



Mahoning County

DISTRICT BOARD OF HEALTH

Annual Summary of Reportable Infectious Diseases in Mahoning County, 2004

We are pleased to present this seventh in a series of annual infectious disease summaries in which we characterize disease reports for the year, offer commentary on some emerging pathogens and diseases of ongoing concern to the community, and provide current requirements and guidance for disease reporting.

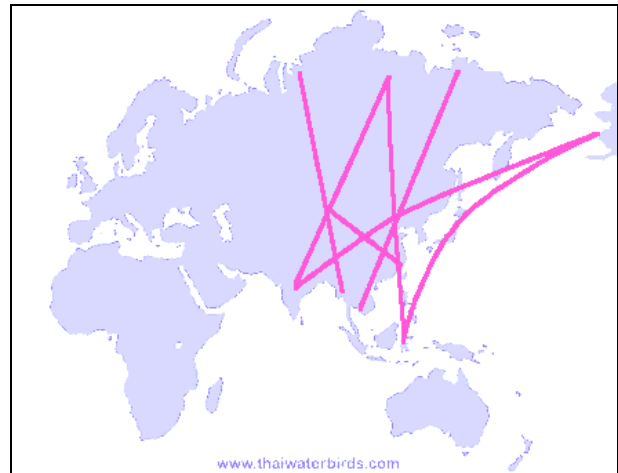
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Mahoning County Health Commissioner

Pandemic Influenza

H5N1 has been much in the news recently, and is not likely to disappear anytime soon. It is also a very fluid story and what is written here (on August 16) may not be applicable or even timely by the time you read this. Still, H5N1 remains the biggest public health communicable disease story of the year and as such deserves further consideration in this report.

So far this disease has been a catastrophe primarily for domestic fowl and for the individuals and companies in Asia who make their living by raising these animals. Many thousands of birds have died from influenza, and millions of others have been killed in an effort to prevent spread. Recent human cases have apparently occurred from handling sick birds, eating or preparing infected meat, and being exposed to bird droppings. Even if birds do not die, they may carry the virus in their intestinal tracts for 10 days or more. Some ducks seem to be long-term asymptomatic shedders of this virus and may contribute to its spread – at least to other birds.

Fall is a time of major wild bird migrations, and as you are likely aware, the virus has spread widely into Kazakhstan and Russia almost certainly through bird movements. While much of the fall migration is north-to-south, there may be increasing movement of infected birds toward or into Europe. Each year many Asian birds find their way to Western North America, though spring is probably the commonest time for these “vagrants” to arrive. It is hard not to look at the following map of waterfowl migration routes connecting us with Asia without feeling some concern for what the U.S. may be facing next spring after migrants return to western Alaska.



While many experts are understandably concerned that H5N1 could cause a new and potentially devastating pandemic, at the time of this writing the virus is still largely confined to birds, though with some spread to mammals including domestic and wild cats. While household transmission between people has occurred, most human cases seem to have had contact with birds or bird droppings. We read only about H5N1, but it is important to recognize that like all influenza viruses, this strain is highly mutable. Various polymorphisms of the virus (though all still H5N1) have been isolated throughout Asia. There is some concern that these viral forms may differ in human pathogenicity and infectiousness. Preliminary vaccine experiments with mice suggest significant protection may occur even if some antigenic drift takes place.

The role of human vaccination for this condition remains uncertain. The virus has mutated since samples were collected in 2004, and while 2004 viruses are being used for vaccine development, no one knows how effective a vaccine based on “old” virus will be against a mutating target. Massive poultry immunization campaigns appear to be in process based on Chinese bird vaccines. New reports suggest that vaccines directed against viral nucleoprotein rather than capsular proteins may be effective against a range of influenza viral types despite antigenic drift.

Whether such vaccines can come into production fast enough to be useful against H5N1 remains to be seen. The U.S. has contracted for 2 million doses of H5N1 vaccine, but there are still no announced plans to vaccinate health care workers or public safety officials in advance of a possible pandemic.

