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Interesting Zoonotic Disease Outbreaks

by Kim Winpisinger, MS, Epidemiologist, Zoonotic Disease Program

The Zoonotic Disease Program (ZDP) investigates diseases transmitted from animals or insects to people. ZDP deals with more than 20 different reportable diseases, including West Nile virus, rabies, malaria, psittacosis (parrot fever), and tularemia (rabbit fever). Most of these investigations are of individual case reports, but occasional outbreaks of animal-borne diseases do occur. Often these diseases are enterics that began with an investigation by the local health district and the Outbreak Response and Bioterrorism Investigation Program (ORBIT). If the investigation determines a likely link to animals, then the ZDP becomes involved. Below are the highlights of a few interesting cases from 2007.

***Salmonella* Paratyphi B, L (+) tartrate (+) and turtles**

An 8-year-old girl developed salmonellosis after her parents bought her two pet turtles from an Ohio pet shop. The turtles had shells smaller than the minimum 4 inch diameter required by FDA regulations, and thus were sold illegally. The patient, both turtles and the turtle habitat water were tested for *Salmonella*. The state laboratory determined that the Pulsed-Field Gel Electrophoresis (PFGE) - "genetic fingerprint" – of one of the turtles and the turtle habitat water was identical to that of the sick child.

A 2-month-old child developed salmonellosis. The infant had recently visited relatives in another state who owned a pet turtle that was allowed to walk on the kitchen counter. The turtle habitat bowl was cleaned in the kitchen sink and the infant was bathed in that sink during the visit. PFGE analysis showed the child was infected with S. paratyphi B, L(+) tartrate (+). The child subsequently developed the same type of salmonellosis three months later and again eight months after that. There was no further exposure to the turtle and the child was believed to be a carrier. The turtle was "set free" and was unavailable for testing.

The PFGE patterns of both children matched more than 100 cases in 33 states. A national investigation found that of 70 people interviewed, more than 63 percent had exposure to a turtle in the seven days before illness onset.[1]

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This Ohio outbreak helped lead to the discovery of a national outbreak last year. ZDP found that small turtles purchased by Ohio children were traced back to a Florida distributor. ODH provided the name of the Florida turtle supplier to the FDA in October 2007. ZDP was informed that the company, Strictly Reptile, was being watched by the FDA after that. A ban on the sale of turtles with a carapace (shell) length of less than 4 inches has been in effect since 1975 due to the public health impact of turtle-associated salmonellosis. This regulation comes under the Public Health Service Act and is enforced by the FDA in cooperation with State and local health jurisdictions. At the time, Strictly Reptile listed turtles under the legal size limit for sale on their website.

The information which actually led to the conviction specifically charged that Strictly Reptile had made a sale of approximately 1,000 undersized turtles on March 3, 2008, from its Hollywood business location to a tourist souvenir business in Panama City, Florida. Strictly Reptile would charge between $2.75 and $3.00 for the turtles it was supplying and the tropical pet store would resell the turtles for $14.99 each. The government further alleged that the principal of Strictly Reptile admitted to investigators that he engaged in willful blindness, that is, intentionally not asking customers the purpose for which the turtles were being purchased in order not to lose sales. ZDP's investigation of the two Ohio cases, and the genetically matched *Salmonella* findings in the children's turtles, was used as evidence in the case against Strictly Reptile.

***Cryptosporidium* and cows**

Cryptosporidium is a single-celled protozoal parasite that lives in the gut. It is currently thought that the form infecting humans is the same species that causes disease in young calves.[2] Nine students at a single Ohio university had laboratory-confirmed cryptosporidiosis. The age of the nine cases ranged from 18 to 21 years, and eight (89 percent) were female. Of the eight students who returned completed surveys, eight (100 percent) majored in pre-veterinarian studies, seven (88 percent) were exposed to goats, six (75 percent) were exposed to horses, six (75 percent) were exposed to swine and eight (100 percent) were exposed to cows or calves. Not all students attended the same classes, but three (38 percent) specifically mentioned attending Animal Reproduction class. It would appear that the common source of the student illness was cows/calves at the university barns, as these animals also tested positive for *Cryptosporidium.*

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2. www.cfsan.fda.gov~mow/chap24.html

Interesting Web Site Recommendations from the ODH Bureau of Infectious Disease Control

by Crystal L. Willis, MSEd, BSW, OCPG Capacity Building Coordinator, HIV/STD/Hep C Prevention Program

BIDC Mission: *To prevent and control infectious diseases in Ohio*

BIDC Vision: *No Ohioan will suffer or die from an infectious disease*

The Bureau of Infectious Disease Control (BIDC) is comprised of a team of professionals with the mission to prevent and control infectious diseases in Ohio. One of the many tools used to accomplish this mission is the Internet. The following Web sites have been shared by members of BIDC, and are related to infectious disease control. The following sites have been found to be both interesting and useful resources for obtaining information.

Epidemiologic Case Studies: http://www2a.cdc.gov/epicasestudies/

These case studies are interactive exercises developed to teach epidemiologic principles and practices. They are based on real-life outbreaks and public health problems and were developed in collaboration with the original investigators and experts from the Centers for Disease Control and Prevention (CDC). The case studies require students to apply epidemiologic knowledge and skills to problems confronted by public health practitioners at the local, state and national levels every day. Two types of epidemiologic case studies are available. The computer-based case studies can be used as self-study and in the classroom setting. The classroom case studies are primarily for use in a group setting with a knowledgeable instructor.

Emerging Infectious Diseases Journal: http://www.cdc.gov/ncidod/EID/index.htm
Published monthly by the Coordinating Center for Infectious Diseases, CDC, and is indexed in *Index Medicus/Medline; Current Contents; Exerpta Medica; Literature, Arts, and Medicine Database* and other databases.

