Public Health Nursing Guide to Infectious Disease Surveillance & Investigation

NEPHTC New England Public Health Training Center
MAPHN Massachusetts Association of Public Health Nurses

Kitty Mahoney BSN, RN, MS

There will be three slides today which will require some input from you:
A poll
A Word Cloud
A quick 4 question survey for NEPHTC

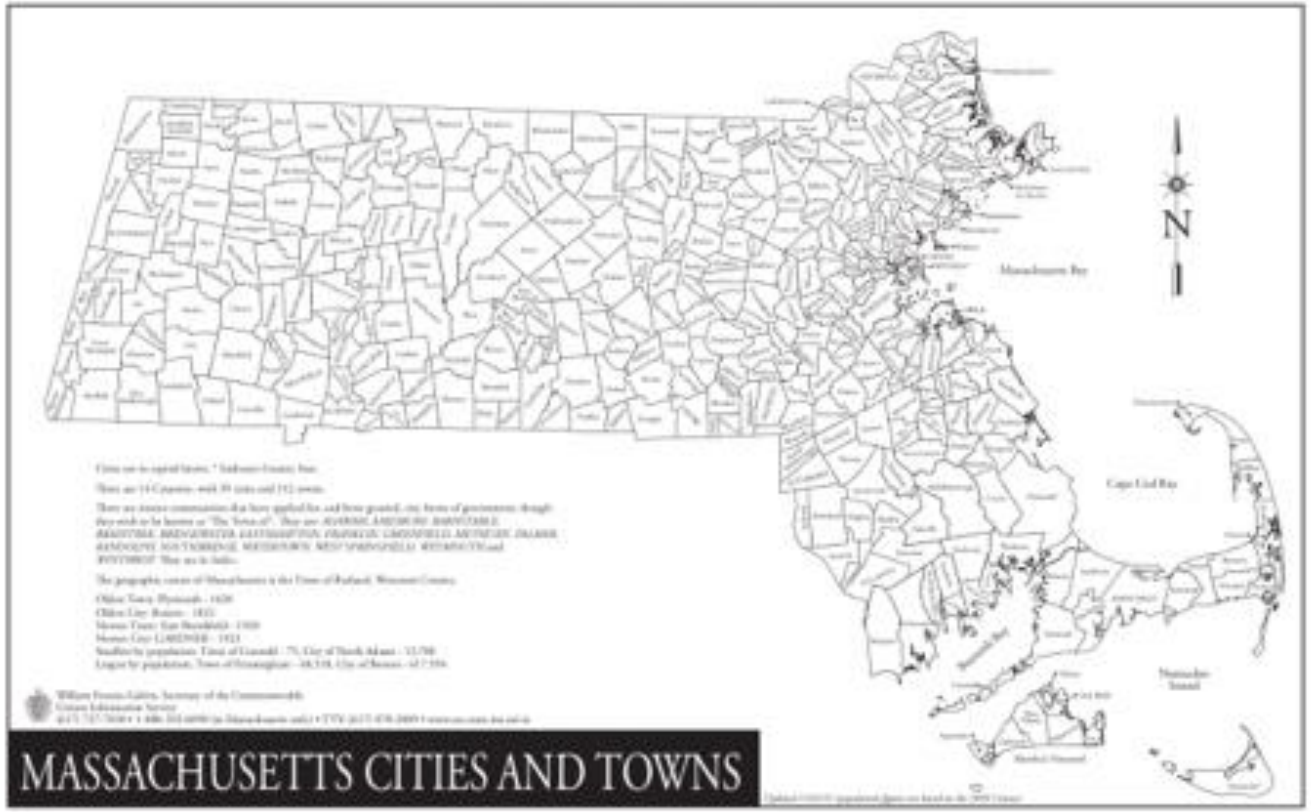
The links to the first two will be put in the chat box
At the conclusion of the program, there is also an evaluation sheet which when completed provides the CEU for nurses .

Disclosure: This presentation is supported through a grant. I have no financial interest or relationship to disclose.

Learning Objectives:

Navigate the process of investigating reportable diseases, recognize the capacities of the MDPH MAVEN network tools, explore tips for effective disease investigation, tracing, outreach and response for PHNs conducting disease investigations.

Shared Responsibility



**Each individual city and town has its own independent public health departments*

Regulation: 105 CMR 300.00
https://www.mass.gov/regulations/105-CMR-300

MAPHN Public Health Nursing Guidebook References
https://www.maphn.org

Public Health Fact Sheets
https://www.mass.gov/fact-sheets-on-infectious-diseases

MAVEN Training
http://www.maven-help.maventrainingsite.com/

Core Competencies For Public Health Professionals
https://www.phf.org/resourcestools/pages/core_public_health_competencies.aspx

https://www.mass.gov/doc/105-cmr-300

105 CMR

365: Standards of management of TB outside hospitals

365.200: Case management

365.600: Discharge planning from hospital into out-patient setting

MGL Chapter 111 Section 94A-C: Compulsory hospitalization of person with infectious TB

About Public Health Nursing

Public health nursing is the practice of promoting and protecting the health of populations using knowledge from nursing and social and public health sciences.

https://www.apha.org/apha-communities/member-sections/public-health-nursing/who-we-are

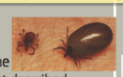
MASSACHUSETTS ASSOCIATION OF PUBLIC HEALTH NURSES

CELEBRATES 100 YEARS OF PUBLIC HEALTH NURSING IN MASSACHUSETTS 1910-2010

Public Health
Prevent. Promote. Protect.

MASSACHUSETTS ASSOCIATION OF PUBLIC HEALTH NURSES INC. INCORPORATED 1998 MASSACHUSETTS WWW.MAPHN.COM

"The work we are speaking of has to do with maintaining health by removing things which disturb it… …dirt, drink, diet, damp, and drains." - *Florence Nightingale*

