Indiana State Department of Health
Indiana Epidemiology Newsletter

Volume 20, Issue 5 September/October 2012

Influenza in the University Setting

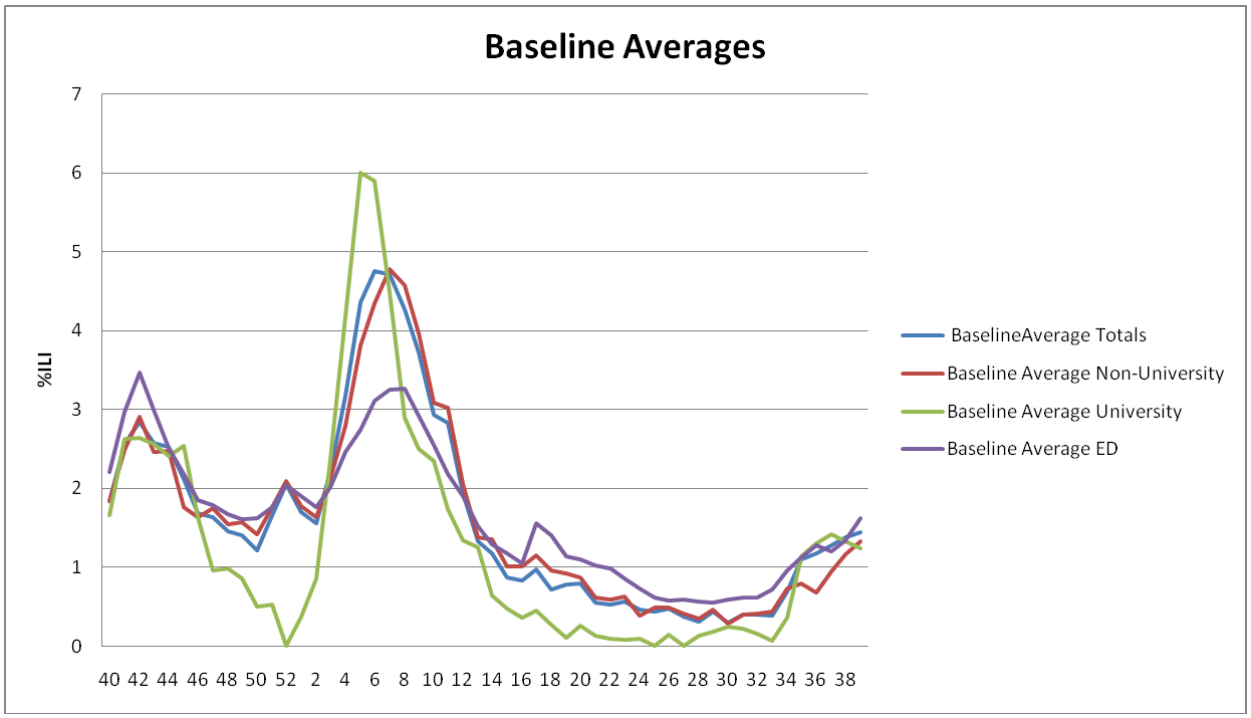
Shawn Richards, BS
Respiratory Epidemiologist

Influenza is a highly infectious, respiratory viral illness associated with high morbidity. The highest rates of complications and hospitalizations occur among young children, people age 65 and older or people with certain medical conditions. Influenza is unpredictable and severity can vary widely from season to season depending on: what flu viruses are spreading, how much flu vaccine is available, when vaccine is available, how many people get vaccinated and how well the available flu vaccine is matched to flu viruses that are causing illness. Between 1976 and 2006, estimates of flu-associated deaths in the United States ranged from a low of about 3,000 to a high of about 49,000 people.

The Indiana State Department of Health (ISDH) investigated whether college students have an increased incidence of influenza compared to the general population using the data provided by participating universities to the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) from 2008 to 2011. For the majority of the seasons, the university influenza-like illness (ILI) rate was higher than in the general population. In addition, the ILI season peaked earlier in the university population than in the non-university population. The ILI season for university students usually began around the same time or slightly before the general population, usually ended before or around the same time as the general population and had a shorter duration than the general population (See Figure 1 for total, university, non-university and emergency department baseline averages for the five-year study period.). Based on these findings, more effort should be made to prevent transmission of ILI among college students.