Ohio Public Health and Health Promotion Library http://www.ohplibrary.org

Customers may browse more than 3,000 books, journals, videos, DVDs, newsletters, pamphlets and health education resources in the library online catalog. Ohio schools, public health professionals and personnel in community-based organizations who are registered members of the library can borrow these materials to teach, plan, implement and evaluate health activities and programs.

Germ Stop: http://www.germstop.net

This Web site provides the latest news and information to keep you and your family safe from harmful germs. Among the latest news, you'll find interesting factoids, archived articles, glossaries and expert tips on health and hygiene.

National Resource Center on Advancing Emergency Preparedness for Culturally Diverse Communities: http://www.diversitypreparedness.org/

The nation's first online clearinghouse and information exchange portal designed to facilitate communication, networking and collaboration to improve preparedness, build resilience and eliminate disparities for racially and ethnically diverse communities in public health emergencies.

Centers for Disease Control and Prevention: Vaccines and Immunizations:

http://www.cdc.gov/vaccines/

The Immunization Action Coalition Site: http://www.immunize.org/

Interesting Web Site Recommendations from the ODH Bureau of Infectious Disease Control—continued

Families Fighting Flu: http://www.familiesfightingflu.com/

The Families Fighting Flu web site is an interesting resource that highlights the reasons immunizations are so important. The Web site was created by a group of families and pediatricians who have experienced firsthand the tragedy of children suffering severe medical complications or death from influenza.

Medline Plus: http://medlineplus.gov/

Directs you to information to help answer health questions and brings together authoritative information from the National Library of Medicine, the National Institutes of Health and other government agencies and health-related organizations. Medline Plus provides access to medical journal articles, extensive information about drugs, an illustrated medical encyclopedia, interactive patient tutorials and latest health news.

Public Library of Science: http://www.plosntds.org/home.action

Peer-reviewed open access journal published by the Public Library of Science.

World Health Organization: http://www.who.int/en

United States Department of Agriculture: http://www.usda.gov

Net Wellness: http://www.netwellness.org

National HIV and STD Testing Resources: http://www.hivtest.org

Centers for Disease Control and Prevention: Sexually Transmitted Diseases:
http://www.cdc.gov/std/

Centers for Disease Control and Prevention: Tuberculosis Elimination:

http://www.cdc.gov/tb/default.htm

Center for Disease Control and Prevention: Emergency Preparedness & Response:
http://www.bt.cdc.gov/

More information about BIDC and its programs can be found at the Ohio Department of Health web site: http://www.odh.ohio.gov/

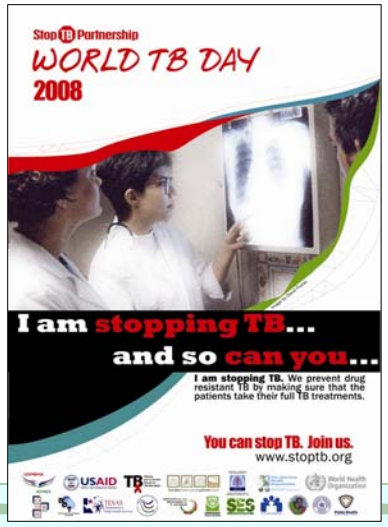
World TB Day Commemorated in Ohio, 2008 by Frank Romano, MPH, Senior Public Health Advisor, ODH TB Program

World TB Day is March 24. This annual event commemorates the date in 1882 when Dr. Robert Koch announced his discovery of *M. tuberculosis*, the bacterium that causes tuberculosis (TB).

Although TB is an ancient disease that was once thought to be near eradication in the United States, it remains a disease of major public health importance with 8.8 million cases and 1.6 million deaths worldwide in 2005.[1] The primary reason for this is that TB is a disease caused by germs that are spread from person to person through the air and many countries do not possess the expertise and public health resources needed to prevent and control this malady.

Between 1985 and 1992, the number of TB cases reported in the U.S. increased by 20 percent. Billions of dollars were required to reverse this trend, and the U.S. has since experienced a steady decline in TB morbidity. In 2007, a total of 13,293 TB cases were reported. The corresponding incidence rate of 4.4 per 100,000 population is the lowest recorded since national reporting began in 1953.[2]

However, the average annual decline has slowed since 2000. Moreover, multidrug-resistant TB remains a threat, extensively drug resistant TB is an emerging threat and racial/ethnic minorities and foreign-born persons continue to be disproportionately affected by this disease.



2008 World TB Day Posters by *StopTB.org*[3]

Because many people are not aware of the impact of TB, local TB coalitions in many states and countries convene educational and awareness activities related to World TB Day. This year, the Ohio Department of Health (ODH), in collaboration with the Ohio TB Coalition and The Ohio State University/College of Public Health, hosted the third- annual World TB Day Conference. The conference was held Friday, March 14, at The Ohio State University Biomedical Research Tower. The daylong event provided a historical view of TB along with current issues related to the diagnosis, treatment and management of TB in Ohio.

The keynote speaker was Dr. Thomas M. Daniel, Professor Emeritus of Medicine and International Health at Case Western Reserve University. Dr. Daniel has devoted the years of his retirement to medical history; he has published many articles in medical journals and five academic books in this field. His presentation, titled *The Road to Tuberculosis Control*, provided an interesting chronology of efforts toward TB elimination in the United States.

Other presenters included Dr. Thomas Herchline, Associate Professor, Wright State University Boonshoft School of Medicine, who gave an overview of *Refugee/Immigrants and*

World TB Day Commemorated in Ohio, 2008—continued

TB screenings; Dr. Larry Schlesinger, Director, Division of Infectious Diseases and the Center for Microbial Interface Biology at The Ohio State University, introduced *What's New on the Horizon for TB Control;* and Lena Fischer, ODH Laboratories, provided an update from the microbiology section.

