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**1. 'Tis the Season for Enteroviruses**

Non-polio enteroviruses are second only to the "common cold" viruses as the most common viruses that infect humans. Everyone is at risk of enteroviral infection; however, infants, children, and adolescents are most susceptible to enteroviral infection and illness because they are less likely to have the virus-specific immunity resulting from prior enteroviral infections. Adults can also become infected and ill if they do not have immunity to a specific enterovirus.

In the United States an annual estimated 10-15 million (or more) symptomatic infections are caused by non-polio enteroviruses (which include group A and B coxsackieviruses, echoviruses, and the numbered enteroviruses) and human parechoviruses (echoviruses that have been reclassified within a new genus). These infections are most likely to occur during the summer and fall. Because there are many different non-polio enteroviruses (more than 100 serotypes of which more than 60 are human enteroviruses), in aggregate these viruses cause illnesses with a wide range of signs and symptoms that can involve a wide range of organs that include the respiratory tract and mouth, skin, nervous system, gastrointestinal tract, genitourinary tract, eye, heart and muscle. Infected persons who become ill usually develop mild upper respiratory symptoms (a "summer cold"), a flu-like illness with fever and muscle aches, or an illness with rash. Less commonly, some persons develop viral (aseptic) meningitis. Nonetheless, enteroviruses are the most common causes of aseptic meningitis occurring among children. Rare illness occurrences include myocarditis, encephalitis, or paralysis. Patients with select immune deficiencies (humoral or combined immune deficiencies, some cancers or receipt of a hematopoietic stem cell transplant) can develop serious persistent enteroviral infections. Newborns, particularly those who acquire infection in the absence of serotype specific maternal antibody are at risk of severe disease.

Perhaps the most notable enterovirus occurrences during recent years has been the serious outbreaks of hand-foot-and-mouth disease (HFMD) and severe neurologic diseases that occurred in Cambodia and China during 2012 and in China during 2008 that were caused by enterovirus 71. In the United States historically HFMD has most frequently been caused by group A coxsackieviruses. HFMD is a common illness among young children that usually begins with a fever, poor appetite, malaise, and sore throat. One or 2 days after onset of fever, painful lesions usually develop in the mouth (herpangina) and begin as small red spots that blister and often ulcerate. The HFMD rash develops over 1 to 2 days and is characterized by flat or raised red spots, occasionally with blisters. The rash usually occurs on the palms of the hands and soles of the feet; it may also appear on the knees, elbows, buttocks or genital area. Some people, especially young children, may become dehydrated if they are unable to swallow enough liquids because of painful mouth lesions.

The range in incubation periods for illnesses caused by non-polio enteroviruses is typically 3-10 days and the viruses are shed in feces and upper respiratory tract secretions for days prior to symptom onset. Enteroviruses can be shed in respiratory secretions (e.g., saliva, sputum, or nasal mucus) of infected person for about 1 to 3 weeks and in feces for about 3 to 8 weeks. Persons may become infected by respiratory transmission of enteroviruses, fecal-oral transmission, direct contact with secretions or stool from an infected person, or by contact with contaminated surfaces or objects, such as a drinking glass or telephone. Parents, teachers and child care center workers may also become infected following contamination of their hands with stool from an infected infant or toddler during diaper changes. Virus transmission may also occur from mother to infant prenatally, during the perinatal period and possibly during breastfeeding.

Non-polio enterovirus infection is not a reportable condition in Wisconsin. However, clusters of enteroviral illness may necessitate public health intervention to prevent further person-to-person spread of the virus.

Hygienic measures such as hand washing and adequate disposal of infected secretions help prevent the spread of enteroviral infections. Athletes should avoid sharing towels, water bottles and protective head and mouth equipment. Strict adherence to generally recommended good hygienic practices by pregnant women may help to decrease the risk of infection during pregnancy and the perinatal period. More information regarding the recognition and prevention of enteroviral illnesses can be found at: <http://emedicine.medscape.com/article/217146-overview>.

