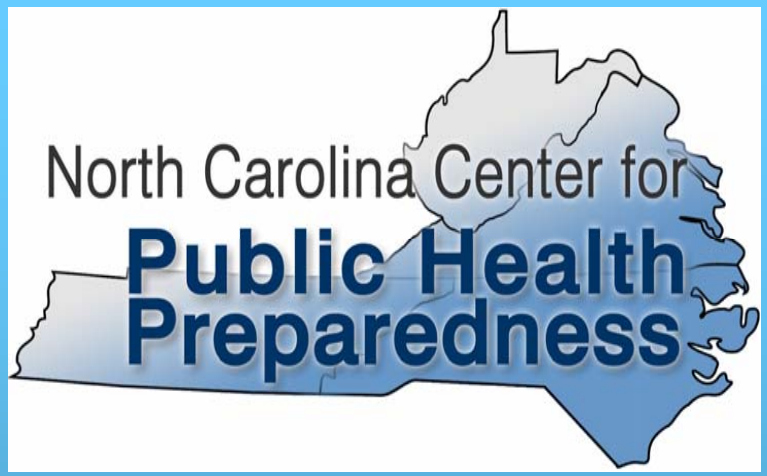
Public Health Information Network (PHIN) Series I


North Carolina Center for
Public Health
Preparedness


VDH
VIRGINIA
DEPARTMENT
OF HEALTH
Protecting You and Your Environment
www.vdh.virginia.gov


Emergency Preparedness
& Response Programs

Series Overview

Introduction to:

- The history of Epidemiology
- Specialties in the field
- Key terminology, measures, and resources
- Application of Epidemiological methods

Series I Sessions

Title	Date
“Epidemiology in the Context of Public Health”	January 12
“An Epidemiologist’s Tool Kit”	February 3
“Descriptive and Analytic Epidemiology”	March 3
“Surveillance”	April 7
“Epidemiology Specialties Applied”	May 5

What to Expect. . .

(Session I)

Understand what the Public Health specialty of Epidemiology is, and know what Epidemiologists are trained to do in your state and local health departments

(Session II)

Recognize the numerous staff, organizational, and technological resources and tools that Epidemiologists use to conduct their work

What to Expect. . .

(Session III)

Understand the basic terminology and measures used in descriptive and analytic Epidemiology

(Session IV)

Recognize the different types of public health surveillance and know how to access surveillance data

What to Expect. . .

(Session V)

Understand how Forensic, Disaster, and Environmental Epidemiologists apply the Epidemiological tools and methods discussed in Sessions I through IV in their public health activities

Series II Sessions

Title	Date
“Recognizing an Outbreak”	June 2
“Risk Communication”	July 7
“Designing Questionnaires”	August 4
“Interviewing Techniques”	September 1
“Study Design”	October 6
“Data Analysis”	November 3
“Writing and Reviewing Epidemiological Literature”	December 1

Session Format

- Overview of speaker expertise, content subtopics, and learning objectives
- Lecturer will present topic-specific methods, using numerous illustrations and examples
- Sessions will include short, facilitated activities

Session Format

- Sessions may also include one or more “guest lecturers” from a state or county health department
- End with a moderator lead summary of key concepts
- Evaluate the content and speakers for each session
- You can earn continuing education credits for participation in this series

Session I – V Slides

VDH will post PHIN series slides on the following Web site:
http://www.vdh.virginia.gov/EPR/Training.asp

NCCPHP Training Web site:
http://www.sph.unc.edu/nccphp/training

TRAIN
http://www.train.org

Site Sign-in and Evaluations

Please submit your site sign-in sheet *and* session evaluation forms to:

Suzi Silverstein

Director, Education and Training

Emergency Preparedness & Response Programs

FAX: (804) 225 - 3888

Series I
Session I

"Epidemiology in the Context of Public Health"

Today's Presenters

Sarah Pfau, MPH

Consultant

North Carolina Center for Public Health Preparedness, Institute for Public Health, UNC Chapel Hill

Kim Brunette, MPH

Epidemiologist

North Carolina Center for Public Health Preparedness, Institute for Public Health, UNC Chapel Hill

Session Overview

1. Ten Essential Services of Public Health
2. Profile of the Practice of Epidemiology
3. Epidemiology in Virginia
4. A Day in the Life: Virginia Case Studies
5. Preview of Sessions II - V

Today's Learning Objectives

Understand the relevance of the specialty of Epidemiology in the broader context of the Ten Essential Services of Public Health

Recognize the diverse specialties in the field of Epidemiology

Understand the statewide, collaborative structure for Epidemiology and Emergency Preparedness and Response in Virginia

Today's Learning Objectives

Know how to contact and work with your District Epidemiologist

Recognize how Epidemiological methods and state and district public health professionals are working for you in Virginia

Ten Essential Services of Public Health

Quiz #1

As you read the front page of the local paper, you notice an alarming article about an outbreak of “disease X” in your community. You read on to learn about the scientifically established cause of “disease X”, and precautionary measures for avoiding exposure.

Quiz #1

This valuable information was published as a front-page story because:

a. The local football team lost its game last night

b. The front-page columnist is on vacation

c. State and local health officials and their staff have worked for weeks to gather data, conduct laboratory and statistical tests, generate hypotheses, and collaborate with the media to alert and educate the public about “disease X” as effectively as possible.

Quiz #2

On your way into the local grocery store, you notice a flier advertising a toll-free hotline number for enrolling uninsured children in a federally funded health insurance program.

Quiz #2

This insurance program is being offered because:

a. The Federal government has a budget surplus and is looking for a way to spend it

b. A telephone company offered the state health department a great deal on 1-800 numbers

c. Public health professionals have documented the numbers of uninsured children in their states, and worked with federal and state policy makers to institute outreach and “wrap around services” that assure the universal provision of health care.

Quiz #3

You and your sweetheart share a romantic dinner at your favorite restaurant. Not only is the meal delicious – you do *not* get food poisoning!

Quiz #3

This enjoyable experience has been brought to you by:

a. The restaurant management
b. Your local health department
c. A joint effort of the restaurant management and your local health department

Ten Essential Services: Common Ground

Public Health Model	Medical Model
Primary focus on population	Primary focus on the individual
Public service ethic, tempered by concerns for the individual	Personal service ethic, conditioned by awareness of social responsibilities
Emphasis on prevention and health promotion for the whole community	Emphasis on diagnosis, treatment, and care for the whole patient
Interventions target the environment, human behavior and lifestyles, and medical care	Places predominant emphasis on medical care

Public Health Mission:

"*To promote physical and mental health, and prevent disease, injury, and disability*"

Origin and Purpose

- 1988: "Core Functions" of Public Health were:
  - Assessment
  - Policy development
  - Assurance
- 1993: New Presidential administration and federal health care system reform
- 1994: Public health leaders complete a consensus statement to define a more detailed logic model of core public health functions

Implementation

- The theme of ***prevention*** is the most powerful

- No distinct order of implementation, and some services provided simultaneously

#1: Monitor health status to identify community health problems

Identification of threats to health and assessment of health service needs;

Timely collection, analysis, and publication of information on access, utilization, costs, and outcomes of personal health services;

Attention to the vital statistics and health status of specific groups that are at higher risk than the total population; and

Collaboration to manage integrated information systems with private providers and health benefit plans.