Recommendations to reduce the rates of influenza in college students include: increasing education about the risk of contracting the disease and the importance of hand washing, increasing rates of students receiving influenza vaccinations and use of social isolation. The recommendation to increase flu vaccination rates in college students is important,

Figure 1. Baseline percentages of influenza-like illness from 2008–2011.



as one national study found that only 20 percent of persons 18 to 34 years of age have been vaccinated. In order to increase the number of students receiving the flu vaccine, it will be necessary to increase marketing of the flu vaccine on campus in such places as the school newspaper, campus fliers, social media, the university website and e-mail. In addition, it is important to reiterate to students ways to decrease the spread of illness to others, such as covering your mouth and nose when sneezing and coughing, frequent hand washing and staying home when ill.

References:

Centers for Disease Control and Prevention. (2010a). *Influenza Vaccination: A Summary for Clinicians.* Retrieved from: http://www.cdc.gov/flu/professionals/vaccination/vax-summary.htm

Centers for Disease Control and Prevention. (2011b). *Key Facts about Influenza (Flu) and Flu Vaccine*. Retrieved from: http://www.cdc.gov/flu/keyfacts.htm

Nichol, K., D'Heilly, S., and Ehlinger, E. (2005). *Colds and Influenza-Like Illnesses in University Students: Impact on Health, Academic and Work*.

INdicators: A public health dashboard for Indiana

Matt Ritchey, DPT, MPH, CDC Epidemiology Advisor
Greg Budney, MPH, Epidemiologist, Division of Nutrition and Physical Activity

ISDH in partnership with the Indiana Hospital Association (IHA) and the Indiana Business Research Council (IBRC) has created INdicators, a publicly available website that will provide the most current Indiana health-related data and information at the state and local levels. The INdicators site, located at indianaindicators.org, contains centralized

public health resources for Indiana and its local areas, and feature data on more than 90 key indicators, including Community Health, Economy, Education, Environment, Government and Politics, Public Safety and Transportation. This data will also be broken out (as available) by age, race, ethnicity, sex and socioeconomic status and will be tracked over time to better understand trends and to evaluate public health interventions.

The data and information on the INdicators site can be used to help perform community health needs assessments (CHNA) and guide development of community health improvement plans (CHIP). Not-for-profit hospitals and local health departments applying for national accreditation are required to conduct both of these activities to meet their community benefit requirements. Most importantly, these data and efforts can help drive individual- and population-level improvements in health.

As the INdicators site continues to develop, it will offer visitors the ability to compare state and local indicator values to state and national goals reflecting in the Indiana State Health Improvement Plan (I-SHIP), other state health plans, Healthy People 2020 and other nationally- or state-accepted measures. INdicators will also provide links to I-SHIP, state plans, vetted CHNA and CHIP guidance and other resources. These resources include evidence-based activities that a community can implement based on its health needs assessment as well as a current health-related newsfeed corresponding to each indicator page.

INdicators will provide access to Healthy Demographics Profiles that include additional data for all Indiana counties, the state of Indiana, health preparedness districts and Indiana metropolitan areas and has the ability to compare up to 13 counties in a side-by-side table format. INdicators also has built-in mapping options that allows for thematic viewing of data for Indiana counties, townships and/or school districts.

INdicators is designed to be a user-friendly site where individuals and communities can gather data and resources. To ensure it is serving this purpose, online interaction, such as user surveys and polls, for website users to provide constructive feedback will be developed.

The initial INdicators website, including access to all of the key indicator values, was launched in December. Additional functionality of the site will be incorporated over time and will include features requested by users of the sites through its online interaction. INdicators is funded by a cooperative agreement from the Centers for Disease Control and Prevention. For more information, please email INdicators@isdh.in.gov.

Investigating Cancer Clusters in Indiana

Amanda Raftery, MPH, RD, CD
Epidemiologist, Cancer Section

Every year, ISDH receives multiple calls and letters from citizens who believe there is a high rate of cancer in their neighborhood, workplace or community. A cancer cluster investigation is opened when the ISDH receives a personal letter, email, phone call, referral or when internal surveillance findings warrant. Investigations are formally opened and conducted by the cancer epidemiologist who receives all inquiries regarding

cancer clusters. A formal protocol is in place where a series of steps direct the investigative process according to findings.

Definition

A cancer cluster is when more than the expected number of people within a specific group, geographic area or defined period develops the disease.

Identification

Certain criteria may strengthen the belief that cancer among a group of people could be part of a cancer cluster. A true cluster may exist if it involves one or more of the following:

- A large number of people with one kind of cancer, rather than several different kinds.
- A rare kind of cancer, rather than common cancers.
- An increased number of people having cancer in an age group that is not usually affected by cancer.

