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May is Hepatitis Awareness Month by Kathleen M. Koechlin, PhD, MPH, RN

May is Hepatitis Awareness Month in the United States, and this year Governor Ted Strickland has issued a proclamation declaring it so in the State of Ohio. The purpose of Hepatitis Awareness Month is to raise the consciousness of hepatitis within the general population, people at risk, health care providers and governments.

One in three persons in the United States has been infected with hepatitis A virus (HAV), hepatitis B virus (HBV) and/or hepatitis C virus (HCV) (1). In 2006, there were an estimated 32,000 new HAV infections, 46,000 new HBV infections and 19,000 new HCV infections. While there is not a chronic form of HAV, an estimated 1.25 million persons in the United States are chronically infected with HBV (2). HCV is the most common chronic blood-borne infection in the United States with an estimated 3.2 million persons chronically infected. These data come from the National Health and Nutrition Examination Survey, which does not include institutionalized persons such as the incarcerated and homeless, so estimates from this survey likely underestimate the true prevalence of HBV and HCV disease in the United States (3).

Approximately 1 to 25 percent of persons with chronic HBV and/or chronic HCV will die prematurely from cirrhosis and liver cancer (4, 5), with approximately 5,000 deaths related to HBV and 8,000 to 10,000 deaths related to HCV each year in the United States (2). Of those with chronic HCV, approximately 20 percent will develop cirrhosis over a period of 20 to 30 years, and 1 to 5 percent will develop hepatocellular carcinoma. HCV is the leading cause for liver transplants, accounting for 30 percent of all liver transplants (5, 6). The American Gastroenterologic Association estimated expenditures for chronic HCV to be more than $700 million in 1998 (7). The Centers for Disease Control and Prevention (CDC) in that same year estimated expenditures for HCV to be more than $600 million annually and predicted that HCV-related mortality would increase substantially over the next 10 to 20 years (5).

HAV, HBV and HCV directly impact many Ohioans. Past or present HCV infection is the third-most frequently reported infectious disease to the Ohio Department of Health (ODH), with approximately 500 reports of potential hepatitis diagnoses

Inside this issue:

La Crosse Encephalitis and Eastern Equine Encephalitis in Ohio	4
Healthcare-Associated Infections Reporting	6
Refugee Health Initiative	9
Electronic Laboratory Reporting at ODH	10
Quarterly Summary of Select Reportable Infectious Diseases	13
Reported HIV/AIDS diagnosis in Ohio in 2006	14
Quarterly Summary of Sexually Transmitted Diseases, Ohio	15
Quarterly Summary of Tuberculosis Cases, Ohio	15
Announcements	16
Contact Information	17

per week; these reports include new cases as well as updates to cases under investigation. Since HCV past or present infection became reportable in Ohio in January 2003, more than 40,000 cases have been reported by the ODH to the CDC (8). Extrapolating from the 1.6 percent estimated national prevalence of HCV and the 2007 state population estimate from the U.S. census (3, 9), this constitutes approximately 22 percent of the HCV cases in the state. This may reflect a lack of reporting or incomplete reporting by laboratories and health care providers, or it may be an indication that a significant number of HCV- positive persons in Ohio are unaware of their infection. From January 2003 through the end of March 2008, just over 4,700 cases of chronic HBV infection were reported along with 705 cases of acute HBV. For the years studied (2003-2006), all acute HBV cases were among persons 15 years of age and older, with the majority (98.7 percent) 20 years of age and older (8).

For the first time in Ohio, hepatitis prevalence was estimated through the Ohio Behavioral Risk Factor Surveillance System survey for interview year Jan. 1- Dec. 31, 2006. Respondents from a random digit dial survey were asked if they had ever been told by a doctor or other health care provider that they have hepatitis. Results from this survey indicated that an estimated 160,000 adult Ohioans (1.9 percent) have had some form of hepatitis at some point in their lives. Given that the survey captured only people who were aware of such a diagnosis and non-institutionalized, these numbers likely underestimate the true prevalence of hepatitis in Ohio (10).

Viral hepatitis is preventable, and keeping uninfected persons from becoming infected is essential. Since 1991, the CDC has had a national strategy to eliminate HBV transmission, resulting in a 78 percent decline in acute HBV infections. The majority of this decline (96 percent) has been among children and adolescents for whom HBV vaccination has been integrated into the childhood vaccination schedule. HBV infection among adults continues to occur, so in 2006, the CDC published updated recommendations to increase HBV vaccination among adults at risk. These recommendations include universal HBV vaccination for all unvaccinated adults presenting in settings in which a high proportion of adults have risks for HBV infection such as sexually transmitted disease clinics, HIV counseling, testing and referral sites, substance-abuse treatment and prevention settings and correctional facilities (4). In order to assist these settings in implementing the 2006 recommendations, the CDC made available section 317 funds through immunization programs throughout the country to provide HBV vaccination. In Ohio, the Adult Hepatitis Vaccination Project began in May 2007. As of April 1, 2008, more than 9,500 doses of hepatitis vaccine have been administered to high-risk adults in Ohio.

These same settings offer an opportunity to provide primary prevention education around viral hepatitis to help modify or change the behaviors that place people at risk for infection. This is particularly important in the prevention of HCV for which there is no vaccine available. These sites are already providing this type of education related to HIV, STDs and substance abuse, so incorporating viral hepatitis into these existing programs allows for a more holistic approach to prevention using educational strategies that have been shown to be effective in changing behaviors and preventing disease.