Following the plenary session, there were several breakout meetings covering such topics as legal issues in TB control, contact investigations, TB reporting and case management.

The conference was well attended with 104 registered guests; including 74 TB nurse case managers from across the state. Plans are now underway for the 2009 World TB Day Conference; time and location to be announced.

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2. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5711a1.htm?s_cid=mm5711a1_e
3. http://www.stoptb.org

For Ohio TB information and statistics, please visit:

http://www.odh.ohio.gov/healthStats/disease/tb/tb1.aspx

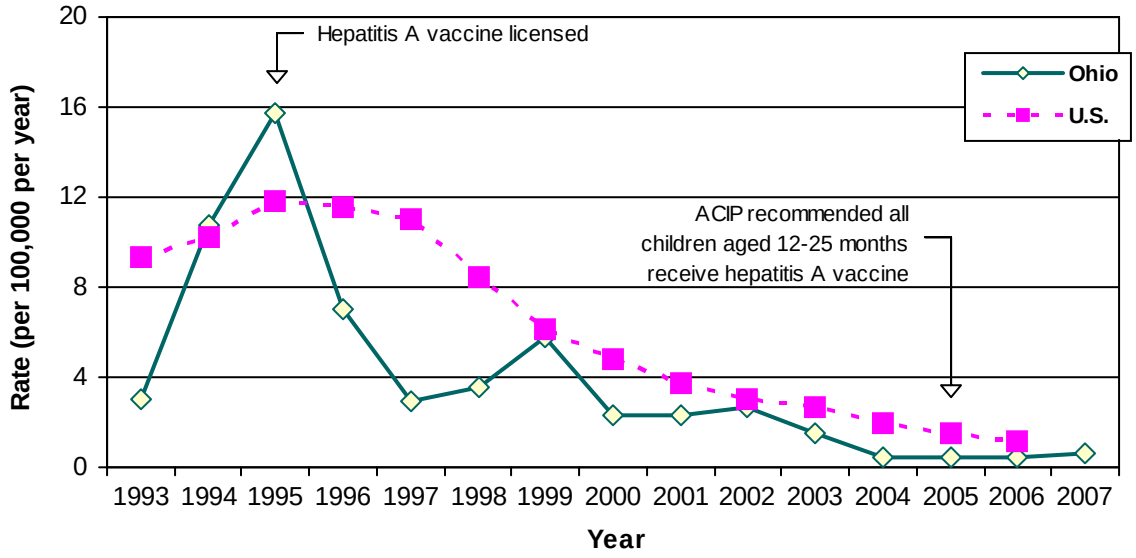
Hepatitis A Surveillance by Kimberly D. Machesky, MPH, ODH Infectious Disease Surveillance

Hepatitis A is an infection of the liver caused by the hepatitis A virus (HAV). In the United States, approximately one-third of the population has evidence of prior hepatitis A infection. Additionally, approximately 100 deaths are attributed to hepatitis A every year.[1]

Burden of Hepatitis A

Over the past 15 years, the rate of hepatitis A, both nationally and in Ohio, has dramatically decreased (Figure 1). In 1995, two vaccines to prevent hepatitis A infection were licensed in the United States.[1] Following this, rates of acute hepatitis A infection in both the country and the state began a downward trend, seeming to plateau from 2004 to present in Ohio. To further reduce the incidence of hepatitis A infection, the Advisory Committee on Immunization Practices (ACIP) recommended all children aged 12–25 months be routinely vaccinated against hepatitis A in 2005.[1] In 1998, three outbreaks of hepatitis A were reported in Ohio involving a total of 210 people. This explains corresponding spike in reported infections 1998–1999 (Figure 1).

Figure 1: Hepatitis A by Year, Ohio and the U.S., 1993-2007



Ohio data are by year of report for 1993-2003 and by year of onset for 2004-2007.

All U.S. data are by year of report and come from the CDC's National Notifiable Diseases Surveillance System.

Rates were calculated using U.S. Census midpoint population estimates for all years except 2000, which uses the actual count. Population estimates used are as of Dec. 27, 2007.

Although the incidence of hepatitis A has significantly decreased in recent years, eliminating this disease is still important because of the substantial economic burden it bears. For each case of hepatitis A identified, an average of 11 close contacts are identified and prophylaxed by the local health department.[1] An adult who becomes ill loses an average of 27 work days.[1] Indirect and direct costs due to hepatitis A are estimated at $1,817–$2,459 per adult case and $433–$1,492 per pediatric case.[1] In 1989, the total cost of hepatitis A to the United States was estimated at more than $200 million.[1]

Causative Agent

Hepatitis A is caused by the HAV, which is a member of the Picornaviridae family.[2] It is a small, non-enveloped, single-stranded RNA virus and is related to the poliovirus.[1] HAV is a very resilient organism. It remains stable in the environment for at least two weeks in fecal matter; the virus cannot be completely inactivated by heat, pasteurization or acid; and it can resist deterioration by chlorine, especially when encased in organic matter.[2] Only bleach and certain disinfectants are effective at reducing HAV on surfaces.[2]

Transmission

Hepatitis A is spread person to person through the fecal-oral route or by ingestion of contaminated food or water.[1] Although transmission through water is not common, there have been a few incidents associated with drinking or swimming in contaminated water.[3] Rarely, hepatitis A has been transmitted through blood transfusion.[1] The clinical severity of disease neither depends on the route of infection nor the dose of virus ingested.[2] HAV is naturally found in humans only, but can be sustained in non-human primates in a laboratory setting.[1]