What should doctors be doing to prepare for pandemic influenza? This is not an easy question to answer. Many of us remember “swine flu” – the flu epidemic that never was – and it is comforting to hope that our present concerns will prove as ill-founded. But if we are faced with pandemic influenza within the next months or years, our options may be limited. Some vaccine will likely be available and rationed for maintaining needed infrastructure. Antivirals will be used, if available, to help contain infection and perhaps to keep critical workers free from serious illness. Since the virus currently appears to be resistant to amantadine and rimantadine, it is unlikely that these drugs will find any use. Oseltamivir may still be effective, but it is in short supply world-wide and being stockpiled in many countries. Mouse models in which oseltamivir is given *before* viral challenge demonstrate protection from relatively high doses given for 8-10 days. Significant mouse fatalities occur with shorter courses and lower doses. This data can’t be directly extrapolated to human infection, but it does suggest that antivirals are unlikely to play a major role in reducing morbidity and mortality from a possible H5N1 outbreak.

Each of our local hospitals is developing a plan to deal with the predictable consequences of pandemic influenza: demand for supplies including respirators for staff protection, demand for facilities including negative pressure examination rooms and separate respiratory waiting rooms, and demand for equipment including ventilators. Physicians who want to work with their hospitals to increase preparedness should contact preparedness officers and medical staff leaders. If you need help in finding how you can help don’t hesitate to contact us at the Mahoning County District Board of Health. Our telephone is 330 270-2855. For email contact try lfrisch@mahoning-health.org.

Food-Borne Illness

Like death and taxes, it appears that food-borne illness is always with us. This year we again saw cases of campylobacter and salmonella, with only a few other food-borne pathogens *and no* E. Coli O157-H7. While we count on safe food production, it is up to each of us to handle food in ways that minimize the risk to humans. Careful cooking and attention to surface contamination while cutting and preparing food will continue to bring us relatively low levels of infection.

Hepatitis C

This is the second year in which we have reported hepatitis C cases in this summary. 2003 was the fifth year that hepatitis C has been a Class A reportable disease. While hepatitis C remains the third most common reported disease in this year’s summary (after gonorrhea and chlamydia) reported cases are once again *prevalent* rather than *incident*. This means that testing has detected a chronic disease process that might have been discoverable in the past – rather than a newly occurring disorder. The CDC gives the following list of indications for testing which we also shared last year.

| PERSONS | RISK OF INFECTION | TESTING RECOMMENDED? |
|---|-------------------|---------------------------|
| Injecting drug users | High | Yes |
| Recipients of clotting factors made before 1987 | High | Yes |
| Hemodialysis patients | Intermediate | Yes |
| Recipients of blood and/or solid organs before 1992 | Intermediate | Yes |
| People with undiagnosed liver problems | Intermediate | Yes |
| Infants born to infected mothers | Intermediate | After 12-18 mos. old |
| Healthcare/public safety workers | Low | Only after known exposure |
| People having sex with multiple partners | Low | No* |
| People having sex with an infected steady partner | Low | No* |

*Physician consultation recommended.

Interpretation of hepatitis C testing can be complex and confusing. The CDC has released guidelines for ordering and interpreting tests, but many physicians aren’t familiar with these. The guidelines can be found at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5203a1.htm>.

Many labs now report EIA tests as high positive (“signal to cut-off” ratios of > 3.8), low positive, or negative. A low positive EIA result should generally be followed with definitive RIBA testing. Most of these are false positives and will have negative RIBA. Unless there is strong clinical reason to suspect hepatitis C (injection drug use, or other known risks) these individuals generally need no further evaluation or referral. A high positive test can be confirmed with PCR to document the presence of replicating virus. Treatment is more likely to be recommended for persons with viral RNA demonstrated by PCR than for others.

Hepatitis C remains a Class A reportable disease in Ohio. Your clinical reports are very important to us. Phone numbers for reporting are found on the last page of this report.