For the many persons with chronic HBV and/or HCV who were infected years ago, secondary prevention is of utmost importance. Secondary prevention begins with early detection which provides HBV- and HCV-positive persons the opportunity to impact their health by taking active steps to prevent long-term liver damage. Because the majority of people with chronic HBV and/or HCV feel healthy and are asymptomatic, the diseases can progress without the person knowing he or she is infected. It is often only at the late stages of the diseases, when current treatment is no longer effective or the infected person requires expensive medical care, that symptoms appear and diagnosis is made. Because of this, opportunities to prevent poor outcomes are often missed. Early detection also provides the opportunity for infected individuals to learn how to

May is Hepatitis Awareness Month—continued

prevent transmission of hepatitis to others.

Complications due to chronic HBV and chronic HCV cost millions of dollars each year in both medical and societal costs. Preventing infection and early identification of infected persons to prevent expensive, long-term consequences of chronic HBV and chronic HCV disease are of paramount importance.

If you are interested in learning how you and your agency can help in the prevention and control of viral hepatitis in Ohio, please call 614-644-2714 to speak with the adult viral hepatitis prevention coordinator at the Ohio Department of Health.

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La Crosse Encephalitis and Eastern Equine Encephalitis in Ohio

by Steve W. Chordas III, Ph.D., Public Health Entomologist; Scott O'Dee, M.S., Planner; and Richard E. Gary, Ph.D., State Public Health Entomologist Administrator (Zoonotic Disease Program)

Mosquito season is just around the corner, and while most of the focus will be on West Nile virus, it is important to remember that there are other mosquito-borne viruses in Ohio that can cause severe illness or even death. Two of the most important are La Crosse encephalitis (LAC) and Eastern Equine encephalitis (EEE), which are reviewed here.

La Crosse Encephalitis in Ohio:

LAC virus is found in suburban and rural areas throughout Ohio and is maintained in a natural cycle between Eastern tree-hole mosquitoes, *Aedes triseriatus*, and chipmunks or other squirrels (Figure 1). The virus is maintained over winter because the female Eastern tree-hole mosquito can pass the virus directly to her eggs (a process termed transovarial transmission). When these eggs hatch, the new mosquitoes are already carrying the virus and can immediately start infecting hosts. This mosquito commonly breeds in tree cavities and in artificial containers, including discarded tires (Figure 2). Elimination of these breeding sites, near residential dwellings and wood lots, is an effective control strategy that can interrupt the natural cycle and reduce the risk of human disease.

LAC affects the central nervous system, and infected individuals may develop symptoms three to 14 days after being bitten. Many people are asymptomatic or have a non-specific, flu-like illness that may be clinically diagnosed as viral meningitis. Thus, LAC may be under-diagnosed and consequently under-reported in Ohio and other states. Because LAC is caused by a virus, antibiotics do not work and no effective antiviral drugs have been developed. Because there is no vaccine, personal protective measures are the best form of prevention. These include avoiding mosquito bites by reducing time spent outside in the early evening, wearing light-colored long pants, long-sleeved shirts and applying mosquito repellents.

Human cases of LAC in Ohio occur mainly between July and September. Children and teenagers are at greatest risk for this disease as the average patient is about 8-years-old. Although the illness can be severe, requiring hospitalization and intensive care, the fatality rate is less than 1 percent. The most recent fatality in Ohio occurred in 1999. There were just nine Ohio cases in 2007, but the state leads the nation in total number of cases since 1964, averaging 21 cases per year.

Eastern Equine Encephalitis in Ohio:

EEE is a mosquito-borne viral disease that is maintained in a natural cycle between mosquitoes and birds. The infection of humans and horses results from a very complex network of interactions involving two mosquito species (Figure 3). The most important mosquito in maintaining the natural cycle is the acid bog mosquito, *Culiseta melanura,* which is fortunately a rare mosquito in Ohio. This mosquito breeds in underground pools in acid bogs and hardwood swamps (Figure 4) and feeds exclusively on birds. It does not bite mammals. The disease is spread to horses and humans by the cattail marsh mosquito, *Coquillettidia perturbans,* which acts as a "bridge" vector by picking up the EEE virus from an infected bird and subsequently transmitting it to a horse or human. This mosquito can be abundant in marshy areas throughout Ohio (Figure 4). The good news is that there are very few places in Ohio where both of these mosquitoes occur together. Once such place is in Northeast Ohio where Killbuck Marsh Wildlife Area (KMWA) lies in close proximity to Brown's Lake Bog Natural Preserve.

Each year, the Zoonotic Disease Program conducts EEE surveillance in the KMWA by collecting and testing mosquitoes and blood samples taken from live birds throughout the active mosquito season. Although uncommon, bird samples occasionally test positive for EEE virus antibodies, indicating the bird was exposed to the virus and that transmission may be occurring in the marsh.

