

Community & Hospital Letter

Influenza

Influenza A (H3N2) viruses have been active in several states since August. In October, a few states reported regional or sporadic influenza activity. There is concern that this coming influenza season could be severe based on the experiences of Australia and some South American countries. The past two flu seasons in the US have been "mild", but even "mild" seasons are responsible for ~36,000 deaths in this country due to flu and its complications.

On the 15th of October, the Advisory Committee on Immunization Practices (ACIP) recommended that children 6 to 23 months of age be vaccinated annually against influenza, beginning in the fall of 2004. The ACIP had previously encouraged physicians to vaccinate 6 to 23 month old children when feasible; that is, when they had resources and capacity to educate parents about influenza, to administer the needed doses, and to monitor vaccine adverse events. The current inactivated influenza vaccine is not approved for use among children <6 months old.

The ACIP recommendation, if accepted by the Centers for Disease Control and Prevention (CDC), means that starting in the fall of 2004, influenza vaccine would be incorporated into the childhood

vaccination schedule and that the federal Vaccines for Children program and most private health insurers will cover the cost of the vaccinations. According to CDC, approximately 17,000 children <2 y old are hospitalized each year because of complications from influenza infections.

On the 17th of October, CDC and the Food and Drug Administration (FDA) released a statement about circulating rumors concerning a supposedly "contaminated" lot of flu vaccine. This rumor is false and there has been no FDA recall of any influenza vaccine lots.

Sufficient supplies of flu vaccine are available and CDC predicts that everyone wanting to get a flu shot, regardless of age or health status, should be able to get vaccinated. CDC estimates that vaccine manufacturers will produce approximately 85.5 million doses of influenza vaccine during the 2003 influenza season. This projection represents 9.5 million fewer doses than were produced last year. However, influenza vaccine production is expected to exceed the estimated 79 million doses that were actually sold to providers in 2002. For the 2003–04 influenza season, both the standard injectable inactivated influenza vaccine and newly approved, intranasal, live attenuated influenza vaccine (FluMist)

Epidemiology: Think Globally, Act Locally

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contain A/New Caledonia/ 20/99-like (H1N1), A/Panama/2007/99-like (H3N2), and B/Hong

Kong/330/2001-like viruses.

Potpourri

Cell phones used by health care personnel in hospitals can spread nosocomial infections according to a study presented at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy. Researchers in Israel found that 12% of healthcare providers' cell phones were contaminated with *Acinetobacter baumannii*. It also was found on the hands of 24% of the 124 physicians and nurses tested. This organism can survive on dry surfaces for a long period of time and has the propensity to develop resistance to almost all available antibiotics. Intensive care units are where this bacterium frequently infects patients and the resulting mortality typically is between 50-60%.

Back in the mid-1970s when your editor was an epizootiologist for the Veterinary Public Health Unit of the Florida Department of Health & Rehabilitative Services, raccoon rabies was restricted to that state but was relentlessly spreading towards Georgia and Alabama. At that time, little national attention was given to the situation in Florida and the Florida Department of Conservation repeatedly turned away requests from the Veterinary Public Health Unit to deny permits for the capture and transfer of raccoons to other states for hunt club restocking programs. The lack of any known human rabies case derived from a raccoon detracted from the requests. Even after the explosion of raccoon rabies along the Mid-Atlantic and Northeastern states as a result of the importation of rabies infected raccoons from Florida, there still were no human cases of rabies from raccoons.

In an article to be published soon in CDC's Morbidity & Mortality Weekly Report (MMWR), authorities in Virginia will be presenting the first human death associated with the raccoon rabies virus variant. The 25 y old male victim died with a diagnosis of meningoencephalitis of unknown etiology after 3 weeks of illness. Approximately 3 months after his death, tissues were forwarded to CDC where histopathologic review of central

nervous system tissues revealed viral inclusions suggestive of Negri bodies, and subsequent tests confirmed a diagnosis of rabies. Genetic sequencing identified the virus as the raccoon rabies variant. How the man became infected could not be determined.

This case represents the 37th human rabies death in the US since 1990. No history of suspicious animal bite exposure was documented for the 30 cases acquired in the US, although genetic sequencing of viral isolates suggested that most had been infected by bats. While human rabies is uncommon in the US, the disease is underreported. This most recent case was the 10th patient since 1990 for which rabies was not suspected clinically and was diagnosed only by postmortem investigation.

In late September, the World Health Organization (WHO) made a global plea for money to purchase *Neisseria meningitidis* vaccine for use in the sub-Saharan "meningitis belt." Meningitis outbreaks occur almost every year during the dry season in the "belt" that stretches from Senegal in west Africa to Ethiopia in the east. In 2002, there were at least 44,280 cases of all types of the disease and 5,531 deaths. With the recent introduction of the W135 strain of *N meningitidis* the existing vaccines were ineffective. Therefore, a newer vaccine incorporating the W135 strain had to be produced in sufficient quantity, ~6 million doses. GlaxoSmithKline has produced the vaccine and is selling it to WHO for \$1 per dose, which is only a quarter of production costs. But WHO only had \$1 million and was appealing for the donations to raise the other \$5 million.

