



Epidemiologic Notes & Reports

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National Molecular Subtyping Network for Foodborne Disease Surveillance and National Antimicrobial Resistance Monitoring System in the Public Health Laboratory

Karim George, Microbiologist, Division of Laboratory Services

Both the National Molecular Subtyping Network for Foodborne Disease Surveillance (PulseNet) as well as the National Antimicrobial Resistance Monitoring System (NARMS) play critical roles in the tracking of foodborne outbreaks (PulseNet) and identifying patterns of emerging resistance (NARMS). But for either of these networks to be effective it is essential to enlist the help of doctors, hospital labs and health departments to submit their *Escherichia coli* O157, *Escherichia coli* shiga toxin positive, Salmonella, Shigella and Listeria isolates for confirmation and additional testing. It is important to send these isolates to the Kentucky Department for Public Health, Division of Laboratory Services as soon as possible to help aid in epidemiological investigations of outbreaks across the state and nation.

PulseNet is the Center for Disease Control and Prevention's (CDC) network of public health laboratories that perform a DNA "fingerprinting" method, pulsed-field gel electrophoresis (PFGE) on foodborne bacteria. PFGE data is not used for individual patient diagnostic purposes, but rather in conjunction with clinical, microbiological and epidemiologic information, as an investigational tool. The data provided by the PulseNet network allows for rapid comparison of the fingerprint patterns through an electronic database. This then allows for rapid recognition and timely investigation of an outbreak, thus reducing the severity and extent of a particular outbreak. PulseNet participants include all fifty public health labs, as well as seven Federal Drug Administration (FDA) labs, and the United States Department of Agriculture's (USDA) Food Safety Inspection Service laboratory.

NARMS works in collaboration with the CDC, FDA, and the USDA. The purpose is to provide information about patterns of emerging antibiotic resistance in foodborne pathogens such as *Escherichia coli*, Salmonella, Shigella and Listeria. This data can then be used to assist in outbreak investigations. Also, because antimicrobial use in food-producing animals may result in antimicrobial resistant pathogen transmission to humans

via the food supply, this data can be used to develop public health regulatory policy for antimicrobial use in these animals. Fifty state and four local public health labs currently participate in NARMS.

The success of both of these programs, PulseNet and NARMS, rely heavily on a partnership between doctors and hospitals, the public health lab, Division of Epidemiology and Health Planning and the CDC. To work effectively it is critical to receive all *Escherichia coli* O157, *Escherichia coli* shiga toxin positive, Listeria, Salmonella and Shigella isolates in a timely manner, especially when tracing an outbreak. If the lines of communication are open and participation is high it can lead to a safer food supply, a healthier public, and a system that works. Mailing and contact information for the Division of Laboratory Services is on page 6.

Acknowledgements:

Information for this article was taken from the CDC websites:
www.cdc.gov/pulsenet and www.cdc.gov/narms

Kentucky Influenza Surveillance 2003-2004

Peggy Dixon, RN, CIC

Division of Epidemiology and Health Planning

The Kentucky influenza surveillance network has four essential components that allow for collecting information and reporting to the Centers for Disease Control and Prevention (CDC). The information from the last three sources listed below is reported to the State Influenza Surveillance Coordinator, and is used to determine weekly influenza activity statewide, which is reported to the CDC.

- 122 Cities Mortality Reporting System— Information is obtained from death certificates, indicating influenza/pneumonia as the cause of death. Lexington is the only Kentucky city in this system.
- Sentinel Health Care Providers
- Sentinel Local Health Departments
- Laboratories

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Kentucky Influenza Surveillance 2003-2004

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CDC broadened the laboratory confirmed case definition to include rapid diagnostic positive test results for the purpose of determining the state's activity status each week.

CDC Definitions:

- Lab confirmed case — case confirmed by rapid diagnostic test, antigen detection, culture, or PCR.
- Institution — includes facility (or group of facilities) such as a nursing home, hospital, prison, school, etc.
- Influenza-like illness (ILI)—illness characterized by a fever greater than 100 degrees Fahrenheit, and cough or sore throat, with no other known cause. (ILI activity can be assessed using a variety of data sources including sentinel providers, school/workplace absenteeism, and other syndromic surveillance systems.)
- Region — a geographical subdivision of a state defined by the state department of health. (In Kentucky, Area Development Districts are used.)