## 2. Clarification on the Public Health Response for Potential Rabies Exposures to Domestic Animals

There still seems to be some confusion regarding appropriate protocol when domestic animals sustain a potential rabies exposure. Perhaps the most common misperception pertains to fee exempt testing. The policy of the Division of Public Health and the Wisconsin State Laboratory of Hygiene is an animal specimen will be tested for rabies on a fee exempt basis if:

- 1) The animal is a species which poses a reasonable risk of rabies transmission (thus, birds, reptiles, and small herbivorous rodents would not meet this criterion) **AND**
- 2) The animal has potentially exposed a human **or a domestic animal** to rabies.

The rationale supporting this policy is: a rabies exposure to a domestic animal constitutes an indirect human exposure. That means the bat captured by a cat, or the skunk that tangles with a dog would be eligible for fee exempt rabies testing.

Regarding the response to a domestic animal exposed to a known or suspected rabid animal, Wisconsin Statute Chapter 95.21 (4) and (5) state:

“... an officer shall order a dog or cat quarantined if the officer has reason to believe that the animal bit a person, is infected with rabies **or has been in contact with a rabid animal.**” **AND**

“If a dog or cat is ordered to be quarantined because there is reason to believe that the animal has been exposed to a rabid animal and if the dog or cat is not currently immunized against rabies, the custodian of an isolation facility or the owner shall keep the animal leashed or confined for 180 days. The owner shall have the animal vaccinated against rabies between 155 and 165 days after the exposure to a rabid animal, unless the animal is exempt from the requirement to be vaccinated against rabies under sub. (9) (d).

If a dog or cat is ordered to be quarantined because there is reason to believe that the animal has been exposed to a rabid animal but if the dog or cat is immunized against rabies, the custodian of an isolation facility or the owner shall keep the animal leashed or confined for 60 days. The owner shall have the animal revaccinated against rabies as soon as possible after exposure to a rabid animal.”

Note that these quarantines can be performed on the premises of the owner, and no veterinary checks are legally required, unlike the situation when a human sustains an animal bite. However, to be legal, the quarantine must be issued in writing by an “officer” - typically a local public health official or a law enforcement officer. Compliance with the quarantine may be verified by the agency issuing the order via an unannounced visit(s) to the premises and/or by a veterinary exam at some point during the confinement period. The point of these quarantines is to eliminate exposure of other animals and noncustodial humans to an exposed pet who might be incubating rabies.

An unvaccinated pet animal that is exposed to a known rabid animal poses a genuine risk to the owners if it develops rabies. Owners should be advised of this and should consider euthanasia of the exposed pet, although statute does not grant an officer the authority to order the animal’s destruction.

Finally, public health and animal control staff should be aware that animal exposure to rabies is within the purview of the Division of Animal Health within the Department of Agriculture, Trade, and Consumer Protection. Questions on this subject should be addressed to Dr. Yvonne Bellay at 608/224-4888.