Syphilis: An Old Disease Emerges Nationally in Nearly Epidemic Form

If you are an astute reader of these annual reports you will have noticed the following trend for syphilis:

2000 – 2 cases
2001 - 1 case
2002 – 3 cases
2003 - 6 cases
2004 – 10 cases

A statistical test shows that this trend is highly significant ($p = .002$). Like much of the rest of the country, Mahoning County is experiencing a significant rise in the incidence of primary syphilis. This is happening at a time when many of us have lost (or never acquired) strong diagnostic skills for this disease. Years ago Sir William Osler was able to say of this “great imitator:” “know syphilis, and the whole of medicine is opened to you.” Today it may be just enough to recognize syphilis when it presents in the office – which unfortunately it soon may.

Nationally, the rise in syphilis cases has been most pronounced among men who have sex with men. This does not appear to be the case in our region – nor is the disease limited to one racial group. Diagnosis without a dark field microscope (not readily available in this community) can be difficult. Herpes, chancroid, even lymphogranuloma venereum can be part of the differential diagnosis. Chancres are relatively painless compared to other causes of genital ulcer disease; their borders are indurated and, in contrast to chancroid, not undermined. RPR (or other non-treponemal testing) has a sensitivity and specificity each of around 80%. A positive RPR should be confirmed by a treponemal-specific test (FTA and others), but negative test may still justify treatment if clinical suspicion is high enough.

Of course, where there is primary syphilis secondary syphilis may also be found. As you will recall from medical training, secondary syphilis can

be particularly difficult to diagnose because of its protean and non-specific manifestations. Secondary syphilis can present with skin lesions (use caution, these can be quite infectious!), renal or hepatic disease, CNS disorders including “aseptic” meningitis, and eye disorders. While the chancre of primary syphilis develops about 3 weeks following contact, lesions of secondary syphilis usually takes a month or longer to manifest. For this reason, the RPR is almost always positive in secondary syphilis (but of course still should have treponemal-specific testing to confirm). The major problem with diagnosis is lack of clinical suspicion. When seeing patients who may have syphilis, don’t forget to test for HIV as well.

Treatment, serologic follow up, and algorithms for deciding when to do an LP (and treat for latent neurosyphilis) are beyond the scope of this brief review. One useful online source for syphilis information is

<http://www.emedicine.com/med/topic2224.htm>.

Syphilis is a Class A reportable disease and must be reported to the health district (see last page of this report). Sexual contacts need to be identified and treated. Our partner agency, the Youngstown City Health District, has two disease investigation specialists who are highly skilled in counseling syphilis contacts. Call or email with any concerns, and we will put you in touch with these individuals.

Course in Communicable Disease Epidemiology

Especially in this era of newly emerging infections and risk of bioterrorism, the study of communicable disease epidemiology is particularly relevant. I hope to teach an internet-based course on this topic this fall. If there is any interest, I will be happy to share course materials or - if feasible and with special arrangements - to arrange course auditing for Mahoning County physicians. Please let me know if you would have an interest in this activity. See contact information below.

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We wish to acknowledge the assistance of Elizabeth Cross and Kara Manchester of the Ohio Department of Health in compiling the AIDS/HIV/STD data.