#2: Diagnose and investigate health problems and health hazards in the community

Epidemiological identification of emerging health threats;

Public health laboratory capability using modern technology to conduct rapid screening and high volume testing; [http://www.aphl.org]

Active infectious disease Epidemiology programs; and

Technical capacity for epidemiological investigation of disease outbreaks and patterns of chronic disease and injury.

#3: Inform, educate, and empower people about health issues

Social marketing and targeted media public communication (e.g., Toll-free information lines);

Providing accessible health information resources at community levels (e.g., free, mobile health screening initiatives);

Active collaboration with personal health care providers to reinforce health promotion messages and programs; and

Joint health education programs with schools, churches, and worksites (e.g., stress reduction seminars or health fairs).

#4: Mobilize community partnerships to identify and solve health problems

Convening and facilitating community groups and associations, including those not typically considered to be health-related, to undertake defined preventive, screening, rehabilitation, and support programs; and

Skilled coalition-building ability in order to draw upon the full range of potential human and material resources in the cause of community health.

#5: Develop policies and plans that support individual and community health efforts.

Leadership development at all levels of public health;

Systematic community-level and state-level planning for health improvement in all jurisdictions;

Development and tracking of measurable health objectives as a part of continuous quality improvement strategies;

Joint evaluation with the medical health care system to define consistent policy regarding prevention and treatment services; and

Development of codes, regulations, and legislation to guide the practice of public health.

#6: Enforce laws and regulations that protect health and ensure safety.

Enforcement of sanitary codes, especially in the food industry;

Protection of drinking water supplies and enforcement of clean air standards;

Timely follow-up of hazards, preventable injuries, and exposure-related diseases identified in occupational and community settings;

Monitoring quality of medical services (e.g., laboratory, nursing homes, and home health care); and

Timely review of new drug, biologic, and medical device application.

#7: Link people to needed personal health services, and assure the provision of health care when otherwise unavailable.

Assuring effective entry for socially disadvantaged people into a coordinated system of clinical care;

Culturally and linguistically appropriate materials and staff to assure linkage to services for special population groups;

Ongoing “care management” and transportation services;

Targeted health information to high risk population groups; and

Technical assistance for effective worksite health promotion/disease prevention programs.

#8: Assure a competent public health and personal health care workforce

Education and training for personnel to meet the needs for public and personal health service;

Efficient processes for licensure of professionals and certification of facilities with regular verification and inspection follow-up;

Adoption of continuous quality improvement and life-long learning within all licensure and certification programs;

#8: Assure a competent public health and personal health care workforce

Active partnerships with professional training programs to assure community-relevant learning experiences for all students; and

Continuing education in management and leadership development programs for those charged with administrative / executive roles.

#9: Evaluate effectiveness, accessibility, and quality of personal and population-based health services.

Ongoing evaluation of health programs based on analysis of health status and service utilization data, to assess program effectiveness and to provide information necessary for allocating resources and reshaping programs.

#10: Research for new insights and innovative solutions to health problems.

Continuous linkage with appropriate institutes of higher learning and research;

An internal capacity to mount timely epidemiological (e.g., outbreak investigations) and economic analyses (e.g., cost-benefit studies); and

An internal capacity to conduct needed health services research (e.g., survey design; conducting interviews and facilitating focus groups; conducting clinical trials; and accessing and using public records).

Corresponding Services

Quiz·Scenario¤	Essential·Public·Health·Service·Implemented¤
Informing·the·public·about·an·epidemiological·outbreak·investigation·in·the·community¶ ¤	"*Diagnose·and·investigate·health·problems·and·health·hazards·in·the·community*"·¤
Promoting·enrollment·in·a·Federally·subsidized·health·insurance·program¶ ¤	"*Link·people·to·needed·personal·health·services·and·assure·the·provision·of·health·care·when·otherwise·unavailable*"¶ ¤
Maintenance·of·a·sanitary·restaurant·environment·for·public·well-being¶ ¤	"*Enforce·laws·and·regulations·that·protect·health·and·ensure·safety*"¤

5 Minute Break

Profile of the Practice of Epidemiology

What is Epidemiology?

Study of distribution and determinants of states or events in specified populations, and the application of this study to the control of health problems

- Study risk associated with exposures
- Identify and control epidemics
- Monitor population rates of disease and exposure

Sub-specialties

- Infectious diseases
- Chronic diseases
- Injury
- Social
- Nutritional
- Occupational
- Environmental
- Behavioral
- Forensic
- Health care
- Disaster
- Public Policy

Historical Example of Epidemiology in Action

John Snow and the

Broad Street Pump

London, England 1854

Key Elements in Epidemiology

- Person
  - Age
  - Sex
  - Race or ethnicity
- Place
  - Geographic location (epidemic? Pandemic?)
  - Proximity to potential exposure
  - Clustering
- Time
  - Date / time of exposure or onset of illness
  - Seasonality of infectious diseases
  - Identifying endemic versus epidemic disease rates