	1910-1920	1920-1930	1930-1940	1940-1950	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	2000-2010
DIRT	• General Motors adds a lead compound to gasoline-emission studies later show the human and environmental impact *In 1900 Tuberculosis was the primary cause of death in the United States.*	• First federal monies allocated for health and social welfare • Frontier Nursing Founded •*1916-1923:* The Framingham Community Health and Tuberculosis Demonstration Study pioneer community-based demonstration project	•*1938:* First human cases of eastern equine encephalitis in Massachusetts *Late 1940s: Tuberculosis Sanitoriums begin to close. TB patients receive antibiotics and are treated outpatient.*	• *1948:* The Framingham Heart Study defines the risk factors and natural history of cardiovascular disease over the next 10-20 years *1950: Isoniazid introduced for prevention of Tuberculosis.*		•*1965:* Medicare and Medicaid come into being *1970s: Rifampin is introduced to treat Tuberculosis.*	•*1973:* Laboratory for children's blood lead screening established at the Massachusetts State Laboratory Institute for testing at no charge, resulting in major impact on the epic prevalence of childhood lead poisoning and identification of the sources of poisoning.	*Early 1980s: Resurgence of drug resistant Tuberculosis, particularly those infected with HIV. 1983: DOT / Case Management by Public Health Nurses started.*	• *1991:* Enactment of regulations for use of lead determination procedure, enabling local health departments to carry out their responsibilities to identify and correct lead hazards in homes with children	•*2000:* MA promulgates regulations for low and moderate risk owner / agent deleading, dramatically cutting deleading costs
DRINK	• Prohibition increased the production of soft drinks and spurred the growth of tea rooms and cafeterias *In 1905, the creation of the Wachusett Reservoir by damming the Nashua River in Clinton, MA. In 1908, it began feeding the Wachusett Aqueduct.*	*Continued growth in water demand prompted the 1926 construction of the Wachusett-Coldbrook Tunnel to tap seasonal excess water in the Ware River. The tunnel was extended to the Swift River to become the Quabbin Aqueduct.*	•*1930-1939:* Operations on an effluent tunnel in Boston Harbor for treated sewage as well as a treatment center on Deer Island				•*1970:* Children routinely vaccinated with polio • *1972:* Clean Water Act	•*1884:* The Boston Main Drainage System was completed	*1993: WHO declares a Global Health Emergency on MDR-TB through 2010: Public Health Nurses provide case management, surveillance, TB Testing and DOT services.*	• *2010:* Framingham MA passes raw milk regulations
DIET	• First vitamin (B6) discovered • Start of refrigeration and frozen foods • Fourty-four hours/week were spent on preparing meals & cleaning up after them	*First heights and weights of babies measured* • Manufactured foods introduced include: Wonder Bread (*1920*)- Made in Framingham, MA	• Milk program post depression era • *1937:* MA Blue Cross • *1937:* McDonald brothers open first drive-in • *1941:* MA Blue Shield	• School lunch program CDC accepts height and weight graphs • *1946:* National School Lunch Act requires school-provided meals to be nutritionally balanced and have minimum amounts of specific food groups	• *1951:* Swanson produces first frozen meals; pot pies	• Frozen and convenience meals flood the grocery stores • *1963:* The first Massachusetts McDonalds opens in West Springfield	• Surge in number of single mothers • *1974:* Special supplemental food program introduced for Women, Infants, and Children (WIC)	• Increase in fast food restaurants and chains • *1980:* USDA publish Dietary Guidelines for Americans	• Decrease in physical conditioning of children with increase in sedentary activities • BMI added to the CDC graph • USDA modernizes its meat and poultry inspection programs in response to food safety concerns	*2009: MAPHN promulgates a historic Memorandum of Understanding with MSNO and MAOHN in response to H1N1 Pandemic Preparedness and Emergency Response.* • Childhood obesity identified as a global health threat to children
DAMP	•*1905:* Annie McKay, the first school nurse in Boston •*1905:* Supreme Court (in Jacobson v. Massachusetts) affirms state authority to require vaccination •*1912:* pneumonia vaccine first used	*1918-1919: Spanish flu pandemic; death estimates range from 20 to 100 million people worldwide.* • *1926:* First vaccine for pertussis • *1929:* Iron Lung developed in Boston	• *1938:* March of Dimes Moms leave the kitchens and go to the workforce for WWII.	*1944: first flu vaccine developed: killed virus* •*1948:* DTP in general use 	• *1955:* First vaccine for polio *1957-1958: Asian Flu* "The door that nobody else will go in seems always to swing open widely for me." -*Clara Barton* 	• *1962:* Sabin's Polio vaccine licensed • *1963:* First vaccine for measles • *1967:* First vaccine for mumps *1968: Hong Kong Flu*	• *1970:* First vaccine for rubella • *1971:* Combination MMR released •*1977:* Pneumonia vaccine reintroduced in the United States • *1978:* First vaccine for meningitis	• *1980:* Smallpox declared eradicated • *1981:* First vaccine for hepatitis B (first vaccine to target a cause of cancer) • *1985:* First vaccine for Haemophilus influenzae type B (HiB)	• *1992:* First vaccine for hepatitis A • *1995:* Varicella vaccine developed • *1998:* First vaccine for Lyme Disease– (withdrawn in 2002) • *1998:* First vaccine for rotavirus– (withdrawn in 1999)	• *2003:* Flu mist was the first non-shot vaccine for influenza • *2006:* First HPV vaccine • *2009-2010:* A huge culture change in social distancing when sick
DRAIN	 "I may be compelled to face danger, but never fear it, and while our soldiers stand and fight, I can stand and feed and nurse them." - *Clara Barton*	 "Our basic idea was that the nurse's peculiar introduction to the patient and her organic relationship with the neighborhood should constitute the starting point for a universal service to the region... " - *Lillian Wald*		*Massachusetts Public Health Nurses provide surveillance and disease investigations for mosquito borne diseases including Eastern equine encephalitis, west nile virus, dengue fever, malaria and yellow fever.* 	• *1964:* Mosquito control becomes a US effort	•*1975:* Lyme disease first described 	*1997: H5N1 Bird Flu virus was first noticed in poultry in Hong Kong. It spread spread to humans resulting in 400 cases and 250 deaths and as a result, Public Health Nurses in MA have been trained for Pandemic Preparedness starting in 2005.* *2009: H1N1 Flu is declared a Level 6 Pandemic. MAPHN participates in State wide response with swift vaccinations of residents across the State in an unprecedented collaboration with School and Occupational Nurses, Nurses, Private and Public Provider Sites, Hospitals and provide clinic coordination effectively vaccinating hundreds of thousands of MA residents.* • *1999:* West Nile virus comes to North America	• *2003:* Severe acute respiratory syndrome (SARS) emerges • *2006:* Health care reform in Massachusetts

Food and Water borne diseases investigated by Public Health Nurses in MA includes campylobacter, Norwalk-like virus, giardia, cryptosporidiosis, shigella, salmonella, gastroenteritis, schistosomiasis, e-coli and others.

Public water sources, wells, community pools, public showers, public swimming holes and lakes have water tests done routinely and/or seasonally.