A group of people, especially older people, who have many different kinds of cancer developing over a period of many years, is not likely to be a true cancer cluster. Also, cancer is very unlikely to be caused by just one single environmental factor or exposure. Facts to think about when looking at possible cancer clusters include:

- Cancer is a common disease, with two out of five people developing some form over their lifetimes.
- True cancer clusters are rare. Most well-documented cancer clusters have been associated with specific workplace exposures, rather than environmental exposures in residential neighborhoods.
- Lung, skin and bladder cancers are cancers most often linked with high-level exposure to workplace carcinogens.
- Cancers such as leukemia, lymphoma, testicular and brain cancer sometimes occur in clusters.

Challenges

Since several criteria must be met to prove that cancers did not occur by chance, cancer cluster investigations are often complex and difficult. In many circumstances, a suspected cluster may not have enough reported cases of cancer to allow investigators to derive meaningful conclusions. Secondly, the exposure to cancer-causing agents may have occurred many years before cancer appeared, in different locations or in varying degrees. A third challenge that investigators face is that causative agents and risk factors or multiple causative agents may interact in a way that science does not yet understand. The interaction of genetics and environmental factors may provide further challenges to assessing the existence of cancer clusters.

For more information

- For links to resources about cancer clusters in general, as well as information about

cancer registries and publications on cancer clusters, visit http://www.cdc.gov/nceh/clusters/links.htm.

- For an extensive overview of cancer clusters, visit the National Cancer Institute (NCI) Cancer Cluster website at http://www.cancer.gov/cancertopics/factsheet/Risk/clusters.
- NCI has also collaborated with the National Institute for Environmental Health Sciences to publish Cancer and the Environment: What You Need to Know, What You Can Do. This booklet addresses concerns about the connection between cancer and exposure to toxic substances in the environment.

Standardization of Race, Ethnicity and Language Data Collection

Adrienne Durham, MPH
Health Disparities Epidemiologist

The purpose of collecting standardized race, ethnicity and language data (REL) is to decrease health disparities and increase health equity by addressing the following areas:

- Measurement of health care outcomes
- Identification of gaps in care, disease trends and mortality
- Delivery of services that meet the needs of the community
- Allocation of resources to improve or expand services
- Delivery of quality care

Ensuring the delivery of high-quality, patient-focused care requires understanding the needs of the populations served. Many health systems, organizations and agencies collect REL data. However, there are no uniform or standard practices for collecting, coding and reporting this data. Although the presence of REL data does not guarantee public health action, the lack of standardized REL data has been identified as an obstacle to the effective collection and use of this data. Evidence indicates that health varies by REL, and the collection of quality metrics increases the potential for improved quality of care and greater equity.

Standardized REL data collection is a specific method of collecting, recording and reporting and is the same across all areas of the health care system. Standardization involves electronic data collection, recording and reporting. An electronic system decreases errors and provides easier data storage and linkage across systems. Standardization of REL data collection results in information that is accurate, comparable and consistent.

- **Accurate.** REL data consists of information provided by the patient (self-reported) or their caregivers, rather than the staff observing and assuming that this information can be interpreted just by looking at the individual.
- **Comparable.** REL data describes information that is uniform and can be looked at over time and across the health care system.
- **Consistent.** REL data involves asking questions of each patient or caregiver in the same way each time, using the same questions and response categories for each individual.

Standardized REL data collection involves three main components. First, REL questions are asked in the same manner to all patients or their caregivers to ensure that data will be consistent over time and across systems. Secondly, REL data needs to be provided by an individual or their caregiver. It is not possible to properly collect this information by looking at someone. Data from third-party visual inspection is at risk for biased determination based on assumptions regarding physical appearance, surname and geographical location. Finally, effective REL data collection involves using the same Office of Management and Budget (OMB) categories for race, ethnicity and language across all health care systems. The OMB minimum categories for race are: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander and White. The OMB minimum categories for ethnicity are: "Hispanic or Latino" and "Not Hispanic or Latino." More granular data such as tribal affiliation or country of origin may be collected as well.

Section 4302 of the Affordable Care Act requires the U.S. Department of Health and Human Services to establish data collection standards for race, ethnicity, sex, primary language and disability status. The OMB minimum categories for race and ethnicity are to be used in all national population health surveys. Respondents may choose more than one race if they wish to do so. There is no multiracial category. The collection of additional granular data is encouraged, as long as it can be aggregated back to the minimum race and ethnicity categories. The minimum data standards for English proficiency and language spoken other than English, as well as data standards for disability, are based on the U.S. Census Bureau, American Community Survey (ACS).

