



# Epidemiology and Morbidity

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## SPECIAL POINTS OF INTEREST:

- Cover Story by Guest Writer, Dr. Larry Figgs
- January Morbidity Report
- Using GIS in Public Health and Epidemiology
- National Salmonella Outbreak

## INSIDE THIS ISSUE:

Morbidity Report	2
Salmonella Outbreak	3
Epi during WEG Games	3
GIS in Public Health	3
Confirming Influenza	4

## SURVEILLANCE: Focus On Your Purpose

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Epidemiologic disease surveillance is a discipline that serves the assessment and policy core public health functions. Without it, practitioners could not answer some very basic questions: What is the disease? Who has it? When did it first occur? How intense is the occurrence? How prevalent is the occurrence? How long has it been since the first occurrence? Where did it first occur? Where is it occurring now? Responding to these disease surveillance efforts requires a precise and concise statement of the surveillance organization's vision, mission, goal(s), and objective(s). Without understanding how these elements are integrated, most diseases surveillance systems will fall short of their ideals and objectives.

**Stating the vision.** The vision statement should be based on future surveillance needs and how the organizations will organize to meet the future challenges. A vision statement (document) assesses the emerging threat, its impact, state a rational for taking this action, why it is important, and describe how the organization will organize to meet the threat. It may also describe how the current organization's mission may have to change. For example, if an agency practitioners concludes that rapidly moving pandemics will be an important future threat, they must state how the organization must change (fast, flexible, fully integrated, all electronic, etc.) to meet that threat and restate their mission if needed. An example of a new mission might read as follows: Become a fast, flexible, fully integrated, and all electronic information gathering, analysis, and dissemination network to meet the future needs of the population we serve.

**Stating the mission:** The mission statement articulates what the agency will do and how the agency will meet its surveillance assurance and policy development responsibilities.

**Stating the goal:** The surveillance goal should be precise, encompass the overall outcome, and measurable. A simple goal may be to decrease infectious disease morbidity by a specific amount.

**Stating the objective:** The surveillance objective should be precise, outcome specific, and measurable. A simple objective, based on the above goal, would be to decrease measles incidence by a specific amount.

How do local health agencies aid their community's disease surveillance efforts? Initially, by initiating these four steps and committing resources to the process. Every participant must determine how to integrate their resources with the community wide effort to assess disease trends. Each agency must identify what is the most important resource they have to aid the surveillance. For some it will be financial and human resources. For others it may be data collection, for others data analysis, and for others dissemination and communication.

The Lexington-Fayette County's monthly morbidity report summarizes the county's reportable, communicable diseases. Its leadership envisions a health department that is constantly evolving to meet tomorrow's and today's reportable infectious disease threats. Without this surveillance, reportable disease assessment, planning, and policy development would be inefficient and slow to respond to meet the challenges the County is facing and will face in future years. Furthermore, with specific benchmarks in mind, the department developed a "report card" to determine if reportable disease outcome goals were met. Self assessments, like report cards, would not be less effective without surveillance. Finally, this very surveillance is not the efforts of a single agency. Instead, it represents a network of agencies with similar vision, mission, goals, and objectives. It represents the efforts of agencies integrated to produce a document that serves the county, the state, and the nation. The morbidity reports are possible because local, state, and federal government developed policies to make many surveillance activities (recording, analysis, & dissemination) possible by passing statutes and supporting those statutes with revenue streams.

The morbidity and mortality report is a template for what future morbidity reporting will be in Fayette County. However, to produce similar reports for other outcomes important to this community, other agencies, institutions, and businesses must step forward and commit resources to meet future surveillance challenges.

