009 the Idaho State Communications Center was notified of an elemental

mercury spill that occurred in a high school. Interviews of students revealed that a mercury-containing thermometer had broken in one classroom the previous week and some mercury that had been recovered and kept in a container spilled in a different classroom on the day of the call. One student had carried the container in a backpack and pants pocket during the week between the classroom spills and also spilled mercury at home. Students were reported to have sniffed the open container of mercury to see what it smelled like (it's odorless). Several pregnant women and one younger child were potentially exposed. Regional hazardous materials response teams and the local public health district responded, with support from several state agencies, the Environmental Protection Agency (EPA), and the Agency for Toxic Substances and Disease Registry (ATSDR).

The affected classrooms were evacuated. First responders surveyed the classrooms and the student's home with a portable mercury vapor analyzer. Typical levels of mercury detected in the classroom were 2–3  $\mu\text{g}/\text{m}^3$  of air, with a maximum of 11  $\mu\text{g}/\text{m}^3$  above the spill site. Mercury levels in the student's home ranged from 1–3  $\mu\text{g}/\text{m}^3$ . The family was advised to evacuate the residence until the home could be properly cleaned.

ATSDR guidelines (see Table) for re-occupancy after mercury contamination are  $\leq 1 \mu\text{g}/\text{m}^3$  and no mercury beads present for residences, and  $\leq 3 \mu\text{g}/\text{m}^3$  and no beads present for workplaces and schools.<sup>1</sup> Recommended follow-up activities included testing of students' shoes

and clothing for mercury and removal of contaminated, porous material from the school and home. Potentially exposed persons were referred to their physicians for evaluation and counseling.

### Patient evaluation

Mercury has three forms: elemental ( $\text{Hg}^0$ ), organic (e.g., methylmercury), and inorganic (mercuric salts). Common routes of exposure and toxic effects differ for each. Mercury exposure from thermometer breakage is primarily through inhalation of elemental mercury vapor. Virtually none ( $<0.1\%$ ) of ingested elemental mercury is absorbed. Dermal reactions associated with elemental mercury liquid or vapor contact are rare.

Patients with symptoms of acute mercury toxicity should be referred to emergency care. Symptoms of acute toxicity following high-level exposure ( $>1 \text{ mg}/\text{m}^3$ ) to mercury vapor occur within hours of the exposure. Respiratory symptoms include corrosive bronchitis with fever, chills, and dyspnea, which can progress to pulmonary edema or fibrosis. Children may be at increased risk for pulmonary toxicity and are more likely to develop respiratory failure. Abdominal cramps, diarrhea, renal dysfunction, visual disturbances, and central nervous system damage leading to neuropsychiatric disturbances and intention tremors may also occur.

Asymptomatic patients or those with mild symptoms may present for exposure evaluation. Acute exposures to elemental mercury can be detected by blood test for a few days; after two days, urine is a better indicator of elemental mercury exposure. The normal whole blood mercury level (without occupational exposure) is  $<2 \mu\text{g}/\text{dL}$  and normal urinary mercury

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concentration is <10 µg/L. There is no fixed correlation between blood or urine mercury levels and degree of mercury toxicity; rather, levels are compared to those of the general population (from the National Health and Nutrition Examination Survey<sup>2</sup>) and individuals at the 95th percentile or above are screened for intervention. Urine mercury levels ≤20 µg/L have not been reported to be associated with clinical or subclinical toxic effects. Urine mercury levels 21–39 µg/L may be associated with toxicity in some individuals; levels >40 µg/L are associated with toxicity.<sup>3</sup> Hair is often preferred for evaluation of chronic mercury exposure. Such exposure is most often due to methylmercury in the diet, not inhalation. The Idaho Bureau of Laboratories can perform mercury testing in blood samples (not urine or hair) and provide reference ranges for comparison and screening purposes. Sample submission information can be found at: <http://www.healthandwelfare.idaho.gov/site/3579/default.aspx> or obtained by calling 334-2235 x 269.

Mercury can cross the blood-brain and placental barriers and is also excreted in breast milk. Fetotoxic or significant developmental effects have been observed in animals. Limited human studies have also detected behavioral effects in children exposed *in utero*.

Antidotes and chelation therapy should be considered for any symptomatic patient with a clear history of acute elemental mercury exposure; however, consultation with professionals experienced in the use of chelation (*e.g.*, regional poison center) is advised.

### Mercury in Idaho schools

In addition to causing potentially harmful exposures to people and attendant health care costs, mercury spills in schools result in considerable disruption and expense for schools. Classrooms or entire schools may need to be evacuated and subsequently closed during remediation. Idaho hazardous materials teams responded to more than five mercury spills last year

alone and remediation costs of \$18,000 per day have been reported in Idaho incidents. The Idaho Department of Health and Welfare is seeking EPA funding to begin helping schools locate and remove mercury from their buildings. Many schools believe they are mercury-free when, in fact, they are not.

### Mercury in clinics

Common sources of mercury spills in clinics include broken thermometers (including thermometers in laboratory equipment), sphygmomanometers, and fluorescent and high-intensity lamps. Costs of mercury clean-up can range from \$1,000–\$10,000 or more for a single broken instrument. Mercury sphygmomanometers can be replaced with aneroid units, and mercury thermometers can be replaced with mercury-free digital or non-toxic liquid thermometers. See the EPA healthcare providers' website in the resource list for links to product lists of mercury-free alternatives.

#### RESOURCES

- Idaho Poison Center: 1-800-860-0620
- ATSDR website: <http://www.atsdr.cdc.gov/>. Follow mercury links to information on medical management guidelines and contaminant fact sheets.
- EPA: "Schools and Mercury" webpage: <http://www.epa.gov/mercury/schools.htm>
- Mercury in Treasure Valley Schools: "Evaluation of risk for students/staff exposed to elemental mercury at two schools" [http://www.atsdr.cdc.gov/HAC/pha/TreasureValleySchools/MercurySchools08\\_LHC7-08SIGNED.pdf](http://www.atsdr.cdc.gov/HAC/pha/TreasureValleySchools/MercurySchools08_LHC7-08SIGNED.pdf)
- EPA: "Information for Health Care Providers." Follow links to best management practices for health care facilities. <http://www.epa.gov/mercury/healthcare.htm#facilities>

**Table. Environmental Limits for Airborne Mercury Exposure** (Source: <http://www.atsdr.cdc.gov/HAC/PHA/MadisonMetropolitanSchoolMercury/MadisonMetroHC.pdf>)

AGENCY	Exposure Limit per µg/m <sup>3</sup>	COMMENTS
National Institute of Occupational Safety and Health (NIOSH)	10,000 µg/m <sup>3</sup>	Immediately Dangerous to Life or Health (IDLH) value allowable for a maximum of 30 minutes in emergency situations only
Occupational Safety and Health Administration (OSHA)	100 µg/m <sup>3</sup>	Enforce able workplace standard, assuming 8hours/day, 40 hours/week
NIOSH	50 µg/m <sup>3</sup>	Workplace recommendation, assuming 8 hours/day, 40 hours/week
American Conference of Governmental Industrial Hygienists (ACGIH)	25 µg/m <sup>3</sup>	Workplace recommendation, assuming 8 hours/day, 40 hours/week
Agency for Toxic Substances and Disease Registry (ATSDR)	10 µg/m <sup>3</sup>	Level at which residents are advised to not occupy the affected area. Also a screening level for bagged clothes
ATSDR	3 µg/m <sup>3</sup>	Target cleanup level for commercial environments
ATSDR	1 µg/m <sup>3</sup>	Target cleanup level for residential environments
ATSDR	0.20 µg/m <sup>3</sup>	Chronic level of exposure at which adverse effects would not be expected. Assumes exposure time of 24 hours/day for 30 years
None	0.01 µg/m <sup>3</sup>	Typical background level

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# Federal Food Safety

**Foodborne outbreaks and poisonings associated with widely distributed food products** have caused morbidity and mortality in residents of Idaho and the United States. In the last couple of years, breaches in food safety have led to *E. coli* in spinach<sup>1</sup>, *Salmonella* in poultry pot pies<sup>2</sup> and peanut butter<sup>3</sup>, and melamine in infant formula and pet food. These high-profile outbreaks have fueled public concern over the state of our current federal food safety network.

Food from domestic and international sources may be monitored for the presence of contaminants (*e.g.*, infectious agents, foreign materials, chemicals) at any point along the farm-to-fork continuum. Monitoring practices and the level of federal oversight vary widely, depending on the food product. The Food and Drug Administration (FDA) regulates many foods except for meat, poultry, and processed egg products, which are regulated by the United States Department of Agriculture (USDA).

FDA and USDA also oversee hazard analysis and critical control point (HACCP) programs which are mandatory for juice and seafood, meat, and poultry, and voluntary for specified milk and milk products, and retail and food service establishments. HACCP programs involve seven principles such as analyzing potential hazards and determining points during harvesting and processing where they can be controlled and establishing procedures to monitor and correct control measures. For products not covered by HACCP programs, post-production spot checking for evidence of contamination is a common food industry practice. This is often carried out by producers themselves, who may or may not voluntarily adopt food safety practices from product-specific, non-binding federal guidelines, such as Good Manufacturing Practices issued by FDA.

The Centers for Disease Control and Prevention (CDC) is not a regulatory agency, but plays an important role by collaborating with state and local health departments to investigate reported foodborne illnesses and identify their source.

## Peanut problems and the FDA

The most recent nationwide outbreak associated with peanuts and peanut products processed by the Peanut Corporation of America (PCA) started in September 2008. A nationwide voluntary class 1 recall was initiated, which as of March 2009, includes over 2,800 potentially contaminated products. A Class 1 recall is defined as a recall initiated in a situation in which there is a reasonable probability that the use of or exposure to a violative product

will cause serious adverse health consequences or death.

An FDA inspection of PCA's Georgia and Texas plants, in response to this outbreak, revealed contaminated product. FDA also discovered documentation that the company detected *Salmonella* in product through in-house testing, yet continued selling product. The Federal Bureau of Investigation is conducting a criminal investigation into PCA's practices.

As of March 1, 2009, 677 human infections of *Salmonella* Typhimurium associated with the outbreak and nine deaths nationwide have been reported to the CDC. In Idaho, 17 outbreak-associated cases in residents have been reported, including 1 death.

## Changes may be coming

The U.S. food supply is considered one of the cleanest in the world; however, current food safety practices do not adequately prevent some contaminated food products, such as the recently recalled peanut products, from reaching the consumer. Discussion is occurring at the federal level on how to improve federal food safety oversight. Increasing criticism, specifically of FDA's food safety oversight practices, has kept FDA in the limelight for several years. Proposed new authorities for the FDA include the ability to require mandatory food recalls, establish strict federal standards on cleanliness, and create an advanced product tracking system to quickly remove suspect product from the food supply. The new FDA commissioner, Margaret Hamburg, was chosen in part due to her background in public health.

In late 2007, in response to a series of incidents involving contaminated domestic and imported foods and prior to the current peanut-associated outbreak, FDA initiated steps to improve food safety oversight by developing their Food Protection Plan (FPP). This plan was designed to protect the nation's food supply from both unintentional contamination and deliberate attack by addressing the core elements of contamination prevention: early intervention and rapid response. An official review of the progress of the FPP over the first year of implementation was published in December 2008 and can be found at <http://www.fda.gov/oc/initiatives/advance/food.html>. Ongoing workgroups with food safety partners will help further develop implementation of the FPP to enhance food protection in the United States.

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- <sup>3</sup> Multistate Outbreak of *Salmonella* Serotype Tennessee Infections Associated with Peanut Butter — United States, 2006–2007 *MMWR* June 1, 2007 / 56(21);521-524 <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5621a1.htm>

- <sup>4</sup> Melamine contamination in China. FDA January 5, 2009 update. <http://www.fda.gov/oc/opacom/hottopics/melamine.html>

# Recent Perinatal HIV Infections in South Dakota Underscore the Significance of Screening for HIV During the Prenatal Period

According to the South Dakota Department of Health, two infants were born with HIV in South Dakota in 2008. These infections, in a state with very low reported HIV/AIDS rates, serve to highlight the importance of prenatal care and prenatal HIV testing of pregnant women, even in low-morbidity areas such as Idaho. Although pediatric HIV/AIDS has been reported in Idaho, no perinatally infected children have been born in Idaho hospitals.

According to the Centers for Disease Control and Prevention (CDC), testing pregnant women based only on patient-acknowledged or perceived risk factors has been shown to be less effective than screening for maternal HIV infection and subsequently preventing perinatal transmission. CDC recommends HIV testing be part of the routine panel of screening tests for pregnant women with an 'opt out' option.

Most medical and health care providers should be aware that HIV screening should be a routine component of prenatal care and should be offered early in the prenatal period, but there is always room for improvement. In Idaho, most (81%) of women recalled discussing HIV testing with their doctors but less than half (49%) recalled having a blood test for HIV during their most recent preg-

nancy. Discussion of HIV testing was lower among married women and women with parity of two or more.

Repeat HIV testing is recommended in the third trimester for women at high risk for HIV infection (*i.e.*, injection-drug users and their sex partners, women who exchange sex for money or drugs, women who are sex partners of HIV-infected persons, and women who have had a new or more than one sex partner during the pregnancy).

Women in labor who do not have documentation of results from an HIV test during pregnancy are recommended to have a rapid HIV test and the appropriate antiretroviral prophylaxis initiated on the basis of a reactive result, without awaiting the result of confirmatory testing.

When the mother's HIV status is unknown postpartum, rapid testing of the newborn as soon as possible after birth is recommended so antiretroviral prophylaxis can be administered to HIV-exposed infants. The benefits of neonatal antiretroviral prophylaxis are best realized when initiated 12 hours after birth or earlier.

For additional recommendations and background on HIV testing in healthcare settings, see CDC recommendations at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5514a1.htm>.

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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# IDAHO DISEASE Bulletin



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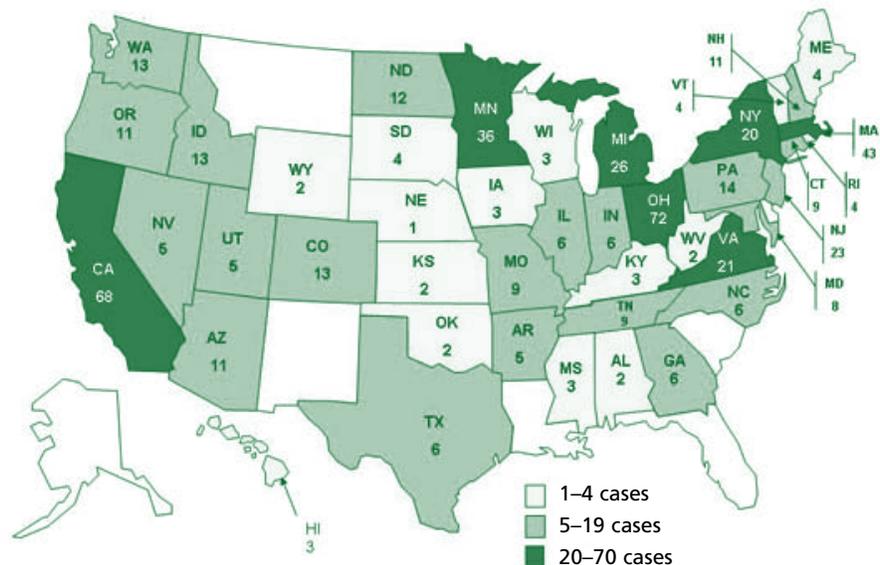
## Nationwide *Salmonella* Outbreak: Idaho Investigation

**I**Idaho is working with the Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), and many other states to investigate a multistate outbreak of human infections due to *Salmonella* serotype Typhimurium. As of January 28, 2009, 529 persons infected with the outbreak strains of *Salmonella* Typhimurium have been reported from 43 states and Canada, including 13 from Idaho.