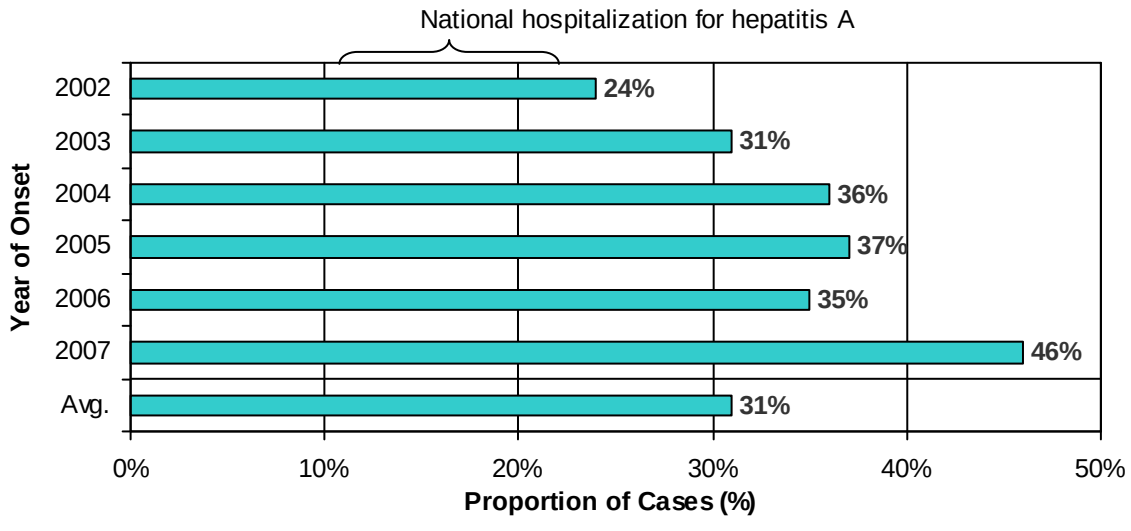
Clinical Features

Clinically, hepatitis A ranges from no symptoms to mild illness to severe disease. The most common symptoms include a sudden, discrete onset of fatigue, abdominal pain, loss of appetite, nausea, diarrhea, fever and jaundice.[4]

Symptoms usually appear 28 days following exposure to the virus, but can surface as early as 15 days or as late as 50 days.[1] The duration of symptoms is typically one to two weeks, but could linger for several months in those with severe disease.[5] Hepatitis A infection confers lifelong immunity and does not cause chronic liver disease, cirrhosis or liver cancer.[3, 4]

Nationally, 11 to 22 percent of cases are hospitalized for hepatitis A each year.[1] Over the past six years, Ohio has seen an increase in the proportion of cases hospitalized for hepatitis A (Figure 2). In 2002, hospitalization was reported for 24 percent of reported cases of hepatitis A. By 2007, this figure rose to 46 percent; far exceeding national estimates. Hospitalization status was unknown for 12 percent of cases over the six years evaluated. It is unknown whether Ohio's increased hospitalization for hepatitis A cases is an indication of Ohioans experiencing more severe illness from hepatitis A than the rest of the country or whether the increase could be due to the misinterpretation of being hospitalized with hepatitis A versus being hospitalized because of hepatitis A.

Figure 2: Proportion of Cases Hospitalized for Hepatitis A, Ohio, 2002-2007



12% of cases had an unknown hospitalization status 2002-2007.

Approximately 15 percent of people infected with HAV experience relapsing symptoms over a 6 - 9 month period of time,[4] but usually completely recover.[3] Among adults with hepatitis A, 0.15-0.5 percent may develop fulminant disease, of which half die.[7] Fulminant hepatitis is characterized by severe jaundice, encephalopathy, coagulopathy and liver failure within two months of symptom onset.[3]

Nationally, the case fatality rate for hepatitis A is low at 0.1-0.3 percent across all ages, but can reach 1.8 percent for adults over 50 years of age.[5] From 2002 to 2007, there were two deaths reported in Ohio that were attributed to hepatitis A, making Ohio's case fatality rate 0.3 percent over six years (data not shown). Both deaths were in individuals older than 60.

There is no treatment for people with hepatitis A other than supportive care, maintaining a proper diet and avoiding alcohol.[7]

Risk

Persons at increased risk for acquiring acute hepatitis A include:

- Household contacts of HAV-infected people,
- Sexual contacts of infected people,
- People living in areas of increased hepatitis A rates,
- Travelers to hepatitis A-endemic countries,
- Injection and non-injection drug users and
- Men who have sex with men.[4]

The most commonly reported source of hepatitis A infection in the United States during the past decade was contact with an infected person, representing 14 percent of all cases (see Table 1).[1] Between 2002 and 2007 in Ohio, the most commonly reported risk factor for hepatitis was recent international travel (13 percent). This differs from the national proportion of 5 percent of cases reporting recent international travel.[1] The second-most common risk factor identified in Ohio was personal contact with an infected person (11 percent). The men who have sex with men risk was equally reported by cases in the United States as well as Ohio at 10 percent.[1] Less commonly reported risk factors included being a child or employee at a day care facility, having contact with a child or employee at a day care facility, using injection drugs and using non-injection street drugs. Despite these recognized risk factors, 45 percent of cases have no identifiable risk factor.[1]

Table 1: Reported Risk Factors Among Hepatitis A Cases, Ohio vs. U.S.