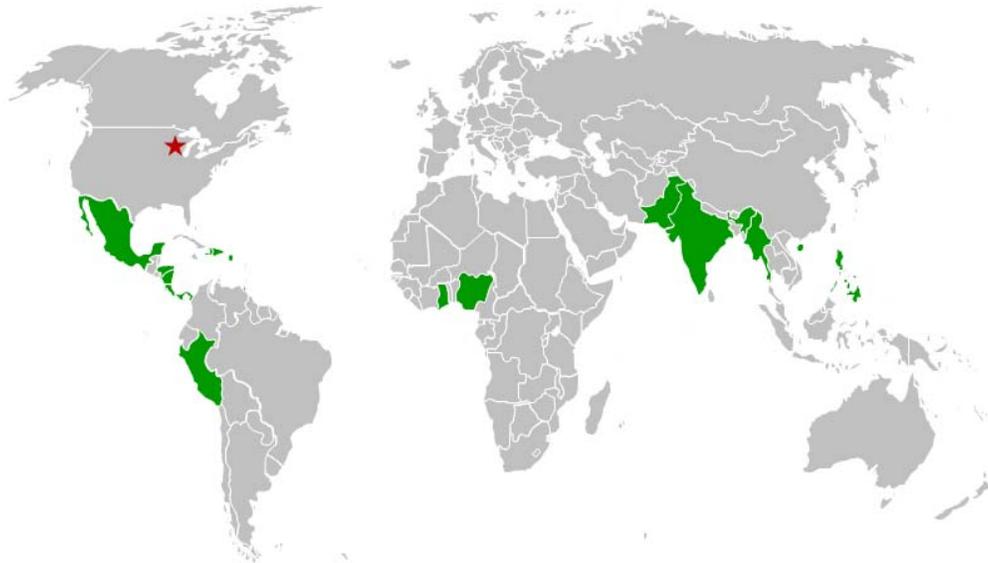
## 3. Travel-Associated Illnesses

With ever-increasing amounts of domestic and international travel among our residents, it’s a challenge to keep up with the variety of infectious diseases that can be acquired while traveling. Some of the diseases are already included on the list of Wisconsin Communicable Diseases and Other Notifiable Conditions, such as malaria and yellow fever. However, “any illness caused by an agent that is foreign, exotic or unusual to Wisconsin, and that has public health implications” shall be reported to the Wisconsin Division of Public Health (Chapter HFS 145 Appendix A). Beginning with this issue of the Epi Express, a different travel-related disease will be featured to increase health professionals’ awareness of its occurrence among Wisconsin residents.

## Dengue

Dengue is the most common arboviral infection occurring among Wisconsin residents traveling to tropical areas. Dengue virus is transmitted by *Aedes aegypti* and *Aedes albopictus* mosquito species. *A. albopictus* (Asian “tiger mosquito”) have been detected in at least 25 states in the US, but not in WI [1]. The virus is maintained in the environment through the human host and mosquito cycle. It is widespread in most tropical countries of the South Pacific, Asia, the Caribbean, the Americas, and Africa. During 2007 to 2011, the Wisconsin Division of Public Health (WDPH) received reports of 30 cases of dengue infection among persons who travelled to Mexico, Peru, Central America, the Caribbean, South Asia and Africa (Map).

Travel destinations (countries shaded green) of Wisconsin residents diagnosed with Dengue Fever 2007-2011



Cases were reported during all months of the year. Fourteen of the 30 patients (47%) were hospitalized, and no deaths occurred. Most (87%) of these dengue-infected travelers reported being exposed to mosquitoes during their trip. Approximately half the patients reported using insect repellent at least sometimes, with only 17% having reported consistent use of repellent always or most of the time when involved in out-of-doors activities. These data compare favorably to the reported insect repellent use by travelers who acquired dengue during 2002-2008 (only a 6% consistent repellent use) [2]; however there clearly is a substantial need to encourage mosquito-bite prevention when traveling to the tropics.

Illness from dengue virus infection ranges from mild to severe, including hemorrhagic fever that can result in circulatory instability, shock and death. Common symptoms of dengue include fever, severe frontal headache, severe pain behind the eyes, arthralgia, myalgia, maculopapular rash, and mild bleeding (nose or gum bleed, petechiae, or easy bruising), often accompanied by leukopenia and thrombocytopenia. The incubation period of dengue ranges from 3 to 14 days (average 4-7 days). Supportive management of dengue includes bed rest, acetaminophen, and oral fluids.

Wisconsin clinicians should consider dengue in travelers ill with fever, headache, and myalgia who have returned from tropical regions. Other travel-related diseases that can produce similar clinical signs are leptospirosis, malaria and typhoid fever. Testing for dengue infection includes virus isolation, PCR, immunofluorescence and immunohistochemistry to detect the virus, and serology (IgG and IgM titer) to detect anti-dengue antibodies. Of the available diagnostic assays, serology is most commonly requested. A serum, CSF, or tissue sample can be sent to the Wisconsin State Laboratory of Hygiene (WSLH), and the sample will be forwarded to CDC for testing. Dengue became a nationally reportable condition in 2009; and all arboviral infections are reportable in Wisconsin. All suspected and confirmed cases of dengue should be reported to the local health department of jurisdiction or the WDPH. If you have further questions, please contact Diep (Zip) Hoang Johnson at the Wisconsin Division of Public Health at 608-267-0249.

