Massachusetts Department of Public Health

MDPH Tuesday Infectious Disease Webinar Series

Infectious Disease Case Investigation: A Programmatic Overview for Local Health

March 12, 2024

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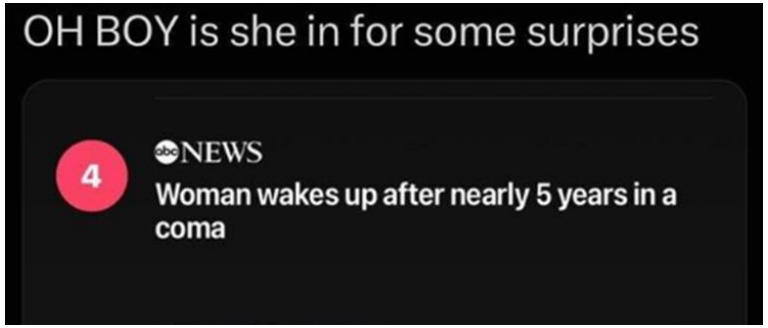
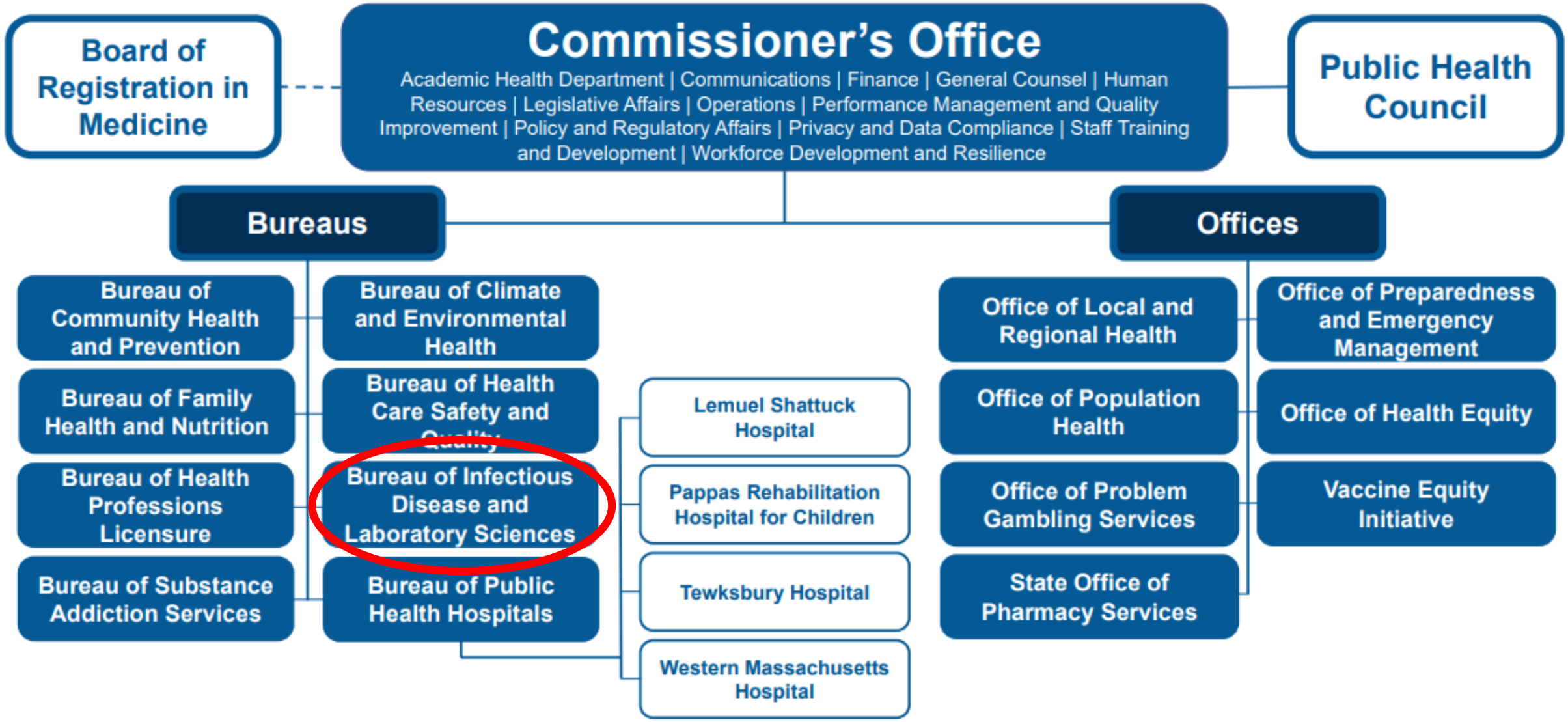
Emerging Infections Coordinator, Division of Epidemiology

Agenda March 12, 2024

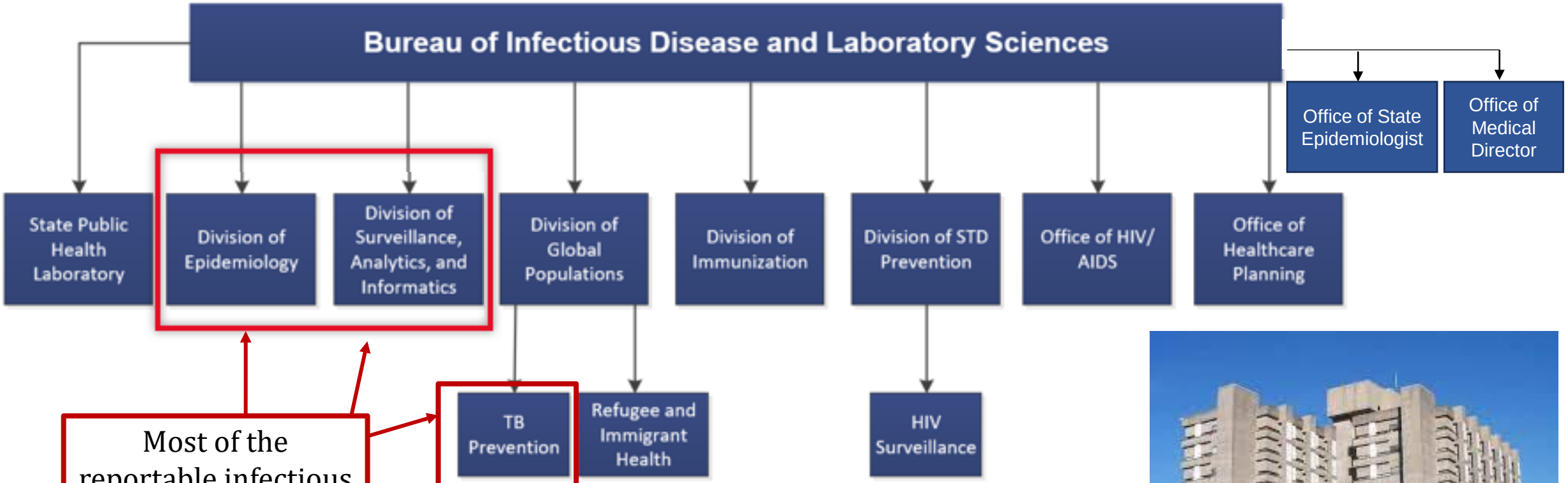
- **Bureau of Infectious Diseases and Laboratory Sciences Overview**
  - **Common Acronyms**
  - **Key MDPH Contact Information.**
- **90+ Reportable Infectious Diseases: How to Keep them Straight?**
  - **MDPH Epi Disease Teams**
  - **Immediate Vs. Routine**
  - **Seasonality**
- **Trainings & Resources: Where to Start**
- **Case Classification Status: What that Means and How to Treat those Disease Events**
- **What is Meant by Investigate?**



Massachusetts Department of Public Health

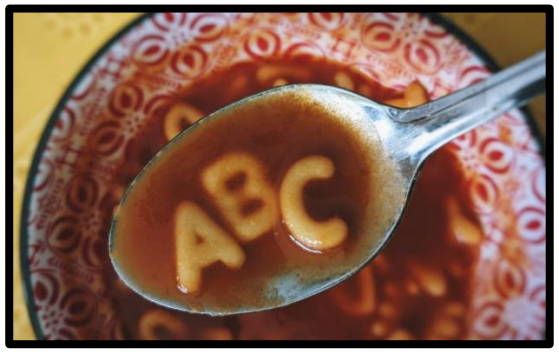


Bureau of Infectious Disease and Laboratory Sciences, MDPH



Common Organization Acronyms in Our Work

- **CDC:** Centers for Disease Control and Prevention
  - **BQS:** Boston Quarantine Station
- **MDPH:** Massachusetts Department of Public Health
  - **BIDLS:** Bureau of Infectious Disease and Laboratory Sciences
    - **DSAI:** Division of Surveillance, Analytics and Informatics
    - **DGP:** Division of Global Populations
  - **BHCSQ:** Bureau of Healthcare Safety and Quality
  - **FPP:** Food Protection Program
  - **OLRH:** Office of Local and Regional Health
  - **OPEM:** Office of Preparedness and Emergency Management
- **DESE:** Department of Elementary & Secondary Education
- **DOC:** Department of Corrections
- **EEC:** Department of Early Education and Care
- **LBOH:** Local Board of Health



Massachusetts State Public Health Laboratory

- The Massachusetts State Public Health Laboratory provides comprehensive public health laboratory services for diagnosis, surveillance, investigation, and prevention consistent with public health goals.
    - Serves as a gold standard reference lab, coordinates with CDC labs, etc.
- There are both program staff offices (Epis!) and laboratory spaces at the State Lab.

All the Same Place, (Our Building):

- **MASPHL:** Massachusetts State Public Health Lab
- **SLI:** State Laboratory Institute
- **SPHL:** State Public Health Lab
- **William A. Hinton State Laboratory:** 1975 Dedication

Division of Epidemiology

Division of Surveillance, Analytics and Informatics (DSAI)

Program Questions:
How do I follow-up on this disease?

- Provides guidance and instruction for disease control and response.

Epidemiologist On-Call Line:

617-983-6800

- This number is staffed by several Division Epidemiologists during the work week 9am-5pm, but also available after hours and on weekends for emergencies.

