Indiana State Department of Health

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Public Health Response to Indiana Tornadoes, 2012

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On March 2, 2012, devastating tornadoes tore through several counties in southern Indiana. Initial responders included local and state public health professionals. The bulk of the damage occurred in District 9, including Clark, Jefferson, Ripley and Scott counties, and Washington County in District 8. In some District 9 counties, multiple locations were badly affected and needed urgent response efforts. Each of these counties reported at least one tornado-related death.

The following are first-hand perspectives from local health departments (LHDs) whose counties were involved in this disaster (Clark, Jefferson, Ripley, Scott and Washington) and from counties not affected but who sent staff to assist, including Dearborn, Floyd, Harrison and Jennings.

The first tornado touched down in Henryville in Clark County on March 2. The Henry County Health Department's multi-disciplinary approach and collaboration with other response partners and volunteers allowed them to address a variety of issues including food and water safety, damage assessment, provision of tetanus vaccinations and dissemination of information to the public. They noted that collaboration with the Medical Reserve Corps and neighboring LHD staff enhanced their ability to respond more effectively. Doug Bentfield, Clark County Environmentalist, noted that some of the most important things in a response are to "have a plan, be prepared, be fluid….flexible….know your partners prior to an event."

Jefferson County Public Health Nurse (PHN), Karen Buchanan, reported that preparing tetanus clinics and going door to door were highly effective in providing comprehensive immunization coverage. She noted, "Everybody wanted to tell their story….people may need some psychological first aid." Karen remarked that their health officer and environmental staff were also onsite offering whatever services were needed. In Ripley County, the Emergency Management Agency was in contact with the LHD prior to the

tornado touching down. Immediately following the tornado, the LHD staff joined forces with the Red Cross at their shelter and addressed public health needs. Patti Hall, Scott County Health Department, summarily noted that "whether we want to or not, we (public health) will be involved in disasters and many times be front and center." The health department proved to be very flexible in providing services throughout the response.

Peggy Scott, Washington County Health Department, noted that the county suffered significant damage to property and devastating loss of life. She went on to say that public health played a crucial role in the response. Their mobile tetanus clinics provided tetanus vaccines and provided emotional comfort to those who suffered losses. Impressed by the influx of volunteers, Peggy reflected that re-establishment of the local planning committee would be helpful to prepare for future responses.

Four of the District 9 counties unaffected by the tornadoes proved to be valuable resources. Dearborn County PHNs Lois Franklin and Debbie Fehling volunteered to provide services and resources needed by neighboring counties. When Floyd County Health Department received word of the disaster, Dr. Thomas Harris, Medical Director, authorized Administrator Charlotte Bass and Environmentalist Jack Travillian to contact Washington County. That first night they transported a trailer full of supplies to Salem and Henryville. Throughout the response, they kept in constant communication with the District 9 preparedness team and LHDs responding to requests for assistance with tetanus vaccinations and registrar services. Harrison County Health Department staff was involved in response efforts with neighbors in Salem. They traveled throughout affected areas, inquiring about injuries, providing tetanus shots and participating in the "One Stop Shop." Their PHN, Jeanine Fonda, observed that it would be very helpful to have the "One Stop Shop" as local as possible. It was also advantageous to exchange after-hours contact information with PHNs from other departments in case of emergency.

Pam Petry, Jennings County Health Department, provided her thoughts on the response effort: "I just felt compelled to help. It could have been us." Ultimately, they assisted Scott, Clark, and Ripley counties, participating in the "One Stop Shop" and provided services including administering tetanus shots, volunteering at vital records and traveling to other counties to provide assistance. Pam concluded, "This was a good chance to evaluate response efforts and the equipment used. It made us consider what we might do in a real event in our county."

Loss of life, serious injuries and large areas of destruction occurred as a result of these two tornadoes. However, many of the responses were organized immediately following the disaster. Public health services were quickly incorporated into the response matrix in a coordinated way. Important aspects of the response included highly effective and immediate efforts by counties affected and collaboration with neighboring LHDs in reinforcement of services.