Created in *1985*, The Massachusetts Water Resources Authority (MWRA) provides wholesale drinking water and sewage services to certain municipalities in the state, primarily in the Boston area.

1995: MAPHN, first Public Health Nurse Association in MA formed. 1998: MAPHN Incorporated and recognized as the official Commonwealth of Massachusetts Public Health Nurse Association.

visit us at **MAPHN.COM**

The Cycle of Infectious Disease

Promote and Prevent

- Education
- Review of medical records
- Health and wellness clinics
- BOLO / Health alerts

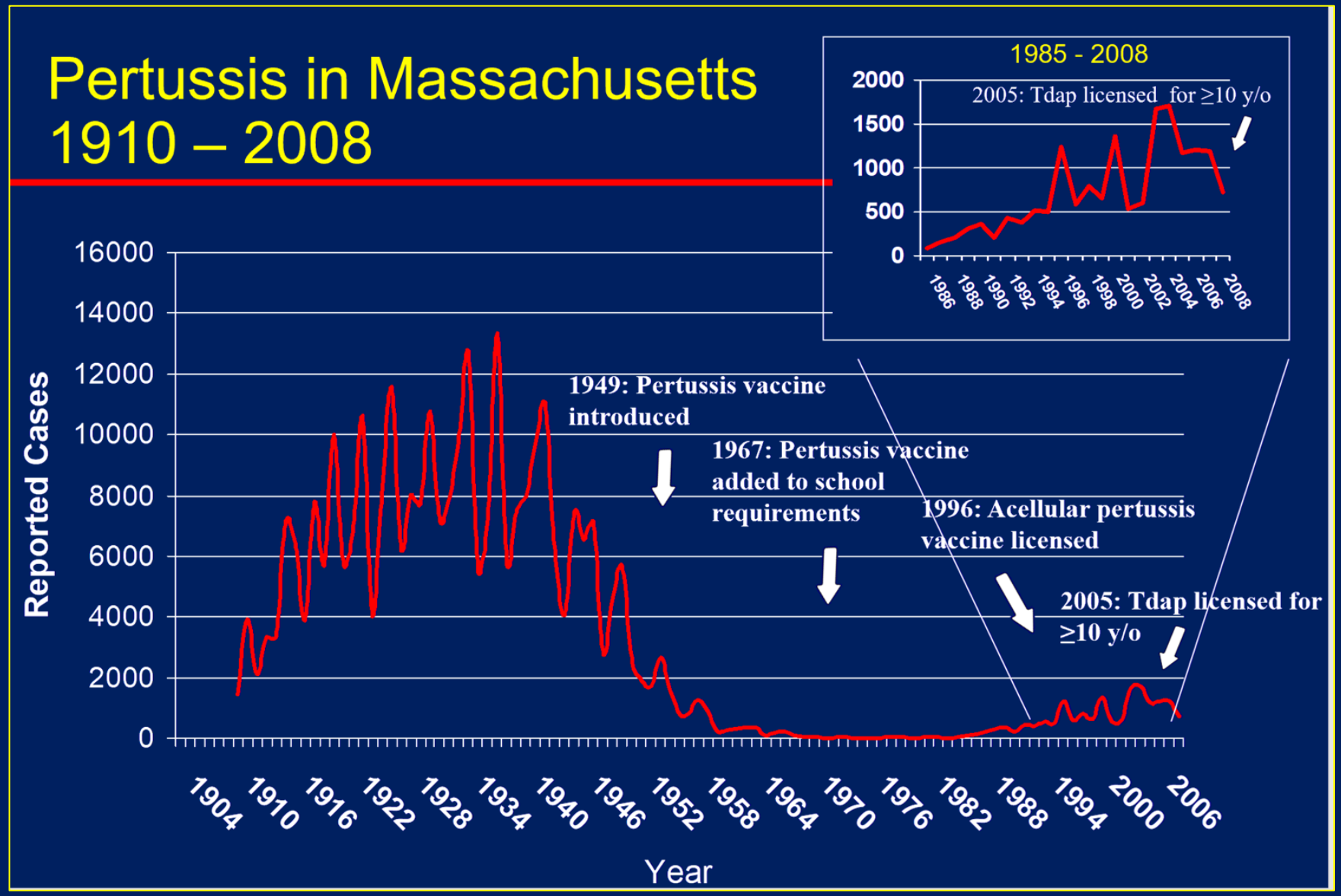
Contain

- Case finding
- Close contacts
- Immunization
- Restrictions
- Special precautions
- Protect others
- PSA