Risk	Ohio	U.S.
Personal contact with a known case	11%	14%
Child/employee at day care	1%	2%
Contact of child/employee at day care	2%	2%
Recent international travel	13%	5%
Injection drug use	1%	6%
Non-injection street drug use	1%	-
Men who have sex with men	10%	10%

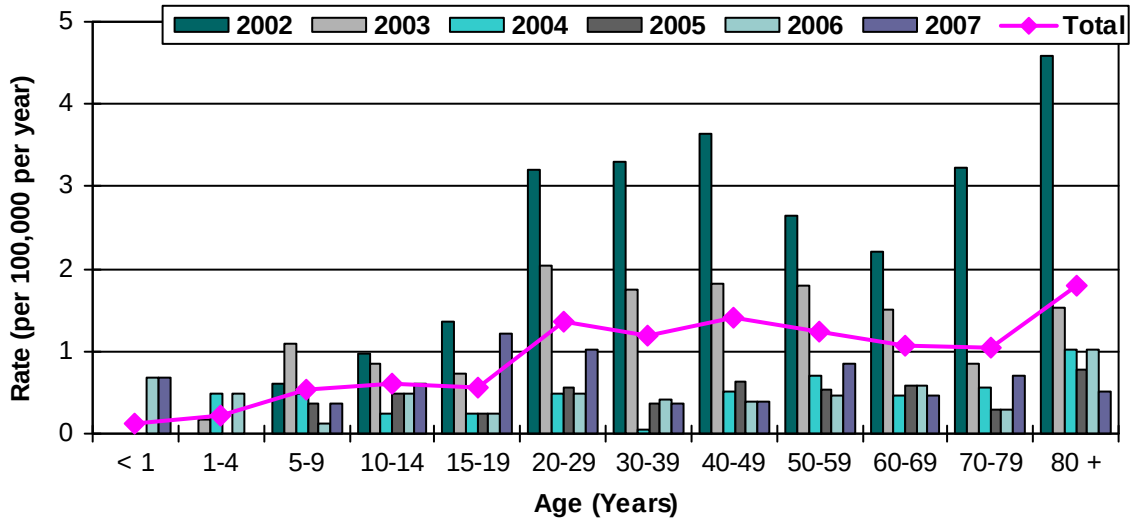
U.S. risk factor data are from 1990-2000, while Ohio data are from 2002-2007.

Demographic Trends

Although children have the highest rates of infection, most are asymptomatic and are not considered cases unless they exhibit classic symptoms of hepatitis A.[6] Recently, rates have increased among adults and decreased among children in the United States.[8]

The highest rates of acute hepatitis A in Ohio occurred among adults from 2002 to 2007 (Figure 3). Rates were similar and rather stable for adults 20 years and older, although adults age 80 years and older had slightly higher rates than all others. The lowest incidence of hepatitis A during the six-year period occurred in infants and gradually increased through children and adolescents until rising sharply in adults aged 20 years and older.

Figure 3: Hepatitis A by Age and Year of Onset, Ohio, 2002-2007



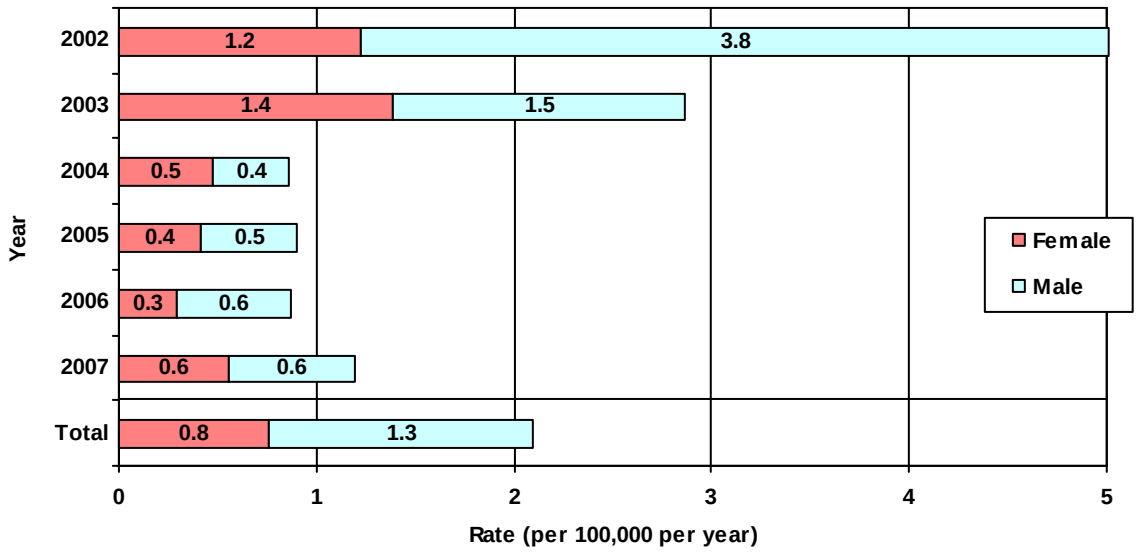
Rates were calculated using 2000 U.S. Census counts.

1% of cases had an unknown age 2002-2007 and were excluded from the chart.

From the late 1990s to 2001, national rates of hepatitis A in males were almost twice as high as national rates in females.[8] Since 2001, the rate of disease in men has decreased to only slightly above the rate in women.[8] The modest increase of hepatitis A among men may be an indication of more men partaking in risk behaviors such as drug use, homosexual activity and international travel.[2]

In Ohio, rates of hepatitis A were slightly higher in males as compared to females between 2002 and 2007 at 1.3 per 100,000 population and 0.8 per 100,000 population, respectively (see Figure 4). In 2002, the rate was more than three times higher in males, but the rate of hepatitis A in females was actually slightly higher than in males in 2004. The rates were equal between the genders in 2007.

Figure 4: Hepatitis A by Gender and Year of Onset, Ohio, 2002-2007



Rates were calculated using 2000 U.S. Census counts.

1% of cases had an unknown gender 2002-2007 and were excluded from the chart.