In evaluating the overall response effort, public health staff identified several strategies, attributes and tactics they viewed as integral to a successful response, including flexibility, spontaneity, training, partnership development, collaboration with neighboring jurisdictions, situational and needs assessments, process evaluation, connectivity with EOC/ICS, communications and inclusiveness.

Acknowledgements:

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Clark County Health Department: Douglas Bentfield, Laura Lindley, Alan Martin, Todd Webb, Drew Roudenbush; **Dearborn County Health Department:** Lois Franklin; **Floyd County Health Department:** Tamyra Spear; **Harrison County Health Department:** Jeanine Fonda; **Jefferson County Health Department:** Karen Buchanan**; Jennings County Health Department:** Pam Petry; **Ripley County Health Department:** Pat Thomas, Holly Rose; **Scott County Health Department:** Patti Hall; and **Washington County Health Department:** Peggy Scott.

Ratio of Controller to Total Asthma Medications in Indiana's Medicaid Population

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Asthma is a common chronic disease which causes lung airways to swell and constrict, leading to shortness of breath, wheezing, chest tightness and wheezing. According to the 2011 Behavioral Risk Factor Surveillance System data, an estimated 9.5 of children in Indiana currently have asthma.[1] The National Heart, Lung and Blood Institute's Guidelines for the Diagnosis and Management of Asthma stress the importance of routine office visits and appropriate use of asthma medications for effective disease management.[2] In Indiana from 2006 to 2010, 24.0% of children with asthma did not see their health care provider for routine visits concerning their condition.[3] Asthma medications are an essential element in controlling daily asthma symptoms and in rescue situations. They are also indicators of asthma control and may predict poor health outcomes, such as emergency department (ED) visits, hospitalizations and, in rare cases, death. This analysis was conducted to assess medication use among Indiana children with asthma and how that influenced use of ED services and health outcomes.

Children aged 17 and younger were identified from Indiana's 2011 Medicaid administrative claims database. This study included children who were continuously enrolled in a Medicaid program for at least 11 months in the calendar year and met the definition of persistent asthma in 2010 and 2011. Persistent asthma was defined as having one or more of the following in the study period: four or more asthma medication dispensing events, one or more ED visit with asthma as the primary diagnosis, one or more hospitalizations with asthma as the primary diagnosis, or four or more asthma-related outpatient visits and two or more asthma medication dispensing events. Statistical analysis included odds ratios (OR), 95% confidence intervals (95% CI), Wilcoxon rank-sum tests and logistic regression.

Most children with persistent asthma have symptom-free periods separated by asthma attacks. Two categories of medications are typically used in asthma care: controller meds to prevent attacks and rescue meds for use during attacks. The use of controller medications varies by asthma severity, type of medication and medication supply. Consequently, tracking the basic count of medications during a calendar year was not

practical. To address this challenge, the Healthcare Effectiveness Data and Information Set (HEDIS) measure called the Asthma Medication Ratio was used.[4]

The controller-to-total asthma medications ratio (AMR) was defined as the sum of controller prescription claims divided by the total number of controller and rescue prescription claims. For the purpose of this analysis, rescue medications were defined as short-acting beta$_2$-agonist (SABA) prescription claims. Children with an AMR of 0.5 or more were classified as high ratio and those with an AMR of less than 0.5 were classified as low ratio. High ratio indicates a greater use of controller medications in relation to all asthma medications, while low ratio indicates a greater use of rescue medications in relation to all asthma medications. For children with persistent asthma, the ideal situation is to use more controller medications than rescue medications.

In 2011, 16,825 Indiana children met the study definition of being continuously enrolled in Medicaid with persistent asthma. Of these children, 46.2% were classified as low ratio. Sex, race and mean age were significantly different between AMR groups with a higher proportion of low AMR children being male (60.0% vs. 58.3%), black (34.5% vs. 25.1%) and younger (mean 8.3 vs. 8.5 years). Low AMR children had a mean of 6.0 SABA prescriptions and high AMR children had 2.6 ($p<0.0001$). The mean AMR for low ratio children was 0.21 and 0.68 for high ratio children.