The outbreak investigation is ongoing. During the first week of January, Minnesota detected the outbreak strain in an open container of King Nut brand of peanut butter distributed by King Nut Companies and manufactured by the Peanut Corporation of America, suggesting a connection between consumption of this particular type of peanut butter and illness. Subsequently, Connecticut isolated the outbreak strain in unopened containers of King Nut brand peanut butter. King Nut brand peanut butter is not sold in grocery stores or directly to consumers, but primarily to institutions through food service accounts. King Nut Companies and Peanut Corporation of America have since issued a voluntary recall for peanut butter distributed under the King Nut, Parnell's Pride, and Peanut Corporation of America labels. In addition, many other manufacturers have recalled food and pet products made from peanut paste manufactured by the Peanut Corporation of America.

—continued on next page

**Figure. Persons infected with the outbreak strain of *Salmonella* Typhimurium, United States, by state, September 1, 2008 to January 28, 2009.**



Source: CDC, <http://www.cdc.gov/salmonella/typhimurium/map.html>, accessed January 30, 2009.

### more inside

- ▶ **Greyhound Bus Travelers May Have Been Exposed to Meningitis: What is the Risk?**
- ▶ **The Importance of RSV Surveillance and Reporting**
- ▶ **Data Snapshot: Meningococcal Disease**

## Nationwide Salmonella Outbreak *continued*

Clusters of infections in several states have been reported in schools and other institutions, such as long-term care facilities and hospitals, and evidence suggests that King Nut peanut butter was served in some of those facilities. As of January 21, no such clusters have been detected in Idaho; however, through molecular testing of isolates submitted to the Idaho Bureau of Laboratories (IBL), Idaho health officials determined that 11 reported cases of *Salmonella* in Idahoans were linked to the outbreak. Bacterial testing of implicated peanut butter and peanut butter products recovered from one Idaho institution and one case-patient's household is in progress.

This outbreak is a good reminder that persons presenting with diarrhea should be considered for stool culture, following the Infectious Disease Society of America's guidelines, available at: <http://www.journals.uchicago.edu/doi/pdf/10.1086/318514>. In addition, if a bacterial agent such as *Salmonella*, *E. coli* O157:H7, *Shigella*, or *Campylobacter* is isolated, samples should be forwarded to the IBL for molecular analysis to help determine if the infection is related to others in Idaho or nationally.

More information about the outbreak and numerous recalls can be found on the FDA website at <http://www.fda.gov/oc/opacom/hottopics/salmonellatyp.html>.

## Greyhound Bus Travelers May Have Been Exposed to Meningitis: What is the Risk?

**On January 11, 2009, an ill Nevada resident** was traveling west on a Greyhound bus from Denver. Soon after a scheduled stop in Salt Lake City, he was deemed too sick to travel and was airlifted to a Salt Lake City hospital where he died. Lab results confirmed infection with invasive meningococcal disease.

A press release was issued by the Idaho Department of Health and Welfare (IDHW) on January 14 to locate individuals who may have traveled with the ill passenger. After leaving Salt Lake City, the bus made stops in Burley, Twin Falls, Boise, and Nampa before continuing on to Portland, Oregon. Prophylaxis was recommended only for those with close personal contact, defined as anyone who may have kissed the ill passenger; shared food, water, or cigarettes with him; had direct contact with his oral secretions; or lived in the same household. As of January 22, Idaho health officials have not identified any Idaho residents or visitors for whom prophylaxis was recommended; some passengers in other states received prophylaxis after public health officials there interviewed them.

What is the risk to these passengers? The best data comes from household exposures. The attack proportion for household members exposed to patients who have sporadic meningococcal disease is estimated to be 4 cases per 1,000 persons exposed: 500–800 times greater than that in the total population. For air travelers, the Centers for Disease Control and Prevention (CDC) recommends considering antimicrobial chemoprophylaxis for any passenger

who has direct contact with respiratory secretions from an index patient or for anyone seated directly next to an index-patient on a prolonged flight (*i.e.*, one lasting eight hours or more). Although the CDC recommendation was framed around air travel, similar risks might be expected in a bus during winter, when windows were almost certainly closed for the duration of the 10-hour bus ride from Denver to Salt Lake City.

The most urgent priority for prevention after a case of meningococcal disease has been identified is to treat the patient's close contacts with an effective antimicrobial agent to prevent illness and eradicate potential colonization by, and subsequent spread of, an invasive strain of *Neisseria meningitidis*. Prophylaxis should ideally be administered less than 24 hours after identification of the index patient. Conversely, chemoprophylaxis administered more than 14 days after onset of illness in the index patient is probably of limited or no value. Oropharyngeal or nasopharyngeal cultures are not helpful in determining the need for chemoprophylaxis and might unnecessarily delay implementing this preventive measure.

Rifampin, ciprofloxacin, and ceftriaxone are equally effective prophylactic agents and are all 90–95% effective in reducing nasopharyngeal carriage of *N. meningitidis*. Nasopharyngeal carriage of *N. meningitidis* might not be eradicated reliably by systemic antimicrobial therapy of meningococcal disease with agents other than ceftriaxone or other third-generation cephalosporins. One study reported that

a single 500-mg oral dose of azithromycin was 93% effective in eradicating nasopharyngeal carriage of *N. meningitidis*. Azithromycin, in addition to being safe and easy to administer, is also available in a suspension form and is approved for use among children. Further evaluation is needed of both the effectiveness of azithromycin in eradicating carriage of *N. meningitidis* and the potential for development of microbial resistance to this drug if it is widely used for chemoprophylaxis.

Vaccination is recommended to provide preexposure immunity in children aged 11–18 years and in adults aged 19–55 years who are at increased risk for meningococcal disease. It is also used to control outbreaks caused by serogroups A, C, Y, and W-135 of *N. meningitidis*. No vaccine is available in the United States for serogroup B. Mass vaccination in response to detection of a single sporadic case is typically not indicated; however, case investigation might identify unimmunized persons for whom routine vaccination is recommended. Because knowledge of the serogroup is necessary to determine prevention measures, the IDHW Office of Epidemiology and Food Protection requests that all *N. meningitidis* isolates be sent to the Idaho Bureau of Laboratories for serotyping.

For more information on meningococcal meningitis prevention see ACIP recommendations by following the links from the CDC website at <http://www.cdc.gov/vaccines/pubs/ACIP-list.htm>.

# The Importance of RSV Surveillance and Reporting

**Respiratory syncytial virus (RSV)** continues to be the leading cause of bronchiolitis and pneumonia in children aged less than two years. The symptoms of RSV bronchiolitis in infants and young children include wheezing, lung hyperexpansion, and hypoxia. Annually in the United States, RSV causes an estimated 120,000 hospitalizations and 200–500 deaths among children aged less than 5 years. Although recent advances in scientific knowledge make the likelihood of developing a suitable vaccine against RSV more probable, an RSV vaccine has yet to be licensed. However, children aged less than 24 months who are at risk for severe RSV infection (*e.g.*, infants born at 35 weeks gestational age or earlier and those with chronic lung disease) can receive monthly doses of palivizumab (Synagis® by MedImmune, Inc), an expensive monoclonal antibody, as prophylaxis during the RSV season; therefore, healthcare providers' knowledge of local RSV data is important when considering RSV prophylaxis.

RSV season occurs annually during the winter months, and in Idaho typically begins December–January, peaks in February, and ends March–May. In October 2007, in an attempt to better identify the timing of RSV seasons in Idaho, the Idaho Department of Health and Welfare (IDHW) began conducting RSV surveillance. During the 2007–2008 RSV season, 11 Idaho laboratories in each of the 7 local public health districts voluntarily reported the number of specimens testing positive and negative for RSV each week. For the 2008–2009 RSV season, the number of laboratories reporting RSV specimen data increased to 19. Surveillance results are posted weekly on the website, <http://www.rsv.dhw.idaho.gov>. By definition, RSV season onset in Idaho occurs the first of two

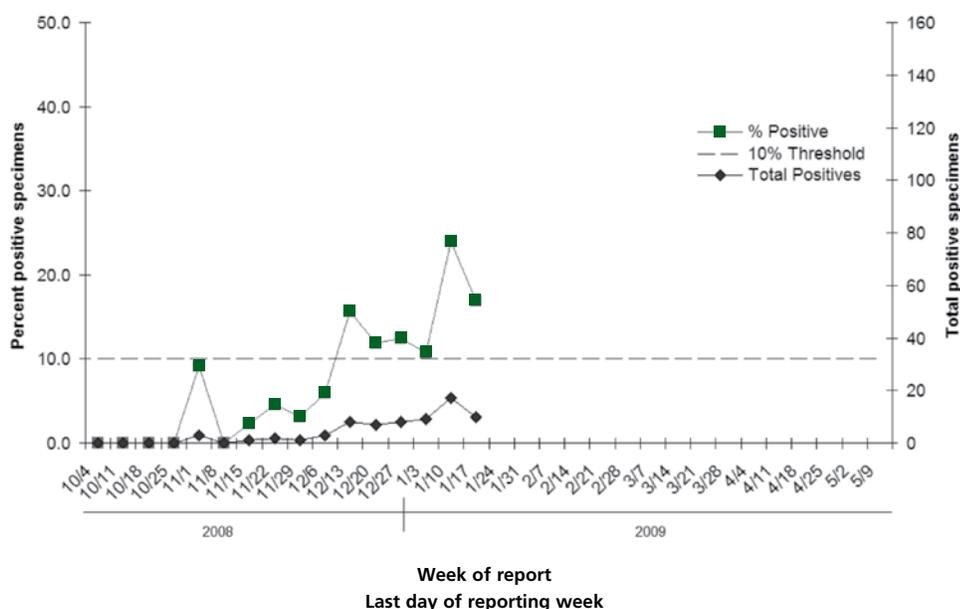
consecutive weeks, during which the total percentage of positive specimens reported is less than or equal to 10%. The 2008–2009 season officially began the week ending December 13, 2008. The end of RSV season, or season offset, will occur in the last of two consecutive weeks during which the reported total percentage of specimens testing positive for antigen is greater than or equal to 10%.

Although we tend to think of RSV as a disease of infants and children, adults, especially the elderly, can become infected with RSV, sometimes resulting in hospitalization. RSV infection in adults is less well-characterized than in younger populations; however, one study reported that among adult daycare attendees, RSV accounted for 21% of acute respiratory infections.<sup>1</sup> Another study found that in one cohort, 11% of adult hospitalizations for pneumonia were caused by RSV and were similar to influenza A in

length of stay, use of intensive care, and mortality.<sup>2</sup> In adults, RSV tends to have a similar clinical presentation to many other respiratory viruses, including influenza, but RSV infections are often longer in duration, accompanied by a prolonged productive cough, and more apt to cause wheezing. Infection with RSV can also mimic the appearance of bacterial infections on chest radiographs, often resulting in lobar consolidation, and clinically can mimic underlying decompensated cardiopulmonary disease.<sup>1</sup>

Beginning in April 2008, RSV became a laboratory-reportable disease in Idaho, allowing for improved assessment of the number of persons diagnosed with RSV infection and an enhanced estimation of disease burden. Laboratory personnel should report RSV infections within one day of identification to their local public health district or the Office of Epidemiology and Food Protection (OEFP).

**Figure. Total and percent positive RSV tests by week of report as of January 23, 2009**



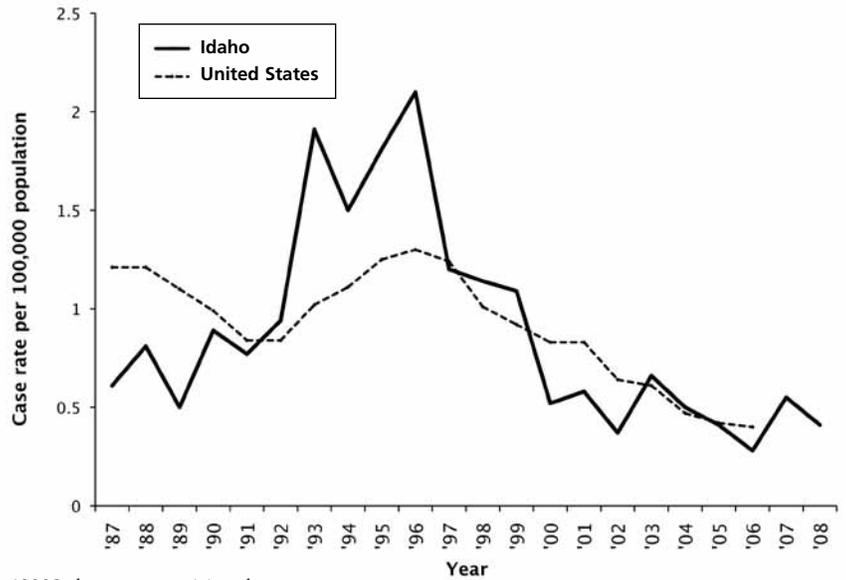
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# Data Snapshot: Meningococcal Disease

**Invasive meningococcal disease** occurred more frequently in Idaho in the mid-1990s than it does today. There has been a steady decrease in both Idaho and national rates since then, probably in part because of the cyclical nature of this disease, introduction of quadrivalent conjugate vaccine for routine use in adolescents in 2005, and identification and prophylaxis of contacts of case-patients. In 2008, preliminary data reveal that 7 cases were reported: patients were aged 9 months, 1 year, 3 years, 19 years, 22 years, 54 years, and 81 years. Two of these cases were fatal.

Figure. Meningococcal disease in Idaho and the United States, 1987–2008\*



\*2008 data are provisional

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# IDAHO DISEASE Bulletin

## Increase in newly diagnosed HIV/AIDS continued

only eight cases were reported among individuals in the same age group in all of 2007. Many of the new reports are among residents in southeastern Idaho, where Southeastern District Health Department recently announced an alarming increase in newly identified cases over the past several months.

Initial interviews with some of the newly diagnosed cases suggest there may be a perception that the risk of HIV infection is low. This may be due in part to decreased coverage of HIV/AIDS in popular media in recent years.

The 2008 reports are among people engaging in several known and more recently identified risk behaviors including:

- Having unprotected sex with multiple sexual partners, including finding anonymous partners through Internet sites;
- Men having unprotected sex with other men (MSM); and
- Injection drug use (IDU).

Among reports of males, two thirds were MSM. Most reports among women are reported heterosexual exposure with a high-risk partner (Table).