To obtain more information on race and ethnicity go to the PBS webpage: Race—The Power of Illusion, Sorting People. http://www.pbs.org/race/002_SortingPeople/002_00home.htm

References:

Ulmer, C., McFadden, B. and Nerenz, D. (2009). *Race, Ethnicity, and Language Data: Standardization for Health Care Quality Improvement*. Washington, DC: National Academies Press.

Hasnain-Wynia, R., Pierce, D., Haque, A., Hedges Greising, C., Prince, V., Reiter, J. (2007) *Health Research and Educational Trust Disparities Toolkit*. Retrieved on 10/05/12 from http://www.hretdisparities.org/Tool-4205.php.

U.S. Department of Health and Human Services. (2011). Implementation Guidance on Data Collection Standards for Race, Ethnicity, Sex, Primary Language, and Disability Status. Retrieved on 10/05/12 from http://aspe.hhs.gov/datacncl/standards/ACA/4302.

Cryptosporidiosis

Robert Allen, MPA
ISDH Field Epidemiologist, District 7

Cryptosporidiosis (krip-tō-spȯr-i-dē-ˈō-səs) is an infection of the small intestine caused by a microscopic parasite, Cryptosporidium, which lives in the intestine of humans and animals. As the parasite reproduces, it is then shed through the feces. Cryptosporidium has a protective outer layer that enables it to live outside the host. It is resistant to chlorinated water and difficult to remove by many filters and can survive in the environment for many months. Transmission occurs by ingesting the stool of infected

individuals or animals. Once the parasite is ingested, it travels to the small intestine, burrows into the walls of the intestine and begins its reproductive cycle.

Once an individual is infected by the parasite, symptoms usually take two to seven days to develop. The usual symptoms are watery diarrhea, dehydration nausea, vomiting, stomach cramps or pain, fever and possible weight loss. Complications include malnutrition resulting from poor absorption of nutrients from the intestinal tract, severe dehydration, significant weight loss and possible inflammation of a bile duct, liver, gallbladder, liver or pancreas. Some people with cryptosporidiosis will not exhibit symptoms at all, but most healthy individuals will experience watery diarrhea for one to two weeks. The symptoms may occur in cycles in which the ill individual will feel better for a few days and then will feel worse again before recovery. Individuals who have severely weakened immune systems due to HIV/AIDS or cancer have a higher risk of developing a more serious illness and may develop a chronic persistent form of the disease that may be difficult to treat. Laboratory testing, such as direct fluorescent antibody (DFA), polymerase-chain reaction (PCR) or ova and parasite (O&P) testing is used to confirm the presence of Cryptosporidium in stool.

Most people with healthy immune systems will recover from the disease without receiving any treatment if they prevent dehydration by drinking adequate amounts of fluid. For individuals with healthy immune systems, the Food and Drug Administration has approved nitazoxanide (Alinia), by prescription, for the treatment of cryptosporidiosis. Azithromycin (Zithromax) may also be prescribed in conjunction with nitazoxanide for those who have weakened immune systems. Individual with HIV/AIDS may be prescribed anti-retroviral therapies to help restore the immune system and boost the immune response. Anti-motility agents such as Imodium A-D may be taken, but consult a health care professional before administration.

Increased outbreaks of cryptosporidium have occurred over the last two decades. Due to the parasite's low infectious dose, resistance to chlorine disinfection and small size capable of eluding common water filtration systems, chlorine swimming venues (e.g., pools, spas, water parks and interactive fountains) have become a leading source of outbreaks. Lakes and ponds are also a common source of outbreaks. Farm animals, cats and dogs can carry this parasite even though they may not exhibit symptoms. An individual can become infected by swallowing, drinking or swimming in contaminated water. Eating contaminated foods, touching contaminated inanimate surfaces or close contact with infected individuals can also lead to infection. An individual may also be infected by mists or aerosols from contaminated recreational water.

Good hygiene practices are the primary means of reducing the risk of becoming infected with Cryptosporidium:

- Wash hands with soap and water after using the toilet, changing diapers, handling animal waste or providing care for someone with diarrhea. Alcohol-based hand sanitizers are not effective against preventing the disease.
- Do not swallow or drink water from recreational pools, lakes or ponds.
- Thoroughly wash raw vegetables and fruits.
- Do not swim in recreational waters for two weeks after experiencing diarrhea.

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

2013 ISDH Public Health Nurse Conference

May 9-10, 2013
Sheraton Indianapolis Hotel at Keystone Crossing
8787 Keystone Crossing
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. Online registration and draft agenda will be made available in March 2013. 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.