A total of 3,017 children with persistent asthma had an asthma-related ED visit in 2011. Of these children, 55.9% were considered low ratio. Adjusting for demographic covariates, low AMR children were 1.96 (95% CI: 1.80–2.15) times more likely to have an asthma ED visit than high AMR children. Other predictors of an ED visit in the Medicaid population were living in a metropolitan area (OR: 1.15, 95% CI: 1.02–1.31), black vs. white (OR: 2.32, 95% CI: 2.10–2.56), Hispanic vs. white (OR: 2.07, 95% CI: 1.78–2.41) and age (OR: 0.96, 95% CI: 0.95–0.97).

In 2011, almost half (46.2%) of Indiana's child Medicaid population used more rescue medications than long-term controller medications. This analysis demonstrated that overusing rescue medications is associated with poor asthma-related health outcomes. Having a low AMR nearly doubled the risk of having an asthma ED visit compared to children with a high AMR.

Health care providers, parents, school nurses and day care instructors can all contribute to effective asthma management. High levels of rescue medication use may reveal opportunities for education, support, reassessment or further intervention. Nearly one out of four children with persistent asthma in Indiana is not seeing a health care provider for routine asthma care. Education and increased access to primary care can improve asthma self-management and help children stay out of the ED. Consistent access to prescribed medications, and the correct administration of those medications can minimize negative health outcomes. These strategies coordinated through an asthma action plan can help children with persistent asthma live active, productive lives.

References:

1. Centers for Disease Control and Prevention. (2012a). *Behavioral Risk Factor Surveillance System, 2011*.

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Hepatitis and Baby Boomers

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Viral Hepatitis Prevention Coordinator

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV). HCV infection sometimes results in an acute illness, but typically becomes a chronic condition that can lead to liver damage, cirrhosis, liver cancer and death. Chronic HCV infection is the leading indication for liver transplants in the United States.[1] The five year (2006–2010) age-adjusted mortality rate due to HCV in Indiana is 1.4 per 100,000.[2] Additionally, HCV was indicated as having contributed to 2.8 deaths per 100,000 individuals in Indiana during that same time period.[3]

Confirmation of HCV infection requires specific serologic testing. In 2012, 121 cases of acute hepatitis C infection were reported in Indiana.[4] Since new infections are typically asymptomatic, many acute HCV infections go unreported. While some individuals will clear the virus without treatment or progression to chronic disease, 75–85% of cases will progress to chronic infection. Chronic HCV infections can go unnoticed without discernible signs or symptoms for several decades. The Centers for Disease Control and Prevention (CDC) estimates that 3.2 million individuals in the United States have chronic HCV infection. The infection is most common in "baby-boomers," adults born between 1945 and 1965. While the specific reasons why this age group has the highest rates of HCV are not completely understood, it is believed that the majority were likely infected during the 1970s and 1980s when rates of infection were much higher than they are now.[5]

HCV transmission is most commonly associated with percutaneous exposure to infected blood, such as receipt of blood, blood products or organs prior to 1992, receipt of clotting factors prior to 1987, injection drug use, birth to an HCV-infected mother or needle-sticks in the healthcare setting. Infrequent, but still viable methods of HCV transmission include sex with an HCV-infected individual, sharing personal items, such as razors or toothbrushes, contaminated with infectious blood or healthcare activities that involve invasive procedures.

The CDC recommends that all baby-boomers be screened for HCV infection.[6] Prior recommendations for HCV screening focused on individuals with known risk factors. While testing for HCV, a full viral hepatitis blood panel could also be completed to test for other forms of hepatitis. Although no vaccine exists for HCV, it is recommended that infected individuals be vaccinated for hepatitis A and hepatitis B. Health care providers are encouraged to test this age group and vaccinate when appropriate, as many individuals may not have received vaccinations previously. For more information on hepatitis C and baby boomers, please refer to the CDC fact sheet, *Chronic Hepatitis C: Why Baby Boomers Should Get Tested*.