La Crosse Encephalitis and Eastern Equine Encephalitis in Ohio—continued

There have been 220 confirmed EEE human cases in the United States between 1964 and 2004, or about five cases per year. States with the largest number of cases include Florida, Georgia, Massachusetts and New Jersey. While there has *never* been a human case in Ohio, there was an equine outbreak of EEE in Wayne and Holmes counties, near KMWA, in 1992. Nineteen cases were recorded; 17 were fatal. Local veterinarians estimated the unconfirmed equine cases to be as high as 40. In 2007, there were four equine cases of EEE in Ohio and 40 cases across the border in Indiana. Even though Ohio equine cases are infrequent, it is highly recommended that horses be vaccinated against EEE.

Because of the high fatality rate (35 percent in humans), EEE is regarded as one of the most dangerous mosquito-borne diseases.

For more information about these or other vector-borne diseases in Ohio, please contact the Zoonotic Disease Program at 614-752-1029, option 1, or e-mail us at zoonoses@odh.ohio.gov.

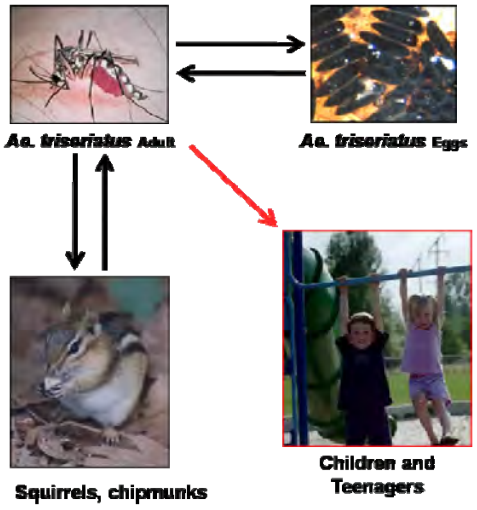


Fig. 1. LAC is transmitted between the Eastern treehole mosquito and squirrels and is passed from mother to offspring in the mosquito. Humans, particularly children, are infected when bitten by an infected Eastern treehole mosquito.

Fig. 2. The Eastern treehole mosquito breeds naturally in treeholes, but will also breed in man-made containers that collect water.

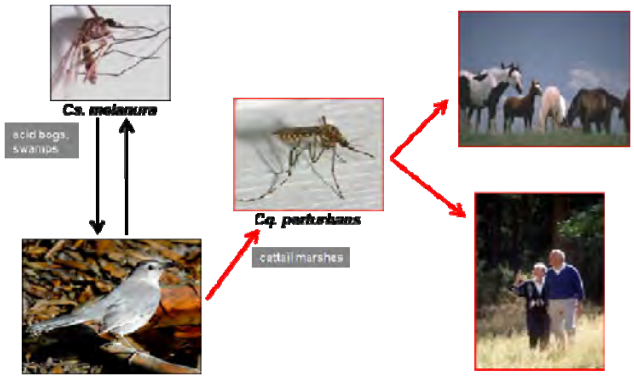


Fig. 3. EEE is transmitted between acid bog mosquito and birds. This mosquito does not bite mammals. Humans and horses are infected when the cattail marsh mosquito bites an infected bird, becomes infected, then bites a human or horse.

Fig. 4. Acid bog mosquitoes breed in subterranean pools found in acid bogs and hardwood swamps (top) and are quite rare in Ohio. The cattail marsh mosquito breeds in many places where there is emergent aquatic vegetation (bottom) and is abundant in the wetland areas of Ohio.

Healthcare-Associated Infections Reporting

by Barbara W. Bradley, MS, RN, CIC, Chief, Bureau of Infectious Disease Control and Jane Carmean, BSN, RN, CIC, Infectious Disease Control Consultant, Outbreak Response and Bioterrorism Investigation Program

National Background

Nationally, healthcare-associated infections (HAI) are among the top 10 leading causes of death in the United States. According to the Centers for Disease Control and Prevention (CDC), in hospitals alone, HAIs account for an estimated 1.7 million infections and 99,000 associated deaths each year.

In 1972, the Association for Professionals in Infection Control and Epidemiology (APIC) was conceived out of recognition of the need for an organized, systematic approach to the control of infections acquired as a result of hospitalization. For more than 35 years, infection control professionals (ICPs) have been collecting infection rates for benchmarking within their own facilities.

In the early 1970s, the National Nosocomial Infections Surveillance System (NNIS) was introduced to monitor the incidence of HAIs and their associated risk factors and pathogens. NNIS is the only national system for tracking HAIs. The NNIS system is a voluntary, cooperative, non-financial relationship between hospitals and the CDC. The NNIS system has undergone a major redesign as a Web-based knowledge management and adverse events reporting system that is now available to all U.S. hospitals, long-term care facilities and other health care organizations. The redesigned system is called the National Healthcare Safety Network.

Ohio Background

Ohio has been actively evaluating HAI reporting since 2004. Reporting cases of infectious diseases and related conditions remains a vital step in controlling and preventing the spread of communicable diseases. These reports are useful in many ways, including assurance of provision of appropriate medical therapy, detection of common-source outbreaks and planning and evaluating prevention and control programs (*MMWR* June 22, 1990 / 39(RR-9); 1-11, 16-17).