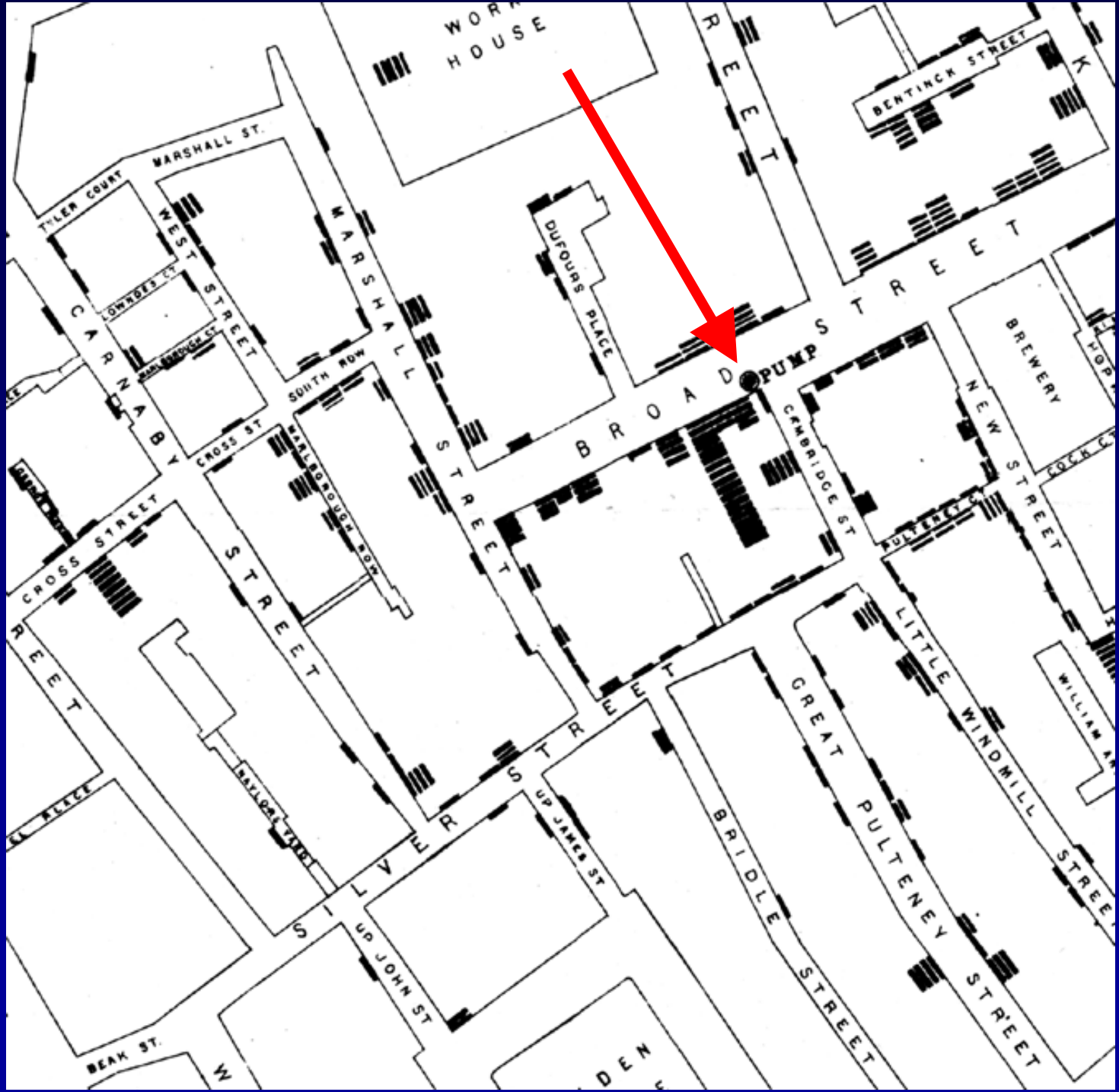
John Snow (1813 – 1858)

On the Mode of Communication of Cholera

Broad St. Pump Cholera Outbreak London, England 1854

- Low-level transmission in August
- Increase of cases August 31 and September 1
- 79 deaths on Sept. 1 and 2
- 87% of deaths clustered around Broad St. pump
- Pump handle removed Sept. 8

Date.		No. of Fatal Attacks.	Deaths.
August	19	1	1
,,	20	1	0
,,	21	1	2
,,	22	0	0
,,	23	1	0
,,	24	1	2
,,	25	0	0
,,	26	1	0
,,	27	1	1
,,	28	1	0
,,	29	1	1
,,	30	8	2
,,	31	56	3
September	1	143	70
,,	2	116	127
,,	3	54	76
,,	4	48	71
,,	5	38	45
,,	6	20	37
,,	7	28	32

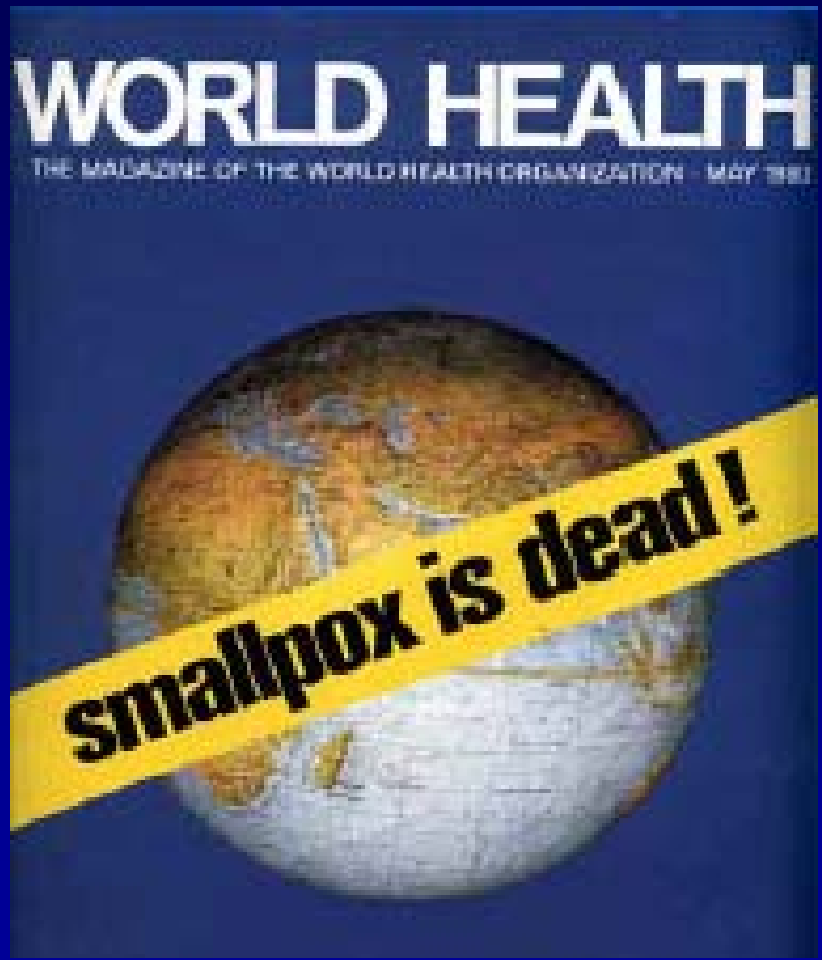

WORK HOUSE
BENTINCK STREET
MARSHALL ST.
TYLER COURT
LOWNDES CT.
WEST STREET
CARNABY
MARSHALL STREET
DUFOURS PLACE
BROAD STREET
PUMP
BREWERY
NEW STREET
CAMBRIDGE ST
FULWOOD PL
COCK CT
SOUTH ROW
CROSS ST
MARLBOROUGH ROW
CROSS STREET
STREET
MARLBOROUGH PLACE
LITTLE WINDMILL STREET
GREAT PULTENEY STREET
BRIDLE STREET
WILLIAM ST
BEAK ST.
UP JOHN ST
UP JAMES ST