Informatics Questions:
How do I see my town's cases and document my follow-up in MAVEN?

- Oversees the MAVEN system for disease surveillance and reporting.

MAVEN Help Desk:

617-983-6801

MavenHelp@mass.gov

MAVEN Onboarding:

MavenTraining@mass.gov

MDPH Division of Global Populations: Tuberculosis

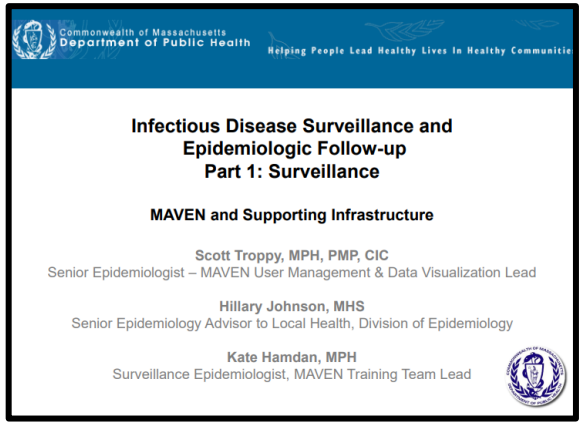
- Questions related to **Tuberculosis** casework can go directly to the TB Program:
  - **TB Email:** BIDLS-TBGeneral@mass.gov
  - **TB Program Phone:** **(617) 983-6970**
  - Every town has an MDPH TB Epi assigned
    - **Check Your Town's Communication Event in MAVEN.** Listed under **DGP Contacts** (Division of Global Populations) in MAVEN.

DGP Contacts

First Name	Last Name	Title	Email	Phone	Mobile Phone
Jane	*Doe*	*MDPH TB Epi*	*MDPHEmail*	*(123) 123-1234*	*(123) 123-1234*

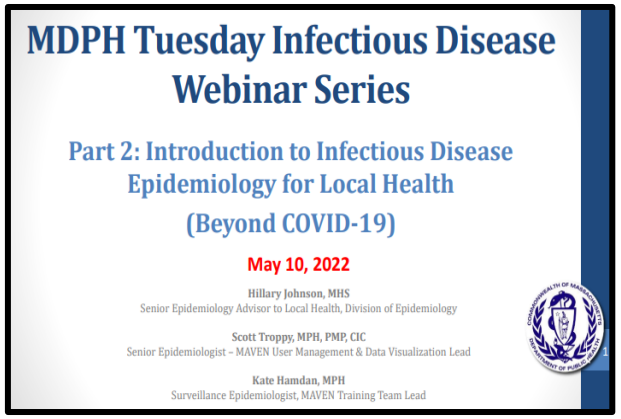
Introduction to Infectious Disease Epidemiology for Local Health (Beyond COVID-19) Parts 1 & 2

- **Two-part introductory series on the core components of infectious disease epidemiology in Massachusetts!**
- **Topics Include:**
  - Reporting Requirements;
  - Surveillance;
  - Case Investigation Resources; and,
  - The importance of Shoe-Leather Epidemiology in identifying and investigating cases and outbreaks in your local community.
- This Training lays the foundation for additional disease-specific trainings.



Part 1: Surveillance

Slides & Recording



Part 2: Epidemiology

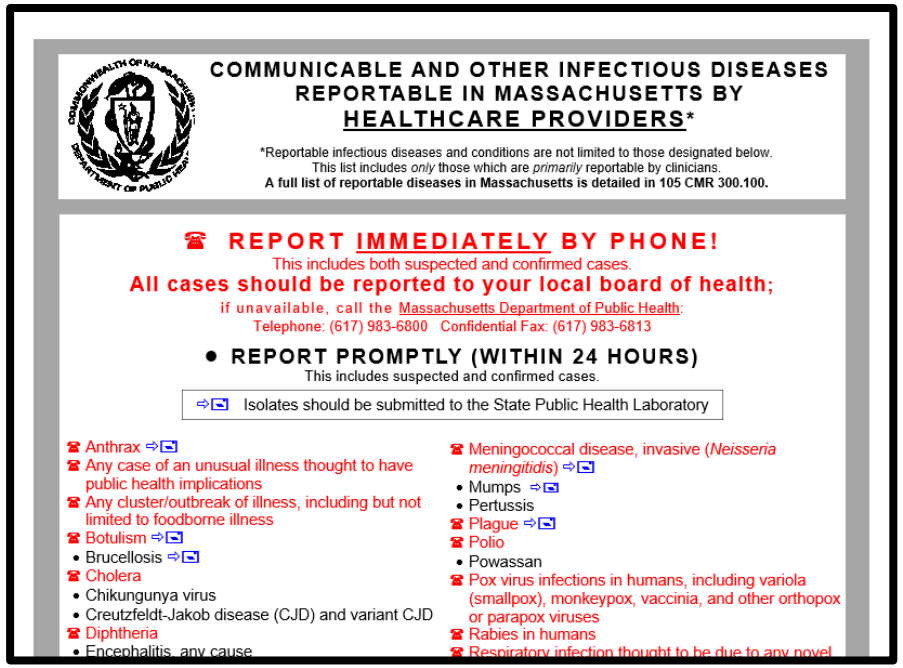
Slides & Recording

- These trainings are appropriate for new and existing local health staff and board members wishing to understand the core components of our work in MA as we respond to additional reportable infectious diseases (beyond COVID-19).
- **This is a great first stop for new and onboarding staff.**

Reportable Infectious Diseases in Massachusetts

What is Reportable by Whom in MA?

- Disease surveillance, reporting, and control are required by law under M.G.L. c.111 and c.111D.
- 105 CMR 300.000: Reportable Diseases, Surveillance, and Isolation Quarantine Requirements



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)

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⇨ Isolates should be submitted to the State Public Health Laboratory

☎ Anthrax ⇨
☎ Any case of an unusual illness thought to have public health implications
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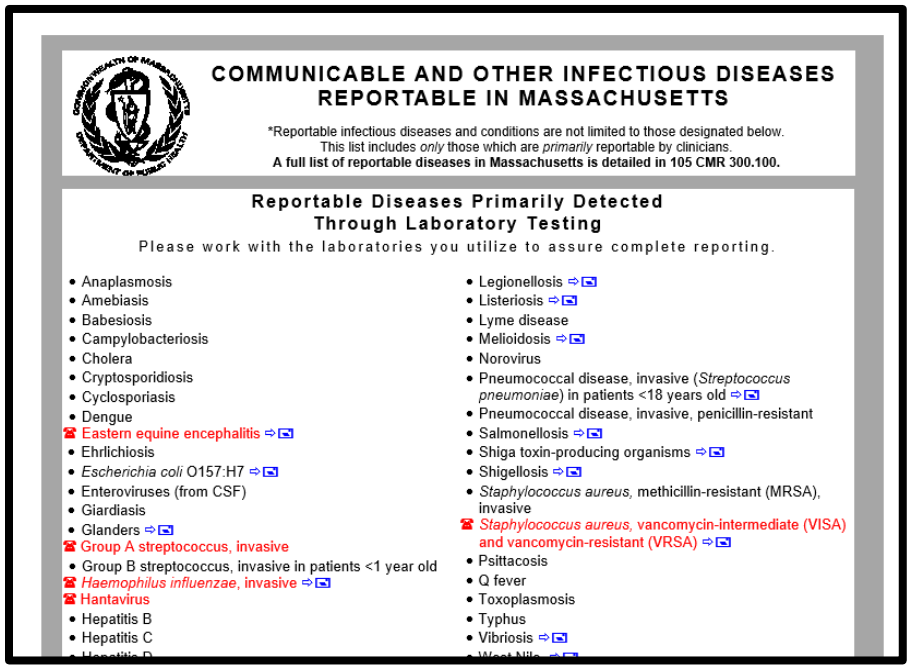
☎ Botulism ⇨
• Brucellosis ⇨
☎ Cholera
• Chikungunya virus
• Creutzfeldt-Jakob disease (CJD) and variant CJD
☎ Diphtheria
• Encephalitis, any cause
☎ Meningococcal disease, invasive (*Neisseria meningitidis*) ⇨
• Mumps ⇨
• Pertussis
☎ Plague ⇨
☎ Polio
• Powassan
☎ Pox virus infections in humans, including variola (smallpox), monkeypox, vaccinia, and other orthopox or parapox viruses
☎ Rabies in humans
☎ Respiratory infection thought to be due to any novel



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Reportable Diseases Primarily Detected Through Laboratory Testing