The Ohio Revised Code directs clinicians and laboratories to report certain diseases (categorized as *Class A*, *Class B* and *Class C*) to the local health district where the patient lives. The *Class C* designation refers to outbreaks only and includes all HAI outbreaks, as well as selected outbreaks detected in the community. Patient information is kept confidential; however, the name of the facility (e.g., hospital) is available for release to the public. The patient information is sent to the Ohio Department of Health (ODH) by the local health district. This information is reviewed to determine disease trends, risk factors and the effectiveness of various vaccines and medications. The local health district is allowed to release information to the public and media about the specific diseases reported and number of cases reported.

Prior to 2004, only two states had enacted legislation requiring health care facilities to collect HAI data intended for public view. Since then, nearly 25 states have passed mandatory reporting laws that allow all health care consumers access to the data. Nearly as many states have legislation pending or already have limited HAI information available to the public.

Ohio Legislation

The 126th Ohio General Assembly, via House Bill 197 (HB 197), mandated hospital data reporting to ODH and the development of a consumer Web site. It also required the creation of a 17-member advisory council to oversee the process of the development of the mandate. The advisory council is comprised of health insurers, lawmakers, small and large employers, general practice physicians, children's hospitals, public health physicians, health researchers, organized labor and health care consumers. The council is chaired by the ODH director of Health. The advisory council's final report is due no later than August 2008.

Because hospitals in Ohio were required to begin reporting performance measures starting April 1, 2007, ODH moved forward by establishing minimal reporting, prior to the advisory council convening and issuing its recommendations.

Healthcare-Associated Infections Reporting—continued

The advisory council oversees the progress of two committees: the Data Expert Group (DEG) and the Infection Control Group (ICG). The purpose of these expert groups is to determine a set of hospital performance measures to be collected and the requirements for a public Web site to disseminate this information. Reported measures must include at least one measure endorsed or created by each of the following entities: the Centers for Medicare and Medicaid Services, the Joint Commission for the Accreditation of Healthcare Organizations, the National Quality Forum and the Agency for Healthcare Research and Quality.

The DEG includes members appointed by the advisory council. This group makes decisions on all recommended measures and about the Web site format. The DEG has been meeting monthly since September 2007.

The ICG members are drawn, in part, from the existing Director's Advisory Committee on Emerging Pathogens, and includes infectious disease physicians, ICPs, local and state public health employees and health care consumer advocates. The ICG recommends infection control measures to the DEG. Process measures (e.g., hand hygiene, vaccination rates) as well as outcome measures (e.g., surgical site infection rates) have been chosen.

For updates on the progress of the advisory council, the DEG and ICG, please visit the Web site

http://www.odh.ohio.gov/healthStats/hlthserv/hospitaldata/hospadvis.aspx

Why Report HAIs?

Consumers desire and need information pertaining to infections in hospitals in order to make decisions about hospital care. Since the early 1990s, there has been a proliferation of health care quality report cards focusing on outcomes and processes of health care. Consumer demand for public reporting of health care quality data has increased since the 1999 publication of the Institute of Medicine's *To Err is Human: Building a Safer Health System* which reported 98,000 deaths in U.S. hospitals per year and $29 billion spent per year associated with medical errors.

The intended goals of public reporting of HAIs are to improve the quality of health care delivery by preventing infections and provide credible information to the consumer. There are several methodologies that can be used to accomplish these goals.

Quality Improvement

A hospital can improve quality by putting procedures in place to improve processes. If a certain surgery is identified as resulting in high infection rates, the hospital can review all the processes involved in that surgery and identify areas for improvement. If there is a concern for cleaning the operating room, the hospital can put into effect better cleaning procedures and then monitor the infection rate. Other procedural issues include hand washing and sterilization of operating room equipment. Additionally, there are many other quality improvement initiatives that can be performed to improve or eliminate infection.

Comparing Hospitals across Ohio as a Result of HB 197 (2006)

The Ohio Revised Code (R.C. 3727.39 B) requires the director to present performance measure information for the consumer on a Web site in a manner that enables the public to compare the performance of hospitals in meeting the measures. The director must also assure the consumer is able to compare measures for specific diagnoses and procedures by different geographic regions. When possible, state and federal benchmarks for the measure will be included. The director must include contextual information and explanations that the public can easily understand, including why differences in the performance of hospitals in meeting the measures may be misleading.

Required Reporting of Infectious Diseases in Ohio

Ohio Disease Reporting System (ODRS)

Electronic disease surveillance began in Ohio in 2001. Prior to 2001, there was a paper-based reporting system. In addition to electronic reporting, diseases classified as "Class A (1)" also require an immediate phone call to the local health department, who then calls

ODH. ODRS also accepts outbreak reports in an outbreak module.

There were several limitations in the initial electronic system, one of which was the security factors that limited disease reporting to the local health departments only. Those limitations have been overcome and now almost all providers are able to report into ODRS.

Division of Quality Assurance Database/ Quality Indicators

The ODH Division of Quality Assurance has not yet developed the methodology for reporting HAIs. The first reports will not be due until after August 2008.

How Quality Reports are Utilized

It is unknown how the quality reports will be utilized in Ohio. However, in 2004, the California Health Care Foundation sponsored a survey of Californians to determine consumer response to public reporting of health care quality issues in their state. Twenty-three percent of all respondents claimed they saw health care quality information, while a slightly higher number (28 percent) of consumers who actually had been hospitalized during the previous two years, saw the rating information. Only 4 percent and 6 percent, respectively, considered a change in health care choice based on the ratings. One percent of all respondents actually made a change in their health care choice, while 2 percent of the respondents who had been inpatients during the previous two years made a change based on the ratings.