**Table: Reported HIV/AIDS diagnoses by sex and mode of exposure—Idaho, 1/1/2008–10/31/2008**

Mode of exposure	male	female	total
MSM	21	N/A	21
IDU	1	1	2
MSM/IDU	1	N/A	1
Heterosexual exposure	4	8	12
Risk not identified	5	0	5
<b>Total</b>	<b>32</b>	<b>9</b>	<b>41</b>

N/A = not applicable

The Idaho Department of Health and Welfare (IDHW) and Idaho local public health districts are recommending physicians screen patients

for HIV in accordance with the most recent Centers for Disease Control and Prevention (CDC) recommendations. For all healthcare settings, routine screening for HIV is recommended at least once in patients aged 13–64 years. Assessment of risk of HIV infection should be incorporated into routine primary care for all sexually active persons. Healthcare providers should test all persons likely to be at high risk for HIV at least annually.

The public has been informed of the recent increase in HIV/AIDS diagnoses via local and statewide press releases that resulted in both television and print coverage, and advised to seek testing by their private health care provider or local public health districts, if at risk.

The CDC estimates that 21% of HIV-infected persons are not aware of their HIV-positive status. Infected persons who have not been diagnosed are not able to receive potentially life-saving medication, and may unknowingly spread the virus.

An electronic version of the Rules and Regulations Governing Idaho Reportable Diseases may be found at <http://adm.idaho.gov/adminrules/rules/idapa160210.pdf>  
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## An Alternative to TB Skin Testing is Now Available!

The Idaho public health laboratory is now offering the QuantiFERON®-TB Gold In-Tube test (QFT-GIT), a blood test that can aid in diagnosing *Mycobacterium tuberculosis* (TB) infection, including latent infection and active disease. Results are based on the amount of interferon-gamma that is released after a 16 to 24 hour incubation of the blood with specific antigens.

Advantages of the QFT-GIT test over the tuberculin skin testing include:

- Requires only one patient visit to draw a blood sample; no subsequent “reading” of the test needs to be done.
- Results can be available within 24 hours.
- Results are not affected by prior BCG (bacille Calmette-Guérin) vaccination.

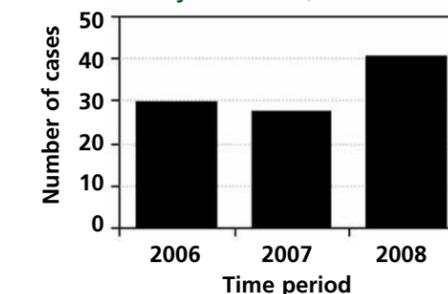
Disadvantages and limitations include:

- There are limited data on the use of QFT-GIT in children younger than 17 years of age, among persons recently exposed to *M. tuberculosis*, and in immunocompromised persons (e.g., impaired immune function caused by HIV infection or acquired immunodeficiency syndrome [AIDS], current treatment with immunosuppressive drugs, selected hematological disorders, specific malignancies, diabetes, silicosis, and chronic renal failure).
- Errors in collecting or transporting blood specimens or in running and interpreting the assay can decrease the accuracy of QFT-GIT.
- Unlike the skin test, there are limited data on the use of QFT-GIT to determine who is at risk for developing active TB (e.g., it is not known what the likelihood of someone with a newly positive QFT-GIT test is for developing active TB within a year, whereas the general risk for someone with a newly positive skin test is known).

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## Increase in Newly Diagnosed HIV/AIDS Reports Prompts Health Alerts

Figure: Number of newly reported HIV/AIDS cases during the first 10 months of each year—Idaho, 2006–2008



Idaho is experiencing an increase in reported human immunodeficiency virus (HIV) infections in 2008.

During the first 10 months in 2008, 41 Idaho residents have been reported with newly diagnosed HIV or AIDS, with additional reports under investigation (preliminary data). This number of reports is a 46% increase over the 28 reports from the same time period last year, (Figure) and includes 14 cases among individuals aged 24 years or younger. By comparison,

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- ▶ **Data Snapshot: Immunizations**
- ▶ **Smoking and Respiratory Disease in Idaho**

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### An alternative to TB skin testing *continued*

As with the skin test, clinical evaluation and additional tests (such as a chest radiograph, sputum smear, and culture) are still needed to confirm the diagnosis of active TB. QFT-GIT can be used in all settings in which the skin test is currently used, including contact investigations, evaluation of recent immigrants who have had BCG vaccination, and TB screening of health care workers and

others undergoing serial evaluation for *M. tuberculosis*. For providers, using QFT-GIT may decrease confusion when persons known to have been vaccinated with BCG are to be tested. Please contact Dr. Christine Hahn at (208) 334-5939 or Vivian Lockary, state public health laboratory microbiologist, at (208) 334-2235, if you have questions about using QFT-GIT.

## Data Snapshot: Immunizations

**Idaho's childhood immunization rates for children** ages 19–35 months are the third lowest in the country.<sup>1</sup> While there are multiple shots that are evaluated for completeness, there are a few that have traditionally had lower completeness rates in Idaho than others. The diphtheria, tetanus, and pertussis (DTaP) vaccine is one of these.

For complete protection from disease, a child needs 4 doses of DTaP by 18 months of age. In Idaho, most children (89.7%) receive 3 doses of DTaP; however 17% of these fail to return for the fourth dose (Figure). By comparison, 95% of all children nationwide receive 3 doses of DTaP

and 81.1% receive the fourth dose. In order to prevent outbreaks of some diseases including measles, high levels of immunity must be present. Pertussis outbreaks occur every year in Idaho. With only 75% of young children appropriately vaccinated, it leaves many children at serious risk of this disease as well.

To help increase Idaho immunization rates, providers should ensure the fourth dose of DTaP is administered by checking immunization status at all well- and sick-child visits. If a child is unable to be vaccinated during a visit, schedule an immunization visit to get them back on schedule. Every clinic should have a system to

identify children that are either due for, or are behind on, their immunizations. Idaho's Immunization Registry Information System (IRIS) can help providers keep track of what shots a child needs and identify children that are behind.

For more information see <https://iris.idaho.gov> or contact the Idaho Immunization Program at (208) 334-5931.

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## Smoking and Respiratory Disease in Idaho

**Diseases caused by smoking cigarettes** result in more than 443,000 deaths in the US annually.<sup>1</sup> In addition to being directly responsible for the majority of lung cancer cases, smoking can also exacerbate other chronic and infectious respiratory ailments. Cigarette smoking has, for instance, been found to be a strong independent risk factor for invasive pneumococcal disease among immunocompetent, nonelderly adults.<sup>2</sup> New immunization guidelines, summarized below, will soon be available to help providers better manage this increased risk of disease among patients who smoke.

In 2007, 286,000 Idaho adults (19% of Idahoans aged 18 and older) and 17,500 high school students (20% of Idahoans enrolled in grades 9–12) smoked cigarettes on one or more of the previous 30 days.<sup>3</sup> Smoking rates are typically higher among young adults, as well as adults with lower educational levels or annual household incomes. Several other demographic groups in Idaho have substantially higher smoking rates. These groups (and the proportion who smoke) include: Native American adults (37%) and teens (28%); Hispanic adults (24%); African American adults (48%), Medicaid-eligible adults (39%); and lesbian, gay, bisexual, or transgender (LGBT) adults (35%).<sup>4</sup>

Research shows that smokers with asthma are likely to suffer increased symptom severity and mortality related to asthma attacks.<sup>5,6</sup> Despite the evidence of increased adverse affects, however, smoking rates among Idaho adults with asthma are equivalent to those of the general population. Additionally, female adult smokers have a substantially higher prevalence of asthma than male smokers (Figure). Both female and male smokers with asthma require vigilant medical management of their disease along with emphasis on tobacco cessation.

In October, the Advisory Committee on Immunization Practices (ACIP) recommended, for the first time, a vaccination to be given based solely on smoking status. Pneumococcal vaccine (PNEUMOVAX® 23) is now rec-

ommended for all adult smokers due to their high risk of pneumococcal disease (<http://www.cdc.gov/vaccines/recs/provisional/default.htm>). This new recommendation has not yet been formally adopted by the Centers for Disease Control and Prevention (CDC), but ACIP recommendations are usually adopted quickly by the agency. Once adopted, this recommendation will impact a significant number of Idahoans. In 2007, 78% of Idaho adult smokers (or roughly 200,000 individuals) stated they had never received a pneumonia vaccine.<sup>7</sup>

In addition to the health burden that smoking inflicts on the people of Idaho, it is estimated that annual smoking-related health care costs are \$292 million, and productivity losses are \$332 million in Idaho alone. According to the US Public Health Service's updated clinical guidelines for tobacco treatment, "Even brief tobacco dependence treatment is effective and should be offered to every patient who uses tobacco."<sup>8</sup> Brief online guidelines are available for clinician use to assist patients in quitting (<http://www.ahrq.gov/clinic/tobacco/clinhlpsmksqt.htm>). There are some limited resources for smoking cessation treatment for lower-income smokers in Idaho. A voluntary Medicaid program, Preventive Health Assistance (PHA), provides beneficiaries with up to \$200 in vouchers for counseling, medication, or nicotine replacement products upon completion of a treatment plan. The PHA brochure may be found at <http://healthandwelfare.idaho.gov/site/4161/default.aspx>. Click "PHA Brochure" under the "Participant Information" heading on the far right-hand side. Additional resources include a free telephone counseling service (Idaho Quitline at 1-800-QUIT-NOW) and a free online tobacco cessation support center (<http://idaho.quitnet.com>).

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Figure: Idaho 12–18 month-old 3rd and 4th dose DTaP vaccination rates<sup>1</sup>

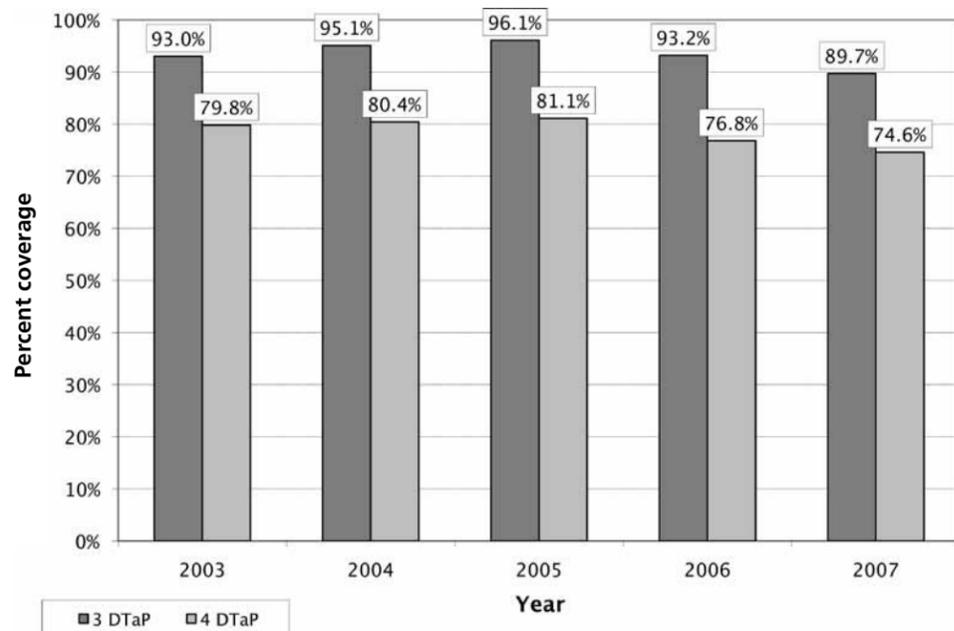
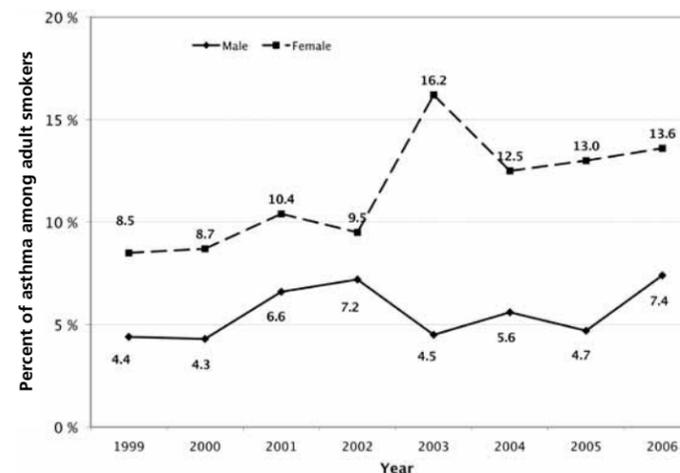
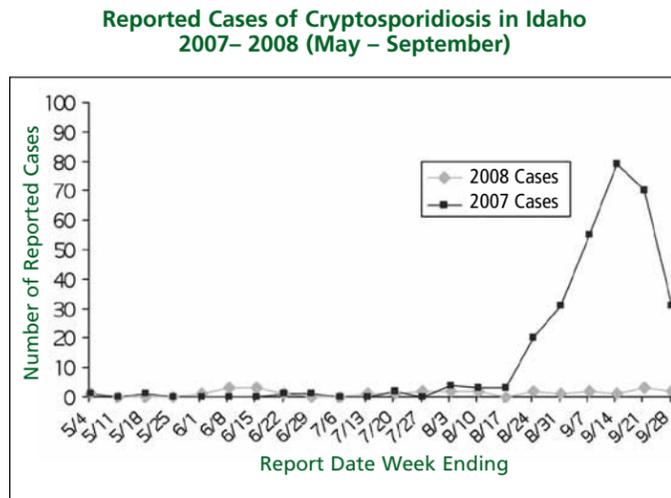


Figure: Percent of Idaho adult cigarette smokers with asthma, by sex, 1999–2006



## Cryptosporidiosis Data Snapshot

**CRYPTOSPORIDIOSIS, A WATERBORNE ILLNESS** caused by the chlorine-resistant parasite *Cryptosporidium*, has been reportable in Idaho since 2000. From 2000–2006, 15 to 40 cases were reported annually. However, in 2007, Idaho had 515 reported cases of cryptosporidiosis, over 13 times more than any other year. The reasons for this outbreak remain unclear. Possible explanations include a real increase in disease transmission, enhanced surveillance, and an increase in healthcare provider testing for *Cryptosporidium* following the recent approval of nitazoxanide for treatment of cryptosporidiosis in children and adults. Presumably, a combination of these factors, perhaps influenced by the hot and dry conditions last summer, caused the dramatic increase. In 2008, significantly fewer cases of cryptosporidiosis have been reported. The reason for the precipitous drop in reported cryptosporidiosis cases is unclear. Conceivably, public education regarding safe swimming practices, along with improved sanitation facilities at area splash parks, at least in part, may have led to fewer infections and a subsequent decrease in the number of reported cryptosporidiosis cases. For more information, see <http://www.rwi.dhw.idaho.gov>.



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# IDAHO DISEASE Bulletin



**Office of Epidemiology and Food Protection**  
 Idaho Department of Health and Welfare  
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## Biosafety Level 3 Laboratory Facility

The Idaho Bureau of Laboratories (IBL) is pleased to announce that the IBL's Biosafety Level 3 (BSL-3) laboratory facility is now operational. The 3,000 sq ft laboratory is a state-of-the-art biocontainment suite that houses the mycobacteriology laboratory and Idaho's only Laboratory Response Network (LRN) reference laboratory. The LRN is a national network of public health laboratories that responds to biological and chemical terrorism, emerging infectious diseases, and other public health emergencies.