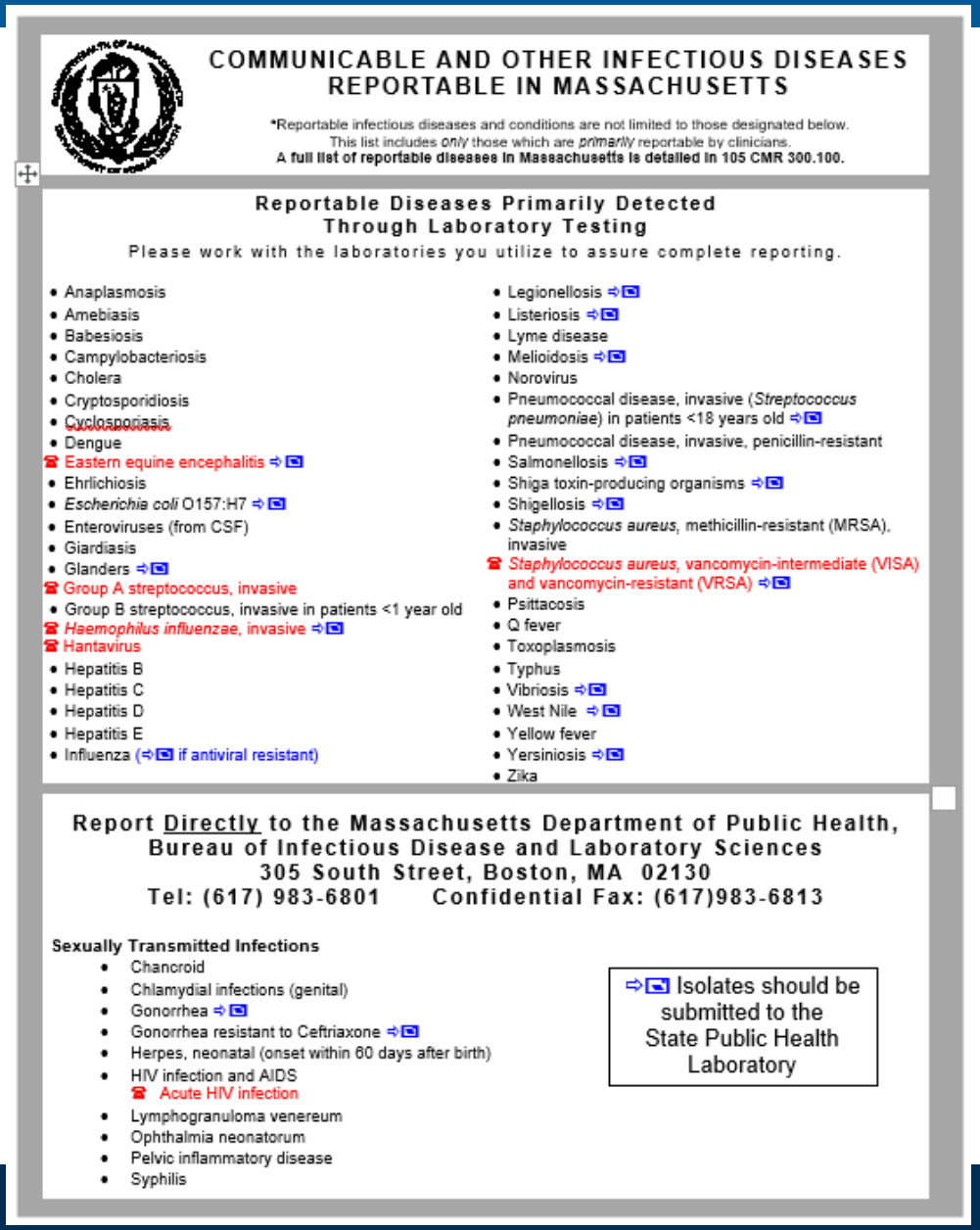
Please work with the laboratories you utilize to assure complete reporting.

• 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
• 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 ⇨

https://www.mass.gov/lists/infectious-disease-reporting-and-regulations-for-health-care-providers-and-laboratories

Positive Lab Tests for Reportable Diseases

- Many specimens can be processed at commercial labs and the results are reported to MDPH.
- Some positive labs need an isolate sent to the State Lab for further diagnostics.
  - Typing, Sequencing, Resistance Testing, etc. (Core Public Health Activity)



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- 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 ⇨
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- *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

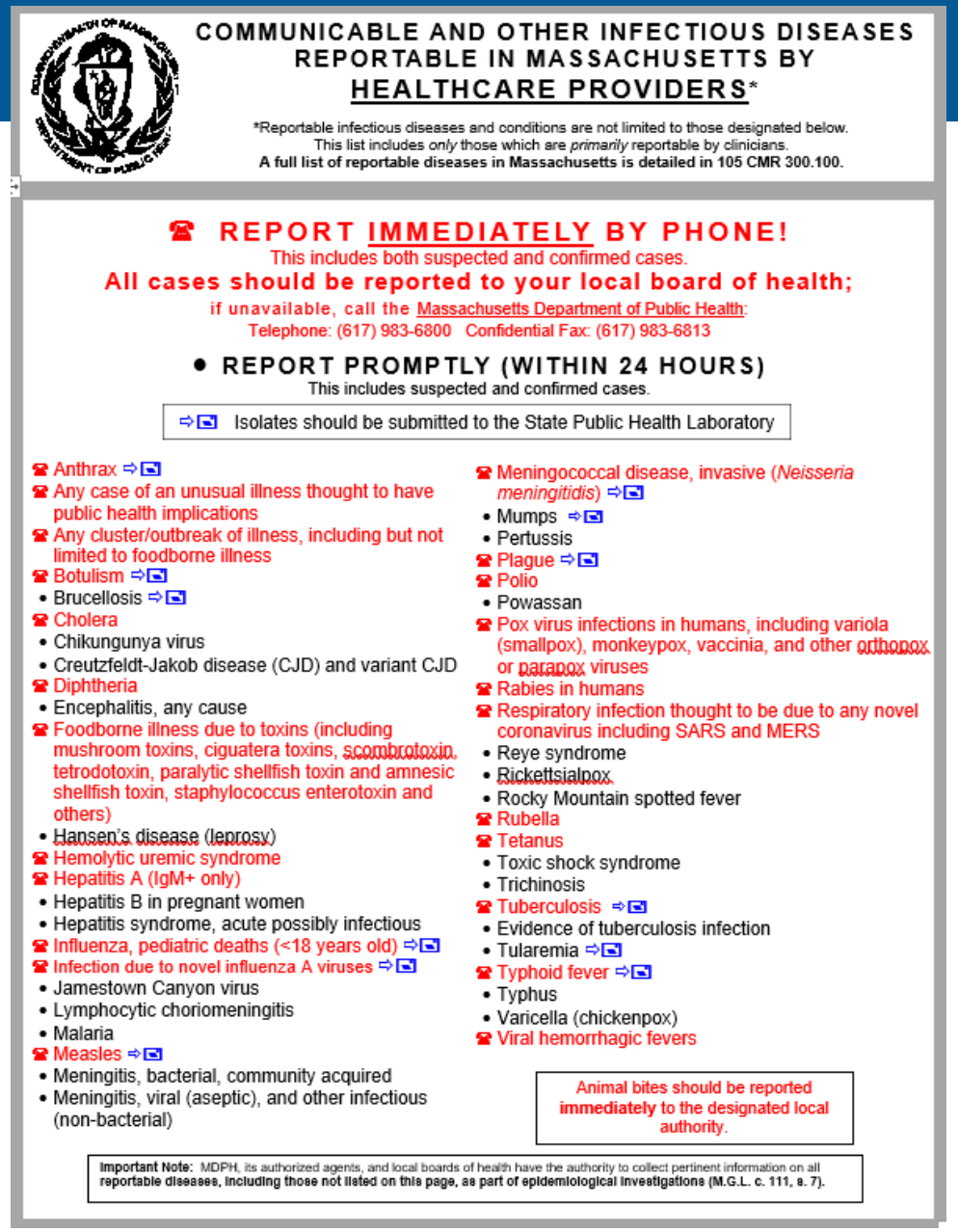
- Chancroid
- Chlamydial infections (genital)
- Gonorrhea ⇨
- Gonorrhea resistant to Ceftriaxone ⇨
- Herpes, neonatal (onset within 60 days after birth)
- HIV infection and AIDS
  - ☎ Acute HIV infection
- Lymphogranuloma venereum
- Ophthalmia neonatorum
- Pelvic inflammatory disease
- Syphilis

⇨ Isolates should be submitted to the State Public Health Laboratory

Healthcare Provider Reporting

- Many cases are reportable by the medical provider. Some of these could be positive from a commercial lab, others are reportable the minute the provider suspects an infection in the patient (prior to testing).
  - For these suspect cases, providers should call MDPH to discuss risk and appropriate testing. Part of the follow-up is helping to rule in or rule out the suspect case.

Example: In 2023 MA investigated **38** Suspect Measles Events. All were ruled out (REVOKED) upon investigation, so there were ZERO confirmed cases of measles in MA in 2023.



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- ☎ 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).

Where the Reports Go:

- **MAVEN – What it is:** MAssachusetts Virtual Epidemiologic Network
  - Infectious disease surveillance system for MDPH.
  - Data collected by BIDLS are maintained in MAVEN. It contains epidemiological, clinical, laboratory, and case management data utilized for case investigation and surveillance purposes on approximately 90 reportable infectious diseases.

- **MAVEN – What it is NOT:**
  - Not Surveillance for Chronic Diseases (check out Bureau of Community Health & Prevention!)
  - Not Cancer Surveillance (Check out the MA Cancer Registry!)
  - Not a Vaccine Registry (That's the Massachusetts Immunization Information System).
  - Cannot collect disease reports/labs on non-reportable diseases.
    - Ex: Hand, Foot & Mouth, RSV, Common Cold, HPV Infection, etc.

How to Keep 90+ Infectious Diseases Straight?

- Grouping/Categorizing is key to managing 90+ reportable diseases.
  - Program Area (Grouping Similar Infections)
  - Immediacy of Response (Immediate vs. Routine)
  - Seasonal Patterns (More Prevalent in Certain Times of the Year)

Important Note: Even in the Division of Epidemiology, none of our Epis have all diseases memorized, and we frequently consult our Standard Operating Procedures (SOPs) and Subject Matter Experts (SMEs) when we encounter certain disease events.

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Disease Groupings by Program Area

- **Antibiotic-Resistant (AR) Organisms:** Focuses on antimicrobial resistant strains of bacteria.
- **Emerging Infections:** Newly recognized in our population or have existed but are rapidly increasing in incidence or geographic range.
- **Enteric Diseases:** Caused by micro-organisms such as viruses, bacteria and parasites that cause intestinal illness. (Typically, your Waterborne and Foodborne Diseases)
- **Healthcare-Associated Infections (HAI):** infections people get while they are receiving health care for another condition.
- **Influenza and Influenza-Like-Illness:** Covers seasonal influenza virus and clusters of other similar respiratory illnesses.

Disease Groupings by Program Area

- **Vaccine-Preventable Diseases (VPDs):** Diseases with an available vaccine for prevention. (With a focus on routinely-administered vaccines for our team.)
- **Viral Hepatitis:** Viral Hepatitis A, B, C, D, and E.
- **Zoonotic Disease:** An infectious disease that is transmitted between species from animals to humans (or from humans to animals).
  - **Arbovirus Disease:** General term used to describe infections caused by a group of viruses transmitted by the bite of infected arthropods (insects) such as mosquitoes and ticks.
- **General Epidemiology:** If it doesn't easily fit somewhere, we put it here.

How MDPH Epis Approach Case Follow-up (Broadly)

- **Subject Matter Expertise:** Our Epis belong to one or more Disease Teams/Program Areas (such as the ones on the previous slides).
  - These teams work on many data, education, and prevention activities, but also serve as the subject matter experts (SMEs) for our Division.
  - They update our internal protocols and SOPs for case investigation activities.

