



REPORTABLE DISEASE SURVEILLANCE

Aaron Fleischauer, PhD, MSPH
North Carolina Division of Public Health

- Know the basis for reportable disease surveillance in North Carolina
- Describe the steps in the surveillance process
- Know how local reportable disease surveillance fits in the national notifiable disease surveillance system

“Public health surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health.”

- Centers for Disease Control and Prevention

MMWR, July 7, 2001

- ❑ Guide immediate action for cases of importance;
- ❑ Monitor trends in the burden of a disease, including the detection of outbreaks;
- ❑ Guide the planning, implementation, and evaluation of programs to prevent and control disease;
- ❑ Evaluate public policy;
- ❑ Detect changes in health practices;
- ❑ Prioritize the allocation of health resources;
- ❑ Describe the clinical course of disease; and
- ❑ Provide a basis for epidemiologic research.

- Legal mandate for name-based disease reporting to public health agencies in all 50 U.S. States and territories
- In North Carolina, reportable diseases are mandated in Article 6 of the NC General Statutes
- 70 diseases and conditions are designated as reportable

CHAPTER 41 – HEALTH: EPIDEMIOLOGY
SUBCHAPTER 41A – COMMUNICABLE DISEASE CONTROL
SECTION .0100 – REPORTING OF COMMUNICABLE DISEASES
10A NCAC 41A .0101 REPORTABLE DISEASES AND CONDITIONS

The following named diseases and conditions are declared to be dangerous to the public health and are hereby made reportable within the time period specified after the disease or condition is reasonably suspected to exist:

- (1) acquired immune deficiency syndrome (AIDS) -7 days;
- (2) anthrax - immediately;
- (3) botulism - immediately;
- (4) brucellosis -7 days;
- (5) campylobacter infection -24 hours;
- (6) chancroid -24 hours;
- (7) chlamydial infection (laboratory confirmed) -7 days;
- (8) cholera -24 hours;
- (9) Crutzfeldt-Jacob disease -7 days;

Suspect: Clinical purpura fulminans in the absence of a positive blood culture **OR** a clinically compatible case with gram negative diplococci from a normally sterile site (e.g., blood or CSF)

Probable: A clinically compatible case that has either: Evidence of *N. meningitidis* DNA using a validated polymerase chain reaction (PCR), obtained from a normally sterile site (e.g., blood or CSF) **OR** evidence of *N. meningitidis* antigen by immunohistochemistry (IHC) on formalin-fixed tissue or latex agglutination of CSF

Confirmed: A clinically compatible case **AND** isolation of *Neisseria meningitidis* from a normally sterile site (e.g., blood or cerebrospinal fluid {CSF} or, less commonly, synovial, pleural, or pericardial fluid) or skin scrapings of purpuric lesions.

Suspect: A case of postdiarrheal HUS or TTP (see HUS case definition), or identification of Shiga toxin in a specimen from a clinically compatible case without the isolation of the Shiga toxin-producing *E. coli*.

Probable: A case with isolation of *E. coli* O157 from a clinical specimen, without confirmation of H antigen or Shiga toxin production, **OR** A clinically compatible case that is epidemiologically linked to a confirmed or probable case, **OR** Identification of an elevated antibody titer to a known Shiga toxin-producing *E. coli* serotype from a clinically compatible case.

Confirmed: A case that meets the laboratory criteria for diagnosis. When available, O and H antigen serotype characterization should be reported.

- Physicians
- Laboratories
- STD clinics
- Community health clinics

Case reporting



County Health
Department

- Physicians
- Laboratories
- STD clinics
- Community health clinics

*Standardized
data collection*



County Health
Department



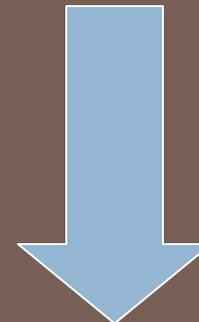
Investigation

- Physicians
- Laboratories
- STD clinics
- Community health clinics



County and State Health Departments

Data entry



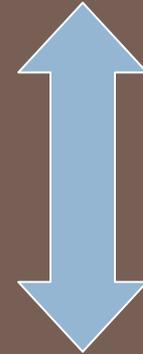
North Carolina Electronic Disease Surveillance System (NC EDSS)