Restore

- Lab specimens
- Immunize
- Educate
- *Eradicate*

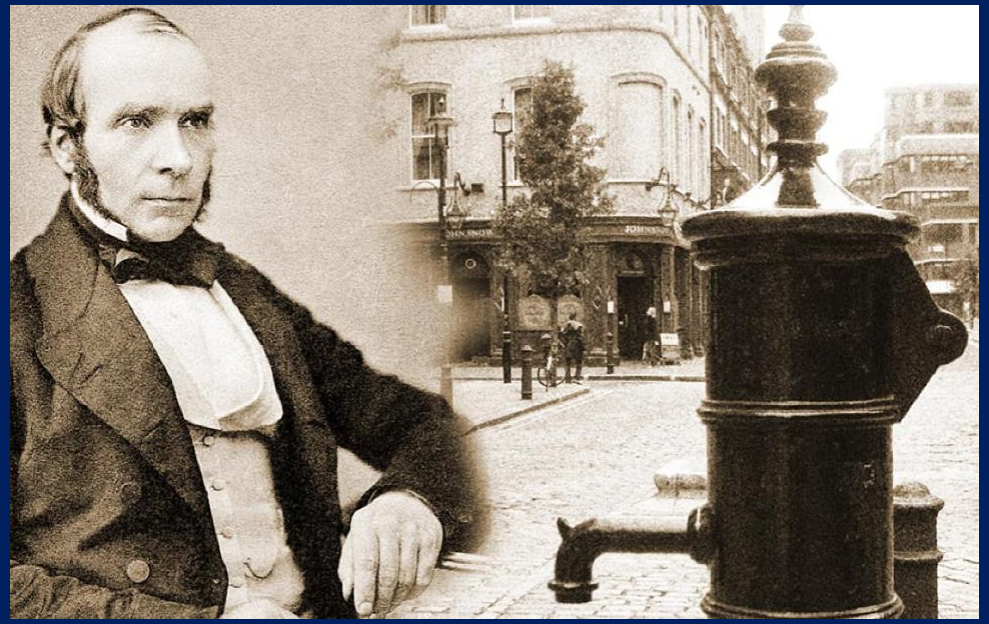
Control of Infectious Diseases

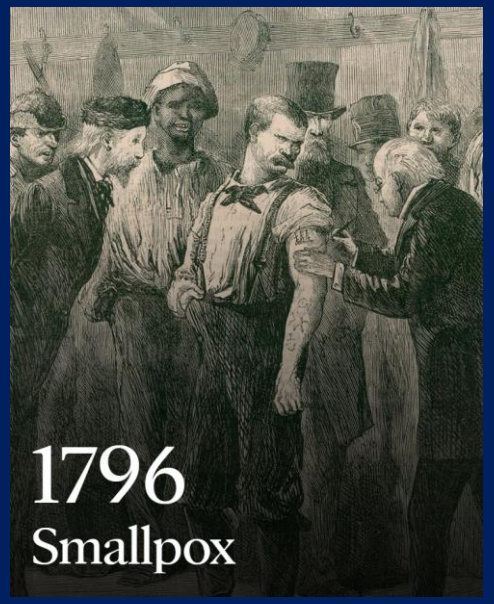


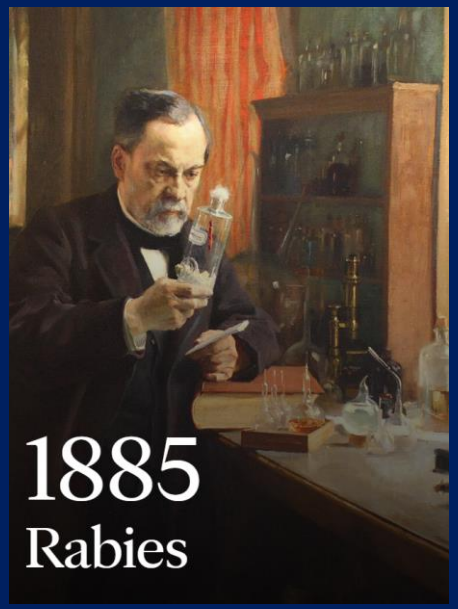
VPDs

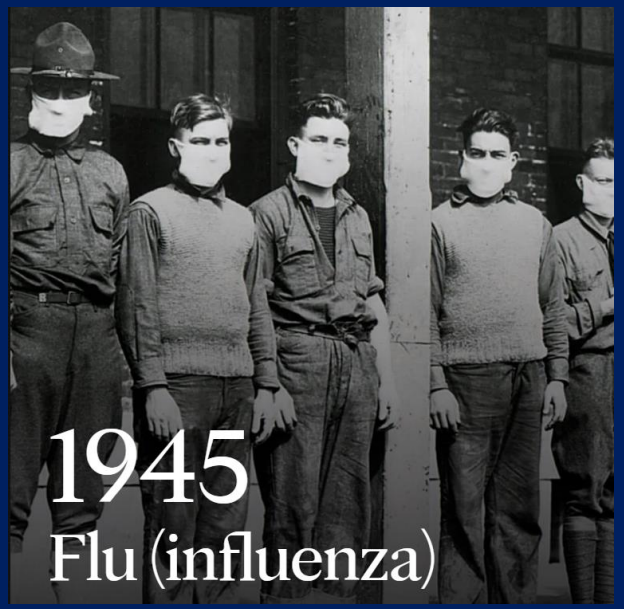
Measles, Mumps, Rubella, Polio, Chicken Pox, Meningococcal Meningitis, Influenza, Human Papillomavirus, Pertussis, Pneumonia, Hepatitis A, Hepatitis B, Tetanus, Diphtheria, Yellow Fever, Smallpox, Japanese Encephalitis, Rotavirus

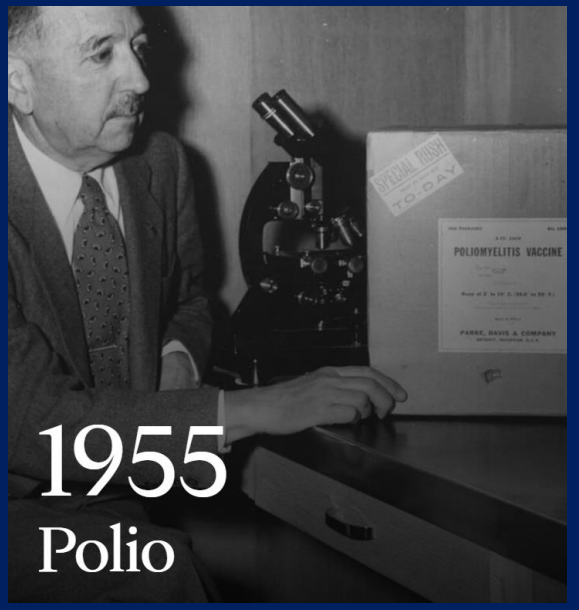
Once upon a time in 1854, John Snow removed the handle of a water pump…




1796
Smallpox


1885
Rabies


1945
Flu (influenza)


1955
Polio
POLIOMYELITIS VACCINE


1963
Measles


1967
Mumps


1969
Rubella


2002-2021
SARS and MERS


2020
COVID-19

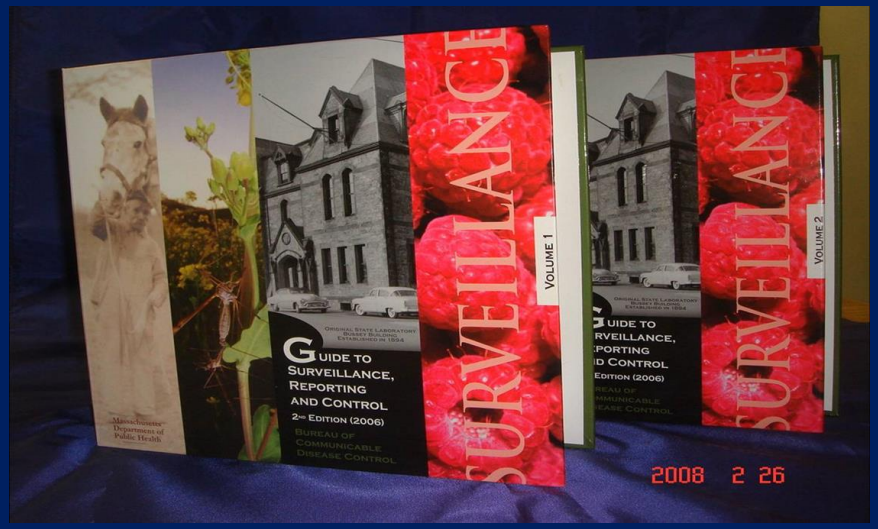

HELPFUL
TIPS

Then Came MAVEN…

Infectious disease surveillance data collected by the Bureau of Infectious Disease and Laboratory Sciences (BIDLS) are maintained in the *Massachusetts Virtual Epidemiologic Network* (MAVEN).