“Class A” Reportable Diseases in Mahoning County, 2004

| | General Health District* | Youngstown | Struthers | Unknown | Total | Median Age (y) | Age Range | % Male |
|---|---|-------------------|------------------|----------------|--------------|---------------------------|----------------------|-------------------|
| AIDS | | | | | 27 | 41 | 19-59 | 74 |
| Campylobacteriosis | 14 | 4 | | 1 | 19 | 44 | 15-73 | 58 |
| Chlamydia | 89 | 455 | 10 | 1 | 555 | 21 | 13-65 | 23 |
| Cryptosporidiosis | 5 | 2 | | | 7 | 29 | 1-57 | 60 |
| Encephalitis, primary viral | 1 | | | | 1 | 80 | - | 100 |
| Encephalitis – LaCrosse | | 1 | | | 1 | 6 | - | 100 |
| Giardiasis | 8 | 1 | | | 9 | 24 | 1-70 | 67 |
| Gonorrhea | 33 | 254 | 4 | | 291 | 21 | 14-94 | 43 |
| <i>Haemophilus influenzae</i> (invasive disease) | 6 | 1 | | | 7 | 80 | 50-94 | 28 |
| Hepatitis A | 1 | | | | 1 | 44 | - | 100 |
| Hepatitis B | 2 | | | | 2 | 42 | 39-44 | 100 |
| Hepatitis C | 54 | 86 | 2 | | 142 | 49 | 21-88 | 65 |
| HIV | | | | | 22 | 40 | 19-54 | 68 |
| Kawasaki disease | 3 | 1 | | | 4 | 4 | 9m-8y | 100 |
| Legionnaires’ disease | 2 | 2 | | | 4 | 66 | 52-75 | 75 |
| Lyme disease | 2 | | | | 2 | 64 | 61-67 | 0 |
| Meningitis, aseptic | 5 | 3 | | | 8 | 18 | 2-49 | 28 |
| Meningitis, other bacterial | 1 | 1 | | | 2 | 58 | 51-65 | 50 |
| Pertussis | 2 | | | | 2 | 10 | 6-13 | 100 |
| Streptococcal toxic shock syndrome | 1 | | | | 1 | 46 | - | 0 |
| Salmonellosis | 14 | 6 | | 1 | 21 | 18 | 1-66 | 48 |
| Shigellosis | 1 | | | | 1 | 28 | - | 100 |
| Streptococcal disease, invasive Group A | 1 | 1 | | | 2 | 44 | 1m- 88y | 50 |
| Streptococcal infection, Group B - neonatal | 1 | | | | 1 | 2m | - | 0 |
| <i>Streptococcus . pneumoniae</i> , drug resistant | 4 | 1 | | | 5 | 53 | 24-64 | 40 |
| <i>Streptococcus pneumoniae</i> , invasive | 2 | 1 | | | 3 | 3 | 7m-4y | 67 |
| Syphilis | 1 | 9 | | | 10 | 32 | 23-48 | 67 |
| Tuberculosis | 1 | 2 | | | 3 | 53 | 21-62 | 30 |
| Yersinia | 1 | | | | 1 | 46 | - | 0 |

* Mahoning County townships, villages, and the cities of Canfield and Campbell

Know your ABCs: A Quick Guide to Reportable Infectious Diseases in Ohio

From Ohio Administrative Code 3701-3-02, 3701-3-05 and 3701-3-12

Phone numbers for reporting in Mahoning County:

| | | | | | |
|------------|--------------|-----------|--------------|---------------------------------|--------------|
| Youngstown | 330-743-3333 | Struthers | 330-755-7977 | All other cases and after hours | 330-270-2855 |
|------------|--------------|-----------|--------------|---------------------------------|--------------|

Diseases by class, with reporting requirements

Class A Diseases

(1) diseases of major public health concern because of the severity of disease or potential for epidemic spread - - report to the board of health of the health district in which the case resides by telephone immediately upon recognition that a case, a suspected case, or a positive laboratory result exists.

| | | | |
|---------------------|-----------------------|--------------------------|-------------------------|
| Anthrax | Diphtheria | Plague | Smallpox |
| Botulism, foodborne | Measles | Rabies, human | Viral Hemorrhagic Fever |
| Cholera | Meningococcal disease | Rubella (not congenital) | Yellow Fever |

Any unexpected pattern of cases, suspected cases, deaths or increased incidence of any other disease of major public health concern, because of the severity of disease or potential for epidemic spread, which may indicate a newly recognized infectious agent, an outbreak, epidemic, related public health hazard or act of bioterrorism.