During the 2003-2004 season, October 2003 through May 2004, the Surveillance and Health Data Branch received 564 laboratory confirmed isolate/culture reports on patients from 77 counties. They also received 2,905 positive influenza rapid diagnostic test results on patients from 98 counties. The Division of Laboratory Services (DLS), state public health laboratory, confirmed 328 of the 564 culture confirmed cases. They received 620 specimens for culture confirmation from providers and hospitals in 71 counties. The results were: Type A-8; Type A/Panama-like H3N2-309; Type A/Korea/770/2002-like (H3N2)-11; Type B-0; Adenovirus-4; ECHO (9)-1; Herpes-2; Pending-4; duplicates-12 and 269 negative.

Twenty-five specimens were forwarded to CDC for analysis. As of the writing of this article, 14 specimens were still pending. Eleven are A/Korea/770/2002-LIKE (H3N2), which is similar to the A/Fujian/411/2002 reference virus. An A/Fujian/411/2002-like virus was recommended by the World Health Organization (WHO) as the H3 component

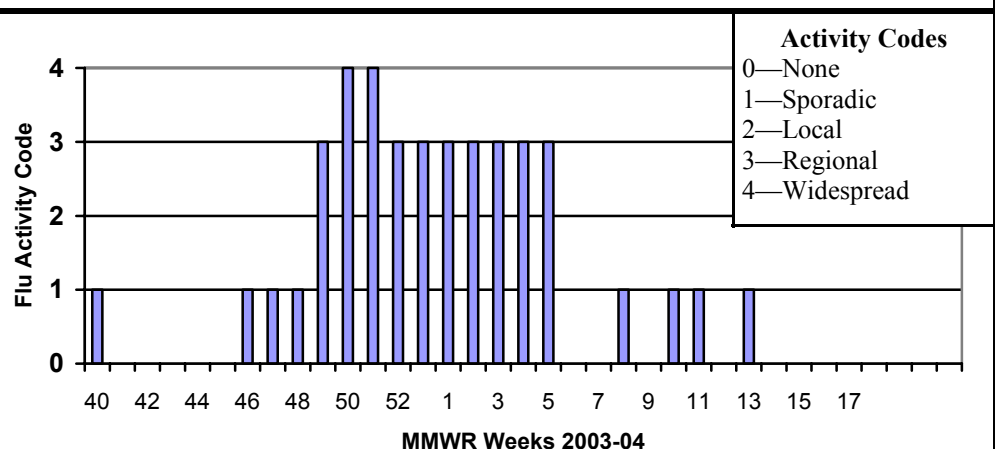
for the 2004 Southern Hemisphere vaccine and the 2004-2005 Northern Hemisphere vaccine.

CDC's Activity Levels and Definitions for Influenza Activity:

- 0 **No activity** —no ILIs or lab confirmed cases.
- 1 **Sporadic** —isolated cases of lab confirmed influenza in the state, ILI activity is not increased; **OR** lab confirmed outbreak in a single institution in the state; ILI activity is not increased.
- 2 **Local activity** —increased ILI within a single region **AND** recent (within the past 3 weeks) laboratory evidence of influenza in that region. ILI activity in other regions is not increased. **OR** two or more institutional outbreaks (ILI or lab confirmed) within a single region and recent lab confirmed influenza in that region.
- 3 **Regional activity** — increased ILIs in ≥ 2 but less than half of the regions **AND** recent (within the past 3 weeks) lab confirmed influenza in the affected regions **OR** institutional outbreaks (ILI or lab confirmed) in ≥ 2 and less than half of the regions **AND** recent lab confirmed influenza in the affected regions.
- 4 **Widespread activity** — increased ILI and/or institutional outbreaks (ILI or lab confirmed) in at least half of the regions **AND** recent (within the past 3 weeks) lab confirmed influenza in the state.

Chart 1 shows the activity code as reported for each MMWR week through the 2003-2004 season, up to MMWR week 18. Week 40 was September 28– October 4, 2003.