Laboratory biosafety levels range from BSL-1, the least restrictive, to BSL-4, for work with agents that pose a very high risk of aerosol-transmitted laboratory-acquired infections and life-threatening disease. A BSL-3 laboratory is designed to contain agents that may cause serious or lethal disease as a result of inhalation. Examples of microorganisms assigned to this biosafety level include *Mycobacterium tuberculosis*, St. Louis encephalitis virus, and *Coxiella burnetii*, the agent that causes Q fever. The emphasis of BSL-3 level facility design and operation is on providing barriers to protect laboratorians and the environment from aerosol exposure and is the appropriate containment level for work with highly pathogenic influenza strains, SARS-CoV, and variola (smallpox) virus screening.



IBL microbiologists Walt DeLong and Vivian Lockary cut the ribbon on the new laboratory.

The new facility is comprised of three BSL-3 laboratories, each containing 2 biosafety cabinets, sample storage and receiving area, and support rooms, including one with shower in/out capability and advanced environmental controls. In addition to biosafety equipment and advanced environmental controls, the BSL-3 laboratory is equipped to decontaminate all liquid and solid biowaste before it leaves the facility.

The new laboratory will better serve the Idaho medical and first-responder communities through increased capacity to identify naturally occurring and man-made agents detrimental to human health. During the national anthrax attacks of 2001, IBL received nearly 100 samples from suspected "white powder" incidents over a 6–8 week period. Due to the lack of a BSL-3 laboratory at that time, it was necessary to displace laboratorians from the mycobacteriology laboratory to analyze samples, placing a strain on laboratory resources. IBL continues to receive "white powder" specimens for analysis and potentially hazardous microbiological isolates for confirmatory or rule-out testing. The new BSL-3 facility provides both ample capacity to respond to public health emergencies as well as the ability to more effectively analyze microorganisms such as *Brucella sp.* (brucellosis) and *Burkholderia sp.* (e.g., *melioidosis*) in a safe and secure environment.

## more inside

- ▶ **Infectious Etiologies of Chronic Disease**
- ▶ **Case Study in Environmental Medicine**
- ▶ **Cryptosporidiosis Data Snapshot**

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## Infectious Etiologies of Chronic Diseases

**AN INCREASING BODY OF RESEARCH** is providing evidence of infectious agents as possible etiologies of various chronic conditions. In doing so, this research illustrates the dynamic nature of disease categories such as “infectious” and “chronic.” While many health disciplines commonly regard “infectious” and “chronic” diseases as mutually exclusive entities, closer inspection reveals the distinction to be less clear.

It has been argued that infections are acute events and, therefore, the opposite of chronic. Yet the flaws in this logic are readily apparent as evidenced by many infections (HIV, hepatitis C, herpes simplex) that result in chronic illness. Likewise, heart disease is usually classified as chronic, but is considered acute for the heart attack victim who dies en route to a hospital.<sup>1</sup> A long latency is thought to be a hallmark of chronic diseases; however, some infectious diseases (e.g., TB, herpes zoster, AIDS) have long latency periods. Even transmissibility from person to person does not appear to distinguish between infectious and chronic diseases. Legionnaires’ disease, Valley fever, and foodborne botulism are classified as infectious despite not being propagated from person to person, while

dental caries resulting from bacterial infection are directly transmissible between people yet almost exclusively considered a chronic condition.

Despite our tendency to regard the infectious or chronic disease distinction as concrete, researchers continue to explore linkages that have always existed between infectious and chronic disease. These investigations have seldom demonstrated a straightforward relationship, but have often revealed a complex interplay of pathogens, human evolution, and chronic disease. Indeed microbes are rarely, if ever, seen as the sole etiologic agent of a chronic illness, but rather viewed as “triggers” that set in motion or expedite a disease process.<sup>2</sup>

Perhaps the most renowned discovery pertaining to the infectious origins of a chronic disease is that of *Helicobacter pylori* and ulcers nearly 26 years ago. So dogmatic was our belief that stress and lifestyle factors were responsible for ulcers that widespread acceptance of the role of *H. pylori* didn’t come about until very recently. Since about 2000, *H. pylori* has been proven to cause gastric tumors and speculated to cause multiple other conditions (Tables 1 and 2). Treatment has been so effective that *H. pylori* is now considered an

“endangered bacterial species” in the developed world.<sup>3</sup> Additionally, there is growing speculation that, since *H. pylori* and humans have co-existed for thousands of years, these bacteria provide a protective effect against other chronic conditions. Thus, there is an urgent need to more thoroughly assess risks and benefits of *H. pylori* to settle the debate and determine strategies on how best to address the presence of this bacterium in people.

The expanding list of chronic diseases with suspected infectious etiology reminds us that categorizing a disease is a dynamic process. As research linking chronic conditions to microbial triggers progresses, it becomes increasingly important that clinicians be kept up to date. Clinicians who are aware that pathogens can be involved in more diverse diseases than previously thought have played important roles in bolstering claims of an infectious etiology, as a result of incisive clinical observations. As these claims are strengthened, clinicians will have an equally important role in avoiding potential negative consequences (e.g., increasing risky behavior due to disease being perceived as easily curable) by carefully conveying this information to patients.

**Table 1. Chronic Diseases for Which There is Strong Evidence of an Infectious Etiology<sup>1</sup>**

Chronic Disease	Infection
Adult T cell leukemia	Human T-cell Lymphotropic virus type 1
Tropical spastic paraparesis	
Cervical carcinoma	
Laryngeal papilloma	
Penile cancer	
Anal cancer	Human papilloma virus
Vulvar and vaginal intraepithelial neoplasia	
Venereal warts	
Common warts	
Head and neck cancer	
Burkitt’s lymphoma in Africa	
Nasopharyngeal carcinoma	Epstein-Barr virus
Hodgkin’s disease	
Post-transplant lymphoproliferative disorders	
B cell lymphomas in AIDS patients	
Hepatocellular carcinoma, chronic hepatitis	Hepatitis B virus (HBV) Hepatitis C virus (HCV) HBV and delta virus
Polyarteritis nodosa	HBV
Mixed cryoglobulinemia	HCV
Sub acute sclerosing panencephalitis	Measles
Multicentric Castleman’s disease	
Lymphoma	Kaposi’s sarcoma-associated herpes virus
Kaposi’s sarcoma	
Anemia; arthritis	Parvovirus B19
Post-rubella arthritis syndrome	Rubella
Congenital rubella syndrome	
Creutzfeldt Jacob disease	
Kuru	Prions
Familial insomnia	
Gastric lymphoma	
MALT lymphoma	<i>Helicobacter pylori</i>
Peptic ulcer disease	
Chronic pericarditis	Histoplasmosis
Lyme disease	<i>Borrelia burgdorferi</i>
Post-streptococcal glomerulonephritis	Group A <i>Streptococcus</i>
Reiter’s syndrome and reactive arthritis	<i>Chlamydia trachomatis</i>
Guillain-Barré syndrome	<i>Campylobacter jejuni</i>
Pelvic inflammatory disease	<i>Chlamydia trachomatis</i>
Squamous cell carcinoma	Osteomyelitis
Hemolytic uremic syndrome	<i>Escherichia coli</i> O157:H7

**Table 2. Chronic Diseases for Which There is Suspicion of an Infectious Etiology<sup>4</sup>**

Disease	Suspected Agent(s)
Primary biliary cirrhosis	<i>H. pylori</i> , retrovirus
Mesothelioma	Simian virus 40
Multiple sclerosis	Epstein-Barr virus
Tics and obsessive compulsive disorder	Group A <i>Streptococcus agalactiae</i>
Obsessive compulsive disorder	Group A <i>S. agalactiae</i>
Crohn’s disease	<i>Mycobacterium paratuberculosis</i> and others*
Alzheimer’s disease	<i>Chlamydia pneumoniae</i>
Diabetes	Enteroviruses
Sjogren’s disease	<i>H. pylori</i>
Sarcoidosis	<i>Mycobacterium spp.</i>
Atherosclerosis	<i>C. pneumoniae</i> , CMV
Bell’s palsy	Herpes simplex virus
Schizophrenia	Intrauterine exposure to influenza
ALS	Prions
Chronic fatigue	HTLV-1; EBV
Prostate cancer	BK virus

\**Clostridium*, *Campylobacter jejuni*, *C. faecalis*, *Listeria monocytogenes*, *Brucella abortus*, *Yersinia pseudotuberculosis*, *Y. enterocolitica*, *Klebsiella spp.*, *Chlamydia spp.*, *Eubacterium spp.*, *Peptostreptococcus spp.*, *Bacteroides fragilis*, *Enterococcus faecalis*, and *Escherichia coli*

### REFERENCES

- 1 Barrett-Connor, Elizabeth. 1979. Infectious and Chronic Disease Epidemiology: Separate and Unequal? American Journal of Epidemiology. 109(3):245-249.
- 2 Carbone, K., Luftig, R., Buckley, M. 2005. Microbial Triggers of Chronic Human Illness. Washington, D.C.: American Academy of Microbiology.
- 3 Blaser, MJ. 2005. An Endangered Species in the Stomach. Scientific American. 292:38-45.
- 4 Adapted from Microbial Triggers of Chronic Human Illness. Washington, D.C.: American Academy of Microbiology. 2005

## Case Study in Environmental Medicine

**WHETHER IT IS RESPIRATORY PROBLEMS** resulting from air pollution in Beijing, risk to infants from Bisphenol A in baby bottles, melamine in formula, or lead poisoning from children’s toys, conditions attributable to environmental exposures are increasingly receiving attention in the national media. For physicians these conditions pose diagnostic challenges since many environmental diseases may masquerade as common medical problems or cause nonspecific symptoms. The key to diagnosis is to consider the possibility of environmental factors of disease. By taking a thorough exposure history, primary care physicians can play an important role in detecting, treating, and preventing disease due to toxic environmental exposures.

*Consider the following scenario:*

“On Tuesday afternoon, a 52-year-old man with previously diagnosed coronary artery disease controlled by nitroglycerin describes episodes of recurring headache for the past three weeks. Mild nausea often accompanies the headache; there is no vomiting. He describes a dull frontal ache that is not relieved by aspirin. The patient states that the headaches are sometimes severe; at other times they are a nagging annoyance. The durations range from half an hour to a full day.

“His visit was also prompted by a mild angina attack that he suffered this past weekend shortly after he awoke on Sunday morning. He has experienced no further cardiac symptoms since that episode.”

Multiple possibilities exist for his headache and nausea. Would you include exposure to toxicants in your differential diagnosis? Are the headaches and cardiac symptoms related? If you learned that the patient refinished furniture as a hobby, worked at a commercial cleaning service, or recently remodeled his home would your differential diagnosis change? Each of these factors could play a role in the etiology of this patient’s illness.

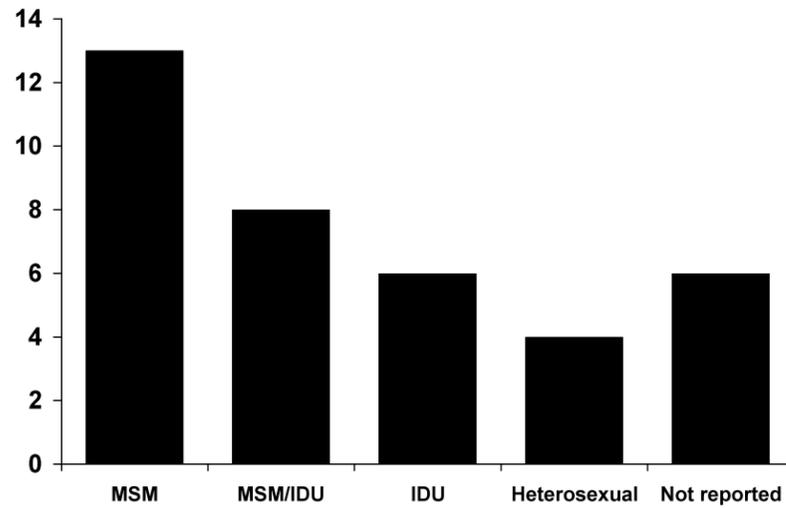
The preceding example was excerpted from a case study developed by the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR has developed a series of case studies on its website to increase primary care providers’ knowledge of hazardous substances in the environment and to aid in the evaluation of potentially exposed patients. CMEs, CNEs, and other continuing education credits are offered for completing these case studies at <http://www.atsdr.cdc.gov/csem/csem.html>. To learn how the scenario mentioned above can result in this case study patient’s illness, and how to take an exposure history, go to [http://www.atsdr.cdc.gov/csem/exp/history/ehcover\\_page.html](http://www.atsdr.cdc.gov/csem/exp/history/ehcover_page.html)

## Data Snapshot: HIV Infection

New estimates of the incidence of HIV infection were published recently by the CDC. For the years 2003–2006, it is estimated that there were 56,300 new infections in the United States. The predominant transmission category was male-to-male sexual contact (MSM), and the estimated annual incidence of infections in MSM has been increasing since the early 1990s. Incidence among heterosexual contact and intravenous drug use (IDU) transmission categories has trended downward since the mid-1990s.

In Idaho, MSM is the most frequently reported transmission category among reported cases of HIV or AIDS. In 2007, of 37 reports of newly diagnosed HIV infections (including those with concurrent AIDS diagnoses), 31 had a reported transmission category and of those, 13 (42%) were MSM and an additional 8 (26%) were MSM/

Figure 3. Transmission categories in reported cases of newly diagnosed HIV infections—Idaho, 2007



IDU. Of the remaining 10 reported cases, 6 (19%) were IDU and 4 (13%) were heterosexual contact (Figure 3).

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## The *Salmonella* SaintPaul Outbreak—U.S. and Idaho

Idaho's local public health districts, the Office of Epidemiology and Food Protection, and the Idaho Bureau of Laboratories have been collaborating with the Centers for Disease Control and Prevention (CDC), the Indian Health Service, and the Food and Drug Administration (FDA) to investigate a multi-state outbreak of human *Salmonella* serotype SaintPaul infections (Figure 1) that began April 2008 and, as of this printing, appears to be over. The initial epidemiologic investigation comparing foods eaten by ill and well persons identified consumption of raw roma or red round tomatoes as strongly linked to illness by comparing foods eaten by ill and well persons; however, despite aggressive traceback efforts by FDA and interviewing of cases by epidemiologists, the definitive

association with tomatoes remained elusive. Later investigative efforts that focused on both restaurant-associated clusters of illness as well as sporadic cases revealed a strong association between illness and jalapeno and serrano peppers. Traceback of *Salmonella* SaintPaul-positive jalapeno peppers collected from both a produce distributor in south Texas and a patient's home in Colorado led to the discovery that they were grown in Mexico. Serrano peppers and irrigation water that supplied a field of serrano pepper plants in Mexico was found to be contaminated with the outbreak strain of *Salmonella* SaintPaul as well.