Another Historical Success Story

Smallpox

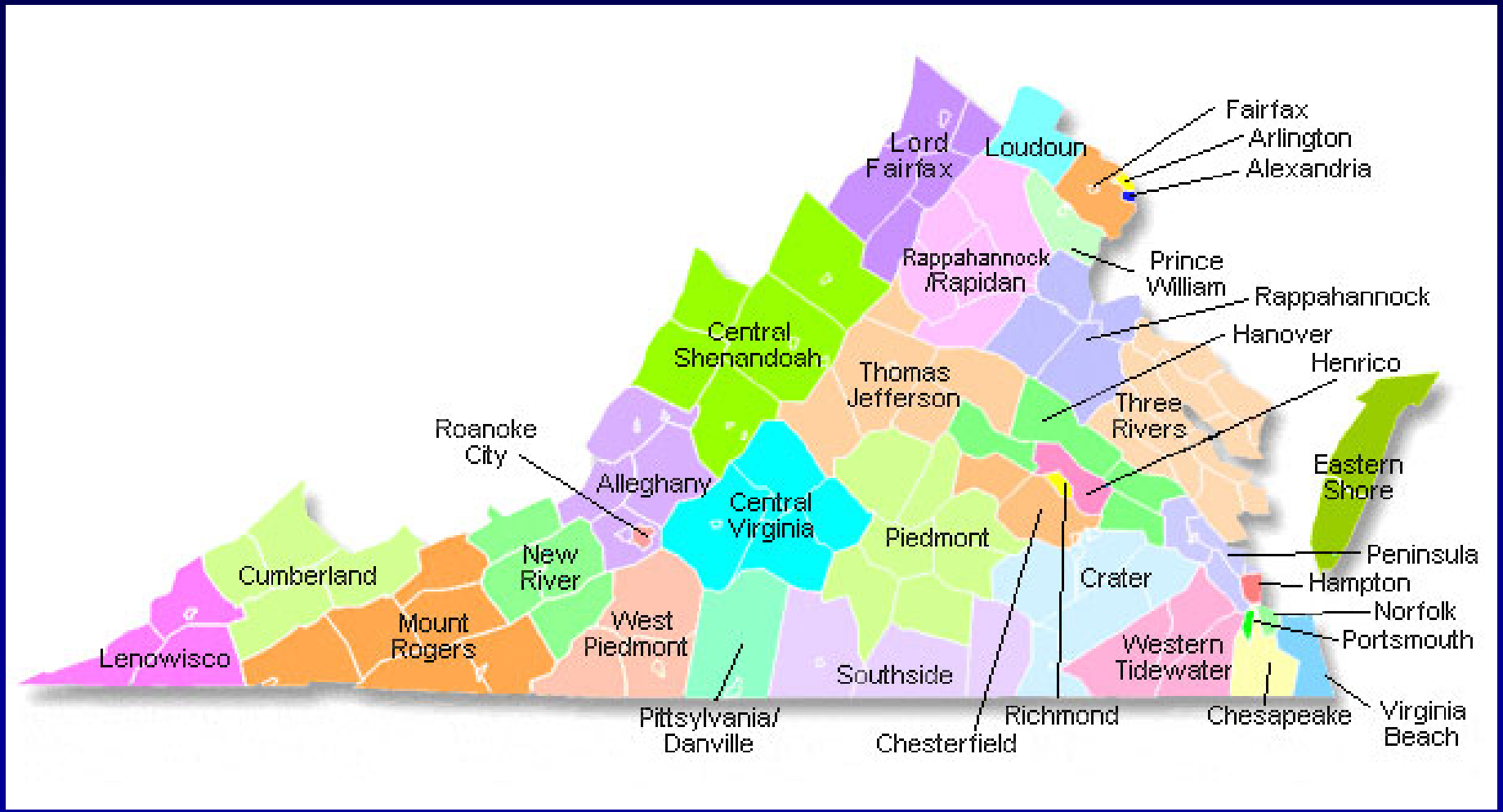
World Health Organization

- Formed April 7, 1948
- Smallpox eradication
  - Initiated in 1967
  - Last naturally occurring case in 1977
  - Declared dead in 1980



Epidemiology in Virginia

35 Public Health Districts



http://www.vdh.virginia.gov/EPR/ContactInfoX.asp

Epidemiology Program

- Office of Epidemiology-six divisions
- Resources on Web page (http://www.vdh.virginia.gov/epi/newhome.asp)
  - Disease Surveillance Data
  - Plans
  - Regulations for Reporting Diseases
  - List of Reportable Diseases
  - Fact Sheets on diseases
  - Epidemiology Bulletin

Office of Epidemiology Monthly Bulletin

http://www.vdh.state.va.us/epi/bulletin.asp

- Outbreak Investigations: Disease Prevention in Action
- Methicillin-Resistant *Staphylococcus aureus* in Special Populations
- Influenza Outbreak Management in Institutions
- Syndromic Surveillance in Virginia

Video Clip:
Public Health Grand Rounds

"Bioterrorism Preparedness: A Progress Report" (September 2002). GrandRounds@sph.unc.edu

Notice:

1. Health Director Dr. Susan Allan's confirmation of the value of a bioterrorism response plan in the aftermath of the September 11th terrorist attack
2. The range of public health, medical, and emergency personnel, and civic leaders who had critical roles in this second 2001 public health crisis in Virginia / Washington, D.C.
3. The County Manager Ron Carlee's endorsement of planning and preparation for future events.

Public Health Grand Rounds

VA's Public Health Workforce Training Needs Survey

Emergency Preparedness and Response Competencies

1) Rate your confidence in being able to carry out each emergency response activity and
2) Indicate your level of need for more training to do this activity.

Core Public Health Competencies

1) How important is this skill to your job; and
2) Indicate your level of need for more training to do this activity.

Self-Reported Training Needs

BT / Preparedness

- Describe the incident command system in your community.
- Use emergency communication equipment.
- Describe the signs and symptoms of biological agents that may be used in a bio-terrorist attack (e.g. Plague, Small Pox, Anthrax), and respond appropriately when you suspect someone in your community has been exposed to one of these agents.

Core Competencies

- Stay informed of public health laws and regulations.
- Be aware of important health conditions in your community.
- Recognize a disease outbreak in your community or nearby communities.

Video Clip:
Public Health Grand Rounds

"Bioterrorism Preparedness: A Progress Report" (September 2002). GrandRounds@sph.unc.edu

Notice:

1. Characteristics that distinguish a bioterrorist situation from a 'standard' outbreak: "amorphous," many unknowns, longer duration of the situation
2. Use of the media to educate physicians and the public, in the context of mass hysteria / panic
3. The response challenges for staff in a bioterrorism crisis despite exercises and drills for 'standard' outbreaks

Public Health Grand Rounds

Virginia's Bioterrorism Preparedness

- VA is one of only five states to report public health laboratory capabilities (facilities, technology, and / or equipment) sufficient to fully respond to a chemical terrorism threat [*approx. 2,000 labs in the U.S.*].

- VA has a publicly available response plan for an Influenza pandemic; many states do not.

- VA has enough laboratory scientists available to run tests in the event of a suspected plague or anthrax outbreak; approximately 60% of states do not.

Source: Trust for America's Health (December 2004). *Ready or Not? Protecting The Public's Health in the Age of Bioterrorism: 2004*
http://www.healthyamericans.org

Bioterrorism Preparedness: Lessons and Recommendations

1. Build / plan the response infrastructure from the ground up.
2. Implement standardized preparedness planning, with integration of local and state needs.
3. Re-think medical response plans; people will sometimes self-refer versus enter the system via EMS.
4. Participate in drills with community partners *now* versus meeting them during an actual emergency.
5. Redirect the focus on terrorism preparedness to maximize monitoring and preparation for *all* possible events such as measles or Influenza.
6. Maintain a prepared public health infrastructure via planning, training, and exercises.