		Month Total, 2008	Month Total, 2009	YTD 2008	YTD Rate 2008	YTD 2009	YTD Rate 2009	Rate Change
Vaccine Preventable Diseases	Diphtheria	0	0	0	0.0	0	0.0	---
	Influenza	2	2	2	0.8	2	0.8	---
	Pertussis	1	2	1	0.4	2	0.8	↑
	Tetanus	0	0	0	0.0	0	0.0	---
	Measles	0	0	0	0.0	0	0.0	---
	Mumps	0	0	0	0.0	0	0.0	---
Enteric Diseases	Salmonellosis	4	0	4	1.5	0	0.0	↓
	Shigellosis	1	0	1	0.4	0	0.0	↓
	Campylobacteriosis	0	1	0	0.0	1	0.4	↑
	<i>E. coli</i> O157:H7	0	0	0	0.0	0	0.0	---
Viral Hepatitis	Hepatitis A	1	0	1	0.4	0	0.0	↓
	Hepatitis B, acute	1	0	1	0.4	0	0.0	↓
	Hepatitis C, acute	0	0	0	0.0	0	0.0	---
Myco- bacterial Diseases	Pulmonary TB	0	0	0	0.0	0	0.0	---
	Extrapulmonary TB	1	0	1	0.4	0	0.0	↓
	Myco, other than	1	1	1	0.4	1	0.4	---
Rabies	Human Rabies	0	0	0	0.0	0	0.0	---
	Animal Rabies	1	3	1	---	3	---	---
	Animal Bites	61	66	61	23.4	66	25.3	↑
Sexually Transmitted Diseases	1° & 2° Syphilis	1	0	1	0.4	0	0.0	↓
	Early Syphilis	4	0	4	1.5	0	0.0	↓
	Gonorrhea	68	57	68	26.1	57	21.9	↓
	Chlamydia	91	176	91	34.9	176	67.6	↑
	HIV	5	*	5	1.9	*	---	---
Sentinel Surveillance Syndromic and School/University Health	Conjunctivitis	62	85	62	23.8	85	32.6	↑
	Enteroviral diarrhea	975	456	975	374.3	456	175.0	↓
	5th Disease	31	13	31	11.9	13	5.0	↓
	Impetigo	1	3	1	0.4	3	1.2	↑
	Mononucleosis	13	15	13	5.0	15	5.8	↑
	Pediculosis	89	64	89	34.2	64	24.6	↓
	Pneumonia	23	12	23	8.8	12	4.6	↓
	Ringworm	34	21	34	13.1	21	8.1	↓
	Scabies	16	15	16	6.1	15	5.8	↓
	Streptococcal	376	130	376	144.3	130	49.9	↓
	Rash	43	54	43	16.5	54	20.7	↑
	Gastrointestinal	692	686	692	265.6	686	263.3	↓
	Respiratory	837	690	837	321.3	690	264.9	↓
	Influenza-like	15	124	15	5.8	124	47.6	↑

# National Outbreak touches Fayette County



In January, the Lexington-Fayette County Health Department was notified of a case of salmonellosis in a Fayette County resident that was linked to a national outbreak.

As of mid-January, 434 people

across 43 states were linked to the outbreak, including 3 in Kentucky. While the exact source of the outbreak is still under investigation by the CDC, King Nut Companies, a distributor of peanut butter manufactured by Peanut Corp. of America, has issued a voluntary recall that affects many name-brand products made with peanut butter.

However, the peanut butter under voluntary recall is distributed in bulk, and to date, no association has been found with jars of common peanut butter found in gro-

cery stores.

Salmonellosis is a bacterial illness that most commonly affects the gastrointestinal tracts of infected individuals. The illness is typically self-limited, lasting 4-7 days, and most people recover on their own with no long-term effects.

For more information on the outbreak and the most current list of recalls, please visit [www.cdc.gov](http://www.cdc.gov) and [www.fda.gov](http://www.fda.gov).

**“Fayette County will have a unique opportunity... to develop community ties for the early recognition of disease...”**

## Epidemiology during the World Equestrian Games

Fayette County will have a unique opportunity in 2010 to expand upon its understanding of epidemiology and to develop community ties for the early recognition and notification of disease in our community.