As of August 25, 2008, there were 1,442 nationwide reports of confirmed cases associated with the *Salmonella* SaintPaul investigation. (Figure 2.) Cases were

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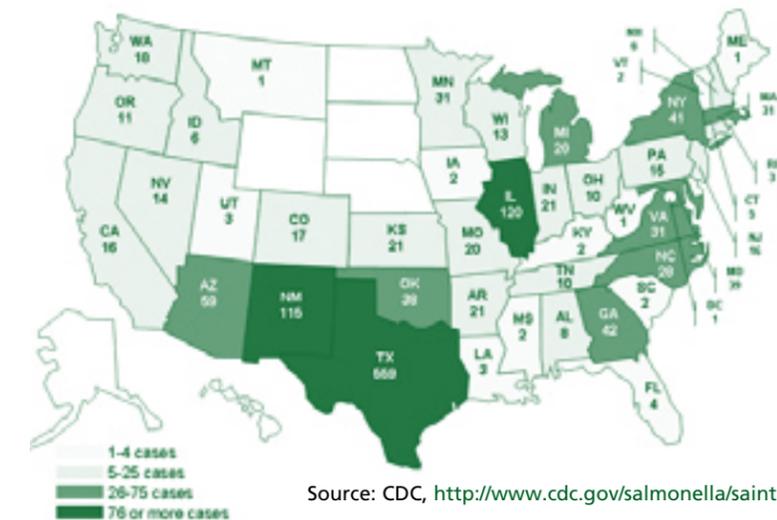


Figure 1. Reported cases of persons infected with the outbreak strain of *Salmonella* SaintPaul, United States, by state, as of August 25, 2008, 9pm EDT.

Source: CDC, <http://www.cdc.gov/salmonella/saintpaul/> accessed 8/29/2008.

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- ▶ Prion Disease Autopsy
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### Idaho Disease Bulletin Distribution List

The Office of Epidemiology and Food Protection (OEPF) recently updated the distribution list for the Idaho Disease Bulletin (IDB). If you would like to change your mailing address or would prefer not to receive the IDB, or if you have a colleague who would like to receive the IDB, please e-mail the OEPF at [epimail@dhw.idaho.gov](mailto:epimail@dhw.idaho.gov) or call the OEPF at 208-334-5939. Back issues of the IDB are available on-line at [www.epi.idaho.gov](http://www.epi.idaho.gov).

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**SALMONELLA AND SAINTPAUL** —continued from page 1

reported from 43 states, the District of Columbia, and Canada. Six cases were reported in Idaho residents, all from southwestern Idaho. Illness onset dates ranged from 5/16/08–6/25/08. Four (66%) patients were male, 3 (50%) White, and 4 (66%) Hispanic; their ages ranged from 12–65 years (median: 25 years). One patient was hospitalized.

Ultimately, this outbreak may result in changes in FDA authority and strengthen the ability of public health to respond to large, national outbreaks. For the most current update on the national outbreak, visit <http://www.cdc.gov/salmonella/saintpaul/>.

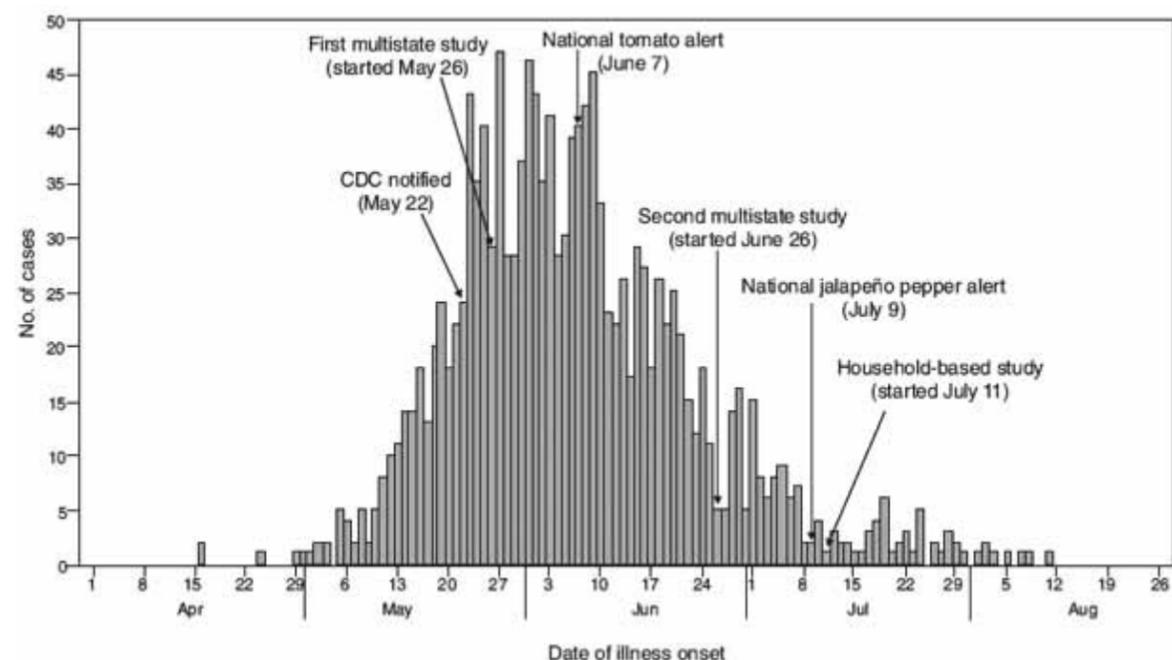
*Salmonella* infections continue to be commonly reported in Idaho and the rest of the US. An average of 161 (range: 151–179) *Salmonella* cases were reported in Idaho annually between 2004 and 2007, during which an average of 3.5 cases per year were *Salmonella* SaintPaul (range: 2–5). Clearly, *Salmonella* SaintPaul is not a commonly detected serotype.

In 2004, CDC estimated approximately 1.4 million illnesses, 15,000 hospitalizations, and 400 deaths from *Salmonella* infection occur in the United States every year. Approximately 40,000 of those infections are confirmed each

year by isolation of a *Salmonella* strain. Salmonellosis is more common in summer than in winter. *Salmonella* in the environment can contaminate produce in the field or during processing or shipping. Food handlers infected with *Salmonella* who have not washed their hands may also contaminate produce during preparation.

Please notify your local public health district or the Office of Epidemiology and Food Protection within one working day if you suspect a case of foodborne illness in an individual or a group of individuals. Public health epidemiologists will interview ill persons to obtain their food consumption history and to explore other risk factors for infection, provide information on prevention of foodborne illness, and work with environmental health specialists, when indicated, to look for and correct identified environmental problems associated with the illness.

**Figure 2.** Number of laboratory-confirmed cases (n=1,414) of *Salmonella* SaintPaul (outbreak strain), by date of illness onset—United States, 2008\*



\*Includes cases with onset information received as of August 25, 2008. Some illness onset dates (n=366) were estimated by subtracting 3 days from specimen date. Illness that began during July 29–August 25 might not yet be reported.

## New Prion Disease Brain Autopsy Service Available in Idaho

**St. Alphonsus Regional Medical Center in Boise has recently joined the network of pathology service providers** that coordinates with the National Prion Disease Surveillance Center (NPDSC) to collect neurological tissue for analysis from deceased individuals who are suspected of having a prion disease. It is anticipated that

the coordination of public health and clinical investigations of prion disease in Idaho will be enhanced by the availability of this service in the state. If you suspect a patient has a prion disease, such as Creutzfeldt-Jakob disease (CJD), and would like to arrange for tissue collection, please call St. Alphonsus Pathology at 208-367-2153.

For more information about how to request testing for prion disease, please contact the Office of Epidemiology and Food Protection at 208-334-5939 or go to the NPDSC website at <http://www.cjdsurveillance.com/>. Transmissible spongiform encephalopathies, including CJD and vCJD, are reportable diseases in Idaho.

## Fight the Bite

**Twelve human cases of West Nile virus infection in Idaho have been reported this year**, as of 8/15/08. The earliest onset of illness was 7/9/08. Evidence of West Nile virus in humans, mammals, birds, or mosquitoes has been reported this year from eleven counties as of 8/15/08. Cases are expected to occur until a killing frost eliminates the mosquito vector. As outdoor activities continue, we should still keep in mind the 2006 West Nile virus season in which over 1,000 cases and 23 deaths in Idaho were reported between June and October. We had a significant decrease in 2007 with 132 cases and a single death; however, the number of West Nile virus cases will likely continue to vary depending on

the weather, mosquito populations, populations of infected birds, presence of other reservoir species, and other variables. One prediction we can be confident of is that West Nile virus cases are likely to occur annually because the virus has become enzootic in the United States.

Health care providers can help minimize the impact of West Nile virus on patients by recommending actions that patients can take to avoid mosquito bites. Take a moment during a routine office visit to recommend that patients take appropriate precautions to avoid mosquito bites: use an insect repellent containing DEET, or other EPA-approved repellants, according to

label directions before going outdoors; avoid being outside between dusk and dawn when mosquitoes are most active, wear protective clothing to deter mosquito bites; and remove stagnant water from around the home. The chronically ill, elderly, and very young are more likely to develop significant disease when exposed to West Nile virus; however, serious illness can occur at any age. A brief moment spent counseling a patient could make the difference between a memorable summer and fall, and one that they would rather forget. Remember to “Fight the Bite.” For more information visit <http://www.westnile.idaho.gov>.

## Rabies Vaccine in Limited Supply

The rabies vaccine situation has changed since this issue went to press. Please, consult [www.cdc.gov/rabies](http://www.cdc.gov/rabies) for an update.

**Due to production delays and significant increases in demand, human vaccines for rabies are in short supply**, resulting in restrictions on ordering the vaccines. The status of this situation as of 8/29/08 is described below; however, please be aware that the situation has been changing rapidly. Please check the Centers for Disease Control and Prevention (CDC) website at <http://www.cdc.gov/rabies/> for updates.

Human rabies vaccine is currently available only for post-exposure prophylaxis (PEP). Requests for IMOVAX®, sanofi pasteur’s human diploid cell vaccine for rabies, must receive approval from the Office of Epidemiology and Food Protection (OEFPP) or your local public health district. Providers whose requests are approved after consultation and rabies risk assessment will be given a password to use when contacting sanofi pasteur to order IMOVAX®. Orders for RabAvert®, Novartis’ purified chick embryo cell vaccine for rabies, will be filled only for (1) post-exposure prophylaxis following bites from laboratory-confirmed rabid animals, or (2) emergency requests for PEP for persons who have severe adverse events from PEP with Imovax®. All requests for use of RabAvert® must receive approval from the OEFPP or your local public health district; in addition, requests for RabAvert® under the latter conditions require approval from CDC.

Judicious use of rabies vaccine for PEP is encouraged. Your local public health district or the OEFPP can assist you with a rabies risk assessment based on reported

type and circumstances of exposure and the epidemiology of rabies in Idaho. Rabies PEP may be delayed or determined to be unnecessary in certain situations where a biting animal is available for quarantine or testing. Consultation with public health epidemiologists is advised as rabies exposure events are often complex and may require public health interventions.

No pre-exposure prophylaxis requests are currently being filled by either manufacturer.

Patients who wish to prevent rabies exposure should be counseled to avoid contact with wildlife, especially bats; avoid approaching stray pets; and vaccinate pets and livestock<sup>2</sup>. You may wish to refer parents and children to “CDC’s Rabies Webpage That’s Just for Kids!” at <http://www.cdc.gov/ncidod/dvrd/kidsrabies/>.

For information on rabies in Idaho, see <http://www.diseaseinfo.idaho.gov>.

1. CDC Human Rabies Prevention, United States, 2008. Recommendations of the Advisory Committee on Immunization Practices (ACIP) May 23, 2008 / 57(RR03);1-26,28 <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5703a1.htm>
2. Compendium of Animal Rabies Prevention and Control, 2008. A publication of the National Association of State Public Health Veterinarians, Inc. (NASPHV) <http://www.nasphv.org/Documents/RabiesCompendium.pdf>

## Pertussis Data Snapshot

Routine immunization has greatly reduced morbidity and mortality attributed to pertussis, but periodic epidemics still occur in the U.S. every 3 to 4 years. Most recently, U.S. rates of pertussis increased significantly in 2004 and 2005 to nearly 8 per 100,000 population, but are beginning to return to pre-2004 levels of between 2 and 3 per 100,000 population. Like the U.S., Idaho experiences periodic epidemics, as illustrated in Figure 2. In 1988 and 1997, pertussis outbreaks occurred in Idaho and annual incidence rates were 2-3 times higher than the 20-year statewide average of 12.2 per 100,000 population. While Idaho rates have historically been higher than U.S. rates, in 2006 and 2007 statewide rates mirrored national rates. An adult vaccine has been available since 2005, and is recommended for healthcare workers with direct patient contact. Current child immunization schedules are available from the Centers for Disease Control and Prevention at: <http://www.cdc.gov/vaccines/recs/schedules/child-schedule.htm>

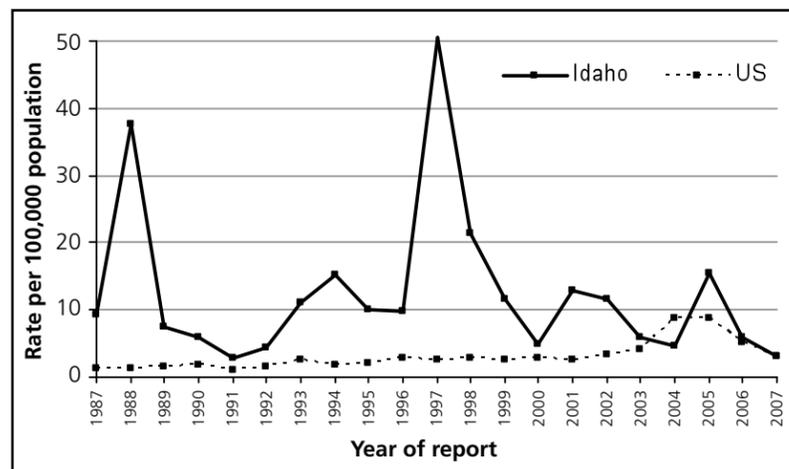


Figure: Pertussis incidence rates per 100,000 population, Idaho and U.S., 1987-2007\*  
\*2007 and 2006 US data and 2007 Idaho data are preliminary.