This survey does not show strong support for consumer use; however, other literature allows that facilities use the reported information to good advantage in the area of quality improvement. On April 2, 2008, the New York State Department of Health released a comprehensive report summarizing risk factors and outcomes for patients undergoing percutaneous coronary interventions (PCI) in New York state. Commonly referred to as "angioplasty" or "coronary stenting," PCI is a procedure used to clear blocked coronary arteries. New York was the first state in the nation to make publicly available the information contained in the report and has been releasing its reports for more than 10 years. The in-house mortality rate for angioplasty patients in 1995 was 1.86 percent, compared to 0.52 percent in 2005 (most recent data available). Dr. Edward Hannan of the School for Public Health at the University at Albany, and a member of the Cardiac Advisory Committee, states, "We are confident that New York's annual releases of PCI outcomes contribute to and will continue to improve the excellent quality with which PCIs are being performed in the state."

Conclusion

For many years, the Ohio Administrative Code (OAC) has determined communicable disease reporting rules for the residents of Ohio. The diseases to be reported are outlined in rule 3701-3-02.

The OAC continues with rule 3701-3-03, which states:

(A) The physician in attendance of a case or suspect case of a disease which is required by law to be reported, including all class A, class B, and class C categories of disease designated as reportable under rule 3701-3-02 of the Administrative Code, shall submit a case report to the board of health of the health district in which the patient resides.

(B) A person in charge of a hospital, clinic, or other institution providing care or treatment, having knowledge of a reportable disease case or suspect case, shall submit a case report to the board of health unless there is evidence that the case has already been reported.

Even though HAIs are historically under-reported to local boards of health, health care facilities are vigilant in their commitment to protect the well-being of patients. They have done this by instituting quality improvement initiatives with the guidance of the CDC and organizations such as the Society for Healthcare Epidemiology of America and APIC.

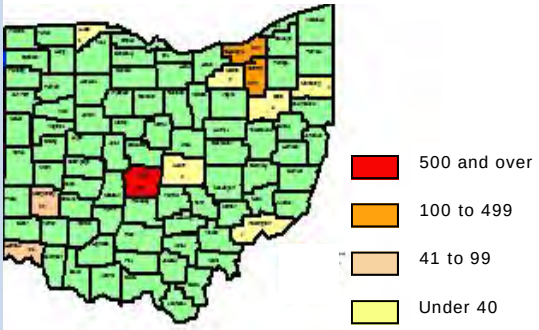
Proponents of HB 197 and Ohio consumers interested in quality health care delivery expect to see overall improvement in the quality of care received in Ohio hospitals with the advent of public disclosure.

Refugee Health Initiative by Maureen Murphy, BSN, RN & Marika Mohr, MS

Many of the refugees who settle in Ohio have fled violent circumstances in their countries of origin and have been living in refugee camps for several years. Access to health care is limited in the camps where sanitation is poor and communicable diseases spread easily due to crowded living conditions.

In federal fiscal year 2007, 1,579 refugees from 21 countries settled in Ohio. Nearly 88 percent (N=1,387) came from five countries: Somalia (851), Burma (291), Burundi (106), Ethiopia (80) and Ukraine (59). All age groups are represented, but the largest age group of refugees arriving in Ohio was the "Under age 19" which comprised approximately 47 percent of all refugees.

These refugees were primarily resettled in five Ohio counties: Franklin (942), Cuyahoga (239), Summit (227), Hamilton (83) and Montgomery (69). Each of these five counties has at least one health care provider under contract with the Ohio Department of Job and Family Services (ODJFS), Office of Refugee Resettlement to provide screenings.



Before arriving in the United States, all refugees receive a standard overseas health assessment. As part of this health assessment, refugees are evaluated for human immunodeficiency virus (HIV), sexually transmitted diseases (STDs) (i.e., chancroid, gonorrhea, granuloma inguinale, lymphogranuloma venereum), Hansen's disease (leprosy), mental disorders and tuberculosis (TB).

Once a refugee arrives in the United States, the U.S. Department of State recommends that refugees initiate a health screening within 30 days of arrival or within seven days for HIV positive refugees. Health screenings include a physical exam, medical history, immunizations, screenings for TB, hepatitis B, parasites, STDs, a women's health check and referrals for other services.

The objectives of this process are to identify and treat health problems that may interfere with the refugee's resettlement, including the ability to obtain employment, attend classes and/or network with the health care system. Additionally, the health assessment protects the health of Ohio's public through communicable disease diagnosis and treatment. A secondary benefit of this organized statewide screening is the collection of data used to predict future trends in communicable disease and to set policy.

Although refugees make up a small percentage of Ohio's population, their illnesses have a significant impact on the wellness of the state's overall population. With the goal of protecting and improving the health of Ohio residents, the Ohio Department of Health (ODH) and the Ohio Department of Job and Family Services applied for and received funding in 2007 for a Refugee and Entrant Assistance Refugee Preventive Health Grant through the Office of Refugee Resettlement, Administration for Children and Families, U.S. Department of Health and Human Services. The grant provides funding for the development of a refugee health database, collection and analysis of the data from the refugees' initial health screenings, epidemiologic assistance with investigation of infectious diseases and outbreaks among refugees and technical assistance with communicable diseases.