How MDPH Epis Approach Case Follow-up (Broadly)

- We divide most reportable infectious diseases into one of two categories for day-to-day casework and on-call work:

1. **Vaccine Preventable Diseases (VPDs):** Includes Flu and most infections that have a standard vaccine that is part of the routine childhood vaccination schedule. **(Imm)**

2. **General Epidemiology (most everything else):** This is our catch-all group from foodborne to mosquito-borne to random white powder biologics investigations. **(Gen Epi)**

How MDPH Epis Approach Case Follow-up (Broadly)

- Our daily shift schedule involves two main roles:

1. **EOD:** Epi of the Day (Assigned new cases coming in)
   - **VPD EOD**
   - **Gen Epi EOD**

2. **On-Call:** Epi On-Call responds to telephone calls to the Division's Epi on Call number. Response is triaged into two categories:
   - **VPD On-Call**
   - **Gen Epi On-Call**

MDPH Epi Follow-up (Common Acronyms)

Terms our staff use a lot:

- **VPD:** Vaccine Preventable Disease
- **Gen Epi:** General Epidemiology
- **EOD:** Epi of the Day
  - Gen Epi EOD
  - VPD EOD
- **SME:** Subject Matter Expert
- **SOP:** Standard Operating Procedure
- **ELR:** Electronic Lab Report
- **FAQ:** Frequently Asked Questions

Disease Team/Program Area Approach (In Summary): Division of Epi staff divide incoming calls and cases into two categories (VPD or Gen Epi) and have EODs that monitor our MAVEN workflows and On Call Epis that respond to phone calls based upon those two categories.

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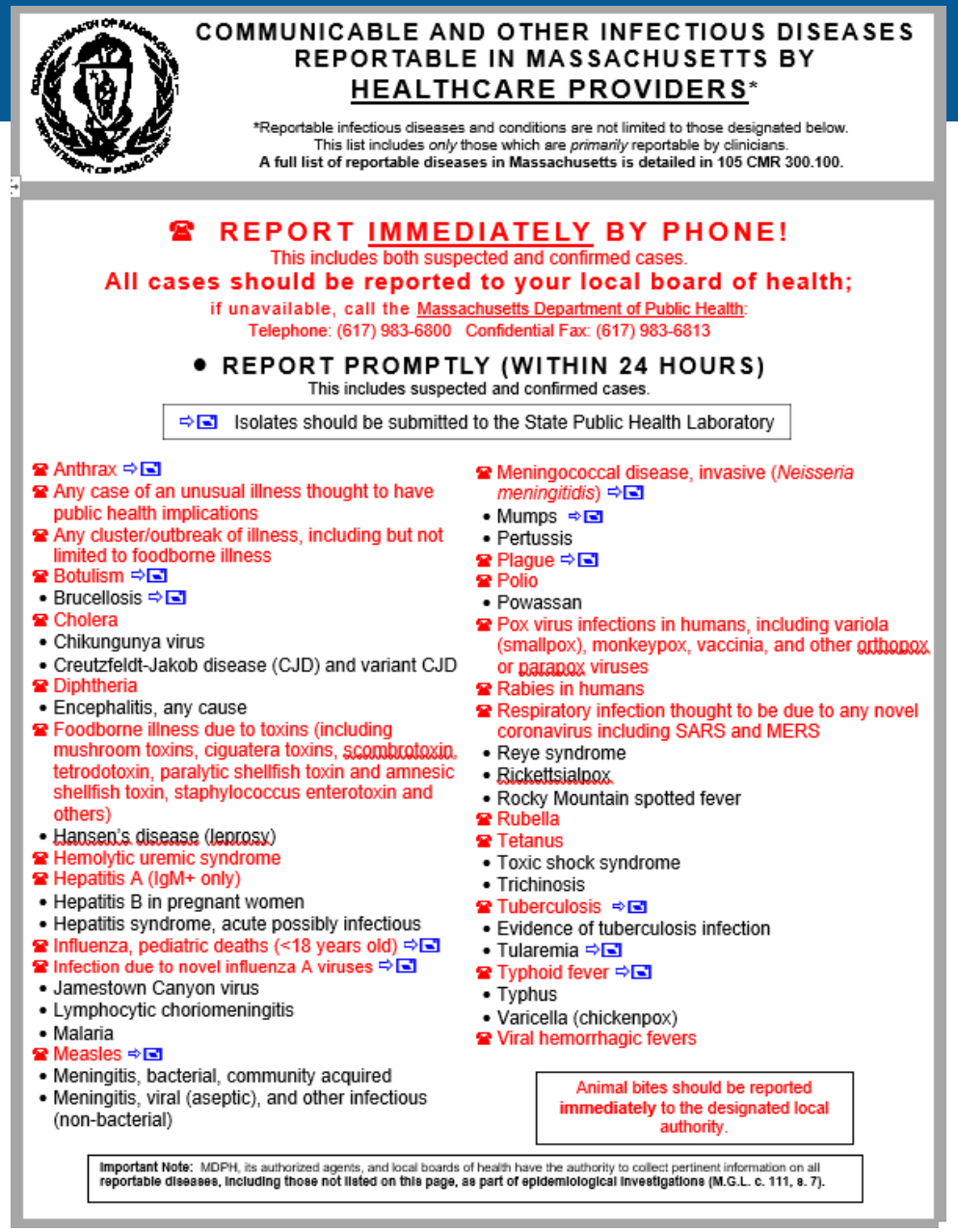
Immediate vs. Routine Diseases

- Another way MDPH Epis approach these diseases is by risk to public health and by grouping them by immediacy of response.
  - In addition to VPD & Gen Epi group triage, we also monitor Immediate vs. Routine Disease Event Workflows in MAVEN.

Example: A Measles Event in MAVEN would appear in our Immediate Workflow and take priority over a *Streptococcus pneumoniae* Event in the Routine Workflow.



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Immediate Disease

Require immediate attention and should be prioritized for investigation

<u>What is considered immediate?</u>

- Clusters of illness
- Diseases that require prompt pharmaceutical or non-pharmaceutical intervention to protect or prevent spread
  - (Ex: rabies, hepatitis A, measles)
- Diseases with high mortality rates
  - (Ex: invasive meningococcal disease, EEE)
- Potential bioterrorism agents
  - (Ex: anthrax, smallpox)
- Unusual disease in a demographic group or geographic region

Routine Disease

Non-immediate diseases. These should be investigated within one to two business days

<u>Examples:</u>

- Salmonellosis
- Human Granulocytic Anaplasmosis
- Campylobacteriosis

These investigations are important to complete for surveillance but may not have as immediate a public health impact.

No Follow-Up Required Diseases (3rd category)

No Local Follow-Up Required

Some diseases are tracked in MAVEN but do not require additional follow-up at the local level. These will appear in the **LBOH Notification but No Follow-up Required Workflow**.

- Other than receiving a notification, no further follow up on these events is generally required from the LBOH.
- If you want to continue to investigate and follow up on these events/cases, please feel free to do so in MAVEN based upon local priorities and bandwidth. But this is not required by MDPH.
- See LBOH Notification but No Follow-Up Required Workflow Tip Sheet

Why is No Additional Local Follow-Up Required?

- These may not reach the threshold for local follow-up.
  - Ex: Only suspected acute cases of hepatitis C infection require LBOH follow-up; hepatitis C cases appearing in this workflow do not have the needed clinical criteria reported.
- Active surveillance to collect additional information may not be needed due to other activities such as syndromic surveillance.
  - Ex: Lyme Disease
- Follow-up may only be required for certain demographics.
  - Ex: *Streptococcus pneumonia* infections among those 18 years and older no investigation required.

Best Practices for Good Case Investigation

Local Health Tip!

- **Jurisdictions should log in to MAVEN at least ONCE DAILY to identify new cases and determine a plan for next steps in follow-up.**
  - **IMMEDIATE** diseases often need action right away (within 24 hours).
  - **ROUTINE** diseases should still have action within about 3 days or so.
- Control Measures (identifying infectious periods for determining exposures and close contacts or identifying high risk occupations and if a case is a food handler and needs to be excluded from work, etc.) are actions that may be needed for both Immediate and Routine diseases.
- If your jurisdiction maintains only partial coverage (e.g., only staffed for 4 hours 1x per week), this will be difficult.
  - Discuss a better infectious disease coverage option with your Shared Services Coordinator or with neighboring jurisdictions.
  - This will help you meet assessment goals, but MORE IMPORTANTLY, it will help provide disease intervention when needed in your communities.

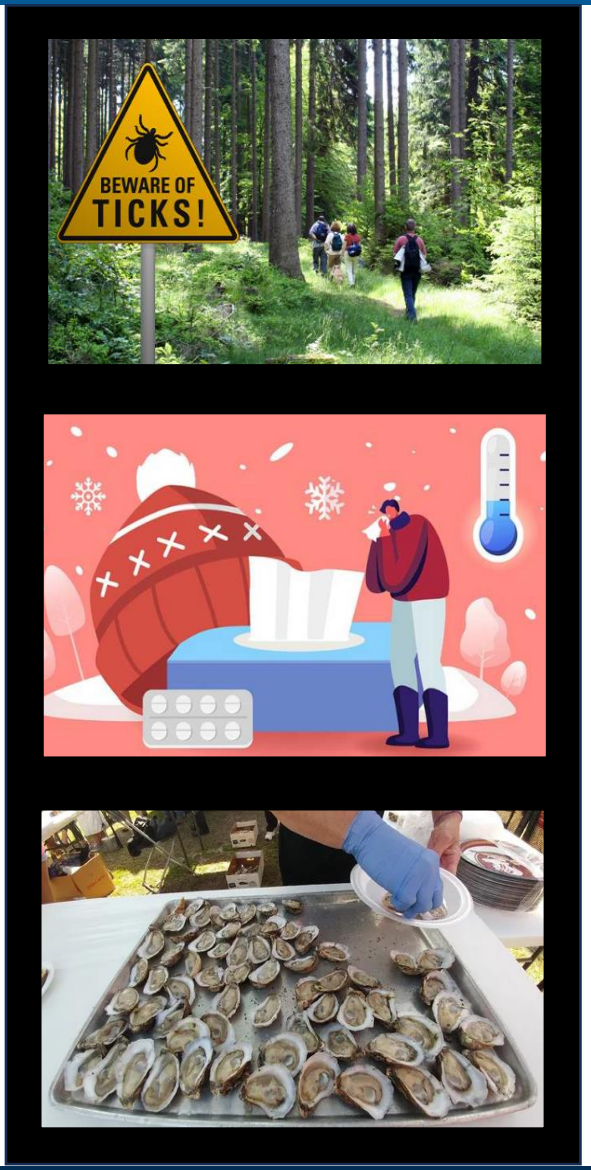
How to Keep 90+ Infectious Diseases Straight?