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## STDs and Adolescents

**P**reliminary Idaho data show chlamydia rates continued to climb in 2007, showing an increase of 33% over the last five years. Gonorrhea rates rose 73% during the same time period.<sup>1</sup>

Although 15-24 year olds make up only 25% of the U.S. population who are sexually active,<sup>2</sup> over half of reported sexually transmitted disease (STD) is among persons in this age group. Young people aged 15-24 years old are at highest risk for acquiring STDs for a combination of behavioral, biological, and cultural reasons, but most teens do not consider themselves at risk due to stereotypical beliefs about who is "at risk."<sup>3</sup> However, in the U.S., one in four sexually active girls aged 14-19 have at least one of the most common STDs (human papillomavirus [HPV], chlamydia, herpes simplex virus, and trichomoniasis).<sup>2</sup> This is especially problematic, since STDs such as chlamydia and gonorrhea have the potential to cause infertility in these young women just entering their child-bearing years. In 2006, chlamydia rates in Idaho were highest among 20- to 24-year olds (1,302 cases per 100,000 population aged 20-24) followed by 15- to 19-year olds (903 cases per 100,000 population).<sup>4</sup>

To prevent reinfection and the transmission of STD, it is imperative to treat the partner(s) of diagnosed patients. Stigma of STDs is a barrier to notifying partners,<sup>5</sup> so educating youth about the high incidence of STD in their age groups and their increased physiological susceptibility to chlamydia due to cervical ectopy may decrease their level of discomfort and promote partner notification.<sup>5</sup> With each chlamydia recurrence, the risk of developing pelvic inflammatory disease (PID)

and its sequelae increases.<sup>6</sup> Furthermore, antibiotic treatment may heighten susceptibility to transmission; therefore, individuals who reenter unchanged social networks may be at an increased risk of contracting chlamydia more than once.<sup>7</sup> Based on empirical research, it is estimated 50-75% of teens will notify their primary partner; however, it is unlikely that other partner(s) will be notified unless education or provider referral is performed.<sup>5,6,7,8,9</sup>

The higher incidence of STDs among adolescents and young adults reflects multiple barriers to utilizing quality STD prevention services including lack of insurance or other ability to pay, lack of transportation, discomfort with facilities and services designed for adults, and concerns about confidentiality.<sup>10</sup> Expedited Partner Therapy (EPT), in which partners are treated without a medical exam, may reduce anxiety related to confidentiality and the discomfort of accessing sexual health care services. The Centers for Disease Prevention and Control (CDC) is promoting EPT based on results from six randomized clinical trials of over 6,000 patients. Results of these trials indicate the rate of persistent or recurrent chlamydia and gonorrhea infections were lower in patients managed with EPT than those managed with patient referral alone.<sup>11</sup> Results of another randomized clinical trial showed patients who provided written materials for partner(s) had lower rates of reinfection than a control group using only patient referral.<sup>11</sup> Providers may not be legally protected against adverse reactions to therapy provided in EPT, but as of January 2007, the STD Control Branch of California had not received any reports of adverse

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STD AND ADOLESCENTS —continued from page 1

events related to EPT for chlamydia, in spite of the availability of a toll-free reporting line for such reports since 2001.<sup>12</sup>

The CDC and the US Preventive Services Task Force recommends screening all pregnant women and annually testing all sexually active 15- to 25-year old females for chlamydia.<sup>2</sup> In spite of this recommendation, screening coverage, especially among private providers, remains low. It is estimated that only 35% to 64% of these target population groups are tested each year.<sup>13</sup>

More information about EPT is available from the Idaho Department of Health and Welfare Family Planning, STD and HIV Programs. Contact Annabeth Elliott, RN, at (208) 334-6527.

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## 2008 Changes to Idaho Reportable Diseases

**On 4/2/2008 changes to the Rules and Regulations Governing Idaho Reportable Diseases (Rules), adopted during the 2008 legislative session, went into effect.** The entire Rules chapter has been rewritten and reformatted to be more user-friendly for those required to report diseases.

Substantive changes relevant to healthcare providers include the following:

Invasive methicillin-resistant *Staphylococcus aureus* (MRSA) is now reportable by laboratories\*. MRSA isolated from a normally sterile site must be reported within three days to public health (see MRSA article in this issue)

Respiratory syncytial virus (RSV) is now reportable by laboratories\* within one day of identification.

Both “active pulmonary tuberculosis” and “cure of tuberculosis” for public health purposes have been defined. These definitions are as follows:

a. Active pulmonary tuberculosis—a disease of the lungs, determined by a physician to be poten-

tially contagious by clinical or bacteriological evidence, or by evidence of spread to others. Tuberculosis disease is considered active until cured.

b. Cure of tuberculosis—the completion of a course of antituberculosis treatment.

\*For the purposes of the Rules, a laboratory is defined as any medical diagnostic laboratory inspected, licensed, or approved by the Idaho Department of Health and Welfare or licensed according to the provisions of the Clinical Laboratory Improvement Act by the United States Health Care and Financing Administration.

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

The complete Rules may be found at <http://adm.idaho.gov/adminrules/rules/idapa16/0210.pdf>

## Current Haemophilus influenzae Type b Vaccination Recommendations

**On December 13, 2007 Merck recalled multiple lots of the Haemophilus influenzae type b (Hib) vaccine** which affected the supply of both the PEDVAXHIB® and COMVAX® vaccines nationwide. Merck recalled the vaccine because of potentially contaminated manufacturing equipment and could not guarantee the sterility of the vaccine. The shortage is ongoing, and may continue until 2009.

The interim Hib vaccination recommendations are:

- Defer administering the routine Hib vaccine booster administered at ages 12–15 months except for specified high-risk groups.

- Certain children at increased risk for Hib disease, including children with asplenia, sickle cell disease, human immunodeficiency virus infection, certain other immunodeficiency syndromes, and malignant neoplasms should continue to receive the full routinely recommended schedule including the 12–15 month booster dose.
- American Indian/Alaska Native (AI/AN) children should also continue to receive the full routinely recommended schedule including the 12–15 month

booster dose. Providers who currently use PRP-OMP-containing Hib vaccines (PEDVAXHIB® and COMVAX®) to serve predominantly AI/AN children in AI/AN communities should continue to use only PRP-OMP-containing Hib vaccines.

- Vaccine For Children (VFC) Providers will need to order ActHIB on a monthly basis until there is enough supply to build an inventory. If a VFC provider does not receive an adequate Hib supply please contact the Idaho Immunization Program at (208) 334-5931 or 800-554-2922.

INTERIM HIB SCHEDULE				
Children On Schedule	2 Months	4 Months	6 Months	12 - 15 Months
Non High Risk	Pedvax Hib #1	Pedvax Hib #2	N/A	PedvaxHib Defer #3 Dose
Non High Risk	Pedvax Hib #1	ActHIB #2	ActHIB #3	ActHIB Defer Dose #4
Non High Risk	ActHIB #1	ActHIB #2	ActHIB #3	ActHIB Defer Dose #4
Non High Risk	2 doses of PedvaxHib completes the primary series of Hib defer the 3rd dose until adequate supply is available			
Non High Risk	3 doses of ActHIB complete the primary series of Hib defer the 4th dose until adequate supply is available			
CHILDREN NOT ON SCHEDULE				
Non High Risk	Administer age appropriate doses to complete the primary series			
High Risk	Administer age appropriate primary series and booster doses			
HIGH RISK ON SCHEDULE				
High Risk	Administer age appropriate primary series and booster doses			

CDC. Interim Recommendations for the Use of *Haemophilus influenzae* Type b (Hib) Conjugate Vaccines Related to the Recall of Certain Lots of Hib-Containing Vaccines (PedvaxHIB® and Comvax®). *MMWR*. 2007; 56 (50): 1318-1320. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5650a4.htm>

## MRSA: a changing role for public health

**In response to an increase in methicillin-resistant Staphylococcus aureus (MRSA)** in community settings, outbreaks of MRSA in the United States in certain populations, and a recent JAMA article reporting more invasive MRSA than had previously been reported, changes to Idaho law were approved by the legislature this year.

In the past, although individual healthcare facilities in Idaho tracked MRSA rates, no statewide tracking was done. Local and state public health offices have assisted persons with questions about MRSA, and given advice to schools, long-term care facilities, and other institutions, but no restrictions for persons with MRSA infections have

been mandated in state law, other than for foodhandlers.

Under the new rules, invasive MRSA, defined as MRSA isolated from a normally sterile site, is now reportable to public health in Idaho by laboratories, but reporting by physicians or other healthcare providers is not required.

In addition, new restrictions apply for persons diagnosed with cutaneous MRSA infection. A person who is diagnosed with MRSA infection must not work in an occupation providing personal care to children, attend a day care facility, work in direct contact with students at a school, attend school, or provide personal care to persons in a

healthcare facility, under the following circumstances:

- If the infection manifests as a lesion containing pus such as a boil or infected wound that is open or draining and the lesion is on the hands, wrists, or exposed portions of the arms, unless protected by an impermeable cover; or
- If the lesion is on another part of the body, unless covered by a dry, durable, tight-fitting bandage.

Such persons can return to work, daycare, or school once the lesion is covered.

# IDAHO DISEASE Bulletin

## Tuberculosis Data Snapshot

Idaho's provisional total number of active tuberculosis (TB) cases for 2007 is nine. This is near Idaho's baseline from the previous decade of 10-15 cases per year after seeing increases in 2005 (23 cases) and 2006 (20 cases). As illustrated in Figure 2 Idaho has had a gradual decline in TB cases until about 1990, but the number of cases has remained relatively stable since then. While Idaho is classified as a low-incidence state (<3 cases per 100,000 population), TB remains a threat to public health. Please call your local public health district or the Office of Epidemiology and Food Protection for assistance with TB questions. Guidelines for evaluation and treatment of individuals with TB can be found at [http://www.cdc.gov/tb/pubs/mmwr/maj\\_guide.htm](http://www.cdc.gov/tb/pubs/mmwr/maj_guide.htm).

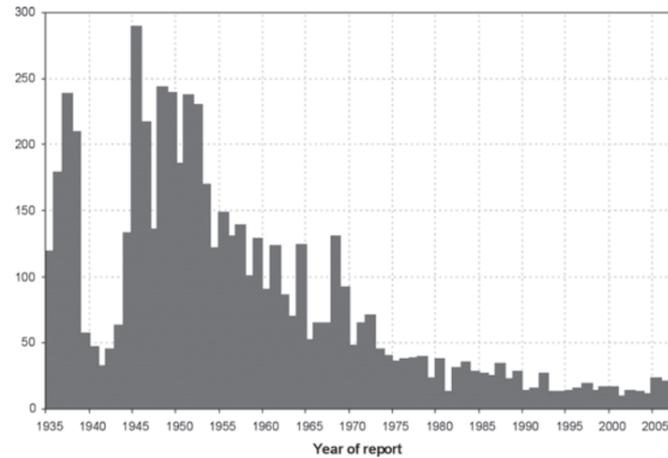


Figure 2. Reports of Confirmed Active Tuberculosis Cases in Idaho, 1935–2007\*

\*2007 data are provisional

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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>  
 Current and past issues are archived online at [www.epi.idaho.gov](http://www.epi.idaho.gov).



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## Cluster of Invasive *Streptococcus pneumoniae*: a Reminder to Vaccinate

Recently the Office of Epidemiology and Food Protection investigated a cluster of nine cases of invasive *Streptococcus pneumoniae* that occurred in adults treated at one Idaho hospital November 18, 2007–January 13, 2008. Invasive *S. pneumoniae* is defined as the laboratory isolation of *S. pneumoniae* from a normally sterile site (e.g., blood, cerebrospinal fluid, etc.). In the United States, *S. pneumoniae* is responsible for an estimated 50,000 cases of bacteremia and 40,000 deaths per year and is a leading cause of invasive bacterial disease.<sup>1,2</sup>

The nine patients ranged in age from 31–88 years (median 47 years). Seven patients were diagnosed with pneumonia and two with meningitis; five required ventilator support and four died. *S. pneumoniae* isolates from three patients were serotyped as 3, 15B, and 19A; each of these serotypes is included in the polyvalent pneumococcal polysaccharide vaccine (Pneumovax® 23, Merck & Co., Inc.). The remaining isolates are not yet serotyped. None of the patients were previously vaccinated with pneumococcal vaccine. Six of the nine patients had indications for vaccination, including age ≥65, and/or a history of chronic alcoholism, chronic liver disease, chronic heart disease, chronic lung disease, or Hodgkin's disease. Additionally, one patient reported a history of chronic methamphetamine abuse and, while the Advisory Committee on Immunization Practices (ACIP) does not officially recommend pneumococcal vaccination in this population, chronic

methamphetamine usage has been shown in experimental models using laboratory animals to decrease the immune system's ability to respond to infectious diseases.<sup>3</sup>

Providers should be vigilant about recommending vaccination against *S. pneumoniae* in appropriate patients. Polyvalent pneumococcal polysaccharide vaccine is indicated for routine administration in adults ≥65 years of age and in persons ≥2 years of age with certain medical conditions or social situations, including chronic cardiovascular disease, chronic pulmonary disease, diabetes mellitus, alcoholism, chronic liver disease, and those with functional or anatomic asplenia.<sup>2</sup> Please see the Pneumovax® package insert for a complete listing of prescribing instructions, and ACIP recommendations for pneumococcal vaccination at <http://www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm>. In Idaho, invasive *S. pneumoniae* in persons <18 years of age is reportable. Please report any cases to your local public health district, or to the Office of Epidemiology and Food Protection.

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## Hepatitis A: good news for travelers and good news for Idahoans

**FOR DECADES, IMMUNE GLOBULIN (IG)** has been recommended for prophylaxis after exposure to hepatitis A virus (HAV), and in addition to hepatitis A vaccine for travelers scheduled to depart in less than 4 weeks to countries with high or intermediate HAV endemicity. New recommendations were made by the Advisory Committee on Immunization Practices (ACIP) in June 2007, based on study results published in the October 25, 2007, *New England Journal of Medicine* (NEJM), which simplifies recommendations for prevention of hepatitis A in these groups.

The NEJM article showed that vaccine efficacy (86%), when administered  $\leq 14$  days after exposure, approached IG (90%) in healthy children and adults aged  $\leq 40$  years.

Most persons who previously would have received IG after exposure to a person with hepatitis A can now be given hepatitis A vaccine. Local public health districts in Idaho will now be recommending vaccine in many cases where a household member or other person might have been exposed to a person with hepatitis A. Completion of the vaccine series according to the licensed schedule is necessary for long-term protection.

For most travelers, life is now going to be much easier. Hepatitis

A vaccination at the age-appropriate dose is preferred to IG for many persons traveling to areas with high or intermediate HAV endemicity.

Based on limited data indicating equivalent postexposure efficacy of IG and vaccine among healthy persons aged  $\leq 40$  years, one dose of single-antigen hepatitis A vaccine administered any time before departure provides adequate protection for most healthy persons aged 1-40 years. However, no data are available for other populations or other hepatitis A vaccine formulations (e.g., Twinrix®). For optimal protection, older adults, immunocompromised persons, and persons with chronic liver disease or other chronic medical conditions planning to depart to an area in  $\leq 2$  weeks should receive the initial dose of vaccine and simultaneous administration of IG (0.02 mL/kg) at a separate anatomic injection site. Completion of the vaccine series according to the licensed schedule is necessary for long-term protection.

IG will still be used in some situations. Travelers who elect not to receive vaccine, are aged  $< 12$  months, or are allergic to a vaccine component should receive a single dose of IG (0.02 mL/kg), which provides effective protection against hepatitis A for up to 3 months. Such travelers whose travel period is expected to be  $> 2$  months

should be administered IG at 0.06 mL/kg; administration must be repeated if the travel period is  $> 5$  months.