Chart 1. Kentucky Influenza Activity Status in 2003-2004 by MMWR Week



Influenza Sentinel Provider Surveillance—Now You Can Help, Only a Few Minutes Per Week!!

Peggy Dixon, RN, CIC, Division of Epidemiology and Health Planning

What is an influenza sentinel provider?

An influenza sentinel provider conducts surveillance for influenza-like illness (ILI) in collaboration with the state health department and the Centers for Disease Control and Prevention (CDC). Data reported by sentinel providers, in combination with other influenza surveillance data, provide a national picture of influenza virus and ILI activity in the United States.

What data do sentinel providers collect? How and to whom are data reported?

Sentinel providers report the total number of patient visits each week and number of patient visits for influenza-like illness by age group (0-4 years, 5-24 years, 25-64 years, ≥ 65 years). These data are transmitted once a week via the internet, a touch-tone telephone, or fax to a central data repository at CDC. Most providers report that it takes them **less than 30 minutes a week** to compile and report their data. In addition, sentinel providers can submit specimens from a subset of patients for virus isolation **free of charge**.

Who can be an influenza sentinel provider?

Providers of any specialty (e.g., family practice, internal medicine, pediatrics, infectious diseases), in any type of practice (e.g., private practice, public health clinic, urgent care center, emergency room, university student health center) are eligible to be sentinel providers.

Why volunteer?

Influenza viruses are constantly evolving and cause substantial morbidity and mortality (approximately 20,000 deaths) almost every winter. ILI data from sentinel providers are critical for monitoring the impact of influenza. In combination with other influenza surveillance data, this information can be used to guide prevention and control activities, vaccine strain selection, patient care, and detection of new pathogenic organisms, i.e., the A:H5N1 Avian strain and Sudden Acute Respiratory Syndrome (SARS). Sentinel providers receive feedback on the data submitted, summaries of regional and national influenza data, and a free subscription to CDC's *Morbidity and Mortality Weekly Report* and *Emerging Infectious Diseases Journal*. The most important con-

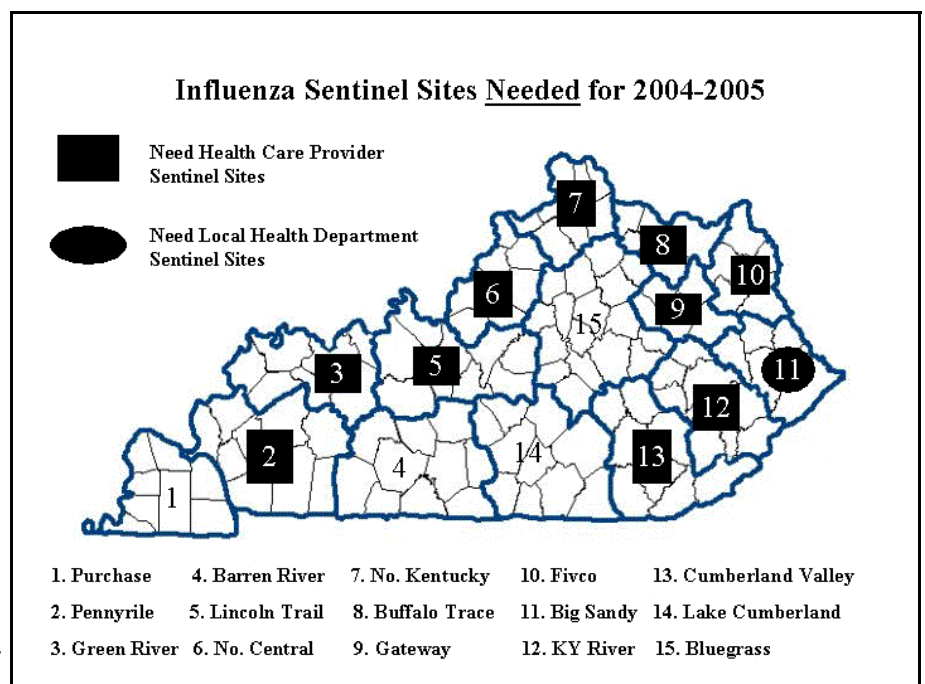
sideration is that the data provided are critical for protecting the public's health.