- Grouping/Categorizing is key to managing 90+ reportable diseases.
  - Program Area (Grouping Similar Infections)
  - Immediacy of Response (Immediate vs. Routine)
  - **Seasonal Patterns (More Prevalent in Certain Times of the Year)**

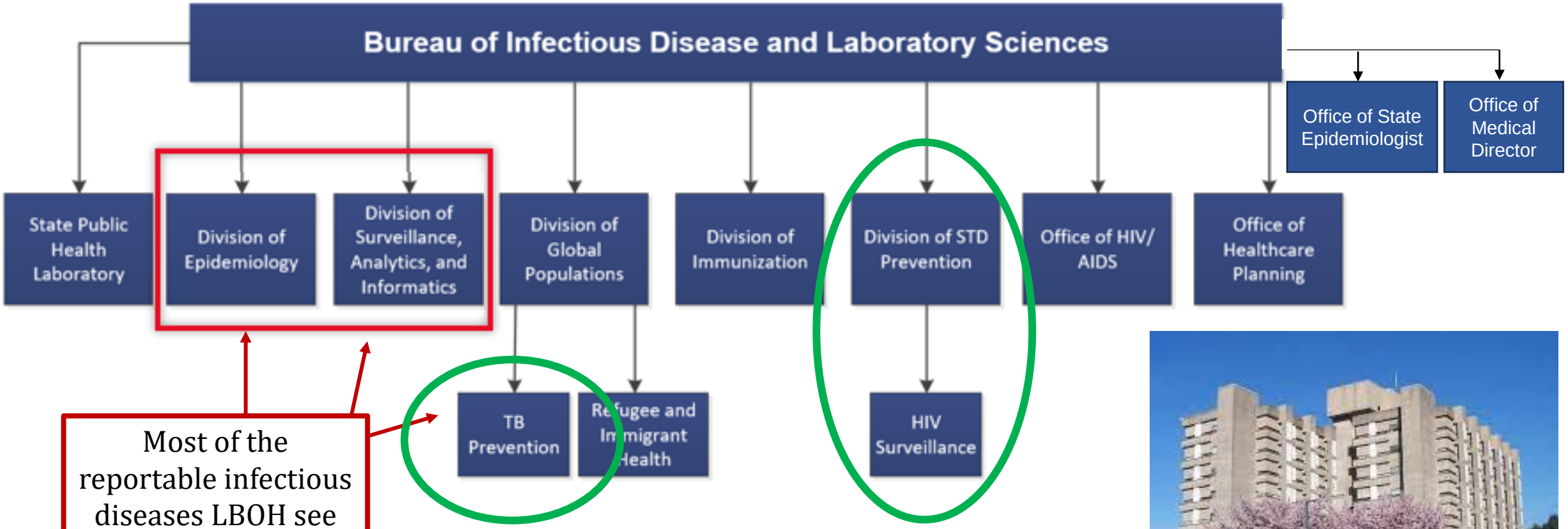
Important Note: Even in the Division of Epidemiology, none of our Epis have all diseases memorized, and we frequently consult our Standard Operating Procedures (SOPs) and Subject Matter Experts (SMEs) when we encounter certain disease events.

Seasonal Patterns

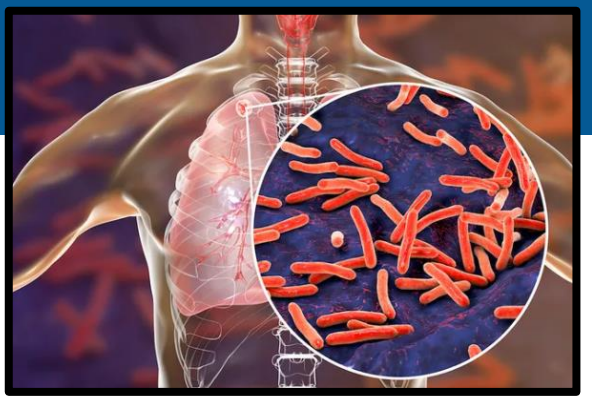
- Some diseases have a predictable seasonal pattern that is driven by factors like climate, environment and social behavior.
- We often staff differently depending on the ebb and flow of different disease seasons.
- **Examples:**
  - Influenza & Respiratory Illness Season
  - Norovirus Season (winter when folks are enclosed together inside)
  - Mosquito-borne Diseases (Summer Arbovirus Season)
  - Foodborne Diseases (Often follow holidays, summer BBQ season, Oyster Season, etc.)



Bureau of Infectious Disease and Laboratory Sciences, MDPH



Tuberculosis (TB)

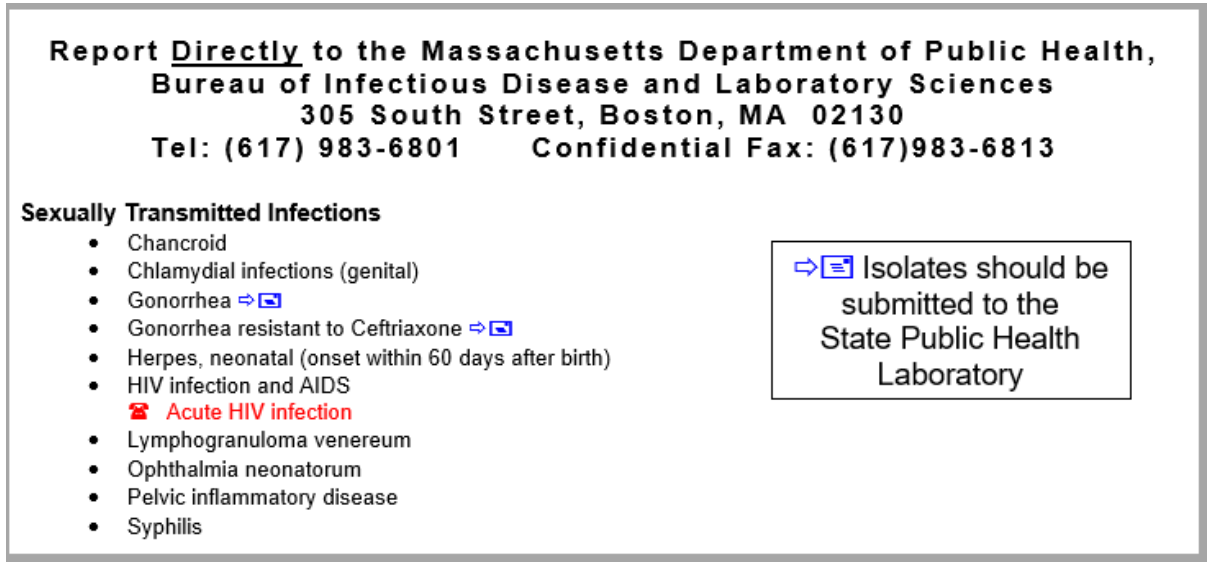


The Division of Global Populations (DGP) oversees the Tuberculosis Prevention Program

- TB is an infection or disease caused by a germ that you breathe into your lungs. **There are two forms of TB: TB infection and TB disease.**
  - **TB Infection (or Latent TB Infection (LTBI))**
    - People have a small amount of TB germs in their bodies that are alive but inactive
    - Do not feel sick, do not have symptoms, and cannot spread TB germs to others
    - Can have latent TB infection for years
  - **TB Disease**
    - If TB germs become active and multiply, latent TB infection can turn into TB disease
    - Treatment of latent TB infection can prevent TB disease
- There may be many LTBI records in MAVEN, but most of the work at the local level will be on managing TB Disease events. MAVEN workflows assist in identifying TB events requiring action.
- Check out the DGP Folder in MAVEN to access more training materials or contact DGP's epidemiology and nursing staff directly for assistance with TB events in your jurisdiction.

Sexually Transmitted Infections

- **Sexually Transmitted Infections (STIs)** in MA are reported at the STATE level and local health will not see them in MAVEN due to more specific privacy and confidentiality requirements.
- **Surveillance & Case Investigation** in the Division of STD Prevention focuses on disease intervention through Partner Services (rapid contact tracing).
- **Partner Services** provided by MDPH helps people diagnosed with STDs, including HIV, get treated for their infection, notify their partners that they might have been exposed to an STD, and helps partners get testing and medical care.



Summary:
STI case investigation and surveillance is handled by Division of STD Prevention staff at MDPH.