- Physicians
- Laboratories
- STD clinics
- Community health clinics



County and State Health Departments

Data sharing

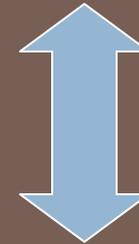


North Carolina Electronic Disease Surveillance System (NC EDSS)

- Physicians
- Laboratories
- STD clinics
- Community health clinics



County and State Health Departments



North Carolina Electronic Disease Surveillance System (NC EDSS)

CDC, State, and local surveillance information consumers (e.g., health departments, clinicians, laboratories)

Information disseminating

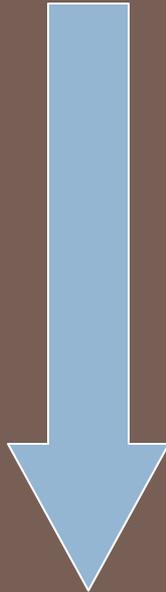


- Physicians
- Laboratories
- STD clinics
- Community health clinics



County and State Health Departments

Planning and Intervention

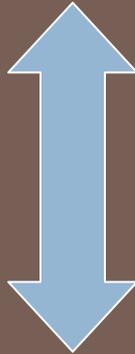


Public Health Action

- Physicians
- Laboratories
- STD clinics
- Community health clinics



County and State Health Departments



Evaluation

Recommendations



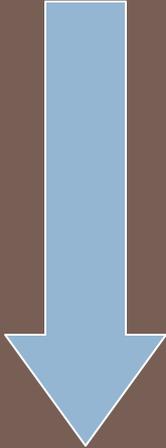
North Carolina Electronic Disease Surveillance System (NC EDSS)

- Physicians
- Laboratories
- STD clinics
- Community health clinics



Reporting

County Health
Departments



Reporting

State Health
Department

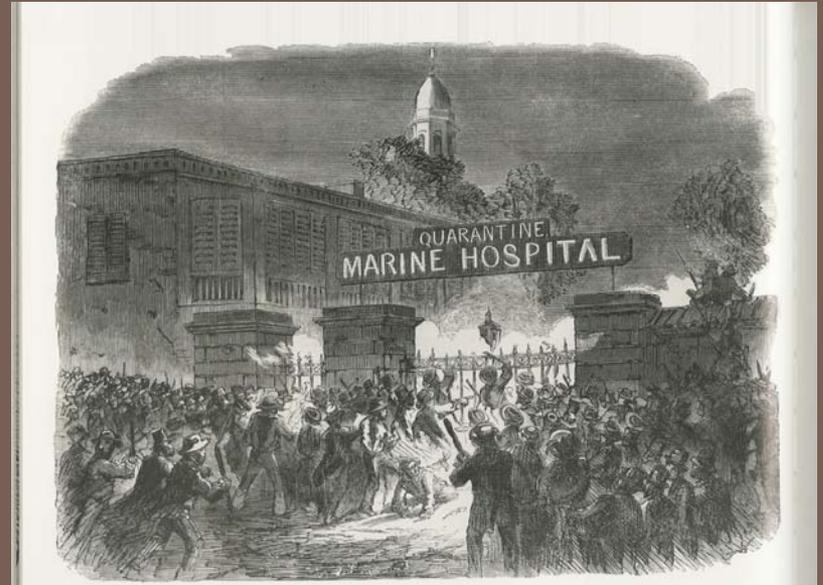
Centers for
Disease
Control and
Prevention



Notification

- National, voluntary, passive disease surveillance system
- Standard list of nationally notifiable diseases (NNDs)
- New diseases may be added as new pathogens emerge (e.g., SARS)
- System is managed by CDC's National Center for Public Health Informatics

- 1878 – Port Quarantine Act
- 1893 – Interstate Quarantine Report
- 1902 – US Public Health Service
- 1912 – State and Federal Reporting (reportable/notifiable)
- 1950 – CSTE/PHS meeting to establish the NNDs
- 1961 – CDC assumes lead for NNDs