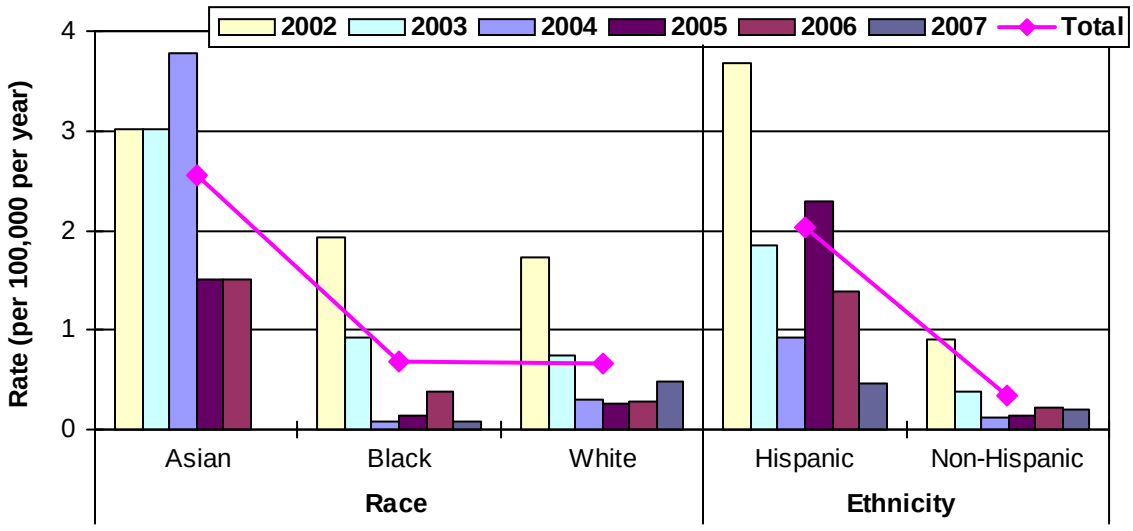
In the United States, American Indians/Alaska Natives have traditionally had significantly higher rates of hepatitis A than any other race/ethnicity. When widespread vaccination among this group began in 1995, rates were drastically reduced.[8] Since 2001, rates of hepatitis A among American Indians/Alaska Natives have been equal to or lower than rates among other races.[8] National rates among all race groups decreased between 2001 and 2004, except for Asian/Pacific Islanders, who experienced a slight increase from 2003 to 2004 with approximately two to three cases per 100,000 population.[8] In 2004, rates in white, black and American Indian/Alaska Natives were similar with about one case per 100,000 population.[8]

Asian Ohioans had the highest rates of acute hepatitis A during 2002 to 2007, with 2.14 cases per 100,000 population (Figure 5). This was more than three times the rate for black Ohioans (0.59 per 100,000) and white Ohioans (0.64 per 100,000). Like national trends, rates for black and white Ohioans were closely compatible for all years; excluding 2007, when the rate among whites was higher at 0.49 per 100,000 compared with blacks at 0.08 per 100,000. Over the six years analyzed, 34 percent of cases had an unknown race, and there were no cases reported in Hawaiian Natives/Pacific Islanders or American Indians/Alaskan Natives.

Hepatitis A incidence has always been higher for Hispanics than non-Hispanics in this country; however, the disparity between the two ethnicities has decreased since 1997.[8] From 2001 to 2004, the rate of hepatitis A among Hispanic Americans decreased from almost 10 cases per 100,000 to fewer than four cases per 100,000.[8]

As seen in Figure 5, Hispanic Ohioans had a greater rate of acute hepatitis A than non-Hispanic Ohioans (1.77 vs. 0.33 cases per 100,000 per year, respectively). The rate was consistently higher for Hispanics each year between 2002 and 2007. However, most cases during this period were reported with an unknown ethnicity (64 percent), so the true trends with respect to ethnicity cannot be interpreted with certainty.

Figure 5: Hepatitis A by Race/Ethnicity and Year of Onset, Ohio, 2002-2007



Rates were calculated using 2000 U.S. Census counts.

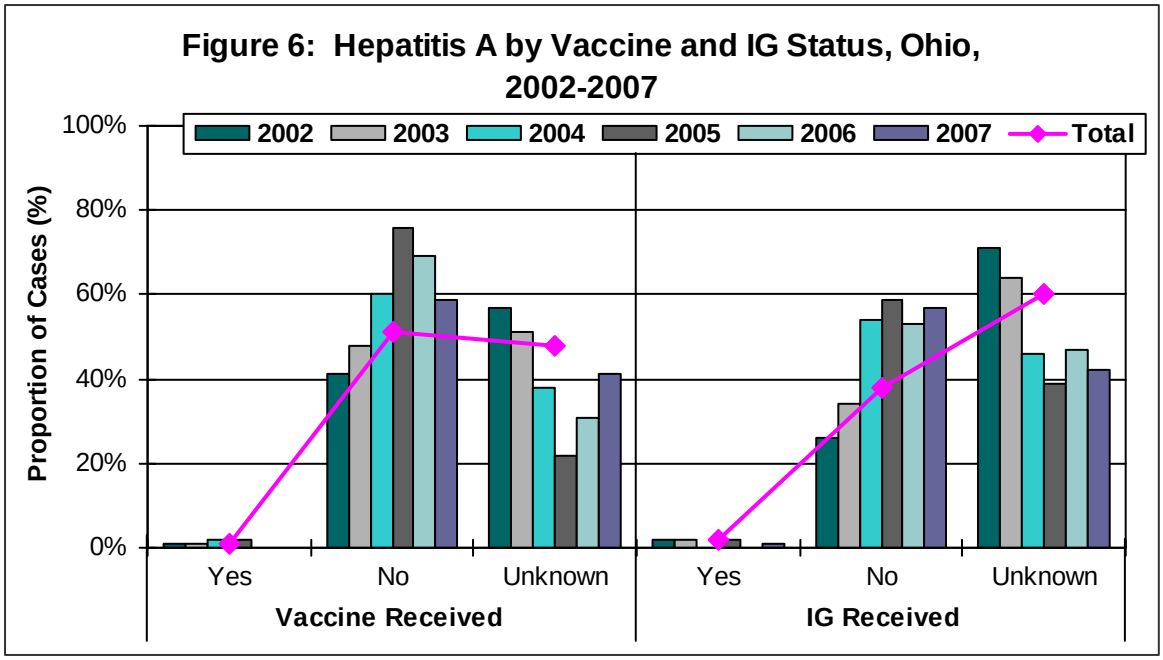
Prevention

Since there is no specific treatment for hepatitis A, preventing infection is the most appropriate way to control both the morbidity and the expense of this disease.