The Guide To Surveillance Reporting and Control

https://www.mass.gov/handbook/guide-to-surveillance-reporting-and-control



MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH GUIDE TO SURVEILLANCE, REPORTING, AND CONTROL

Hepatitis A

COMMUNICABLE AND OTHER INFECTIOUS DISEASES REPORTABLE IN MASSACHUSETTS BY HEALTHCARE PROVIDERS*

*Reportable infectious diseases and conditions are not limited to those designated below.
This list includes *only* those which are *primarily* reportable by clinicians.
A full list of reportable diseases in Massachusetts is detailed in 105 CMR 300.100.

☎ REPORT IMMEDIATELY BY PHONE!

This includes both suspected and confirmed cases.

All cases should be reported to your local board of health;

if unavailable, call the Massachusetts Department of Public Health:
Telephone: (617) 983-6800 Confidential Fax: (617) 983-6813

• REPORT PROMPTLY (WITHIN 24 HOURS)

This includes suspected and confirmed cases.

⇨ Isolates should be submitted to the State Public Health Laboratory

- ☎ Anthrax ⇨
- ☎ Any case of an unusual illness thought to have public health implications
- ☎ Any cluster/outbreak of illness, including but not limited to foodborne illness
- ☎ Botulism ⇨
- Brucellosis ⇨
- ☎ Cholera
- Chikungunya virus
- Creutzfeldt-Jakob disease (CJD) and variant CJD
- ☎ Diphtheria
- Encephalitis, any cause
- ☎ Foodborne illness due to toxins (including mushroom toxins, ciguatera toxins, scombrotoxin, tetrodotoxin, paralytic shellfish toxin and amnesic shellfish toxin, staphylococcus enterotoxin and others)
- Hansen's disease (leprosy)
- ☎ Hemolytic uremic syndrome
- ☎ Hepatitis A (IgM+ only)
- Hepatitis B in pregnant women
- Hepatitis syndrome, acute possibly infectious
- ☎ Influenza, pediatric deaths (<18 years old) ⇨
- ☎ Infection due to novel influenza A viruses ⇨
- Jamestown Canyon virus
- Lymphocytic choriomeningitis
- Malaria
- ☎ Measles ⇨
- Meningitis, bacterial, community acquired
- Meningitis, viral (aseptic), and other infectious (non-bacterial)
- ☎ Meningococcal disease, invasive (*Neisseria meningitidis*) ⇨
- Mumps ⇨
- Pertussis
- ☎ Plague ⇨
- ☎ Polio
- Powassan
- ☎ Pox virus infections in humans, including variola (smallpox), monkeypox, vaccinia, and other orthopox or parapox viruses
- ☎ Rabies in humans
- ☎ Respiratory infection thought to be due to any novel coronavirus including SARS and MERS
- Reye syndrome
- Rickettsialpox
- Rocky Mountain spotted fever
- ☎ Rubella
- ☎ Tetanus
- Toxic shock syndrome
- Trichinosis
- ☎ Tuberculosis ⇨
- Evidence of tuberculosis infection
- Tularemia ⇨
- ☎ Typhoid fever ⇨
- Typhus
- Varicella (chickenpox)
- ☎ Viral hemorrhagic fevers

Animal bites should be reported **immediately** to the designated local authority.

Important Note: MDPH, its authorized agents, and local boards of health have the authority to collect pertinent information on all **reportable diseases, including those not listed on this page, as part of epidemiological investigations (M.G.L. c. 111, s. 7).**

COMMUNICABLE AND OTHER INFECTIOUS DISEASES REPORTABLE IN MASSACHUSETTS

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This list includes *only* those which are *primarily* reportable by clinicians.
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Reportable Diseases Primarily Detected Through Laboratory Testing

Please work with the laboratories you utilize to assure complete reporting.

- Anaplasmosis
- Amebiasis
- Babesiosis
- Campylobacteriosis
- Cholera
- Cryptosporidiosis
- Cyclosporiasis
- Dengue
- ☎ Eastern equine encephalitis ⇨
- Ehrlichiosis
- *Escherichia coli* O157:H7 ⇨
- Enteroviruses (from CSF)
- Giardiasis
- Glanders ⇨
- ☎ Group A streptococcus, invasive
- Group B streptococcus, invasive in patients <1 year old
- ☎ *Haemophilus influenzae*, invasive ⇨
- ☎ Hantavirus
- Hepatitis B
- Hepatitis C
- Hepatitis D
- Hepatitis E
- Influenza (⇨ if antiviral resistant)
- Legionellosis ⇨
- Listeriosis ⇨
- Lyme disease
- Melioidosis ⇨
- Norovirus
- Pneumococcal disease, invasive (*Streptococcus pneumoniae*) in patients <18 years old ⇨
- Pneumococcal disease, invasive, penicillin-resistant
- Salmonellosis ⇨
- Shiga toxin-producing organisms ⇨
- Shigellosis ⇨
- *Staphylococcus aureus,* methicillin-resistant (MRSA), invasive
- ☎ *Staphylococcus aureus,* vancomycin-intermediate (VISA) and vancomycin-resistant (VRSA) ⇨
- Psittacosis
- Q fever
- Toxoplasmosis
- Typhus
- Vibriosis ⇨
- West Nile ⇨
- Yellow fever
- Yersiniosis ⇨
- Zika

**Report Directly to the Massachusetts Department of Public Health,
Bureau of Infectious Disease and Laboratory Sciences
305 South Street, Boston, MA 02130
Tel: (617) 983-6801 Confidential Fax: (617)983-6813**