In late 2007, the forms and instructions for refugee health screenings were revised to collect more information on health issues. The database has been tested and is being back-populated with data from 2006 to the present to provide baseline data for comparison. These data, while not as comprehensive as current and future data, will provide a general overview of health conditions affecting the refugee population in Ohio.

Refugee Health Initiative—continued

Data collection using the new expanded form is expected to start in May 2008. The refugee health initiative strives to integrate refugee health data across ODH and has been actively collaborating with the ODH, Lead Prevention and Immunization programs.

For more information on the Refugee Health Initiative, contact Maureen Murphy at (614) 466-2381.

Electronic Laboratory Reporting at the Ohio Department of Health by Lily Tatham, Electronic Laboratory Reporting Coordinator

Traditional reporting of laboratory infectious disease findings consists of mailed or faxed reports that are manually entered into disease reporting systems either at state or local public health levels. This type of reporting is known to be slow and incomplete. Concerns regarding emerging infectious diseases, pandemic influenza and bioterrorism agents demand timelier and more complete reporting.

Electronic laboratory reporting (ELR) involves the electronic transmission of laboratory reports. ELR increases the timeliness and completeness of infectious disease reporting compared to traditional reporting, enabling more rapid response to diseases of concern. ELR also decreases the paperwork and person-hours involved in reporting, thereby reducing reporting costs and allowing time for other work at the laboratory and hospital, as well as local and state public health departments.

The Ohio Department of Health (ODH) has systems in place to enable electronic reporting of laboratory infectious disease findings. The HL7 (Health Level 7) Gateway, which went live in 2006, receives, processes and distributes electronic laboratory reports. A single, daily feed consisting of multiple reports can be sent to the HL7 Gateway, which will identify the test name in each report and use that test name to determine the application to which the report will be directed. Currently the HL7 Gateway can direct electronic laboratory reports to two applications, STD-MIS (sexually transmitted diseases including chlamydia, gonorrhea, syphilis and certain HIV tests) and the Ohio Disease Reporting System (ODRS) (other infectious disease reports such as hepatitis and enteric diseases). In the future, ODH hopes to be able to use the HL7 Gateway to receive other types of laboratory reports, such as lead testing results and cancer reports, and direct them to the appropriate application.

For sexually transmitted diseases, the HL7 Gateway creates a daily file of electronic laboratory reports that STD surveillance staff imports directly into STD-MIS. The surveillance staff does conduct some data cleanup after the data are imported into STD-MIS. However, once these electronic laboratory reports are in STD-MIS, they are immediately available to appropriate STD-MIS users at the local and state level.

Electronic laboratory reports are moved from the HL7 Gateway to ODRS on a continual basis. ODRS has been updated with additional functionality that permits these electronic laboratory reports to populate ODRS quickly and smoothly. This functionality ensures the data in the reports can populate ODRS fields appropriately, assign geo-coded addresses in order to report to the appropriate health jurisdiction and searches for both person and disease matches. If a report has no matches or an exact match, then it is processed automati-

cally. User intervention is needed if possible person and/or possible disease matches are identified. The user follows a relatively simple and straightforward process to determine if the electronic laboratory report should be used to update an existing case of disease or to create a new case. Once these electronic laboratory reports have updated or created ODRS cases, they are available immediately to appropriate ODRS users at the local and state level.

ODH is developing a process for laboratories to follow in order to participate in ELR; this process involves an enrollment phase, a precertification phase and a certification phase. The initial enrollment phase involves information exchange between ODH and the laboratory. ODH will want to know the volume and type of reports to expect, the file format (currently ODH can accept only *Health Level 7* (HL7) 2.3.1, but other formats may be accepted in the future), the test and result codes that will be sent and the transmission method. ODH will provide the laboratory with guidelines for HL7 2.3.1, a list of diseases that can be reported via ELR and reporting requirements.

In the precertification phase, the laboratory will create and send test reports and ODH will provide feedback as these are run through the HL7 Gateway and into the appropriate application. Updates and changes are expected to be made during precertification at both the laboratory and ODH. In addition, if the laboratory has not yet mapped its local test codes to standardized Logical Observation Identifiers Names and Codes (LOINC®), ODH would prefer the laboratory work toward this upgrade internally. Mapping result codes to the Systematized Nomenclature of Medicine or SNOMED codes is also very advantageous to ELR.

Certification is the final phase of the project. During this phase, the laboratory will transmit real reports electronically and these reports will be compared with reports received via traditional methods to verify accuracy and completeness. After a certain amount of time with no problems, a laboratory will be considered certified and a date will be set for discontinuing traditional reporting.

ODH has been receiving STD and hepatitis findings from the Corrections Medical Center Laboratory via electronic laboratory reporting since May 1, 2007, (STDs) and Sept. 26, 2007 (hepatitis). Approximately 14,500 ELRs have been received from Corrections Medical Center from start up through March 31, 2008. Mayo Medical Laboratories has been transmitting electronic laboratory reports since Jan. 16, 2008. Mayo sends STD, hepatitis and other infectious disease findings electronically. Numbers of ELRs received during the first quarter of 2008 from both laboratories, and the ways in which these reports populated the relevant applications, can be seen in the table below. ELR efforts are underway with ODH Laboratory and Cleveland Clinic, and discussions have started with Quest Diagnostics (Cincinnati) and CompuNet Clinical Laboratories (Dayton). Additionally, ODH is working to get more hospitals, as well as other laboratories started in the ELR process.