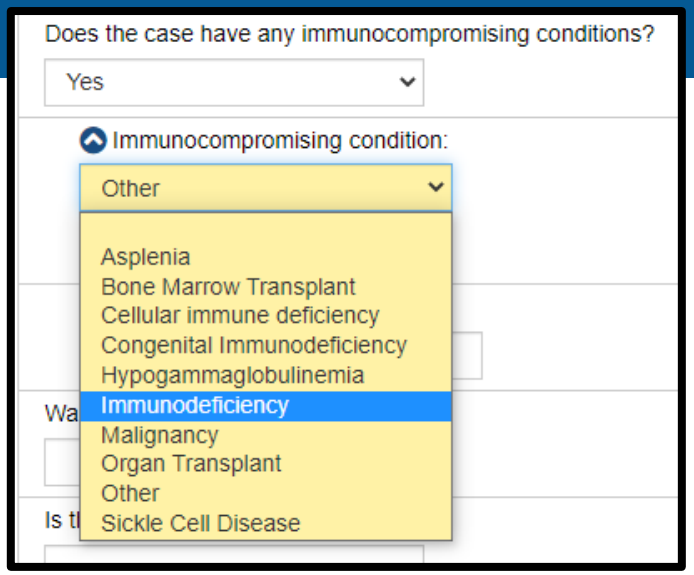
Division of STD Prevention: 617-983-6940

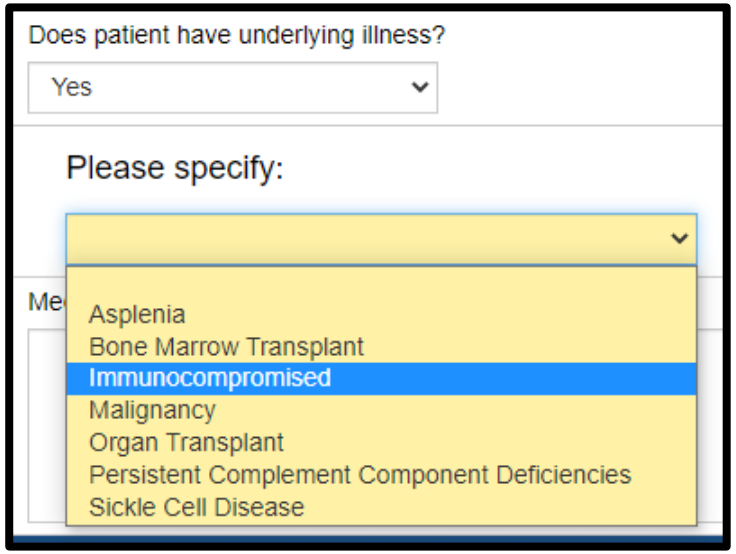
Data & Reports on STI Rates in MA| Mass.gov.

HIV Status: Never Document in MAVEN

(Outside of the Division of STD Prevention…)

- **HIV Status should NEVER be documented in MAVEN Events.**
  - Not in the Notes Section NOR in the Clinical Question Packages.
- If a MAVEN Event asks for Underlying Conditions, please note "Immunocompromised" or if that is not available in the drop-down, select "Other" and Specify "Immunocompromised."
  - Drop Down Options for Immune Compromising Conditions and/or Underlying Conditions will vary based upon the disease event.
  - It is important to NEVER note HIV status directly in MAVEN Events.





Key Distinctions Across Diseases

For each disease, similar concepts, different features:

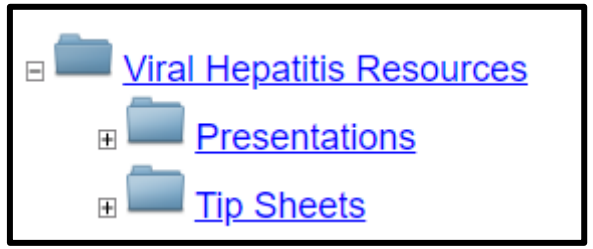
- Symptoms
- Symptom onset date
- Incubation period, infectious period
- Mode of transmission
- Prevention
- Appropriate Testing
  - Not all lab tests are equal, and some diseases require additional follow-up testing for confirmation.

RESOURCES

Where to Go for More Information?

MAVEN Help is a great place to start!

- Our Tools for Local Health Webinar Series provides introductions and ongoing updates to follow-up for several different diseases.
  - There are previous presentations (PDFs of slides, as well as recordings you can re-watch).
  - There are several MAVEN and disease-specific Tip Sheets to assist with follow-up.



- **Live Webinars** featuring general updates, as well as specific topics occur the **2nd Tuesday of each month.**
- **Live Office Hours** (with Epidemiologists and MAVEN staff) are held the **4th Tuesday of the month.** Tune in to ask your burning questions!

Register for Live Sessions Here: http://tinyurl.com/MAVEN-Webinars

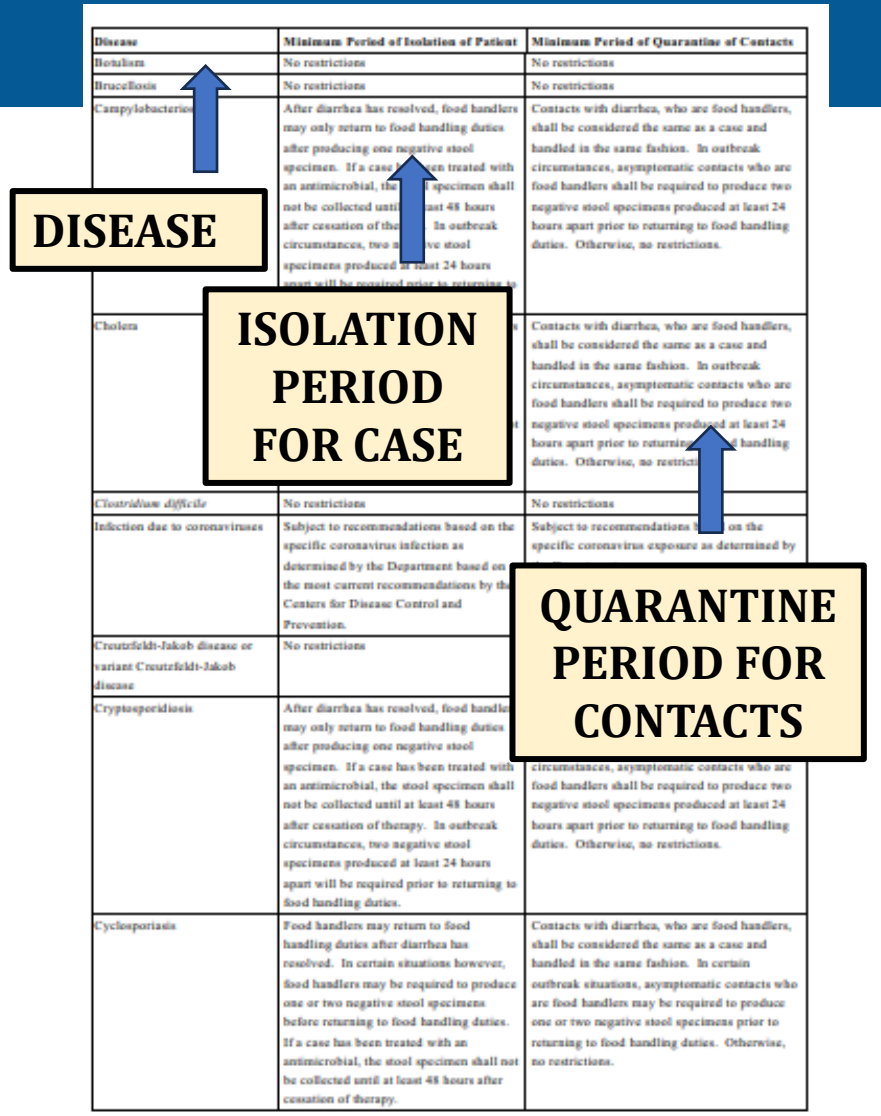
MAVEN Online Help Folders

- Recent Webinars (Tools for Local Health Webinar Series)
- Case Classification Manual
- Case Report Forms
- COVID-19 Resources
- Foodborne and Enteric (Gastrointestinal) Disease
- Global Populations and Refugee Resources (Includes Tuberculosis(TB))
- Group A Streptococcus(GAS)
- HIPAA Documents
- Infection Preventionist Resources
- MAVEN Resources
- MPOX Resources
- STD Resources
- Vaccine Preventable Disease Resources
- Viral Hepatitis Resources
- Zoonotic (Includes mosquito and tick diseases) Resources

Investigation Resources

Where to Go for More Information?

- The Code of Massachusetts Regulations (CMR) outlines reportable diseases, surveillance, and isolation and quarantine requirements.
  - 105 CMR 300.000
- This is the regulatory foundation of our public health work in infectious diseases. (contains purpose, definitions, reporting, requirements, etc.)
  - Section 105 CMR 300.200 provides a quick Isolation & Quarantine Requirements Table



Disease	Minimum Period of Isolation of Patient	Minimum Period of Quarantine of Contacts
Botulism	No restrictions	No restrictions
Brucellosis	No restrictions	No restrictions
Campylobacteriosis	After diarrhea has resolved, food handlers may only return to food handling duties after producing one negative stool specimen. If a case has been treated with an antimicrobial, the stool specimen shall not be collected until at least 48 hours after cessation of therapy. In outbreak circumstances, two negative stool specimens produced at least 24 hours apart will be required prior to returning to	Contacts with diarrhea, who are food handlers, shall be considered the same as a case and handled in the same fashion. In outbreak circumstances, asymptomatic contacts who are food handlers shall be required to produce two negative stool specimens produced at least 24 hours apart prior to returning to food handling duties. Otherwise, no restrictions.
Cholera		Contacts with diarrhea, who are food handlers, shall be considered the same as a case and handled in the same fashion. In outbreak circumstances, asymptomatic contacts who are food handlers shall be required to produce two negative stool specimens produced at least 24 hours apart prior to returning to food handling duties. Otherwise, no restrictions.
Clostridium difficile	No restrictions	No restrictions
Infection due to coronaviruses	Subject to recommendations based on the specific coronavirus infection as determined by the Department based on the most current recommendations by the Centers for Disease Control and Prevention.	Subject to recommendations based on the specific coronavirus exposure as determined by
Creutzfeldt-Jakob disease or variant Creutzfeldt-Jakob disease	No restrictions	
Cryptosporidiosis	After diarrhea has resolved, food handlers may only return to food handling duties after producing one negative stool specimen. If a case has been treated with an antimicrobial, the stool specimen shall not be collected until at least 48 hours after cessation of therapy. In outbreak circumstances, two negative stool specimens produced at least 24 hours apart will be required prior to returning to food handling duties.	circumstances, asymptomatic contacts who are food handlers shall be required to produce two negative stool specimens produced at least 24 hours apart prior to returning to food handling duties. Otherwise, no restrictions.
Cyclosporiasis	Food handlers may return to food handling duties after diarrhea has resolved. In certain situations however, food handlers may be required to produce one or two negative stool specimens before returning to food handling duties. If a case has been treated with an antimicrobial, the stool specimen shall not be collected until at least 48 hours after cessation of therapy.	Contacts with diarrhea, who are food handlers, shall be considered the same as a case and handled in the same fashion. In certain outbreak situations, asymptomatic contacts who are food handlers may be required to produce one or two negative stool specimens prior to returning to food handling duties. Otherwise, no restrictions.