For additional information about hepatitis in Indiana, contact Brittany Gross at bgross@isdh.in.gov or 317-233-7627.

References:

1. Centers for Disease Control and Prevention. *Viral Hepatitis*. Accessed at http://www.cdc.gov/hepatitis/ on March 5, 2013.
2. Centers for Disease Control and Prevention, National Center for Health Statistics. *Underlying Cause of Death 1999–2010 on CDC WONDER Database*. Accessed at http://wonder.cdc.gov/ucd-icd10.html on March 4, 2013.
3. Centers for Disease Control and Prevention, National Center for Health Statistics. *Multiple Cause of Death 1999–2010 on CDC WONDER Database*. Accessed at http://wonder.cdc.gov/mcd-icd10.html on March 4, 2013.
4. Indiana State Department of Health, Epidemiology Resource Center. *Hepatitis C: Quick Facts.*
5. Centers for Disease Control and Prevention. *Chronic Hepatitis C: Why Baby Boomers Should Get Tested*. Accessed on March 6, 2013 at http://www.cdc.gov/knowmorehepatitis/Media/PDFs/FactSheet-Boomers.pdf
6. Centers for Disease Control and Prevention. *Recommendations for the Identification of Chronic Hepatitis C Virus Infection Among Persons Born During 1945–1965. MMWR* 2012;61(RR04);1-18.

Training Room

INDIANA STATE DEPARTMENT OF HEALTH IMMUNIZATION PROGRAM PRESENTS: *Immunizations from A to Z*

Immunization Health Educators offer this FREE, one-day educational course that includes:

- Principles of Vaccination
- Childhood and Adolescent Vaccine—Preventable Diseases
- Adult Immunizations—Pandemic Influenza
- General Recommendations on Immunization
    - Timing and Spacing
    - Indiana Immunization Requirements
    - Administration Recommendations
    - Contraindications and Precautions to Vaccination
- Safe and Effective Vaccine Administration
- Vaccine Storage and Handling
- Vaccine Misconceptions
- Reliable Resources

This course is designed for all immunization providers and staff. Training manual, materials and certificate of attendance are provided to all attendees. Please see the Training Calendar for presentations throughout Indiana. Registration is required. To attend, schedule/host a course in your area or for more information, please visit http://www.in.gov/isdh/17193.htm**.**

Renewing the Spirit: Refresh, Revitalize, Rejuvenate

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Indianapolis, IN 46240

Presented by:
Indiana State Department of Health
and
St. Vincent Health

Please mark your calendars for the 2013 ISDH Public Health Nurse Conference. Conference information will be sent out via email and highlighted in upcoming issues of Health Officer News, the VacZine and posted on the LHD Resource SharePoint website.

For more information, contact: Dana Greenwood**,** Chief Nurse Consultant, Indiana State Department of Health Immunization Division, 317-233-7560 or dgreenwood@isdh.in.gov.

ISDH Data Reports

The following data reports and the *Indiana Epidemiology Newsletter* are available on the ISDH webpage: http://www.IN.gov/isdh/

HIV/STD/Viral Hepatitis Semi-Annual Report (June 2007–June 2012)	Indiana Mortality Report (1999–2010)
Indiana Cancer Reportss: Incidence; Mortality; Facts & Figures	Indiana Infant Mortality Report (1999, 2002, 1990-2003)
Indiana Health Behavior Risk Factors Report (1999–2010)	Indiana Natality Report (1998–2010)
Indiana Health Behavior Risk Factors (BRFSS) Newsletter (2003–2013)	Indiana Induced Termination of Pregnancy Report (1998–2011)
Indiana Hospital Consumer Guide (1996)	Indiana Marriage Report (1995, 1997-2004)
Public Hospital Discharge Data (1999–2011)	Indiana Infectious Disease Report (1997-2009)
Assessment of Statewide Health Needs (2007)	Indiana Maternal & Child Health Outcomes & Performance Measures (1989–1998, 1990–1999, 1991–2000, 1992–2001, 1993–2002, 1994–2003, 1995–2004, 1996–2005, 1997–2006, 1998–2007, 1999–2008)