(2) diseases of public health concern needing timely response because of potential for epidemic spread -- report by the end of the next business day after the existence of a case, a suspected case, or a positive laboratory result is known.

| | | | |
|---|--|--|--|
| Chancroid | Hantavirus | Pertussis | Syphilis |
| Cyclosporiasis | Hemolytic uremic syndrome | Polioviruses (including vaccine-associated cases) | Tetanus |
| Dengue | Hepatitis A | Psittacosis | Tuberculosis, including multi-drug resistant tuberculosis (MDR-TB) |
| <i>E. coli</i> O157:H7 and Other enterohemorrhagic (Shiga toxin-producing) <i>E. coli</i> | Legionnaires' disease | Q fever | Tularemia |
| Encephalitis: LaCrosse, St. Louis, West Nile, and other arthropod-borne | Listeriosis | Rubella, congenital | Typhoid fever |
| Foodborne disease outbreaks | Lymphogranuloma Venereum | Salmonellosis | Waterborne disease outbreaks |
| Granuloma inguinale | Malaria | Shigellosis | |
| Haemophilus influenzae (invasive disease) | Meningitis, aseptic including lymphocytic choriomeningitis & viral meningoencephalitis | <i>Staphylococcus aureus</i> , with resistance or intermediate resistance to Vancomycin (VISA, VRSA) | |
| | Mumps | | |

(3) diseases of significant public health concern -- report by the end of the work week after the existence of a case, a suspected case, or a positive laboratory result is known.

| | | | |
|--|--|--|--|
| Amebiasis | Encephalitis, post-infection | Meningitis, including other bacterial | <i>Streptococcus pneumoniae</i> , invasive disease |
| Botulism, wound | Giardiasis | Mycobacterial disease, other than tuberculosis | Toxic shock syndrome (TSS) |
| Botulism, infant | Gonococcal infections | Pelvic inflammatory disease, gonococcal | Toxoplasmosis (congenital) |
| Brucellosis | Hepatitis B, including delta hepatitis | Reye syndrome | Trichinosis |
| Campylobacteriosis | Hepatitis C | Rheumatic fever | Tularemia |
| Chlamydia infections (nonspecific urethritis, cervicitis, salpingitis, neonatal conjunctivitis, pneumonia, & lymphogranuloma venereum) | Hepatitis D | Rocky Mountain spotted fever | Typhus fever |
| Creutzfeldt-Jakob disease | Hepatitis E | Streptococcal disease, group A, invasive | Vibriosis |
| Cryptosporidiosis | Hepatitis, acute viral, undeterminable etiology | Streptococcal B in newborn | Yersiniosis |
| Cytomegalovirus (congenital) | Herpes (congenital only) | Streptococcal toxic shock syndrome (STSS) | |
| Ehrlichiosis | Kawasaki Disease (mucocutaneous lymph node syndrome) | | |
| Encephalitis, other viral | Leprosy | | |
| | Leptospirosis | | |
| | Lyme disease | | |

Class B Diseases - the number of cases is to be reported by the close of each working week.

| | | |
|------------|----------------|-----------|
| Chickenpox | Herpes-genital | Influenza |
|------------|----------------|-----------|

Class C Diseases - report an outbreak, unusual incidence, or epidemic by the end of the next working day.

| | | |
|------------------------------------|--------------------------------|--|
| Blastomycosis | Scabies | Outbreak, usual incidence, or epidemic of other infectious diseases of known etiology not categorized as Class A or Class B or Class C |
| Conjunctivitis, acute | Sporotrichosis | |
| Histoplasmosis | Staphylococcal skin infections | |
| Nonsocomial infections of any type | Toxoplasmosis | |
| Pediculosis | | |

Except as otherwise required for the Class A(1) diseases, reports of cases and suspect cases and positive laboratory results shall be in writing, and shall include the name and address of the case, suspect case or person from whom the specimen was taken. A Board of Health may accept verbal reports by telephone or other electronic systems approved by the Director within the same time limitations. Reports shall include supplementary information relevant to the case or laboratory report as needed to complete official surveillance forms provided or approved by the Director.

Cases of AIDS (acquired immune deficiency syndrome), AIDS-related conditions, and confirmed positive tests for HIV (human immunodeficiency virus) must be reported on forms and in a manner prescribed by the Director of Health.