If a laboratory or hospital is interested in ELR, or a local health department would like to work with area hospitals or laboratories to initiate ELR, please contact Lily Tatham at:
Lilith.Tatham@odh.ohio.gov or
614-644-2718.

Electronic Laboratory Reporting at the Ohio Department of Health—continued

Useful definitions to know for ELR:

HL7: Health Level 7 is the standard for electronic data exchange in health care environments. Used in ELR for standardizing order and structure of data fields in a message. http://www.hl7.org

LOINC: Logical Observation Identifiers Names and Codes. Used in ELR for standardization of test names. http://www.regenstrief.org/medinformatics/loinc

SNOMED: Systematized Nomenclature of Medicine Clinical Terms. Used in ELR for standardization of test results.

PHIN: Public Health Information Network
National initiative to improve the capacity of public health to use and exchange information electronically by promoting the use of standards defining functional and technical requirements. http://www.cdc.gov/phin

ELR at ODH 1st Quarter 2008

Corrections Medical Center Laboratory

397 STD reports to STD-MIS: 20% chlamydia, 6% gonorrhea, 37% syphilis, 37% HIV

2,408 hepatitis reports to ODRS - 98% hepatitis C and the remainder hepatitis B

How did the report get into ODRS?	
Automatically - no user intervention	83%
ODRS user intervention	17%

What did the report do in ODRS?	
Add new case to existing person	1%
Update existing case	76%
Create new person and case	23%

Mayo Medical Laboratory

151 STD reports to STD-MIS: 58% chlamydia, 13% gonorrhea, <1% syphilis, 29% HIV

776 reports to ODRS - 61% hepatitis C, 28% hepatitis B, 3% pertussis and < 1% each of other diseases such as brucellosis, Lyme disease, aseptic meningitis, TB, varicella, etc.

How did the report get into ODRS?	
Automatically - no user intervention	77%
ODRS user intervention	23%

What did the report do in ODRS?	
Add new case to existing person	3%
Update existing case	66%
Create new person and case	31%

Quarterly Summary of Select Reportable Infectious Diseases

First Quarter, 2008*

December 30, 2007 – March 29, 2008

REPORTABLE CONDITION	QUARTER	YEAR
AMEBIASIS	1	1
CAMPYLOBACTERIOSIS	194	194
COCCIDIOIDOMYCOSIS	3	3
CRYPTOSPORIDIOSIS	54	54
CYTOMEGALOVIRUS (CMV), CONGENITAL	1	1
ENCEPHALITIS, POST OTHER INFECTION	2	2
ENCEPHALITIS, PRIMARY VIRAL	1	1
E COLI O157:H7	5	5
E COLI, SHIGA TOXIN PRODUCING, UNKNOWN SEROTYPE	11	11
GIARDIASIS	195	195
HAEMOPHILUS INFLUENZAE, INVASIVE	46	46
HEPATITIS A	8	8
HEPATITIS B, ACUTE	32	32
HEPATITIS B, CHRONIC	434	434
HEPATITIS C, ACUTE	2	2
HEPATITIS C, PAST OR PRESENT	2441	2441
HEPATITIS E	2	2
INFLUENZA-ASSOCIATED PEDIATRIC MORTALITY	1	1
KAWASAKI DISEASE	6	6
LEGIONELLOSIS	59	59
LISTERIOSIS	7	7
LYME DISEASE	3	3
MENINGITIS, ASEPTIC	119	119
MENINGITIS, OTHER BACTERIAL	13	13
MENINGOCOCCAL DISEASE	13	13
MUMPS	14	14
PERTUSSIS	352	352
RHEUMATIC FEVER	3	3
SALMONELLOSIS	197	197
SHIGELLOSIS	162	162
STAPHYLOCOCCUS AUREUS, INTERMEDIATE RESISTANCE TO VANCOMYCIN (VISA)	1	1
STREPTOCOCCAL DISEASE, GROUP A, INVASIVE	90	90
STREPTOCOCCAL DISEASE, GROUP B, IN NEWBORN	14	14
STREPTOCOCCAL TOXIC SHOCK SYNDROME (STSS)	1	1
STREPTOCOCCUS PNEUMONIAE, INVASIVE, DRUG RESISTANT/INTERMEDIATE (ALL AGES)	149	149
STREPTOCOCCUS PNEUMONIAE, INVASIVE, DRUG SUSCEPTIBLE/UNKNOWN (ALL AGES)	282	282
TYPHOID FEVER	3	3
VARICELLA	815	815
YERSINIOSIS	10	10
TOTAL	**5746**	**5746**

* 2008 data include confirmed, probable and suspected cases reported to the Centers for Disease Control and Prevention (CDC). This report includes both quarter-specific and year-through-quarter cumulative frequencies for each disease. Quarter is determined by the Morbidity and Mortality Weekly Report (MMWR) week the case was sent to the CDC. This report includes only Class A reportable diseases. Data were reported to the Ohio Department of Health via the Ohio Disease Reporting System. Some reportable conditions may be under investigation. Therefore, all data in this report are provisional, but current as of April 8, 2008.