HIV Disease Summary

Information as of December 31, 2012*

HIV— without AIDS:

435	New HIV cases from November 1, 2011 thru October 31, 2012	12-month incidence	7.15 cases/100,000
4,888	Total HIV-positive, alive and without AIDS on October 31, 2012	Point prevalence	80.38 cases/100,000

AIDS cases:

392	New AIDS cases from November 1, 2011 thru October 31, 2012	12-month incidence	6.44 cases/100,000
5,800	Total AIDS cases, alive on October 31, 2012	Point prevalence	95.38 cases/100,000

11,914 Total AIDS cases, cumulative (alive and dead) on October 31, 2012

*rates based on Indiana 2000 population

REPORTED CASES of selected notifiable diseases

Disease	Cases Reported in November–December *MMWR* Weeks 44–52		Cases Reported in January–December *MMWR* Weeks 1–52	
	2011	2012	2011	2012
Brucellosis	0	0	0	3
Campylobacteriosis	89	49	640	632
Chlamydia	5,517	28,987*	29,195	28,987*
Cryptococcus	3	5	36	36
Cryptosporidiosis	5	20	76	126
Dengue	0	0	3	1
E. coli, shiga toxin-producing	15	10	85	131
Giardiasis	42	30	320	249
Gonorrhea	1,284	7,207*	6,890	7,207*
Haemophilus influenzae, invasive	28	21	115	106
Hemolytic Uremic Syndrome (HUS)	1	1	13	11
Hepatitis A	7	1	24	13
Hepatitis B	12	12	70	89
Hepatitis C, acute	1	14	65	121
Histoplasmosis	23	38	126	169
Influenza Deaths (all ages)	0	8	24	11
Legionellosis	13	11	69	53
Listeriosis	0	0	11	10
Lyme Disease	5	1	81	62
Malaria	0	0	15	21
Measles (rubeola)	0	0	14	15
Meningococcal, invasive	5	3	24	9
Mumps	1	0	3	4
Pertussis	85	111	335	438

Rocky Mountain Spotted Fever	0	0	3	2
Rubella	0	0	0	1
Salmonellosis	63	65	617	771
Shigellosis	17	6	87	121
Severe *Staphylococcous aureus* in Previously Healthy Person	3	3	14	21
Group A Streptococcus, invasive	29	19	194	174
Group B, Streptococcus, Invasive (All ages)	64	62	335	377
Streptococcus pneumoniae (invasive, all ages)	170	164	799	719
Streptococcus pneumoniae (invasive, drug resistant)	48	49	219	199
Streptococcus pneumoniae (invasive, <5 years of age)	8	11	40	38
Syphilis (Primary and Secondary)	30	221*	168	221*
Toxic Shock Syndrome, streptococcal (STSS)	0	3	8	17
Tuberculosis	20	24	100	102
Tularemia	0	0	0	4
Typhus/Rickettsial disease	0	0	1	1
Varicella	57	111	93	461
Vibriosis	0	0	2	6
West Nile Virus	0	0	11	1
Yersiniosis	0	3	10	10
Animal Rabies	1 (Bats)	0	33 (Bats)	8 (Bats)
Animal Bites	New addition to report	861	New addition to report	6,703

**Provisional aggregate data for 2012*

For information on reporting of communicable diseases in Indiana, call the *Surveillance and Investigation Division* at 317.233.7125.

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Epidemiology Resource Center
2 North Meridian Street, 5 K
Indianapolis, IN 46204
317/233-7125

Cover photo of Cryo-EM reconstruction of a norovirus capsid.courtesy of Dr. B.V.V. Prasad, Baylor College of Medicine, Houston, TX 77030

The *Indiana Epidemiology Newsletter* is published bi-monthly by the Indiana State Department of Health to provide epidemiologic information to Indiana health care professionals, public health officials and communities.