More dengue information is available at the CDC website: <http://www.cdc.gov/ncidod/dvbid/dengue/index.htm>

1. Moore, CG and Mitchell, CJ. *Aedes albopictus* in the United States: Ten-year presence and public health implications. *Emerg Infect Dis* 1997;3(3):329-334. [http://wwwnc.cdc.gov/eid/article/3/3/97-0309\\_article.htm](http://wwwnc.cdc.gov/eid/article/3/3/97-0309_article.htm)
2. Sotir MJ, Hoang Johnson DK, and Davis JP. Travel-associated dengue illnesses among Wisconsin residents, 2002-2008. *Wis Med J* 2009;108:447-452. <http://www.wisconsinmedicalsociety.org/wmj/108/9>

#### 4. World Rabies Day – September 28<sup>th</sup>

Annually, 55,000 people worldwide die from rabies virus infection, primarily in Asia and Africa. With appropriate medical care, rabies is a 100% preventable human disease. On September 28, 2007, the Global Alliance for Rabies Control sponsored the first World Rabies Day to mobilize awareness and resources in support of human rabies prevention and animal rabies control. Nearly every major international and national human and animal health partner is now involved in making World Rabies Day successful, with events being held in 150 countries, including the United States.



The website, <http://www.worldrabiesday.org/> has many educational, media and event planning resources to encourage participation in the annual event and rabies prevention activities throughout the year. There are educational materials designed for various world regions, and includes a poster alerting the American public to avoid contact with bats, which are associated with most human rabies cases in the United States.

#### 5. Upcoming Meetings, Trainings & Important Dates

- September 18, 2012 **APHA Get Ready Day** (<http://www.aphagetready.org>)
- September 28, 2012 **World Rabies Day** ([www.worldrabiesday.org](http://www.worldrabiesday.org))
- October, 2012 **Health Literacy Month** (<http://www.healthliteracymonth.org>)
- October 14-20, 2012 **International Infection Prevention Week** (<http://iipw.site.apic.org/>)

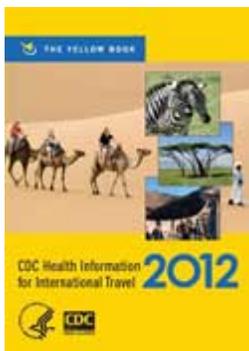
#### • 2012 Infection Control Conference

- Friday, September 14<sup>th</sup>, 8:15am - 5:00pm at the American Family Training Center, (A-Building) Auditorium A-2110, 6000 American Parkway, Madison, WI 53783

This conference is intended for infection control practitioners, physicians, physician assistants, nurses, advance practice nurses, medical technologists, hospital epidemiologists, hospital administrators, compliance officers, and other health care professionals in the areas of infection control and patient safety. The conference brochure and online registration can be found at:

[www.ocpd.wisc.edu/course\\_catalog](http://www.ocpd.wisc.edu/course_catalog)

For more details contact Terese Bailey at the UW-SMPH, Office of Continuing Professional Development in Medicine and Public Health, at 608-240-2141 or [tmbailey@ocpd.wisc.edu](mailto:tmbailey@ocpd.wisc.edu).



#### WEE Book Club – Recommended resource

**The Yellow Book** is indispensable when advising on disease risks encountered during a trip abroad. Topics covered include pre-travel considerations (e.g. vaccinations, travel health kit, personal safety), travel related diseases, post-travel health evaluations and health considerations for newly arrived immigrants and refugees.

Travelers' health links and the latest edition of *The Yellow Book* can be found at: <http://wwwnc.cdc.gov/travel/page/yellowbook-2012-home.htm>

The Wisconsin Epi Express is posted online at <http://www.dhs.wisconsin.gov/communicable/WiEpiExpress/Index.htm> and distributed by email to local, tribal, regional and state public health officials and infection preventionists in Wisconsin. Suggestions for article topics are welcomed. Distribution list removal or addition requests and topic suggestions should be sent to: Barb Anderson: [Barb.Anderson@wi.gov](mailto:Barb.Anderson@wi.gov).