Mass.gov | 105 CMR 300.000: REPORTABLE DISEASES, SURVEILLANCE, AND ISOLATION AND QUARANTINE REQUIREMENTS

Investigation Resources

MDPH Guide to Surveillance, Reporting and Control

The *Guide to Surveillance and Reporting* was developed to assist local boards of health with specific surveillance, response, and reporting responsibilities for infectious diseases reportable to the Massachusetts Department of Public Health. Each chapter is disease specific and contains general information about the disease, as well as control recommendations and reporting requirements.

ORGANIZATION: Bureau of Infectious Disease and Laboratory Sciences, Department of Public Health

DATE PUBLISHED: October 26, 2018

About this guide

Infectious diseases are a continuing threat to the public's health. They cause illness, suffering, and death, and they place an enormous financial burden on society. Although some infectious diseases have been controlled by modern advances, diseases are constantly emerging or re-emerging. State public health officials rely on local boards of health (LBOH), health care providers, laboratories, and other public health personnel to report the occurrence of reportable diseases. Without such data, trends cannot be accurately monitored, unusual occurrences of diseases (such as outbreaks) cannot be detected and appropriately addressed, and the effectiveness of control and prevention activities cannot be easily evaluated.

The *Guide to Surveillance and Reporting* was developed to assist local boards of health with specific surveillance, response, and reporting responsibilities for infectious diseases reportable to the Massachusetts Department of Public Health. Each chapter is disease specific and contains general information about the disease, as well as control recommendations and reporting requirements. We appreciate the critical importance of the efforts of local boards of health to investigate and control diseases in their communities and strive to provide the most up to date materials to assist in that process.

RELATED

Bureau of Infectious Disease and Laboratory Sciences

Downloads

- Amebiasis (2016) (RTF 228.38 KB)
- Botulism (2018) (RTF 226.3 KB)
- Campylobacter Enteritis (2016) (RTF 205.21 KB)
- Chickenpox and Shingles (2016) (DOC 287.5 KB)
- Cryptosporidiosis (2016) (DOCX 50.99 KB)
- Cyclosporiasis (2016) (RTF 195.83 KB)
- Giardiasis (2016) (RTF 206.19 KB)
- Group A Streptococcus (Invasive) (2018) (DOCX 54.42 KB)
- Hansen's Disease (2016) (RTF 197.46 KB)
- Hepatitis A (2016) (RTF 224.66 KB)

Investigation Resources

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

Contacting an Ordering Medical Provider

- **More often than not, the Ordering Provider is the place to begin for case investigation.**
  - Many of our routine diseases may not even require speaking to the patient if a few key demographics, clinical, and risk questions can be answered by the provider who ordered the test.
- Ordering Provider Information may be available in the **Lab Tab of a MAVEN Event**, but if a contact number is missing, you may be able to look up the provider's contact information elsewhere. Bookmark these Resources:
  - Npidb.org | National Provider Identifier (NPI) Number Lookup for doctors & medical groups
  - Mass.gov | Board of Registration in Medicine (BORIM) Physician License Verification

Investigation Resources

Language Line Assistance For Case Investigation

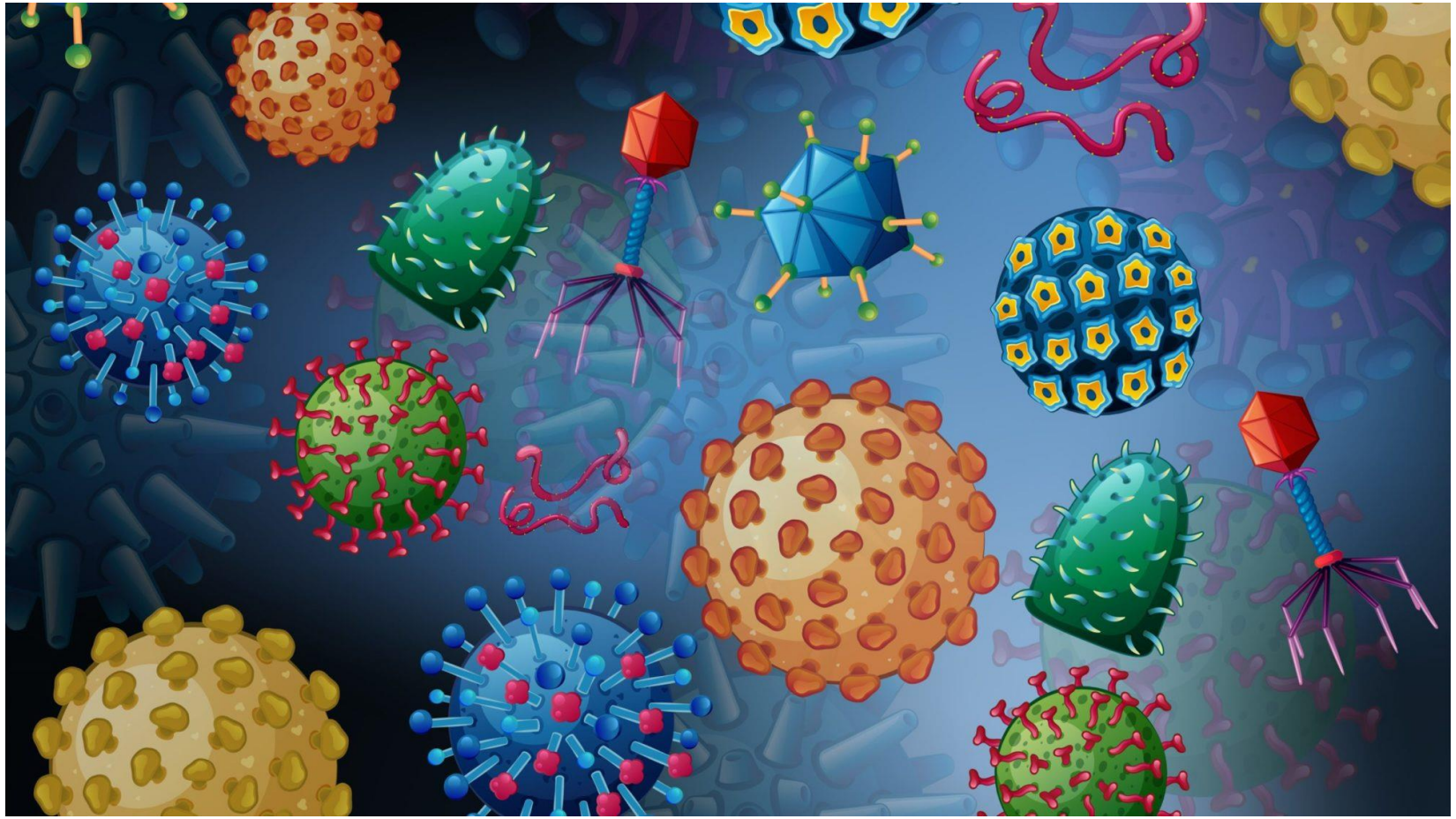
- **The following telephone interpreter services are available for assistance in infectious disease case investigations for Local Health.**
  - Please note, the Vendor for this service is LanguageLine Solutions®.
  - The phone number & access code for this service are as follows:
    - **DIAL: 866-874-3972**
    - **PROVIDE: 684959**

What if my case doesn't speak English?

- This new vendor is ONLY for telephonic language interpreter services. LBOH should not utilize this contract/code for things like document translation or other activities.
- Under this new process, LBOH can access this service with the access code above, and you do not need to submit invoices to MDPH.

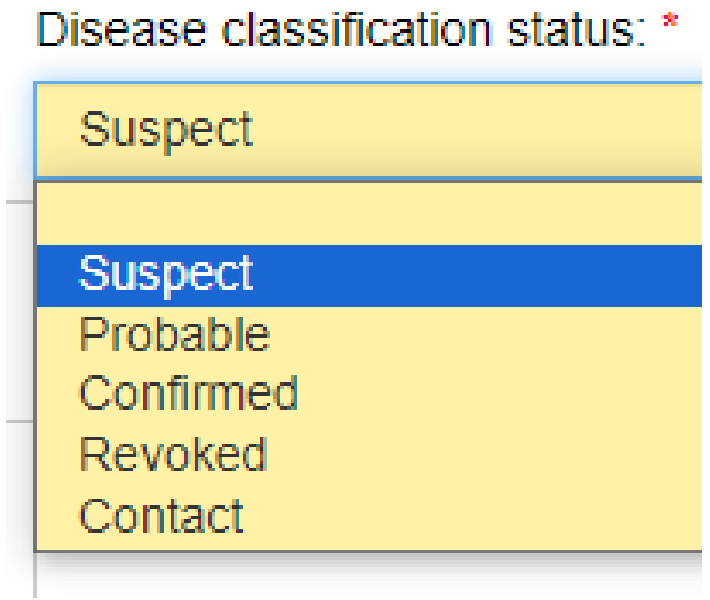
Investigation Resources

Case Classification



Is It A Case? Understanding Case Definitions

- **Event:** A record in MAVEN.
  - MAVEN Events have a required minimum amount of information (data) in order for the Event to be created.
- **Event Status:** A MAVEN Variable (question) for Disease Classification Status.
  - All MAVEN Events are required to have an Event Status.
  - The Event Status Variable may change as more information becomes available through an investigation.
  - The Event Status, or Case Classification, is the final disposition on whether something is a true case or if it is ruled out following investigation.



Is It A Case? Understanding Case Definitions

- **Case Classification Manual:** A manual describing Surveillance Case Definitions for each disease.
    - It outlines a uniform criteria used to define a disease for public health. Surveillance case definitions enable public health officials to classify and count cases consistently across reporting jurisdictions.
- This ensures that a CONFIRMED case of measles in California means the same thing as a CONFIRMED case of measles in Massachusetts, and every state in between.