Sexually Transmitted Infections

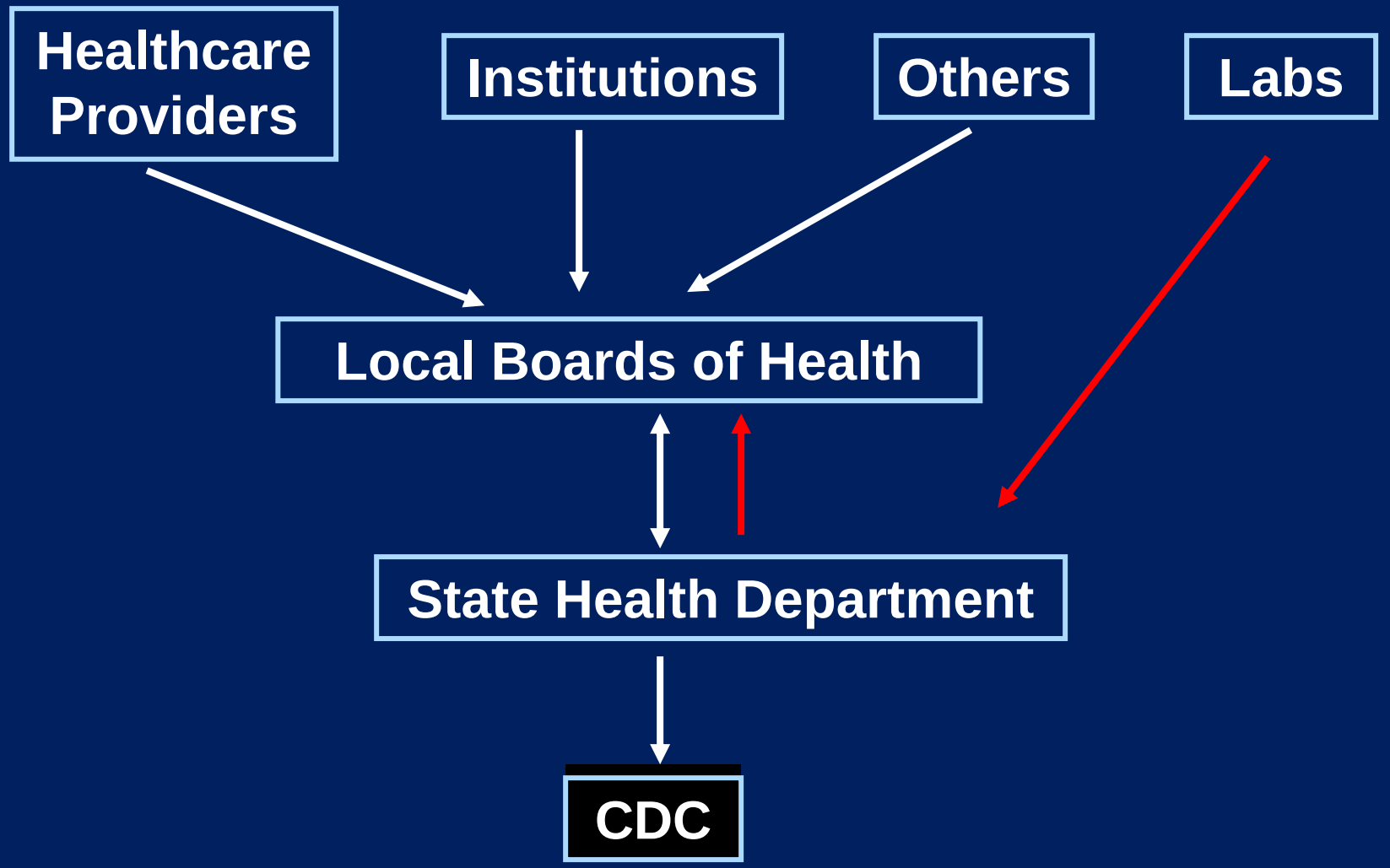
- Chancroid
- Chlamydial infections (genital)
- Gonorrhea ⇨
- Gonorrhea resistant to Ceftriaxone ⇨
- Herpes, neonatal (onset within 60 days after birth)
- HIV infection and AIDS
  - ☎ Acute HIV infection
- Lymphogranuloma venereum
- Ophthalmia neonatorum
- Pelvic inflammatory disease
- Syphilis

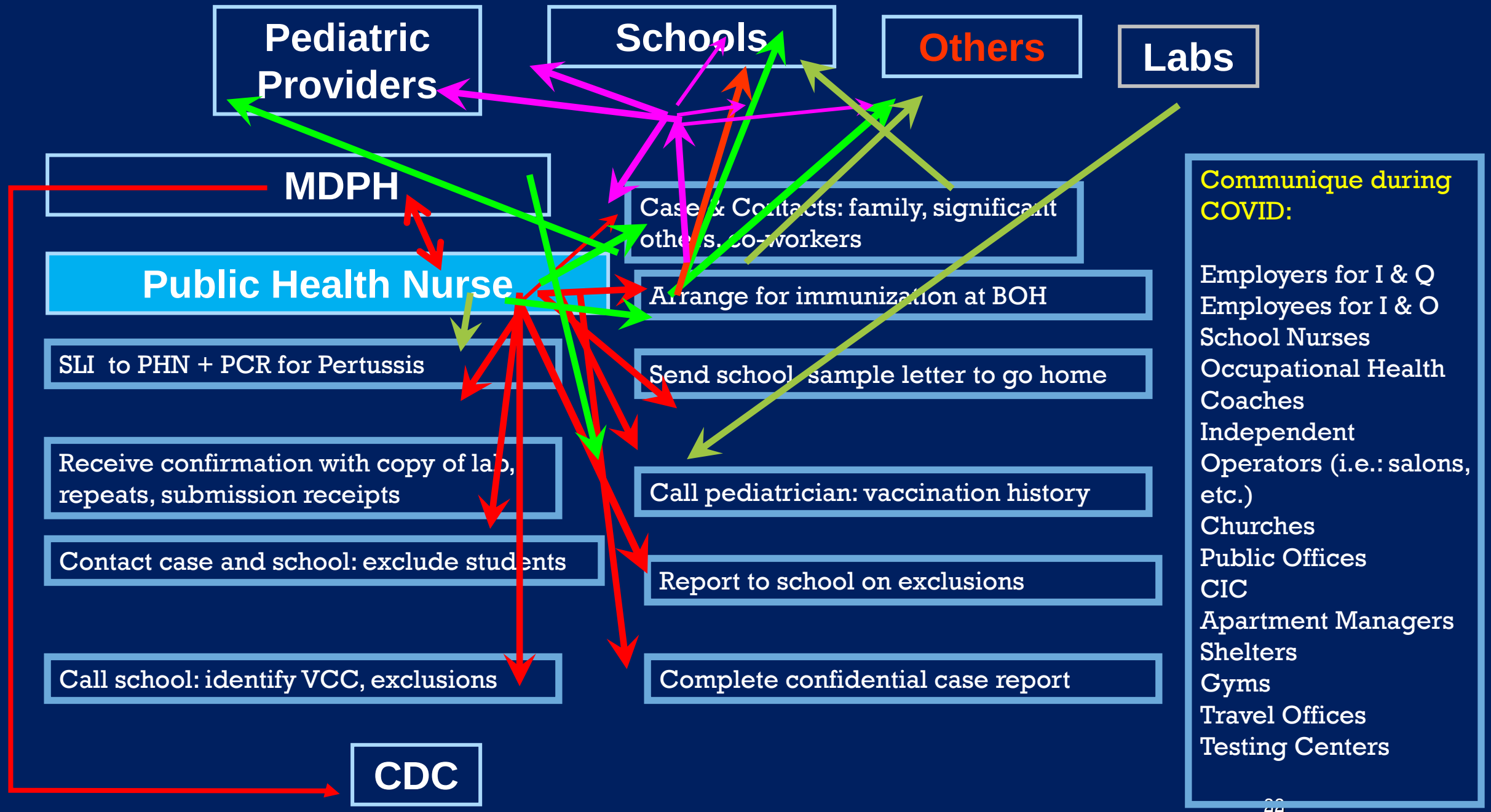
⇨ Isolates should be submitted to the State Public Health Laboratory