Sentinel Local Health Departments (LHD)

Sentinel LHDs have agreed to participate in Kentucky's influenza network. These sites report ILI information obtained from a nursing home for the week and school district absenteeism for a specified day each week. In addition, LHDs in the surveillance network located in larger populated areas of the state obtain information of ILIs from a health care provider's office and/or a hospital. Sentinel LHD contacts provide health care providers in this portion of the network with viral collection kits to obtain specimens for culture, as well. The LHD network needs a sentinel site in the Big Sandy Area Development District.

In Kentucky, the influenza surveillance network needs more sentinel sites in order to have an accurate representation of all the districts in the state. The State Influenza Surveillance Coordinator uses the information gathered by sentinel providers and by sentinel Local Health Departments in determining the weekly statewide influenza activity. The activity status is reported to the Centers for Disease Control and Prevention, combined with reports from other states to form a nationwide report, and is also reported to the World Health Organization (WHO).

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Influenza Sentinel Surveillance

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In addition, the state laboratory, Division of Laboratory Services (DLS), supplies sentinel providers with viral collection kits for obtaining specimens for culture. The providers send these specimens to the state laboratory for culture confirmation. The DLS reports weekly the total number of specimens tested and those positive to the WHO and the National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories. Some positive isolates are sent to the CDC for confirmation. Area Development Districts (ADDs) in need of provider and local health department representation are highlighted on the map (page 3).

For more information on Influenza Sentinel Surveillance, please contact Peggy Dixon, state influenza surveillance coordinator, phone toll free 888-973-7678, fax 502/564-0542, or email peggy.dixon@ky.gov.

West Nile Virus Surveillance, 2004

Kentucky Department for Public Health
Sue K. Billings, DVM, MSPH

Kentucky is once more gearing up for surveillance of West Nile virus and other arboviruses. The Kentucky Department for Public Health (KDPH) will work in conjunction with local health departments (LHD) and the Kentucky Department of Agriculture (KDA) to continue documenting sentinel events involving West Nile virus. Early awareness of viral activity in an area will promote personal protection measures and continued mosquito control. Surveillance for West Nile positive birds, horses and mosquito pools will continue as well as surveillance for human cases of West Nile Neuroinvasive Disease (WNND). The Centers for Disease Control and Prevention (CDC) are requesting the term WNND be used instead of encephalitis, meningitis, or meningoencephalitis, to more fully represent the various neurologic conditions associated with West Nile virus infection.

The KDPH encourages hospitals and physicians to submit specimens on patients with suspected arboviral neurologic illness to the Division of Laboratory Services. For specific information on specimen submission contact the Virology Section at 502-564-4446, extension 4484. Kentucky reported 14 human cases of West Nile virus infection in 2003, 11 were neuroinvasive.

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Cervical Cancer Screening and Diagnostic Protocols

Sarah E. Walsh, MPH
Kentucky Cancer Program

To assist Kentucky providers in their efforts to screen and detect cervical cancer, the Kentucky Cancer Program is pleased to announce a new, FREE continuing education program. *Cervical Cancer Screening and Diagnostic Protocols* is the latest offering in our *Providers Practice Prevention* series. This self-study program features a reference manual developed by the Kentucky Cancer Program at the University of Louisville in conjunction with Kentucky experts. This CME program is available to practicing Kentucky physicians, nurse practitioners and physician assistants who perform cervical cancer screening/diagnosis.

The reference manual presents:

- Recent changes in screening guidelines by the American Cancer Society and the United States Preventive Services Task Force.
- Changes in terminology for reporting results of cervical cytology (The Bethesda System – 2001).
- Information on liquid-based cytology.
- Current human papillomavirus (HPV) and HPV DNA testing recommendations.

To request a FREE copy of this valuable and timely resource for use in your practice, please contact the Kentucky Cancer Program at (502) 852-6318 or (800) 334-8635, ext. 6318.

Since a limited number of manuals are available, orders will be filled on a first come, first served basis for practicing primary care providers working/living in Kentucky.

The Kentucky Medical Association has approved the offering for two hours of Category 1 CME credit for physicians. The American Academy of Nurse Practitioners has approved the offering for two contact hours (#0308280).