Source: Ohio Department of Health Infectious Disease Surveillance

Ohio HIV/AIDS cases reported through March 31, 2008

	HIV	AIDS	HIV/AIDS
Diagnosed[b]	851	278	1,129
PLWHA*	8,131	6,909	15,040

[a] Data reported through March 31, 2008.

[b] HIV/AIDS diagnoses include persons with a diagnosis of an HIV infection (not AIDS), a diagnosis of an HIV infection and later AIDS, and concurrent diagnosis of HIV infection and AIDS. Reported cases diagnosed in 2006.

**Persons Living with HIV/AIDS*

Note: Living with HIV/AIDS represents all persons ever diagnosed and reported with HIV or AIDS and have not been reported dead as of Dec. 31, 2006.

Source: Ohio Department of Health, HIV/AIDS Surveillance Program.

Quarterly Summary of Sexually Transmitted Diseases, Ohio

Fourth Quarter, 2007*

January 1, 2007 - December 31, 2007

SEXUALLY TRANSMITTED DISEASES	QUARTER	YEAR
CHLAMYDIA	11,183	45,843
GONORRHEA	4,597	20,001
SYPHILIS	153	554
TOTAL	**15,933**	**66,398**

* 2007 data include only confirmed cases, except for gonorrhea, which includes confirmed and suspected cases reported to the Centers for Disease Control and Prevention. This report includes both quarter-specific and year-through-quarter cumulative frequencies for each disease. Quarter is determined by date of diagnosis. Some reportable conditions may be under investigation. Therefore, all data in this report are provisional, but current as of April 11, 2008.

Source: Ohio Department of Health STD Surveillance

Quarterly Summary of Tuberculosis Cases, Ohio

First Qurter, 2008*

January 1, 2008 - March 31, 2008

	QUARTER	YEAR
TUBERCULOSIS (TB)	49	49

* 2008 data include confirmed cases reported to the CDC. This report includes both quarter-specific and year-through-quarter cumulative frequencies for tuberculosis. Quarter is determined by count date, which is the date the ODH TB Surveillance Program determines the tuberculosis suspect meets the CDC Surveillance Case Definition for TB. All data in this report are

Source: Ohio Department of Health TB Surveillance

Announcements

ImpactSIIS, Ohio's secure, Web based immunization information system, has reached a milestone. Within six years of launch, ImpactSIIS (Statewide Immunization Information System) has more than 30 million unique unduplicated immunization histories available to authorized users via the Web. The 30 millionth record was received via an electronic file from Lakewood City Health Department in April 2008. Approximately half of all immunization history records in ImpactSIIS come from other data systems. The facility that manually entered the next shot record directly into ImpactSIIS was Nationwide Children's Close to Home in Whitehall. Denise Simms from Nationwide Children's Close to Home in Whitehall manually entered in the 30,000,005th immunization history on file. Facilities that use ImpactSIIS interactively have immunization rates 15 to 20 percent higher than sites submitting data electronically. The success of ImpactSIIS has been achieved through the hard work of participating private physicians, hospitals and public health facilities. More than 55 percent of children, age zero to 6-years, in urban areas have two or more immunizations recorded in ImpactSIIS and over 71 percent of children, age 0 to 6 years from rural counties have two or more immunizations recorded. The goal is to reach the Healthy People 2010 target of 90 percent. If you are interested in hearing more about Impact SIIS, please contact the Immunization Program at the Ohio Department of Health (1-800-282-0546).

Friday, June 27 is **National HIV Testing Day** (NHTD). NHTD is an annual campaign produced by the National Association of People with AIDS (NAPWA-US) to encourage at-risk individuals to receive voluntary HIV counseling and testing. The Centers for Disease Control and Prevention estimates 180,000 to 280,000 people nationwide are HIV positive, but are unaware of their status. HIV counseling and testing enables people with HIV to take steps to protect their own health and that of their partners, and helps people who test negative get the information they need to stay uninfected. Across the United States, thousands of HIV counseling and testing sites, state and local health departments and community-based HIV/AIDS service providers will participate in NHTD events by holding health fairs, providing community and media outreach, hosting special testing-related events or operating extended hours. To learn more about HIV and NHTD events in Ohio, please call or e-mail the Ohio AIDS/HIV/STD Hotline for free, anonymous and confidential answers to your questions and concerns at 1-800-332-2437. For TTY for the deaf and hearing impaired please call or 1-800-332-3889. For answers through e-mail use the following email address: ohioaidshotline@catf.net.

An international steering committee was convened in 2007 to plan the first **World Hepatitis Day** which will be held on May 19, 2008. The aim of this international day focusing on chronic viral hepatitis (i.e., hepatitis B/C) is to raise awareness of these diseases within the general population, people at risk, health care providers and governments. Governments will be asked to support five-year targets for the prevention, diagnosis and treatment of hepatitis, and the steering committee plans to publish the start of what they hope will eventually become the first ever global compilation of hepatitis B and C statistics (the Hepatitis Atlas). Events in 12 major cities and 50 countries will be preceded by a media campaign culminating on May 19. World Health Organization endorsement of World Hepatitis Day is also being sought.

For more information go to: http://www.aminumber12.org.

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