Sample Poll: Do you monitor disease counts in your community to help drive or to direct your health education & outreach initiatives?

YES/NO

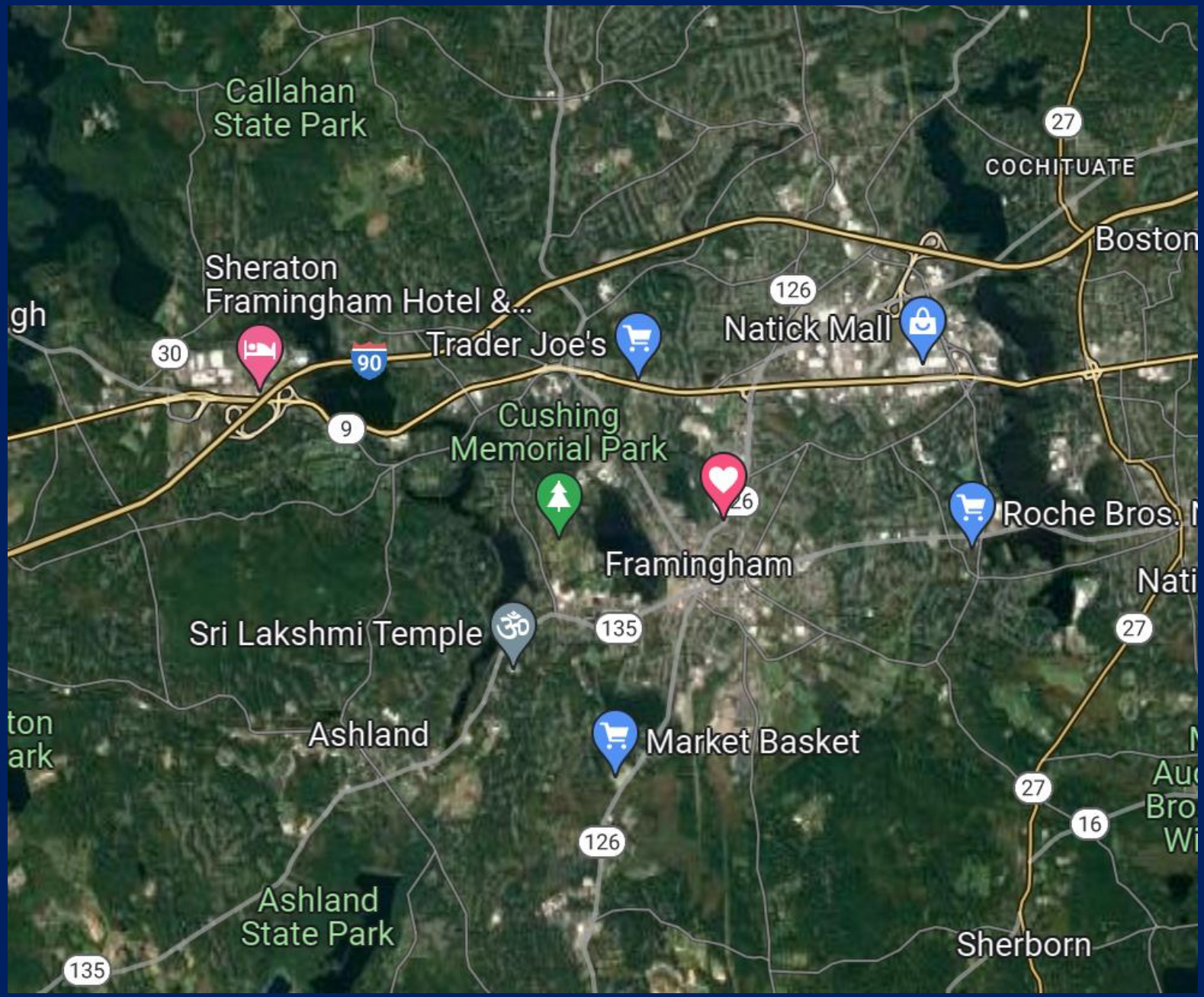
NATIONAL DISEASE REPORTING PATHWAY




Pediatric Providers
Schools
Others
Labs
MDPH
Public Health Nurse
Case & Contacts: family, significant others, co-workers
Arrange for immunization at BOH
SLI to PHN + PCR for Pertussis
Send school sample letter to go home
Receive confirmation with copy of lab, repeats, submission receipts
Call pediatrician: vaccination history
Contact case and school: exclude students
Report to school on exclusions
Call school: identify VCC, exclusions
Complete confidential case report
CDC
Communique during COVID:
Employers for I & Q
Employees for I & O
School Nurses
Occupational Health
Coaches
Independent Operators (i.e.: salons, etc.)
Churches
Public Offices
CIC
Apartment Managers
Shelters
Gyms
Travel Offices
Testing Centers

Count it!
Trace it!
Map it!

http://www.maven-help.maventrainingsite.com/pdf/FAQ-%20Reports_ver2_FEB2022.pdf


Callahan
State Park
27
COCHITUATE
Boston
Sheraton
Framingham Hotel &...
126
Natick Mall
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30
Trader Joe's
90
Cushing
Memorial Park
9
Roche Bros.
Framingham
Nati
Sri Lakshmi Temple
135
27
Ashland
Market Basket
ton
ark
27
16
126
Ashland
State Park
Sherborn
135

Word Cloud

Please respond with an infectious disease (non-COVID) that is one of the ***most frequent*** in your community.