Data are not available regarding the risk for hepatitis A for persons traveling to certain areas of the Caribbean, although vaccination should be considered if travel to areas with questionable sanitation is anticipated. Travelers to Australia, Canada, western Europe, Japan, or New Zealand are at no greater risk for infection than persons living or traveling in the United States. Information on countries for which hepatitis A vaccine is recommended can be found at <http://wwwn.cdc.gov/travel/yellow-bookch4-hepa.aspx>

Due to high rates of hepatitis A in Idaho and throughout the West, ACIP recommended in 1999 that routine vaccination of Idaho children two years of age and older be implemented. In 2005, ACIP recommended all U.S. children receive hepatitis A vaccine at 12-23 months of age. Hepatitis A disease rates have declined dramatically in Idaho and the U.S. in recent years (Figure 1). In 2006, the vaccination rate for children entering kindergarten in Idaho was 68% (at least one dose) and 45% (two doses).

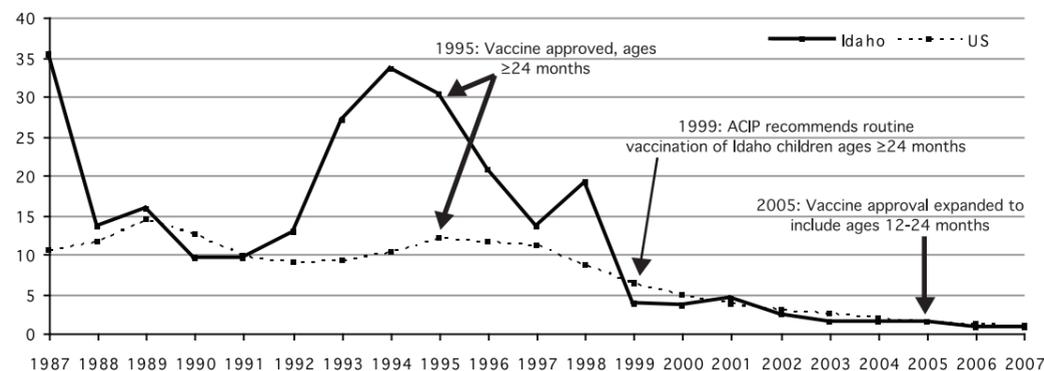


Figure 1. Hepatitis A incidence rates per 100,000 population, Idaho and U.S., 1987-2007\*

\*2007 Idaho and U.S. data are provisional. 2006 U.S. data are preliminary.

## False Negative Result for Syphilis: Prozone Reaction in an Idaho patient

**IN NOVEMBER 2007, A 27 YEAR OLD MALE** was seen by an Idaho physician for blurred vision. Body rash and oral lesions were not present at the patient's visit, but were reported to be present during the last year. Blood was drawn and the serum specimen was tested for syphilis at a commercial reference laboratory. The syphilis serologic screening Rapid Plasma Reagin (RPR) test result was reactive, with a quantitative titer result of 1:32,768. The confirmatory Fluorescent Treponemal Antibody-Absorption (FTA-ABS) was also reactive.

When the patient reported to begin treatment, a second blood specimen was taken in order to monitor titer response to antibiotic therapy. The test result was non-reactive by RPR performed at a different laboratory. Because of the previous reactive results, this result was thought to be falsely negative due to a phenomenon known as the prozone reaction. After re-testing the second specimen at the state public health laboratory, the Venereal Disease Research Laboratory (VDRL) syphilis screening test was found to be reactive with a titer of 1:128 and the confirmatory TPPA was reactive, substantiating the hypothesis that these results represented the prozone reaction.

This event is a good reminder of possible falsely negative syphilis screening results due to the prozone reaction.

## A New Neurologic Syndrome Associated with Swine Slaughterhouse Practices

**IN LATE OCTOBER, 2007 THE MINNESOTA DEPARTMENT OF HEALTH (MDH)** began investigating unexplained neurologic illnesses in swine slaughterhouse workers. As of January 31, 2008 twelve cases of progressive inflammatory neuropathy (PIN) have been identified, with new onset bilateral and relatively symmetric flaccid weakness/paralysis of the limbs, with or without involvement of cranial-nerve innervated muscles and new onset of decreased or absent deep-tendon reflexes at least in affected limbs. The MDH and the Centers for Disease Control and Prevention (CDC) have determined that participation in removal of pig brains using compressed air is a significant risk factor for illness. Inhalation or mucous membrane exposure to extracted brain tissue may have stimulated an autoimmune-mediated PIN. Further investigation into PIN, its causes and characteristics, is ongoing. The practice of removing pig brains by using compressed air has ceased in all three slaughter houses known to carry out this practice across the country. There are five swine processing plants in Idaho; none are believed to perform the procedure. To read more about this newly described syndrome see: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5705a3.htm>

The prozone reaction is a false negative non-treponemal syphilis screening (e.g., RPR, Venereal Disease Research Laboratory [VDRL]) test resulting from excess antibody in undiluted serum inhibiting the antigen-antibody reaction.

Overall, the incidence of the prozone reaction is thought to be very low ( $\leq 2\%$ ).<sup>1,2</sup> The prozone reaction can occur when antibody titer is very high (e.g., secondary syphilis, pregnancy)<sup>1</sup> and may be more common with HIV infection. Case reports have described the prozone reaction being present in specimens from HIV positive patients up to 1:64 dilution.<sup>3</sup>

Because of the possibility of the prozone reaction, clinicians should specifically request titration in addition to the screening test when the index of suspicion is high. This may be requested later if initial screening results are reported as negative, by contacting the testing laboratory.

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## Chronic Disease, Injury, and Environmental Health epidemiologist

The Office of Epidemiology and Food Protection would like to introduce the newest member of our staff, **DR. ROBERT GRAFF**. Robert is our Chronic Disease, Injury, and Environmental Health epidemiologist and has a doctorate in medical anthropology from Southern Methodist University in Dallas, Texas. Over the past seven years Robert has held a variety of public health roles and gained experience working in clinical, research, and street outreach settings. He also brings experience investigating treatment adherence issues for both chronic communicable (HIV/AIDS, hepatitis C) and non-communicable (hypertension) diseases. Robert's primary role will be to utilize his experience and skills to better inform public health practice regarding chronic disease prevention and control, injury prevention, and environmental health. He will also provide assessment of risk and protective factors associated with these areas of public health. Look forward to future contributions from Robert addressing chronic and environmental health issues.

# IDAHO DISEASE Bulletin

## West Nile Virus Snapshot

AS OF NOVEMBER 2, there have been 116 reports of West Nile virus (WNV) infection in 2007 received by the Office of Epidemiology and Food Protection, including one WNV-related death: 105 were classified as West Nile fever and 11 as West Nile neuroinvasive disease. The number of case reports received for 2007 is 11.6% of the number received by the same date in 2006 (n=994). Although this represents a significant reduction in total case reports, the seasonality of WNV infections appears similar between years, with cases consistently peaking at the end of July and early August (see figure). To see more information on WNV in Idaho, please visit [www.westnile.idaho.gov](http://www.westnile.idaho.gov)

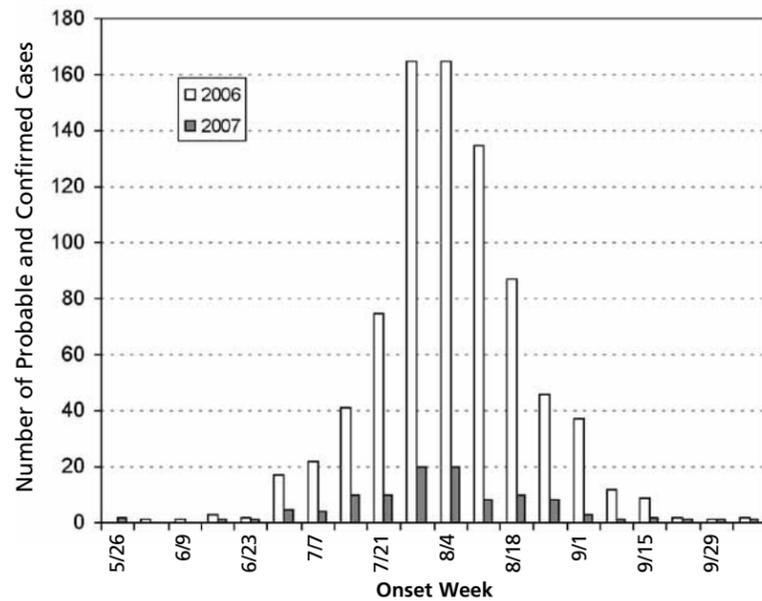


Figure: Human WNV Cases with known onset dates, by week, Idaho, 2006-2007

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## Public Health and Emerging Infections: MRSA and Adenovirus 14

**M**ethicillin-resistant *Staphylococcus aureus* (MRSA) infections hit the news in mid-October, due largely to two events: the publication of a provocative article with an accompanying editorial in the October 17th issue of the Journal of the American Medical Association (JAMA), and the death of a Virginia high-school student from MRSA infection, which prompted student protest when the school did not respond in a way which satisfied their concerns about spread of MRSA in the school.

Authors of the JAMA article estimated a higher rate of invasive MRSA infections than had previously been recognized. The accompanying editorial noted that the estimated death rate due to MRSA was higher than that due to HIV/AIDS, and that invasive MRSA infection rates were greater than many of the other invasive bacterial infections traditionally tracked by public health.

This information, combined with growing public concern about multidrug resistant organisms in general, and community-associated MRSA in particular, has prompted the Office of Epidemiology and Food Protection to propose changing the Idaho reportable disease rules. The proposed changes, if approved by the legislature, would make invasive MRSA infections reportable by clinical laboratories, and require restrictions on school and daycare attendance among persons with skin infections due to MRSA unless the lesion were adequately covered.



On November 16, adenovirus serotype 14 (Ad14) made news and was reported as a “cold virus superbug” and a “deadly cold virus” after publication of an article on Ad14 in the Morbidity and Mortality Weekly Report (MMWR). The MMWR authors reported 141 cases of Ad14, of which nine died. The initial case was reported in an infant from New York who died in May 2006, with the additional cases being detected subsequently in Oregon, Washington, and Texas during 2007.

Although Ad14 has been reported before, and caused outbreaks in the 1960s, the recent isolates were distinct from the Ad14 reference strain from 1955, suggesting the emergence and spread of a new Ad14 variant in the United States. Beyond the neonatal period, deaths

associated with community-acquired adenovirus infection in persons who are not immunodeficient are uncommon and usually sporadic. Information below on the 2007 Oregon and Washington cases is from the November 16th issue of MMWR.

In early April 2007, a clinician alerted the Oregon Public Health Division regarding multiple patients at a single hospital who had been admitted with a diagnosis of severe pneumonia during the previous two months. Several specimens from these patients yielded isolates that were identified by CDC as Ad14, and retrospective examination of laboratory reports identified other patients who tested positive for adenovirus during November 1, 2006–April 30, 2007. Of 50 available patient isolates positive for adenovirus, 31 (62%) were identified as

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Ad14. Medical chart review of 30 of these cases revealed that twenty-two patients (73%) required hospitalization, sixteen (53%) required intensive care, and seven (23%) died, all from severe pneumonia. The median age of the patients who died was 63.6 years; five (71%) were male. One death occurred in an infant aged 1 month.

On May 16, 2007, the Tacoma-Pierce County Health Department notified the Washington State Department of Health of four residents of a residential-care facility who had been hospitalized recently for pneumonia of unknown etiology. The patients were aged 40–62 years. One patient had AIDS, the three others had chronic obstructive pulmonary disease, and all were smokers. The patients had initial symptoms of cough, fever, or shortness of breath during April 22–May 8, 2007. Three patients required intensive care and mechanical ventilation for severe pneumonia. After 8 days of hospitalization, the patient with AIDS died; the other patients recovered. Respiratory specimens from

all four patients tested positive for adenovirus by PCR; isolates were available from three patients, and all three isolates were identified as Ad14 by CDC.

This infection appears to be emerging as a cause of severe respiratory disease; it is likely that many adenovirus infections often go undetected, even if respiratory samples are obtained, because few laboratories routinely test for adenovirus and even fewer do serotyping. Management is largely supportive. A number of antiviral drugs have been used to treat adenoviral infections such as Ad14, but none have shown definitive efficacy.

Clinicians should be suspicious of Ad14 infection if clusters of unexplained respiratory disease occur, especially in a long-term residential or military setting, and notify the Office of Epidemiology and Food Protection. Clinicians with questions related to testing of patients for adenovirus infection should contact the Idaho Bureau of Laboratories at 208-334-2235.

## Health e-cards

**DEPARTMENT OF HEALTH AND WELFARE HEALTH PROGRAMS** are offering electronic greeting cards (health e-cards) online at [www.healthcardsidaho.org](http://www.healthcardsidaho.org) as a new, free way to spread the word to friends, family and neighbors about the importance of taking time to take care of their health. One set of health e-cards encourages women to get crucial breast and cervical cancer screenings. Another set encourages recipients to get tested for HIV and sexually-transmitted diseases. A third set will come in handy next May, reminding people to take precautions against West Nile virus as mosquitoes emerge. The pilot program runs through June 2008, with more cards under

consideration including a series aimed at tobacco use prevention and a set designed to encourage colorectal cancer screening. It's no different than sending an electronic birthday card. With a few easy clicks from [www.healthcardsidaho.org](http://www.healthcardsidaho.org), your patients can send messages to others about preventing devastating diseases. If you have patients who are concerned that their loved ones aren't getting tested or taking precautions, you may wish to suggest health e-cards as another way of encouraging others to take care of their health.

## Food Recall 101

**DURING THE PAST YEAR, NATIONWIDE RECALLS** of spinach, peanut butter, pot pies, ground beef, canned chili, and other foods have taken place due to illness associated with these products. Consequently, there is a greater interest in understanding how food processors are regulated, the different regulatory agencies involved, agency roles in ensuring safe food, and how health-care professionals can help with detection of food-borne illnesses.

Jurisdiction in regulation and inspection of food processing firms is dependent on the type of food product and the distribution of the products produced by the firm. Regardless of the type of food, a food processor that distributes the finished product only within Idaho is regulated by the local public health district. Inspections of these firms, by the local public health districts are conducted at least annually and during that inspection, information related to the distribution of the product is collected. If the finished product is distributed via interstate commerce, the health district will refer the firm to a federal agency.

The two most visible federal regulatory agencies for food safety are the US Food and Drug Administration (FDA), and the US Department of Agriculture's Food Safety and Inspection Service (USDA FSIS). These two agencies regulate different food items: FSIS generally regulates meat products including beef, poultry, pork, and lamb; FDA generally regulates other products including seafood, produce, and canned or packaged goods. The Centers for Disease Control and Prevention (CDC) plays an important role in detecting multi-state food-borne outbreaks and identifying the source of an outbreak, but does not have regulatory authority.

FSIS and FDA inspect food processing firms regularly, but if an outbreak of illness is linked to the producer, FSIS or FDA will make a non-routine investigation. During a regular inspection, processor activity logs containing information related to production and sanitation practices are reviewed and observations are made of the entire process. If a food item is implicated in an outbreak, production logs and prior inspection

observations become key pieces of information to help determine how the product might have been contaminated. Products are accounted for using coded information typically found in bar codes or print on food packaging. The coded information can indicate the exact time of day and the exact product line where the food item was processed. This helps epidemiologists and regulators determine what might have taken place in the process and what products ought to be sampled for the presence of pathogens. The federal agency with jurisdiction over the product will request that the firm consider recalling the product if findings indicate that some part of the process was not controlled and likely resulted in a situation that could have contributed to the outbreak. If the processing firm agrees to a recall, the firm then generally requests the assistance of the federal agency to quickly broadcast the information about the recalled product to public health agencies and the public to prevent consumption of the product.