On the 23rd of September, the United Nations announced it has launched a vaccination campaign to save two Indian tribes in the remote Peruvian Amazon threatened with extinction by a mysterious hepatitis B outbreak. The goal is to

vaccinate each of the 150 or so babies born each year to the Candoshi and Sharpas tribes with a complete hepatitis B series. The cause of the outbreak in these two tribes is unknown as the reason the “amazingly” high mortality rate associated with it. Without preventive action, it is estimated the two tribes could become extinct within 10 to 12 years.

Atopic diseases, including asthma, allergic rhinitis and atopic dermatitis, are caused by both environmental and genetic factors. Two new theories as to contributing causes to the increase in asthma cases in developed nations have recently been proposed. One theory suggests that infection with hepatitis A virus may protect individuals from atopic diseases if they carry a particular variant of the gene that encodes TIM-1 (also known as HAVcr-1), the cell-surface receptor used by the virus to infect human (Nature 425:, 576, 2003). The decline in the prevalence of hepatitis A antibodies in western populations coincides with the rise in asthma cases. And, infection with hepatitis A virus may stop the immune system from responding violently to allergens if the infected individual carries the correct genetic variant.

The other theory comes from a case-control study conducted by researchers at the Ford Health System in Detroit, who found that babies given antibiotics during their first 6 months are far more likely to develop asthma. Overall, these children are 2.6 times as likely to develop allergic asthma. With broad-spectrum antibiotics, children were 8.9 as likely to suffer from asthma. The research also found that taking antibiotics in the first half-year of life increased the risk of allergies to things such as grass, cats and dogs by 50%.

Both of these new theories support the overall “hygiene hypothesis” as to why asthma is a major health problem in developed countries.

It is well accepted that HIV-1 virus was derived from the chimpanzee SIVcpz agent and that the hunting and butchering of chimpanzees for food most likely provided the mechanism of exposure to infected blood by humans. But where did the SIVcpz agent come from? New genetic studies suggest that SIVcpz is a recombinant virus derived

from simian immunodeficiency viruses carried by the red-capped mangabey and the greater spotted-nosed monkey (Science 300:1713, 2003). These monkey species have overlapping ranges in West Africa and chimpanzees often hunt and eat these monkeys. Therefore, the chimpanzees would have become infected by mechanisms similar to those for the transfer of HIV-1 from chimpanzees to humans.

Among persons of southern Chinese descent, there is a common variant of a gene in the human leukocyte antigen system (HLA) known HLA-B 4601. Patients in Taiwan with this variant were much more likely to develop life-threatening symptoms when infected the SARS coronavirus (BMC Medical Genetics 4:9, 2003).

Planning on taking a paleontological vacation where you can actually conduct field work? Well, you might want to think about the risks of exotic infections associated with such work. Infection with *Rickettsia sibirica*, agent of North Asian tick typhus, was acquired by 4 of 13 paleontologists working in Mongolia (Lancet 362:11 October 2003). Only 2 of the 4 recalled a history of tick bite.

According to the Missouri Department of Health & Senior Services (MDHSS), the number of young to middle-aged Missouri adults whose physical activity has been limited by arthritis rose 17% between 1999 to 2001. More than 571,000 Missourians between the ages of 18 and 44 y old were limited by arthritis in 2001, up from 485,000 in 1999, according to data from MDHSS' Behavioral Risk Factor Surveillance System (BRFSS). Overall, 37.2% of Missouri residents have arthritis.

The percentage of newborn babies in Missouri who are screened for hearing loss rose from 10.9% in 2000 to 37.4% in 2001 (MMWR 52:981, 2003). Nationally, between 2-3% of newborns are referred for further evaluation, with a little over half actually being assessed. Hearing loss occurs in 1-3 babies per 1,000 live births each year.

Hepatitis A is one of the most common vaccine-preventable infectious diseases in the world. Effective vaccines against hepatitis A have been available since 1992, and they provide long-term immunity against the infection. However, there is no worldwide consensus on how long protection will last or whether there will be a need for hepatitis A virus (HAV) booster vaccinations in the future. Data have shown that after a full primary vaccination course, protective antibody amounts persist beyond

10 years in healthy individuals, and underlying immune memory provides protection far beyond the duration of anti-HAV antibodies. Therefore, the International Consensus Group on Hepatitis A Virus Immunity concluded that there is no evidence to lend support to HAV booster vaccination after a full primary vaccination course in a healthy individual (Lancet 362:1065, 2003). However, further investigations are needed before deciding if boosters can be omitted in special patient-groups.

The most common risk setting for foodborne infections is private homes, with travel-associated illness and restaurants the 2nd and 3rd most frequently reported risk settings (J Food Protection 66:953, 2003).

Want to save health care dollars? Then give vitamins to the elderly according to a report

released on the 2nd of October by the US Centers for Medicare and Medicaid Services. A daily dose of a multivitamin could improve overall health, making elderly people less likely to need drugs or hospital care. The 5 year estimate of potential savings resulting from improved immune functioning is approximately \$1.6 billion for coronary artery disease and \$2.4 billion for avoidable hospitalization for heart attacks. It would cost \$2.3 billion to provide a daily multivitamin to older adults.



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