Case Classification Manual for Measles

MEASLES **IMMEDIATE NOTIFICATION** **IMMUNIZATION PROGRAM**

Event Name:	MEAS	
Event Time Period:	Lifelong immunity	
Clinical Description (CDC 2013):	An illness characterized by all the following: • Generalized, maculopapular rash lasting ≥ 3 days; AND • Temperature ≥101.0°F or 38.3°C; AND • Cough, coryza, or conjunctivitis	
CDC Event Classification (2013):	*Confirmed*	An acute febrile rash illness* with: • Isolation of measles virus† from a clinical specimen; OR • Detection of measles-virus specific nucleic acid† from a clinical specimen using polymerase chain reaction; OR • IgG seroconversion† or a significant rise in measles immunoglobulin G antibody† using any evaluated and validated method; OR • A positive serologic tests for measles immunoglobulin M antibody†‡; OR • Direct epidemiologic linkage to a case confirmed by one of the methods above
	Probable	In the absence of a more likely diagnosis, an illness that meets the clinical description with: • No epidemiologic linkage to a laboratory-confirmed measles case; AND • Noncontributory or no measles testing
Massachusetts Event Classification:	*Confirmed*	*Follows CDC event classification*
	Probable	*Follows CDC event classification*
	Suspect	Any reported case that does not otherwise meet the confirmed, probable, or revoked case definition
	Revoked	A negative measles IgM test on a serum specimen collected ≥72 hours after onset of rash OR a case that does not meet the clinical description and does not meet the confirmed case definition

Is It A Case? Understanding Case Definitions

A MAVEN Event may start out as a "Suspect" event in MAVEN because minimal information is preliminarily available.

- **Example:** A Medical provider calls MDPH to report they have a symptomatic patient in the office, and they suspect measles based upon the clinical presentation, however they have not yet tested the patient.
  - The MDPH Epi would create a MAVEN Event for Measles to begin documenting the investigation, but the case would not meet the case classification for Probable or Confirmed without additional information (as required by the Measles Surveillance Case Definition).
  - As the investigation continues, additional symptoms, risk history, and ultimately test results contribute to updating the case classification accordingly.
    - If the case meets all the required criteria, it might be changed to CONFIRMED.
    - If the case meets slightly different required criteria, it might be changed to PROBABLE.
    - If the case does not meet any additional measles criteria, (for example, the symptoms do not meet certain clinical criteria and/or the test results come back negative), the Suspect measles case may be changed to REVOKED (meaning it has been ruled out and should not be counted as a true case.)

Is It A Case? Understanding Case Definitions

- Sometimes, a MAVEN Event may start out as “Confirmed” or “Probable” because it meets minimum criteria with an electronically reported positive lab test.

HAEMOPHILUS INFLUENZAE - INVASIVE **NON- IMMEDIATE NOTIFICATION** **IMMUNIZATION PROGRAM**

Event Name:	HFLU	
Event Time Period:	180 days (6 months) (Lifelong immunity from serotype)	
Clinical Criteria (CSTE 2015):	Invasive disease caused by *Haemophilus influenzae* manifest as pneumonia, bacteremia, meningitis, epiglottitis, septic arthritis, cellulitis, or purulent pericarditis; less common infections include endocarditis and osteomyelitis.	
CSTE Event Classification (2015): 14-ID-05	*Confirmed*	• Isolation(culture) of *Haemophilus influenzae* from a normally sterile body site (e.g., cerebrospinal fluid [CSF], blood, joint fluid, pleural fluid, pericardial fluid) OR • Detection of *Haemophilus influenzae*-specific nucleic acid in a specimen obtained from a normally sterile body site (e.g., cerebrospinal fluid [CSF], blood, joint fluid, pleural fluid, pericardial fluid), using a validated polymerase chain reaction (PCR) assay
	Probable	Meningitis WITH detection of *Haemophilus influenzae* type b antigen in cerebrospinal fluid [CSF]
Massachusetts Event Classification:	*Follows CSTE Event Classification*	

Is It A Case? Understanding Case Definitions

- Ultimately, different diseases have different criteria for meeting case classifications. Here are some things to note on Case Classification:
  - Only probable and confirmed cases are reported to CDC.
  - Depending on the disease, a suspect event may require additional investigation to rule in (confirmed or probable) or rule out (revoked).
  - Sometimes “suspect” will remain a placeholder for a situation without additional information, (no ruling in or out was possible).
  - Be sure to note case classification and analyze accordingly if you are reporting on disease numbers for your jurisdiction.
  - MDPH Epis review and update this variable.

Case Classification: In Summary

When an investigation is complete and filled out in the MAVEN Event, this is a called “Completing the Case Report Form (CRF)”

- A completed CRF allows for an official review and final case classification. This is needed to CONFIRM a case, OR to REVOKE one.

What makes a case suspect, probable, confirmed or revoked?

- Different criteria for each disease:
  - Definitions provided by the Council of State and Territorial Epidemiologists (CSTE), CDC or Massachusetts
- See case classification manual in MAVEN Help

Investigations

It begins with a report…

- All events in MAVEN begin with a report. The report can be via:
  - Phone
    - From provider, community member, MDPH Epi, other BOH, etc.
  - Fax
  - MAVEN electronic lab reporting (ELR)
  - MAVEN manual case creation by an Epi/MAVEN User

Investigations

- We use the term “investigation” to mean a wide variety of actions related to a disease event in MAVEN:
  - Gathering & updating additional information not in the original electronic or phone report (either from interviews or calling the reporting provider).
    - This is **“Completing the Case Report Form (CRF)”**
    - A completed CRF allows for an official review and final case classification. This is needed to CONFIRM a case, OR to Revoke one.
  - **Ensuring proper control measures**, including isolation of the case and quarantine of contacts when applicable.
  - Occasionally, follow-up expands beyond routine data collection to **encompass an outbreak investigation which includes rapid time-sensitive response.**

Investigations

Investigation helps to:

- Identify a public health action to be taken.
- Stop chains of transmission and control further spread.
- Collect data to classify, aggregate, and monitor trends.

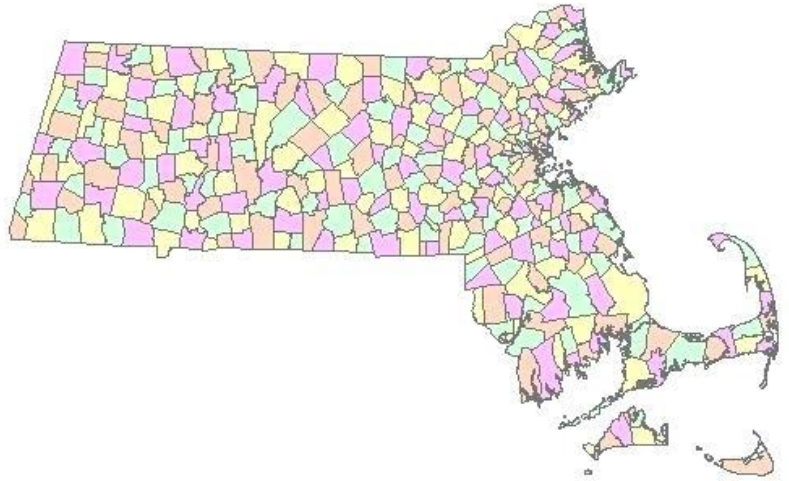
What Data Fields Are Important To Collect?

Key Data Fields Vary By Disease.

- Generally demographic information, clinical, and risk information are the most important for all diseases.
- Use the Wizard if available.
  - MAVEN Wizards pull the most critical variables from different question packages into one screen in a MAVEN event. Not every disease has wizards, but more are always being built.
- It is important to remember MAVEN is a surveillance system and not a detailed patient medical record.
  - Focus on variables that help define case classification, infectious period, and risk histories over long term symptom resolution dates and tracking chronic sequalae.
- You won't always follow a case to completion. We are most concerned with a patient's status at the time of investigation.

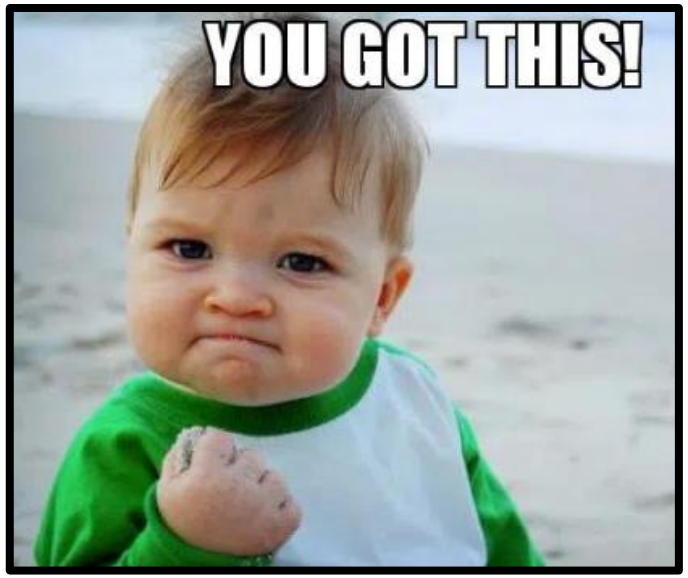
Local Health's Role for Infectious Disease

- Report cases to and coordinate follow up with MDPH.
- Conduct case investigation and implement disease control measures.
- Submit Case Report Forms through MAVEN.
- Communicate reports for cases from other communities to that LBOH or MDPH.
- Establish relationships with healthcare providers and surrounding boards of health.
- Health Education.
- And Everything Else!



We know you are tasked with the kitchen sink at the local level. We are here to help! Never hesitate to call!

MDPH Resources for You



MDPH Division of Epidemiology: 617-983-6800

MDPH Tuberculosis Program:

- **TB Program Email:** BIDLS-TBGeneral@mass.gov
- **TB Program Phone:** 617-983-6970

MDPH Division of Surveillance, Analytics, and Informatics (DSAI):

- **MAVEN Help Desk:** MavenHelp@mass.gov
- **MAVEN Onboarding:** MavenTraining@mass.gov
- **MDPH MAVEN Help Desk:** 617-983-6801
- **MDPH MAVEN Fax:** 617-983-6813

MAVEN Help has Guidance Documents, the Case Classification Manual, and Previous Webinars:

- http://www.maven-help.maventrainingsite.com/toc.html

MDPH Guide to Surveillance, Reporting, and Control: Disease-Specific Chapters:

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

The Massachusetts Immunization Information System (MIIS) Onboarding and Resources:

- https://www.miisresourcecenter.com/

Register for our Monthly Tools for Local Health Webinar Series Here:

- **http://tinyurl.com/MAVEN-Webinars**