Providers Practice Prevention is the Kentucky Cancer Program's self-study continuing education series designed specifically for Kentucky primary care providers. Funding for *Providers Practice Prevention* comes from the Centers for Disease Control and Prevention through the Kentucky Department for Public Health.



**Cases of Selected Reportable Diseases and Motor Vehicle Injury Deaths In Kentucky
YTD Through April for Each Year**

Disease	2004	2003	5 yr Median
AIDS	79	54	79
Chlamydia	1836	2584	2584
Gonorrhea	762	1071	1071
Syphilis (Prim. & Sec)	17	16	17
Group A Streptococcus	29	10	12
Meningococcal Infections	3	0	4
<i>Haemophilus influenzae</i> , invasive	0	2	2
Hepatitis A	9	10	16
Hepatitis B	14	17	17
E.coli O157H7	4	2	3
Salmonella	71	80	77
Shigella	25	36	41
Tuberculosis	24	35	31
Animal Rabies	7	10	8
Motor Vehicle Injury Deaths	247	257	247

Vaccine Preventable	2004 YTD	Total in 2003
Diphtheria	0	0
Measles	0	0
Mumps	0	0
Pertussis	4	53
Polio	0	0
Rubella	0	0
<i>Streptococcus pneumoniae</i>	14	27
Tetanus	0	0

Vectorborne	2004 YTD	Total in 2003
Rocky Mt. Spotted Fever	0	3
Lyme Disease	2	16
Ehrlichiosis	0	5
Tularemia	0	2
Arboviral Encephalitis	0	14
Malaria	1	10

West Nile Virus Surveillance —2004

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Birds have proven to be the earliest sentinel species for West Nile virus, especially birds of the corvid family (crows and blue jays). Unfortunately this species is very susceptible to this virus and often succumb if exposed. Sixty-three percent (63%) of the 111 West Nile virus positive birds in Kentucky during 2003 were either Blue Jays, American Robins, American Crows or house sparrows. Birds, except for starlings and blackbirds, may be submitted for testing through local health departments (LHD). The LHD environmentalists will determine whether a bird should be sent for testing based on location and positive results received as the season progresses.

Mosquito surveillance will be ongoing in fourteen Kentucky counties. Trapping will begin in June and continue until October. A number of the participating counties now have environmentalists trained to separate the mosquitoes by species before they submit them to

the laboratories for viral testing. Ten positive mosquito pools were identified in 5 counties in 2003.

Equine testing is available to veterinarians through both of Kentucky's animal disease laboratories and the Kentucky Department of Agriculture will investigate positive cases. In 2003, 102 horses from 54 counties were positive for West Nile virus. The peak onset for horses was one week after the peak onset in humans in 2003.

The West Nile Virus Summary for Kentucky 2003 may be accessed on our West Nile virus website page: http://chs.ky.gov/publichealth/west_nile_virus.htm

[Reduce your risk of Exposure to West Nile Virus](#)

- [Reduce mosquito habitat—clean up](#)
- [Protect yourself when outdoors—clothing and repellent products](#)
- [Work with the community on mosquito control](#)

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Rice C. Leach, MD,
Commissioner, Department for Public Health

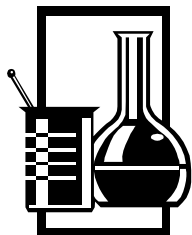
Division of Epidemiology and Health Planning

Sue K. Billings, DVM, MSPH, Interim Editor

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Contact Information

**Kentucky Department for Public Health
Division of Laboratory Services**



**Telephone—502-564-4446
FAX 502-564-7019**

Shipping Address:
**100 Sower Blvd. Suite 204
Frankfort, KY 40601**



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State Epidemiologist-open position 502-564-7243	Communicable Disease Immunization Program STD Program TB Program	502-564-3261 502-564-4478 5 02-564-4804 502-564-4276	AIDS Information HIV/AIDS Reporting (Toll Free) HIV/AIDS Branch	1-800-420-7431 1-866-510-0008 502-564-6539
State Public Health Veterinarian— Michael Auslander, DVM, MSPH 502-564-3418	Division of Epidemiology/Health Planning 502-564-3418; 24HR/7Day Emergency—1-888-973-7678			