The 2010 Alltech FEI World Equestrian Games is expected to bring to Fayette County more than 600,000 visitors and attendees. In addition,

horses from around the world will be arriving to participate in the games. This huge influx of people and animals not indigenous to Fayette County could allow for a significant rise in diseases commonly found in Fayette County as well as the appearance of disease not endemic to our area.

In preparation for this the Lexington-Fayette County Health Depart-

ment is advancing its capability in syndromic surveillance to aid in the early detection of possible increases in disease as well as developing community ties that will exist well beyond 2010.

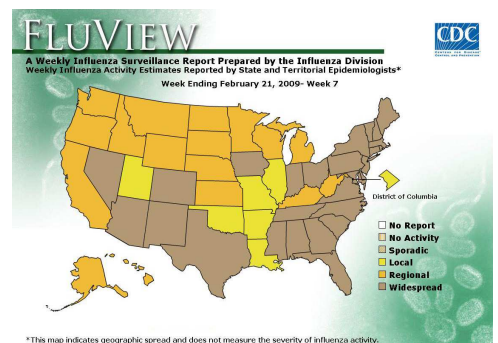
## GIS in Public Health

The use of geographical information systems (GIS) is a relatively new and technologically advanced way of displaying public health information over a geospatial area. For instance, the use of GIS allows the Centers for Disease Control and Prevention (CDC) to visually monitor the spread of influenza across the United States (Fig. 1).

However, the use of maps to investigate disease is not a new concept. In 1854, John Snow, considered by many as the father of epidemiology, mapped cholera cases across city blocks of London, England, in relation to sources of water. Noting a clustering of cases near the Broad Street water pump, Snow removed the pump handle, and is credited with ending the cholera outbreak of

1854.

In 1854, mapping gave evidence of a source to an outbreak and GIS in the 21st-century gives us insight in the transmission of disease over much larger areas.



**Fig. 1: Influenza in the US.**  
Map developed and maintained by CDC ([www.cdc.gov](http://www.cdc.gov))



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The Lexington-Fayette County Health Department's (LFCHD) unit of Epidemiology plays a vital role in monitoring, preventing, investigating and controlling infectious and communicable diseases in Fayette County. In Kentucky, health care providers and laboratories are required by law to report infectious and communicable diseases to the local health department serving the jurisdiction in which the patient resides. Each reported disease requires an investigation by the Epidemiology unit to determine a source of infection, whether additional individuals need to be contacted, and to provide education to the patient regarding their illness.

For a complete listing of reportable diseases, reporting requirements, or for consultation on communicable disease issues, please contact the Epidemiology unit at 859-231-9791, Monday-Friday, 8-4:30pm. For after hour emergencies, please call 859-335-7200.

“Caring for the Community”

[www.lexingtonhealthdepartment.org](http://www.lexingtonhealthdepartment.org)

# Confirming Influenza

The influenza virus affects 5-20% of the US population every year; requiring more than 200,000 hospitalizations and causing the deaths of about 36,000 Americans. The best way to prevent the flu is to receive a yearly vaccination which the health department offers at all of its clinic sites.

Influenza is a reportable disease in Kentucky and the surveillance of influenza across the US aids in determining the most common circulating strain of the virus. Each year this surveillance aids in the development

of the flu vaccine for the coming year by updating the vaccine to include the viral strains most likely to circulate in the upcoming flu season.

In Kentucky, a viral cul-

ture is required to confirm infection with the influenza virus.

To help with the development of vaccine and to determine the burden of influenza in Fayette County, the Lexington-Fayette County Health Department strongly recommends and encourages that a nasopharyngeal swab be obtained and submitted for viral culture.

A limited number of viral culture kits are available from the health department at no cost to the provider. These kits include all supplies required for obtaining, preparing, and mailing the specimen for testing at the Kentucky State Public Health Laboratory in Frankfort, Kentucky.

To request a viral culture kit, please call 859-231-9791.

For questions related to influenza and reporting requirements of this disease, please call 859-231-9791.

**“In Kentucky, a viral culture is required to confirm infection with the influenza virus.”**