The best prevention method is the use of one of the licensed vaccines, HAVRIX® or VAQTA®.[1] Both vaccines provide a very good, protective immune response and are approved for use in children 12 months old and older.[1] The vaccines are 94 to 100 percent effective at preventing clinical hepatitis A among children.[1] The two doses of hepatitis A vaccine should be administered at least six months apart.[1] Protective antibody levels against HAV provided by the vaccine are estimated to persist for at least 20 years.[1]

Another way to prevent hepatitis A among people with known exposures to infected cases is with immune globulin (IG). IG is a concentrated solution of antibodies produced from pooled human plasma.[1] IG is given via injection within two weeks of exposure to the virus, and it is 80 to 90 percent effective in preventing disease for three to five months.[1] IG given later than two weeks after exposure may only lessen the severity of disease.[1] IG is recommended for people who have had close personal contact with a person infected with hepatitis A, employees or children at day care centers where hepatitis A has been identified and for persons involved in a common source outbreak of hepatitis A.[1]

Considering the effectiveness of these two methods of prevention, few Ohioans diagnosed with acute hepatitis A reported receiving either the hepatitis A vaccine (1 percent) or IG (2 percent) between 2002 and 2007 (see Figure 6). More than half of cases reporting a history of hepatitis A vaccination received the vaccine during the same year of symptom onset (data not shown). While the exact vaccination date is not known, it is possible they received the vaccine after exposure to HAV before the vaccine could provide adequate protection. Among Ohio cases reporting IG administration, the majority received IG 15 to 30 days before symptom onset (data not shown).



Practicing good personal hygiene is another technique to prevent hepatitis A, especially through diligent hand washing after using the bathroom, changing a diaper and before preparing and eating foods.[4] When traveling to endemic areas, either the vaccine or IG is the best method to prevent hepatitis A infection.[7] Even if travelers have received the vaccine or IG prior to travel, it is still recommended they avoid exposure by consuming only beverages that have been boiled, commercially bottled, carbonated or chemically treated. It is also recommended to avoid ice cubes unless made with "safe" water and to not eat raw/undercooked foods and salads.[7] Improved sanitation also helps prevent the spread of hepatitis A in the community.[2]

Conclusion

Hepatitis A was the most commonly reported type of hepatitis in the United States until 2004.[1] Routine hepatitis A vaccination and improvements in hygiene and sanitation have contributed to lowering the incidence in the country and the State of Ohio to all-time lows. Continued efforts toward widespread vaccination could continue to significantly reduce cases and eventually eradicate hepatitis A in this country.[1] Despite the potential for eradication in the United States, hepatitis A is still very much endemic in the rest of the world, so continued vaccination and vigilance, especially among travelers to endemic countries, are necessary.

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Hepatitis A Surveillance—continued

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Statewide Immunization Information System (ImpactSIIS), Enhancing Quality of Immunization Care by

Robyn Taylor, MBA, Human Services Program Consultant, ODH Immunization Program

The U.S. public health system is made up of a vast assortment of federal, state and local agencies providing a multitude of services that affect the lives of millions of people. The goal of ImpactSIIS team is to create more than just a repository of immunization information. The goal is to provide a quality improvement tool that will enhance access to and consistency of care. "The quality of the nation's health care varies widely across populations, geographic areas, providers, and health insurance arrangements."[1] Health information technologies hold promise for improving quality and consistency of care.

ImpactSIIS is Ohio's secure, Web-based immunization information system that is accessible wherever there is Internet service. The evolution of ImpactSIIS continues as the system moves from a ".org" domain to a ".net" domain and from a focus on childhood immunizations to include the lifespan of patients. The rewrite of Impact SIIS will allow stakeholders to enjoy enhanced features including increased speed and improved reporting. These features include a Web-based system that records vaccinations for all participating providers, the ability to send notifications to patients when immunizations are due and an inventory management tool.

ImpactSIIS's contribution to improved quality of care is recognized by many users around the state. For example, Northeast Ohio Neighborhood Health Services, a not-for-profit, federally qualified health system consisting of six health centers and one school-based clinic in Greater Cleveland, is currently experiencing enhanced quality and consistency of immunization care by using ImpactSIIS. The center's pediatric advisor, Anita M. Watson, M.D., recently said, "All our pediatric patients receive vaccines under the Vaccines for Children program. In January of this year, we started placing our patients in IMPACT system. As of June 30th, we have entered over 4000 patients into the system. This is a God-send. We are better able to provide vaccines to children who may be behind and cannot provide a record for whatever reason. The process has streamlined our delivery of immunization services to our families. We do not have to wait for signed releases of medical information to be faxed back and forth when the immunization record is unavailable. Our cumbersome paperwork has diminished greatly. We no longer have to perform tedious statistical analysis at the end of each month. Now with the click of a mouse, the information is compiled. We utilized all aspects of the system and cannot see how we existed without it. My only wish is for all Ohio pediatric providers to catch the IMPACT bug. "

Partnerships with both public and private providers continue to expand in Ohio and the number of immunization histories and patients within ImpactSIIS continues to grow daily. As of July 11, 2008, ImpactSIIS contained 31,047,375 vaccinations recorded for over 7,539,430 patients. 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-old, 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.