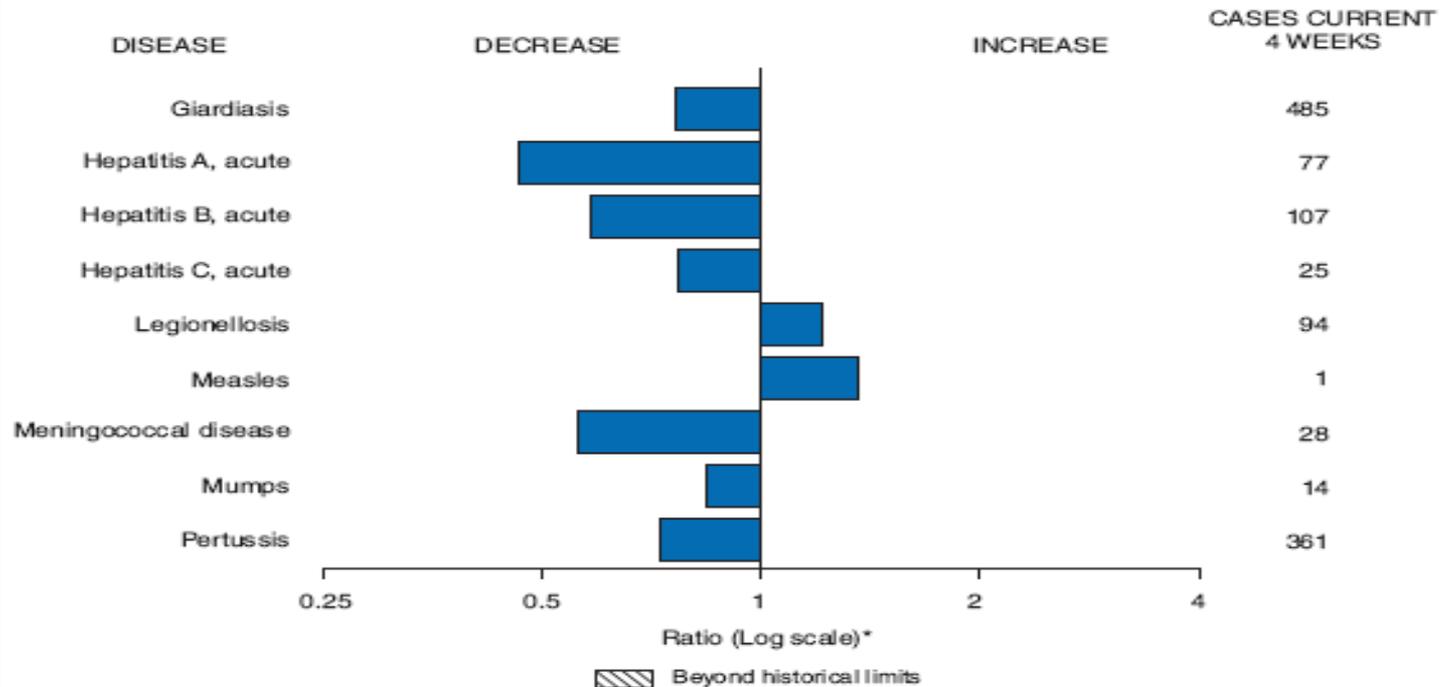


- List revised periodically
- 60 notifiable diseases and conditions
- Occasionally diseases are deleted or added
- For example: “novel influenza virus A infection” and “smallpox”
- Some differences between reportable disease list and the NNDs list

- 2001 – CSTE adopted the position statement on standardizing the structure of public health case definitions
- 2005 – WHO Revised International Health Regulations
- 2009 – CSTE position statement on immediately NNCs
- 2010 – CSTE approved Babesiosis and Coccidioidomycosis as nationally notifiable