Evidence Based Public Health: A Course in Chronic Disease Prevention

March 11-13, 2013
8 a.m. to 5 p.m.
IU Ruth Lilly Medical Library at IUPUI

Presented by:
Indiana State Department of Health
and
Indiana Public Health Training Center

Evidence Based Public Health: A Course in Chronic Disease Prevention is a national three-day course developed for public health practitioners. A key aim is to increase the use of scientific approaches in public health programs and policies. Highlighting the linkages between data systems and program/policy initiatives, participants will learn how to access and interpret existing data systems and methods of using data to affect specific policies or decision-makers. The course is designed to assist participants in integrating new and existing skills to make evidence-based program and policy decisions. The tools offered are also vital to good grant writing. The course takes a "hands-on" approach and emphasizes information that is readily available to busy practitioners. Sessions include:

- Community Assessments
- Quantifying Issues
- Developing Statements of the Issue
- Searching Scientific Literature
- Developing and Prioritizing Options
- Economic Evaluations
- Developing Action Plans
- Evaluating Programs and Policies

The course fee of $100 covers materials, food and beverage each day and daily parking. Register early, as space is limited! To register, visit www.publichealthconnect.org and click on "IPHTC Events.

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 (2003–2012)	Indiana Induced Termination of Pregnancy Report (1998–2011)
Indiana Hospital Consumer Guide (1996)	Indiana Marriage Report (1995, 1997-2004)
Public Hospital Discharge Data (1999–2010)	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 October 31, 2012*

HIV— without AIDS:

421	New HIV cases from November 1, 2011 thru October 31, 2012	12-month incidence	6.92 cases/100,000
4,846	Total HIV-positive, alive and without AIDS on October 31, 2012	Point prevalence	79.70 cases/100,000

AIDS cases:

387	New AIDS cases from November 1, 2011 thru October 31, 2012	12-month incidence	6.36 cases/100,000
5,787	Total AIDS cases, alive on October 31, 2012	Point prevalence	95.17 cases/100,000

11,899 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 September–October *MMWR* Weeks 35–43		Cases Reported in January–October *MMWR* Weeks 1–43	
	2011	2012	2011	2012
Brucellosis	0	0	0	3
Campylobacteriosis	72	142	473	582
Chlamydia	5,249	28987*	21,148	28,987*
Cryptococcus	6	6	33	31
Cryptosporidiosis	0	17	50	106
Dengue	0	0	3	1
E. coli, shiga toxin-producing	0	20	47	121
Giardiasis	3	60	192	217
Gonorrhea	1,282	7,207*	5,097	7,207*
Haemophilus influenzae, invasive	12	10	87	85
Hemolytic Uremic Syndrome (HUS)	3	1	13	10
Hepatitis A	0	4	13	12
Hepatitis B	12	11	57	76
Hepatitis C, acute	5	15	55	100
Histoplasmosis	21	42	98	130
Influenza Deaths (all ages)	0	0	24	3
Lacrosse encephalitis	0	0	3	3
Legionellosis	20	22	54	42
Listeriosis	3	6	8	10
Lyme Disease	2	6	45	60
Malaria	0	2	15	21
Measles (rubeola)	0	0	14	15
Meningococcal, invasive	6	6	18	6
Mumps	2	2	2	4

Pertussis	85	106	238	327
Rocky Mountain Spotted Fever	0	0	1	2
Rubella	0	0	0	1
Salmonellosis	65	140	376	705
Shigellosis	2	20	49	115
Severe *Staphylococcous aureus* in Previously Healthy Person	2	2	11	18
Group A Streptococcus, invasive	20	20	166	155
Group B, Streptococcus, Invasive (All ages)	48	51	275	348
Streptococcus pneumoniae (invasive, all ages)	89	99	621	555
Streptococcus pneumoniae (invasive, drug resistant)	25	31	166	150
Streptococcus pneumoniae (invasive, <5 years of age)	6	8	31	27
Syphilis (Primary and Secondary)	30	221*	140	221*
Toxic Shock Syndrome, streptococcal (STSS)	0	1	8	14
Tuberculosis	12	17	80	78
Tularemia	0	0	0	4
Typhus/Rickettsial disease	0	0	1	1
Varicella	14	14	93	174
Vibriosis	0	0	2	6
West Nile Virus	0	21	11	77
Yersiniosis	0	1	10	7
Animal Rabies	11 (Bats)	1 (Bat)	32 (Bats)	20 (Bats)
Animal Bites	New addition to report	1109	New addition to report	5755

**Provisional data for 2012*

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

Indiana State Department of Health
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.