Reference

1. http://www.mathematica.com

If you are interested in learning more about ImpactSIIS, please contact the Ohio Department of Health Immunization Program at 614-466-4643 or 1-800-282-0546, or visit http://www.impactsiis.org

Quarterly Summary of Select Reportable Infectious Diseases
Second Quarter, 2008*
March 30, 2008 – June 28, 2008

REPORTABLE CONDITION	QUARTER	YEAR
AMEBIASIS	6	7
CAMPYLOBACTERIOSIS	294	489
COCCIDIOIDOMYCOSIS	4	7
CREUTZFELDT-JAKOB DISEASE	5	5
CRYPTOSPORIDIOSIS	59	113
CYTOMEGALOVIRUS (CMV), CONGENITAL	5	6
ENCEPHALITIS, POST OTHER INFECTION	1	3
ENCEPHALITIS, PRIMARY VIRAL	4	5
E. COLI O157:H7	34	39
E. COLI, SHIGA TOXIN-PRODUCING, NOT O157:H7	1	2
E. COLI, SHIGA TOXIN-PRODUCING, UNKNOWN SEROTYPE	16	26
GIARDIASIS	186	382
HAEMOPHILUS INFLUENZAE, INVASIVE	35	80
HEMOLYTIC UREMIC SYNDROME (HUS)	3	3
HEPATITIS A	14	22
HEPATITIS B, ACUTE	28	60
HEPATITIS B, CHRONIC	405	839
HEPATITIS C, ACUTE	7	9
HEPATITIS C, PAST OR PRESENT	1,681	4,122
HEPATITIS E	0	2
INFLUENZA-ASSOCIATED PEDIATRIC MORTALITY	0	1
KAWASAKI DISEASE	13	19
LEGIONELLOSIS	41	100
LEPROSY (HANSEN'S DISEASE)	1	1
LISTERIOSIS	4	11
LYME DISEASE	1	4
MENINGITIS, ASEPTIC	142	261
MENINGITIS, OTHER BACTERIAL	18	31
MENINGOCOCCAL DISEASE	16	29
MUMPS	5	21
PERTUSSIS	102	450
RHEUMATIC FEVER	0	3
ROCKY MOUNTAIN SPOTTED FEVER (RMSF)	1	1
SALMONELLOSIS	394	593
SHIGELLOSIS	270	432
STAPHYLOCOCCUS AUREUS, INTERMEDIATE RESISTANCE TO VANCOMYCIN (VISA)	0	1
STREPTOCOCCAL DISEASE, GROUP A, INVASIVE	95	185
STREPTOCOCCAL DISEASE, GROUP B, IN NEWBORN	16	30
STREPTOCOCCAL TOXIC SHOCK SYNDROME (STSS)	9	10
STREPTOCOCCUS PNEUMONIAE, INVASIVE, DRUG RESISTANT/INTERMEDIATE (ALL AGES)	120	269
STREPTOCOCCUS PNEUMONIAE, INVASIVE, DRUG SUSCEPTIBLE/UNKNOWN (ALL AGES)	230	513
TOXIC SHOCK SYNDROME (TSS)	1	1
TYPHOID FEVER	1	4
VARICELLA	676	1,491
VIBRIOSIS (NOT CHOLERA)	1	1
YERSINIOSIS	11	21
TOTAL	**4,956**	**10,704**

* 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 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 July 3, 2008.

Source: Ohio Department of Health Infectious Disease Surveillance

Quarterly Summary of Tuberculosis Cases, Ohio

Second Qurter, 2008*

January 1, 2008 - June 30, 2008

	QUARTER	YEAR
TUBERCULOSIS (TB)	58	110

* 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 provisional, but current as of July14, 2008.

Source: Ohio Department of Health TB Surveillance

Quarterly Summary of Sexually Transmitted Diseases, Ohio

Second Quarter, 2008*

January 1, 2008 - June 30, 2008

SEXUALLY TRANSMITTED DISEASES	QUARTER	YEAR
CHLAMYDIA	7,805	19,198
GONORRHEA	2,494	6,771
SYPHILIS	136	322
TOTAL	**10,435**	**26,291**

* 2008 data include only confirmed cases, except for gonorrhea, which includes confirmed and suspected cases reported to the CDC. 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 July 15, 2008.

Source: Ohio Department of Health STD Disease Surveillance

ID Quarterly Announcements
Summer 2008

The ODH Immunization Program will host a 2008 statewide immunization conference entitled, "**Embracing Change, Moving Forward**."

The conference will be held **September 16 and 17** at the Crowne Plaza Hotel on Doubletree Avenue. The Consortium for Healthy and Immunized Communities and the Boonshoft School of Medicine at Wright State University are cosponsors.

Plenary topics:

Pertussis Diagnosis, Testing and Reporting presented by Katalin Koranyi, MD, Nationwide Children's Hospital;

Adolescent Immunizations presented by Andrew Kroger, MD, MPH, Centers for Disease Control and Prevention;

Changes in Childhood Immunizations presented by Michael Brady, MD, Nationwide Children's Hospital;

Communicating Science to the Public: The Vaccine Autism Story presented by Paul Offit, MD from Children's Hospital of Philadelphia;

Vaccine Financing Panel seated by Grace Lee, MD, MPH, Harvard Medical School; Amy Bashforth, ODH, Shannon Ginther, ODH; Sherry Robinson, Olentangy Pediatrics.

Please contact the Immunization Program for registration and other information at (614) 466-4643.

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