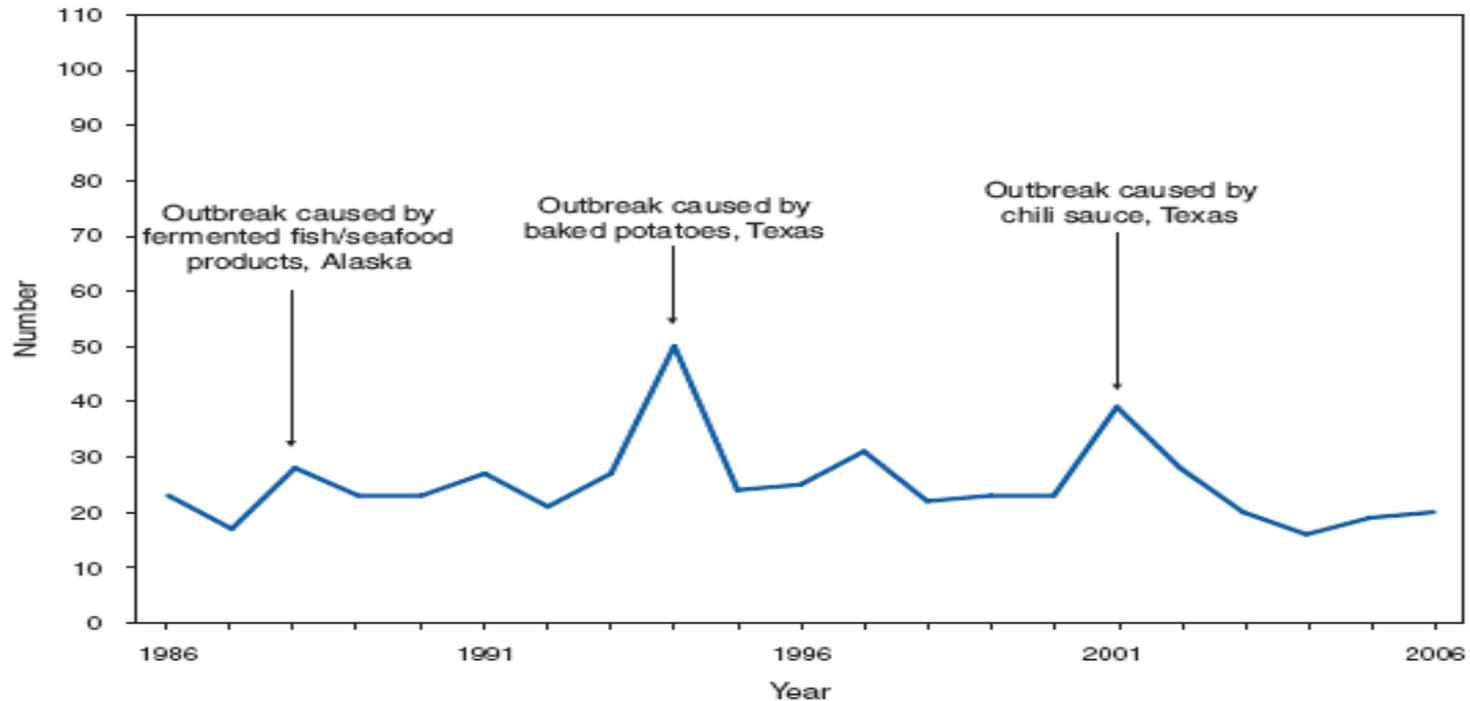
- Over 100 federal surveillance systems
- Collect data on over 200 infectious and non-infectious conditions such as:
 - ▣ Active Bacterial Core Surveillance (ABCs)
 - ▣ Foodborne Diseases Active Surveillance Network (FoodNet)
 - ▣ National West Nile Virus Surveillance System
 - ▣ Viral Hepatitis Surveillance Program (VHSP)
 - ▣ Waterborne Disease Outbreak Surveillance System

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals January 31, 2009, with historical data



* Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

BOTULISM, FOODBORNE. Number of reported cases, by year — United States, 1986–2006



Home-canned foods and Alaska Native foods consisting of fermented foods of aquatic origin remain the principal sources of foodborne botulism in the United States. During 2006, a multistate outbreak of foodborne botulism was linked to commercial carrot juice.

CDC case definitions

http://www.cdc.gov/epo/dphsi/casedef/case_definitions.htm

CDC infectious disease surveillance systems

http://www.cdc.gov/ncidod/osr/site/surv_resources/surv_sys.htm

CDC Integrated project: National electronic diseases surveillance system

http://www.cdc.gov/od/hissb/act_int.htm

CDC nationally notifiable infectious diseases

<http://www.cdc.gov/epo/dphsi/phs/infdis2004.htm>

CDC Notifiable diseases/deaths in selected cities weekly information. MMWR, June 4, 2004/53(21); 460-468.

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5321md.htm>.