Public Health Grand Rounds

5 minute break

A Day in The Life:

Virginia Epidemiological Case Studies

"Hardy and Resourceful Group Invades C'ville"

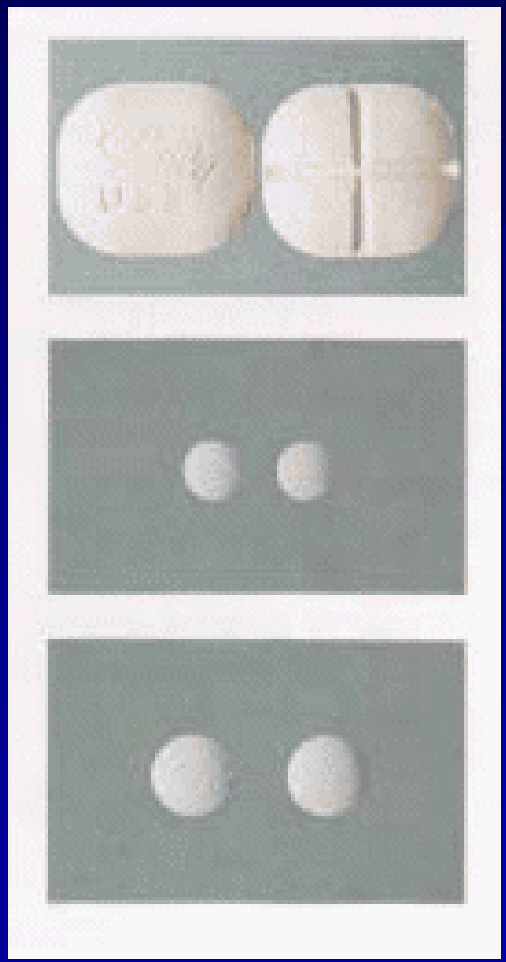
- July 2003 *Salmonella enteriditis* outbreak (9 confirmed cases)
- Retrospective **cohort study** with 28 patrons of the *same* restaurant
- Source of infection: raw eggs used in stuffing for a "Rainbow Trout with Crabmeat" entrée (Risk Ratio of 5.5)

Case Study provided by Roy E. Crewz, MPH, MS

“Hardy and Resourceful Group Invades C’ville”

- Outbreak was limited via several public health interventions:
  - Timely reporting of cases
  - Immediate environmental investigation of the suspect establishment
  - Timely interviews with ill members of the cohort
  - Collection of specimens for laboratory testing to verify the diagnosis

“Epidemiology of Prescription Drug Overdose Deaths in SW Virginia”



- Epidemic proportion of fatalities due to prescription drug abuse in Southwest VA
- Chart review of data on person, place, time for all deaths (211) in the Western District attributed to prescription drug overdose
- Methadone most commonly associated with accidental death (44.6%)

http://www.ni-cor.com/drugpictures.html

“Epidemiology of Prescription Drug Overdose Deaths in SW Virginia”

Profile of Accidental Deaths (N = 168)

- 67% with history of previous drug abuse
- 23% working in construction and extraction
- 99% Caucasian
- 71% male
- 41% married
- 20% disabled
- Average age 37 years
- Approx. 40% with history of mental illness
- Approx. 40% with history of depression

Case study provided by Timothy A. Powell, MPH

“Hurricane Isabel Related Mortality – Virginia, 2003”

Case study provided by Asim Jani, MD, MPH, FACP

“Hurricane Isabel Related Mortality – Virginia, 2003”

Profile of Deaths

- Age range 7 – 85; 66% over age 45
- Most deaths due to drowning, fallen trees, power outages
- 34% due to traumatic head injuries
- 28% with confirmed presence of alcohol or drugs
- 12 deaths “direct”; 20 deaths “indirect”

Guest Lecturer:
Kim Brunette, MPH

Epidemiologist, North Carolina Center for Public Health Preparedness

Overview

- Epidemiology in Iowa
- Arboviral Surveillance
- Measles Outbreak
- Methemoglobinemia Outbreak