Most recalled food products are collected and accounted for while

still in the initial distribution of the product, before it has reached store shelves. Identification of pathogenic bacteria such as *E. coli* O157:H7, *Salmonella* species, and *Listeria monocytogenes* and detection of certain viral agents through routine testing of food products by processors may cause a recall to occur to avoid illness in consumers. This is especially true of shellfish such as clams and oysters because of their implication in hepatitis A outbreaks. Undeclared allergens are also of concern. Federal legislation requires food processors to clearly indicate in the packaging if the product contains any of the eight major food allergens: tree nuts, peanuts, wheat, milk, eggs, soybeans, fish, and crustacean shellfish.

Neither USDA FSIS nor FDA has the authority to mandate a recall of food items. When a food recall is announced, it is always a voluntary action by the food processor. Once a recall is officially announced by the processor or the federal agency involved, the Idaho Food Protection Program will send the recall notice plus any additional distribution infor-

mation to the local public health districts and other interested parties. If it becomes apparent that the food item is likely in consumer's homes or readily available to consumers, the Idaho Department of Health and Welfare will send out a press release to further broadcast the warning to consumers.

Occasionally, prior to requesting that a firm consider issuing a recall, the federal regulatory agency might request an alert or a "market hold". An alert warns consumers that there might be reason to avoid consuming particular foods. Alerts are generally aimed at a particular segment of the population. A market hold warns retailers that an investigation is taking place into a link between the product and an outbreak. Until the investigation is complete, a market hold will prompt a message at the grocery checkout station that the processor of the item has requested that the product not be purchased. Recently, an outbreak of *Salmonella* linked to consumption of pot pies containing poultry meat initially resulted in a market hold while a full investigation was being conducted.

If a patient presents with symptoms consistent with a foodborne illness or allergic reaction, it is helpful to collect food history information from the previous three days. Depending on the specific symptoms, a longer food history might be warranted. For example, due to the extended incubation time of hepatitis A, a patient should be asked if he or she has consumed undercooked oysters, clams, or mussels within the past month. Indications for stool cultures and recommendations for pathogen testing in cases of suspected foodborne illness, as well as information on non-infectious foodborne illness are described in "Diagnosis and management of foodborne illnesses: A primer for physicians and other health care professionals," a publication available in both .pdf and PDA format on the American Medical Association website, <http://www.ama-assn.org/ama/pub/category/3629.html>. Continuing medical education credit can be obtained.

For more information on food recalls or food safety practices, please contact the IDHW OEFPP Food Protection Program at (208) 334-5938.

# IDAHO DISEASE Bulletin

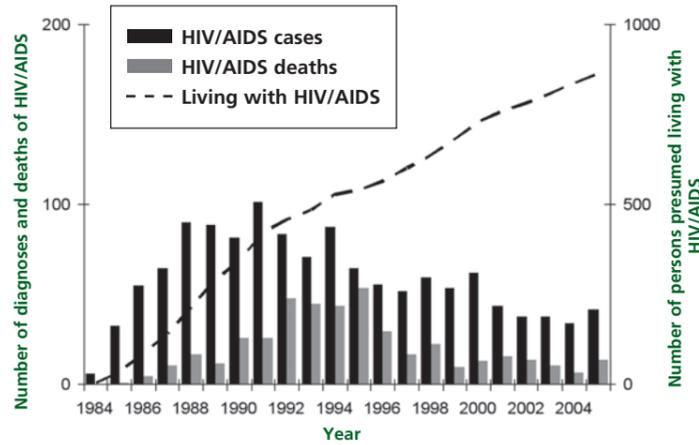


Figure 2: Morbidity and Mortality of HIV/AIDS by year—Idaho, 1985–2005

## HIV/AIDS Trends in Idaho

**NEW HIV/AIDS CASES** have outnumbered HIV/AIDS deaths every year since Idaho’s first case in 1984.

Prior to the widespread use of protease inhibitors beginning in 1996, deaths averaged 26 per year. Afterward the yearly average dropped to 16.

With new cases outnumbering deaths, the number of reported persons living with HIV/AIDS in Idaho continues to increase.

For more information on HIV/AIDS trends in Idaho, see the 2006 Epidemiologic Profile of HIV/AIDS in Idaho, available on the Department Web Site: <http://www.healthandwelfare.idaho.gov>. Click on the ‘Sexual and Reproductive Health’ link and look under ‘Information’.

**ROUTINE 24-Hour Disease Reporting Line ..... 1.800.632.5927**  
**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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## Cryptosporidiosis and Recreational Water Exposure in 2007

**I**n Idaho, we will remember the summer of 2007 as a hot, dry, and smoky season. In the medical community, we may remember it as the summer of cryptosporidiosis. Normally, reported cases of cryptosporidiosis peak July through September and are few in number, but this year has brought an unusually high number of cases. During the years 2000–2006, Idaho averaged only 27 reported cases per year (see Figure 1). As of October 22, the Idaho Department of Health and Welfare had received 440 reports of cryptosporidiosis cases for 2007. The vast majority of cryptosporidiosis cases reported exposure to recreational water sources in the days or weeks prior to illness onset. Nearby states, Utah and Colorado, have also seen a sharp increase in the number of cryptosporidiosis cases. The reasons for the regional increases in cryptosporidiosis are currently unclear.

Cryptosporidiosis is most commonly a water-borne disease caused by the parasite *Cryptosporidium*, an organism found in most drinking water prior to treatment, and transmitted by the fecal-oral route. The parasite can be found in recreational waters, including lakes, rivers, swimming pools, and interactive zero-depth splash fountains. Infection occurs when a person ingests water or food contaminated with *Cryptosporidium* oocysts and several reports in the medical literature cite past cryptosporidiosis outbreaks linked to fecal accidents in swimming pools. Person-to-person transmission of *Cryptosporidium* is also an important mode of transmission, usually by close contact with an infected person or careless diaper changing and hygiene practices.<sup>1</sup>

Unfortunately, *Cryptosporidium* is a very infectious and resilient organism. As few as ten *Cryptosporidium* oocysts can infect healthy adults and oocysts can survive in normally chlorinated swimming pools and up to two hours in household bleach.<sup>1</sup> In healthy persons, cryptosporidiosis usually causes a mild, self-limited gastrointestinal disease that frequently includes watery diarrhea. Other symptoms may include abdominal cramping, fever, nausea, body aches, and vomiting.<sup>1</sup> Illness usually begins approximately 7 days following exposure (range 1 to 12 days) and lasts, on average, about 5 to 10 days. Even when symptoms quickly resolve, patients will continue to shed oocysts in their stool for up to several weeks.<sup>1, 2</sup> Additionally, approximately 39% of patients will suffer a recurrent bout of diarrhea or gastrointestinal symptoms, often days or weeks following initial symptom resolution. Persons with compromised immune systems may suffer more profound dehydration and illness.<sup>1</sup>

The clinician should suspect cryptosporidiosis in any patient with watery diarrhea or other gastrointestinal symptoms in the days following exposure to recreational water. The diagnosis of cryptosporidiosis relies on identification of oocysts in the patient’s stool and is often problematic for the following reasons: clinicians sometimes fail to consider *Cryptosporidium* in their differential diagnoses; laboratories may not be instructed to test for *Cryptosporidium*; older laboratory methods are insensitive; and more recent diagnostic methods, while more sensitive, are not easily performed in some laboratories. Traditional

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- ▶ **Influenza Season 2007–2008**
- ▶ **HIV/AIDS Trends in Idaho**

IDAHO DISEASE Bulletin  
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stool examinations commonly miss the organism and modified acid-fast stains are similarly insensitive. Newer diagnostic methods, such as immunofluorescent assay (IFA) and enzyme-linked immunosorbent assay (ELISA) are more sensitive and increasingly used methods.<sup>1</sup> Despite the availability of newer diagnostic methods, the clinician must continue to instruct the laboratory to look purposely for *Cryptosporidium*.

Management of cryptosporidiosis in the previously healthy patient should focus on fluid and electrolyte replacement. Oral rehydration, a lactose-free diet, and antimotility agents (*i.e.*, loperamide) are effective supportive measures.<sup>1</sup> Another treatment option, nitazoxanide, is an anti-parasitological medication indicated for treatment of cryptosporidiosis in adults and children over one year of age (see package insert for indications, precautions, dosage instructions, and side effects). Nitazoxanide has an approximately 85% clinical cure rate and 65% parasitological cure rate and shortens clinical illness by several days.<sup>3</sup> In Idaho, there have been reported shortages of nitazoxanide during the recent cryptosporidiosis outbreak. In times of shortage, providers may want to consider reserving nitazoxanide for those patients who have symptoms for greater than 10–14 days or are moderately to severely ill.

### Things to Remember about Cryptosporidiosis:

- Cryptosporidium is a parasite that can be found in recreational waters and usually causes a mild, self-limited gastrointestinal disease often including watery diarrhea.
- Illness usually begins about 7 days after exposure (range 1 to 12 days) and lasts about 5 to 10 days, on average.
- Suspect cryptosporidiosis in any individual presenting with watery diarrhea or other gastrointestinal symptoms in the days following recreational water exposure.
- If you suspect cryptosporidiosis, make sure to ask the laboratory to specifically test for *Cryptosporidium*.
- Nitazoxanide is an approved treatment for cryptosporidiosis in patients over one year of age and has an approximately 85% clinical cure rate and 65% parasitological cure rate.
- Cryptosporidiosis is a reportable disease and should be reported to your local public health district, or the Idaho Department of Health and Welfare within 3 business days by calling 1-800-632-5927.

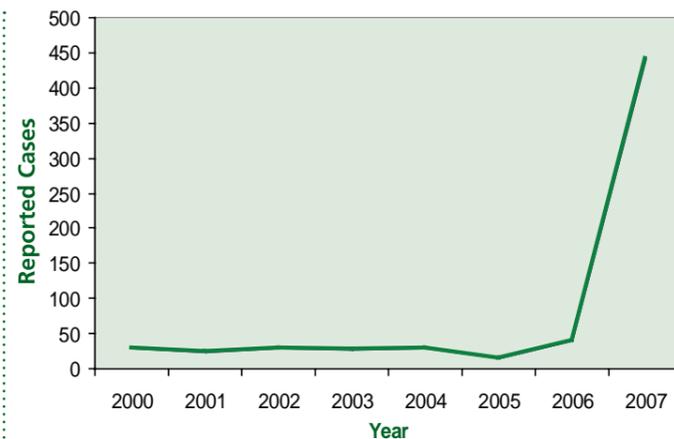


Figure 1: Reported Cases of Cryptosporidiosis—Idaho 2000 to date

Prevention practices aimed at limiting exposure to *Cryptosporidium* are the key to controlling the number of cryptosporidiosis cases. Clinicians should provide patients diagnosed with cryptosporidiosis and their family members the following recommendations, as applicable:

- Stress vigorous hand washing after changing diapers or using the restroom along with other personal hygiene measures.
- Children with diarrhea should not attend daycare for at least 24 hours after diarrhea stops.
- Any person diagnosed with cryptosporidiosis should not enter recreational waters for at least two weeks after symptoms resolve.
- Individuals with diarrhea may not participate in food handling. Symptomatic persons excreting *Cryptosporidium* are restricted from working as food employees (IDAPA 16.02.19).
- Healthcare workers with diarrhea should not have direct contact with hospitalized patients.<sup>2</sup>

Cryptosporidiosis is a reportable disease. Report any cases of cryptosporidiosis to your local public health district, or to the Idaho Department of Health and Welfare by calling 1-800-632-5927.

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## RSV Season is Coming Soon: Change in Surveillance

**RESPIRATORY SYNCYTIAL VIRUS (RSV)** is the leading cause of bronchiolitis and pneumonia in children under two years of age.<sup>1</sup> Annually in the U.S., RSV causes an estimated 2.1 million cases of lower respiratory infections and 113,000 hospitalizations in children under five years of age.<sup>2</sup> RSV immunoprophylaxis with monthly intramuscular injections of palivizumab (Synagis® by MedImmune, Inc.) during RSV season decreases hospitalization rates and is cost-effective in properly selected patients compared to placebo.<sup>3,4</sup> Nationally, the median duration of the RSV season is 15 weeks, but varies significantly between regions, communities, and seasons.<sup>1,5</sup>

Surveillance data from St. Luke's Regional Medical Center in Boise from 2001–2006 established the RSV season in southwestern Idaho began from December 11 to January 19 and ended from March 28 to May 12.<sup>6</sup>

Based upon these data, Idaho health-care providers should initiate palivizumab injections in high-risk infants in November and plan to continue dosing at least through April 15.<sup>6</sup>

Surveillance initiatives using laboratory reports of confirmed cases of RSV attempt to provide healthcare providers with timely information about RSV activity and seasonality in their community. These results will be used to communicate the need for RSV immunoprophylaxis beyond the average RSV season length, and communicate the early end of RSV season to avoid further costly palivizumab injections. This fall, Idaho's RSV surveillance program will transition from the Idaho American Academy of Pediatrics website to the Idaho Department of Health and Welfare's web site. We encourage you to visit [www.rsv.dhw.idaho.gov](http://www.rsv.dhw.idaho.gov) for up-to-date weekly RSV surveillance information.

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## News for Influenza Season 2007–2008

**ALTHOUGH PEAKS IN INFLUENZA ACTIVITY** tend to occur after the holidays in January or February, cases begin appearing in October and November during most years. An important aspect of influenza prevention is the use of either the trivalent inactivated influenza vaccine (TIV) or the live, attenuated influenza vaccine (LAIV) to reduce the risk for influenza virus infection and its complications, in accordance with manufacturers' label.

#### New this season:

- On September 19, 2007, FDA announced the approval of the use of FluMist® in healthy children between 2 and 5 years of age. This LAIV, made by MedImmune Vaccines, Inc., was previously limited to healthy children 5 years of age and older and to adults up to age 49 years. See <http://www.fda.gov/bbs/topics/NEWS/2007/NEW01705.html>
- The 2007 recommendations of the Advisory Council on Immunization Practices (ACIP) are available on-line.

Although few changes have been made since last year, one important recommendation strongly reemphasized by ACIP is the importance of administering 2 doses of vaccine to all children aged 6 months – 8 years if they have not been vaccinated previously at any time with either LAIV (doses separated by ≥6 weeks) or TIV (doses separated by ≥4 weeks). For a list of approved vaccines for different age groups, visit the ACIP recommendations at: [www.cdc.gov/flu](http://www.cdc.gov/flu).

Manufacturers are slated to produce approximately 130 million doses of influenza vaccine (either TIV or LAIV) and as of this printing there are no known vaccine shortages or problems with distribution.

Additional information on seasonal influenza surveillance in Idaho and the nation may be found on the Idaho Department of Health and Welfare web site: <http://www.healthandwelfare.idaho.gov>.