How Did I Get This?

DIRECT TRANSMISSION

Person to Person
- Bloodborne
- Respiratory
- Bodily Secretions

Animal to Person
- Bites/Stings/Scratches
- Waste

Mother to Child
- Placenta
- Birth

INDIRECT TRANSMISSION

Contact with an inanimate object
Contact with an organic object



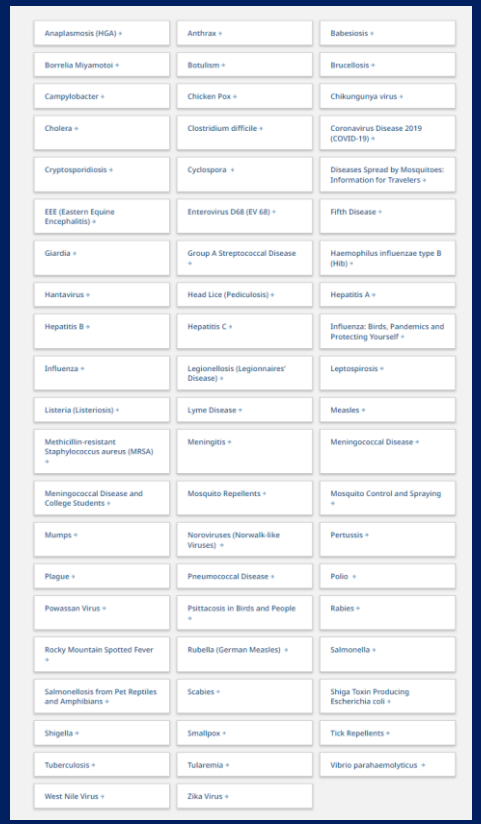


Challenges to Communicable/Infectious Disease and Follow Up Investigations

- Public Opinions: value of a vaccine is inversely proportional to the disease level
- Public Policy & Budgets
- Reduced Public Health Workforce
- Fear of reporting
- Insufficient information
- Lack of timely reporting from providers
- HIPAA requirements
- Lack of disclosure
- Communication & Language
- Health Messaging

Resources at your fingertips!

Example: Hepatitis A



Additional Resources

- English - Hepatitis A (English, PDF 237.22 KB)
- Chinese - 甲型肝炎 (Chinese, Simplified, PDF 281.63 KB)
- Chinese - 甲型肝炎 (Chinese, Simplified, DOC 952.5 KB)
- Russian - Гепатит А (English, PDF 424.82 KB)
- Russian - Гепатит А (English, DOC 978.5 KB)
- Haitian Creole - Epatit A (English, PDF 413.61 KB)
- Haitian Creole - Epatit A (English, DOC 968 KB)
- Portuguese - Hepatite A (English, PDF 413.73 KB)
- Portuguese - Hepatite A (English, DOC 967.5 KB)
- Spanish - Hepatitis A (English, PDF 413.04 KB)
- Spanish - Hepatitis A (English, DOC 966.5 KB)
- Vietnamese - Viêm gan siêu vi A (English, PDF 485.04 KB)
- Vietnamese - Viêm gan siêu vi A (English, DOC 973.5 KB)


Helpful
Tips

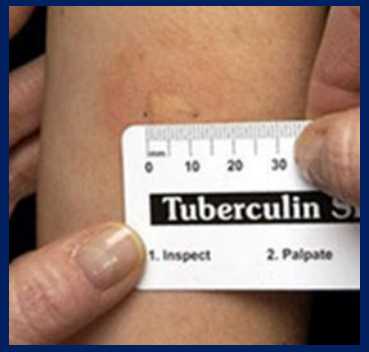
Hollywood Helps…. Sort of…

The Stand
And The Band Played On
Normal Heart
Dallas Buyers Club
Contagion
Outbreak
28 Days Later
The Andromeda Strain
Quarantine
The Last of Us (fungus)
The Great Influenza
Clearing The Plains
Pale Rider
Blindness


TIPS

TB and LTBI

Risks of Untreated Inactive TB: Without treatment, 1 in 10 people with inactive TB will get sick with active TB disease, which can then potentially infect others.



https://www.mass.gov/clinical-advisory/recommendations-for-tuberculosis-screening-testing-and-treatment-of-us-health-care-personnel


HELPFUL
TIPS!

MAVEN Super Heroes!

Hillary Johnson, MHS
Senior Epidemiology Advisor to Local Health, Division of Epidemiology

Scott Troppy, MPH, PMP, CIC
Senior Epidemiologist – MAVEN User Management & Data Visualization Lead

Kate Hamdan, MPH
Surveillance Epidemiologist, MAVEN Training Team Lead

Alexandra De Jesus MPH, CIC
Epidemiologist II – Pandemic Response Coordinator, Division of Epidemiology

Regulation: 105 CMR 300.00
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Core Competencies For Public Health Professionals
https://www.phf.org/resourcestools/pages/core_public_health_competencies.aspx

- 25th Annual MAPHN Conference at Marlborough Holiday Inn and Suites
- Wednesday May 3rd - Thursday May 4th, 2023!
- Early bird registration is open!
- Hotel Information / reservations (discounted block available)
- Call For Posters!

www.maphn.org


CDC


Public Health
Prevent. Promote. Protect.


APHA
American
Public Health
Association


MASSACHUSETTS ASSOCIATION OF PUBLIC HEALTH NURSES INC.
INCORPORATED 1988


SIGILLUM REIPUBLICAE MASSACHUSETTENSIS


FEDERAL EMERGENCY MANAGEMENT AGENCY

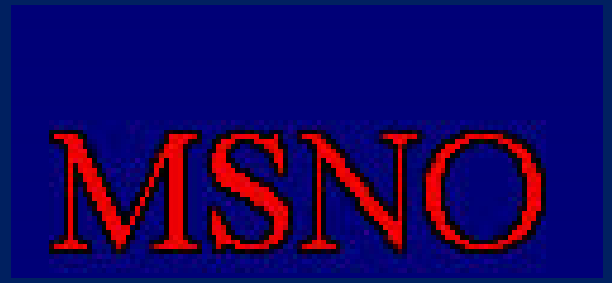

New England
ALLIANCE
for Public Health
Workforce Development
HOME
ALLIANCE TRAININGS


medical
reserve
corps


PUBLIC HEALTH MUSEUM
TEWKSBURY MASSACHUSETTS


MaAOHN


NATIONAL INSTITUTES OF HEALTH


MSNO

A quick 4 question survey for NEPHTI

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Questions