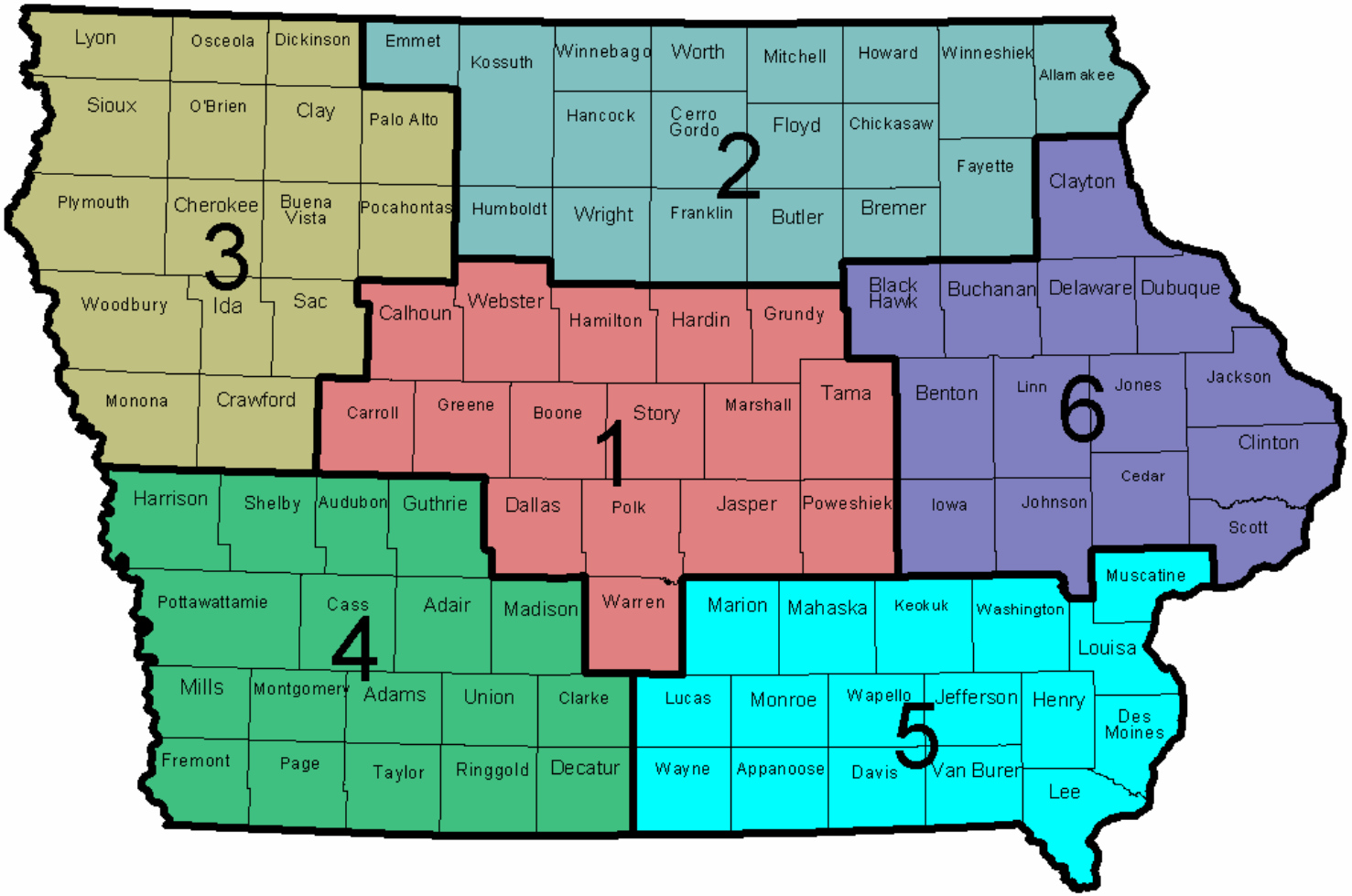
Epidemiology in Iowa

- Center for Acute Disease Epidemiology at the Iowa Department of Public Health
  - State Epidemiologist
  - Deputy State Epidemiologist
  - State Public Health Veterinarian
  - Center Chief
  - 2 Nurses
  - 2 Masters-level epidemiologists
  - EIS Officer
  - 3 Support staff
  - 6 Regional Epidemiologists

About Iowa

- 2.9 million residents
- 99 counties
- Counties divided into 6 public health regions for purposes of bioemergency planning

Iowa's Public Health Regions



Center for Acute Disease Epidemiology (CADE)

Mission:

To protect and preserve the health and safety of Iowans from acute diseases by working with local and state health officials to provide disease surveillance; investigation of acute outbreaks; education and consultation to county and private health agencies on infectious diseases; immunization and vaccine guidelines; and treatment after animal bites.

CADE Programs

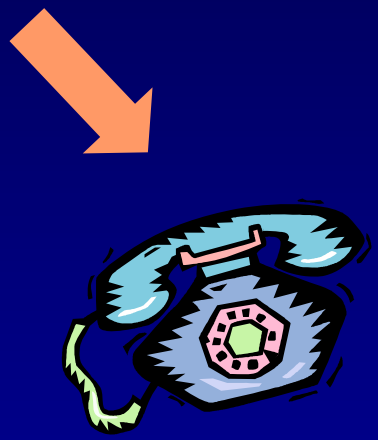
- Reportable Disease Surveillance
- Disease-specific Surveillance Programs
- Acute Disease & Foodborne Outbreak Investigations
- Smallpox Program
- Emerging Diseases & Biological Emergencies
- Infection Control Consulting
- Public Health Preparedness Planning

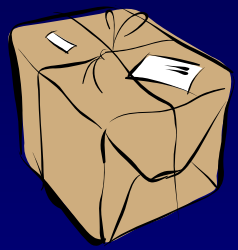
Arboviral Surveillance in Iowa

Surveillance Components

- Dead bird testing
- Monitoring of human and horse cases
- Mosquito trapping and testing
- Chicken testing

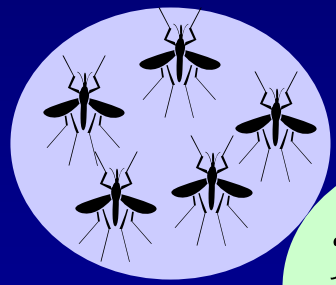
Dead Bird Testing

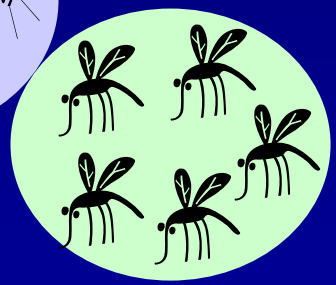




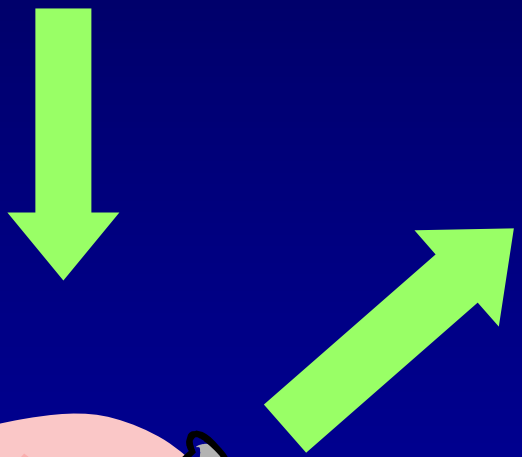
Human Surveillance

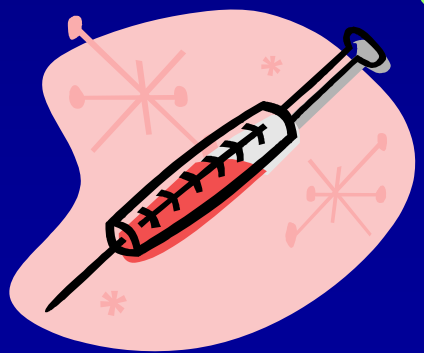
Mosquito Trapping and Testing

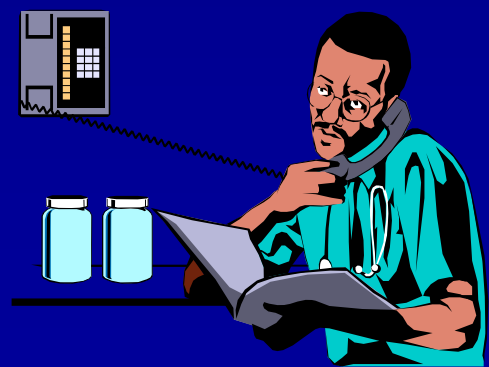




Chicken Testing







Response to Surveillance Data

- Establishment of WNV hotline for public and healthcare personnel inquiries
- Distribution of various educational materials aimed both at general and high-risk populations
- Work with media to provide accurate and timely information
- Posting of all information on web site

IOWA Department of Public Health
Promoting and Protecting the Health of Iowans

HOME | PROGRAMS | RESOURCES | WHAT WE DO | GLOSSARY | CONTACT US

Search IDPH
GO
Advanced Search >>

- Director's Office
- Acute Disease Prevention & Emergency Response
- Behavioral Health & Professional Licensure
- Environmental Health
- Health Promotion & Chronic Disease Prevention
- Tobacco Use Prevention & Control

IDPH
Lucas State Ofc. Bldg
321 E. 12th Street
Des Moines, IA 50319
(515) 281-7689

General Public Information:

- Fact sheet on DEET updated for 2004
- Identifying Crows, Blue Jays updated for 2004
- Information on Reporting, Submitting, and Disposing of Dead Birds updated for 2004
- West Nile Virus Brochure
- West Nile Virus Information for General Public updated for 2004
- West Nile Virus Information for Seniors
- Como evitar la virus del Nilo Occidental (How to avoid getting West Nile virus -- Spanish)

Healthcare Provider Information

- NEW! 2004 West Nile Virus Newsletter for Healthcare Providers
- West Nile Virus Fact Sheet for Providers updated for 2004
- Human Testing
- Human Specimen Submission Form
- 2003 West Nile Virus Newsletter for Healthcare Providers

Local Public Health Information -- all information updated for 2004

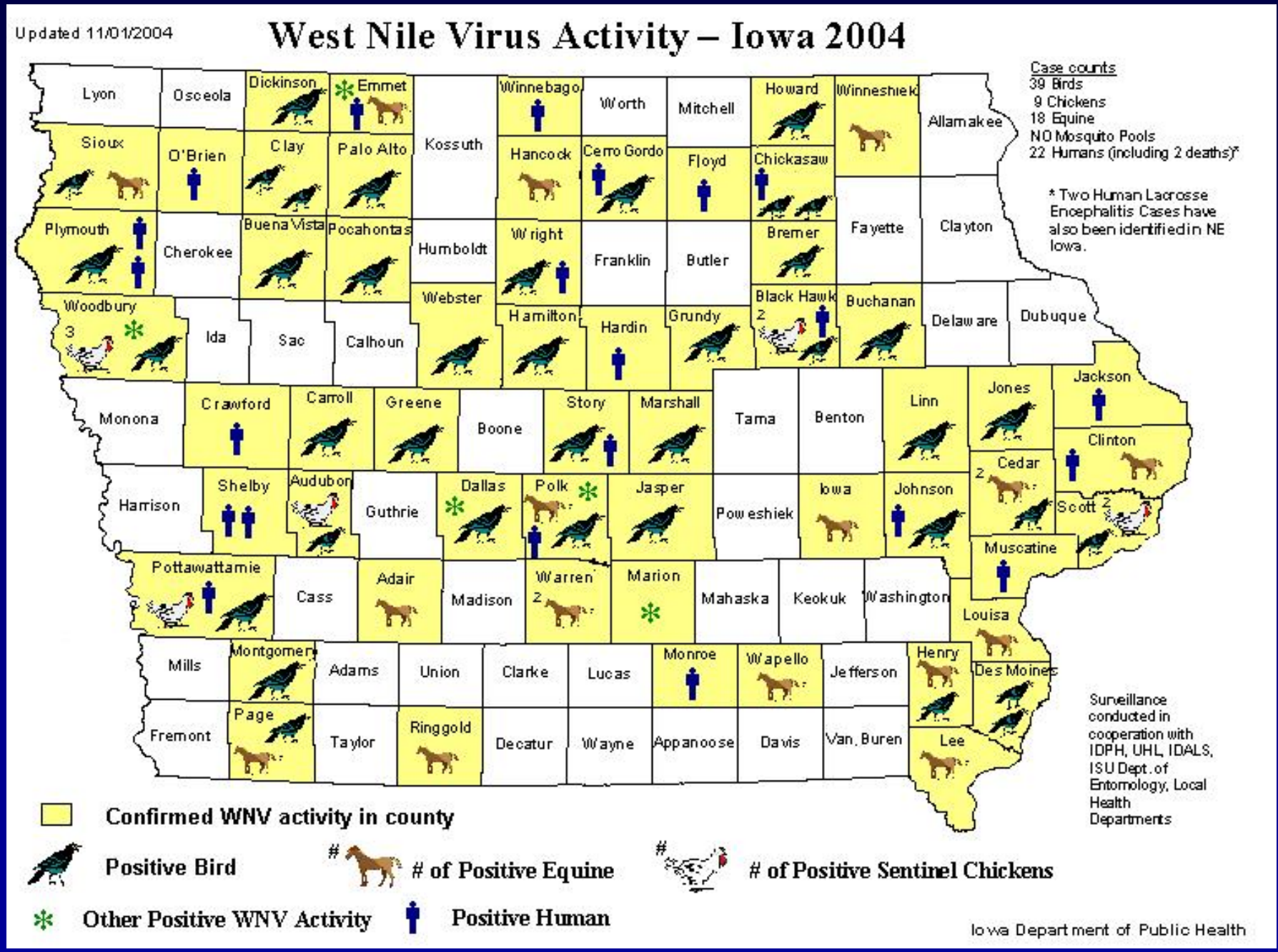
- Human Follow-up Form
- Dead Bird Surveillance Program
- Dead Bird Submission Form
- Instructions for Submission of Dead Birds

Surveillance Activities:

2004

- Summary Map of West Nile Surveillance - Iowa, 2004
- Map of Dead Bird Testing Results - Iowa, 2004
- Map of Sentinel Chicken and Mosquito Surveillance Sites - Iowa, 2004

http://www.idph.state.ia.us/adper/wnv_surveillance.asp



http://www.idph.state.ia.us/adper/cade_content/wnv_map_2004.htm

Measles Outbreak – Iowa 2004

Background on Measles

- Acute viral illness that can cause severe pneumonia, diarrhea, encephalitis and death
- Spreads through the air via droplets
- One of the most highly communicable infectious diseases
- Not endemic in the US due to high vaccination rates
- Iowa had not seen a case since 1996

March 2004 – The Beginning

- Group of 30 from Iowa college traveled to India, where approximately 52,000 cases of measles occurred in 2002
- Majority of group not vaccinated due to non-medical exemptions
- Six members of group got measles while in India

CADE Recommendations

- Six persons with measles asked not return to US for at least 4 days after rash onset
- Contacts of case-patients who were not immune to measles asked to stay in India for 18 days after the last possible exposure

March 2004 – Trouble for Iowa

- One of the unvaccinated contacts returned to the US early, arriving in Iowa on March 13
- During travel, contact had a cough and conjunctivitis and within 24 hours of arrival had a rash; subsequently confirmed to have measles
- Case-patient spread measles to 2 additional persons

Public Health Response

- Worked with airline, media, and case-patients to identify persons potentially exposed to case-patients
- Conducted vaccination clinics for exposed persons
- Enforced voluntary and involuntary isolation and quarantine

Methemoglobinemia Outbreak – Iowa 2003

What is Methemoglobinemia?

- A change in the hemoglobin molecule of red blood cells that impairs the ability of the red blood cell to carry oxygen
- Can result in headaches, shortness of breath, nausea, increased heart rate, weakness, fatigue, and cyanosis (bluish discoloration of the skin)
- Most commonly caused by ingestion or inhalation of oxidizing agents such as nitrates or nitrites

Wedding Reception

- Approximately 500 persons in attendance
- Attendees began to feel ill after arriving at the reception
- Several attendees were transported by ambulance to local emergency rooms
- A total of 83 attendees sought emergency medical care, with 20 being hospitalized
- Diagnosis of methemoglobinemia was made

Further Investigation

- After interviewing several attendees, a punch served at the reception was identified as a potential source of the outbreak

The Punch

- Obtained frozen through a local caterer
- Caterer obtained a flavor mix from an out-of-state company
- Flavor mix provided to a local food processing company where sugar and citric acid are added
- Caterer added water and froze punch for sale
- Same lot of punch served at wedding reception served at a baby shower

What Happened?

- Samples from the punch that was served and from the dry mix indicated sodium nitrite contamination
- The amount of sodium nitrite in the mix and the lack of citric acid in the mix suggested that sodium nitrite was added instead of citric acid
- Both sodium nitrite and citric acid are white powders and both were used at the food processing plant

Closing Thoughts

- Wide range of activities conducted as an Epidemiologist – and my experience is just in the area of acute disease!
- Opportunity to work with numerous partners from a variety of fields

Question & Answer Opportunity

Series Preview

Sessions II - V

Session II

Upon completion of this session you will:

- Understand the significant roles of both the human and technological elements of Epidemiological practice
- Recognize the diverse professionals within and beyond public health that contribute to the success of Epidemiological surveillance and investigations
- Recognize key sources of Epidemiological data
- Begin to recognize key terminology used in Epidemiological study design and data analysis

Session III

Upon completion of this session, you will:

- Understand the distinction between descriptive and analytic Epidemiology, and their utility in surveillance and outbreak investigations
- Recognize descriptive and analytic measures used in the Epidemiological literature
- Know how to interpret data analysis output for measures of association and common statistical tests

Session IV

Upon completion of this session, you will:

- Be able to distinguish passive, active, and syndromic surveillance methods
- Know how surveillance practices are applied in a variety of public health settings
- Recognize common limitations of surveillance systems

Session IV

Learning objectives continued. . .

- Understand the protocol for surveillance system reporting among local, state, and federal agencies
- Know how to import, graph, and map surveillance data tables in Epi Info software

Session V

Upon completion of this session, you will:

- Be able to distinguish Disaster, Environmental, and Forensic Epidemiology specialties
- Recognize the common Epidemiological methods used among the three featured specialties
- Recognize the special considerations and / or conditions faced by Epidemiologists in each specialty
- Appreciate how the context of law, media, business, and the characteristics of populations served impacts Epidemiology practice

Session Summary

- The Ten Essential Services of public health create a “common ground” and a comprehensive infrastructure that provides a supportive context for *any* public health priority in a community.

- Epidemiology is the study of distribution and determinants of states or events in specified populations, and the application of this study to the control of health problems.

- Surveillance is a key activity that contributes to the field of Epidemiology.

Session Summary

- There are many sub-specialties in Epidemiology that often complement each other in outbreak investigations and other public health research settings.

- John Snow's investigation using information about person, place and time to help identify the source of a Cholera outbreak in 19th century England was one of the best epidemiological investigations of his time. His investigations had implications for the science of epidemiology, and reshaped the scientific views of what caused disease and how it was spread.

Session Summary

- Virginia's has epidemiologists in each of its 35 public health districts. The public health workforce is prepared to address diverse communicable diseases, health hazards, and bioterrorism via ongoing training.

- Virginia' Public Health Epidemiologists manage the challenge of providing services in their traditional role of protecting the population from morbidity and mortality, in addition to the responsibility of bioterrorism preparedness; common situations such as foodborne illness outbreaks and natural disasters are always in the mix of day-to-day job responsibilities.

Session I Slides

Following this program, please visit the Web site below to access and download a copy of today's slides:

http://www.vdh.virginia.gov/EPR/Training.asp

Site Sign-in and Evaluations

Please submit your site sign-in sheet *and* session evaluation form to:

Suzi Silverstein

Director, Education and Training

Emergency Preparedness & Response Programs

FAX: (804) 225 - 3888

References and Resources

- Gordis, L. (2000). Epidemiology: 2nd Edition. W. B. Saunders Company: Philadelphia.
- Hearne, S. et al (2004). *Ready or Not? Protecting the Public's Health in The Age of Bioterrorism*. Trust for America's Health Report. http://healthyamericans.org/reports/bioterror04/BioTerror04Report.pdf
- Henderson DA. Bioterrorism as a public health threat. Emerg Infect Dis 1998;4:488-92.
- Iowa Center for Acute Disease Epidemiology (CADE) http://www.idph.state.ia.us/adper/common/pdf/CADEbrochure.pdf
- Iowa West Nile Virus Information http://www.idph.state.ia.us/adper/wnv_surveillance.asp

References and Resources

- Kaplowitz, L.G. (May 2004). Bioterrorism / Emergency Preparedness and Response: Role of VDH in Emergency Response. PowerPoint presentation: http://www.vdh.state.va.us/epr/powerpoint/VDHPrimer.ppt

- Kipp, A. (2004). "Overview of Epidemiology in Public Health." North Carolina Center for Public Health Preparedness, UNC Chapel Hill School of Public Health. http://www.sph.unc.edu/nccphp/training/all_trainings/at_epidmeth.htm

- Last, J.M. (1988). A Dictionary of Epidemiology. Oxford University Press: New York.

- MacDonald, P. and Mountcastle, S. (2004). Forensic Epidemiology Part I. North Carolina Center for Public Health Preparedness, UNC Chapel Hill School of Public Health. http://www.sph.unc.edu/nccphp/training/all_trainings/at_forensic.htm

References and Resources

- Measles Outbreak Information (Iowa specific)
  http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5311a6.htm
  http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5341a3.htm

- Methemoglobinemia Outbreak Information (Iowa specific)
  http://www.idph.state.ia.us/common/press_releases/2003/Wedding_investigate.asp

- North Carolina Center for Public Health Preparedness (2003). *Virginia Public Health Workforce Training Needs Assessment: Final Report.* UNC Chapel Hill, North Carolina.

References and Resources

- Northwest Center for Public Health Practice, University of Washington School of Public Health and Community Medicine (September 2004). Competency-based Training for Public Health Epidemiology. http://www.nwcphp.org/epi/comps

- Office of Epidemiology, Virginia Department of Health (November 2004). Field Epidemiology Seminar session abstracts. Charlottesville, VA.

- Pfau, S. (2004). *Ten Essential Public Health Services*. Kansas University Workgroup on Health Promotion and Community Development. Online Community Tool Box: http://ctb.ku.edu/

- St. George, D.M.M. (2004). *First Responder Epidemiology Training Course*. North Carolina Center for Public Health Preparedness.

References and Resources

- Trust for America's Health (December 2004). *Ready or Not? Protecting The Public's Health in the Age of Bioterrorism: 2004* http://www.healthyamericans.org

- UNC Chapel Hill School of Public Health (2004). John Snow – Broad Street Pump Outbreak Case Study http://www.sph.unc.edu/courses/john_snow

- UNC Chapel Hill School of Public Health and the Centers for Disease Control and Prevention. Public Health Grand Rounds web site. http://publichealthgrandrounds.unc.edu/

- U.S. Nuclear Regulatory Commission. *Fact Sheet on the Incident at Three Mile Island*. U.S. Nuclear Regulatory Commission, Washington, D.C. http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html

- Virginia Department of Health web site. http://www.vdh.state.va.us/

2005 PHIN Training Development Team

Pia MacDonald, PhD, MPH
Director, NCCPHP

Jennifer Horney, MPH
Director, Training and Education, NCCPHP

Kim Brunette, MPH
Epidemiologist, NCCPHP

Sarah Pfau, MPH
Consultant