



**Massachusetts Department of Public Health**

# **MDPH Tuesday Infectious Disease Webinar Series**

## **Tools for Local Boards of Health**

**General Case Investigation Fall 2024:  
Labs and Cluster Events**

**September 10, 2024**

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# General Case Investigation: Fall 2024 Agenda

- **Introduction**
  - 105 CMR 300 Expectations & Best Practices Reminder
  - Key Trainings to Check Out
- **Laboratory Tests & Concepts Overview**
  - Serology Tests (IgM vs. IgG)
  - Locating the Ordering Provider in the Lab Tab
- **Cluster Events (Outbreak Events) in MAVEN**
  - What is a Cluster event and how is it used?
  - How to find a Cluster in MAVEN?
  - Cluster Naming Conventions
  - How to report a Cluster to MDPH?
  - Linking individual MAVEN cases to a Cluster Event



# MAVEN Coverage: Required for LBOH

## 105 CMR 300.110

*“Each local board of health shall report to the Department the occurrence or suspected occurrence of any disease reported to the board of health, pursuant to 105 CMR 300.100. The case's **full clinical data, demographic data and epidemiologic data**, as defined by the Department, **must be included** for each report.*

*Each local board of health shall utilize the secure electronic disease surveillance and case management system (MAVEN) designated and maintained by the Department.”*

- **TLDR:** Each town is required to follow up promptly on your cases and you are required to complete that follow-up in MAVEN.

# Monitoring Administrative Steps 1-5

## How can I identify new cases? **Answer: Your Workflows!**

- The **LBOH Notification for Immediate Disease** and **LBOH Notification for Routine Disease** will show cases for your jurisdiction(s) where Step 1 has not been acknowledged.
- The **LBOH Case Report Forms (CRF) are pending** shows cases where Step 4 has NOT YET been acknowledged
  - This **CRF Pending** Workflow is the place to find your current/ongoing cases after you've acknowledged receiving notification in Step 1 and prior to completing Step 4 (acknowledging when casework is completed).
- We suggest monitoring these workflows daily to review and acknowledge cases. This will help you to provide timely infectious disease follow-up.

Workflows			
Workflow Queue		Events	Assigned
★	LBOH Case Report Forms (CRF) are pending	5	0
★	LBOH Notification for Immediate Disease	153	0
★	LBOH Notification for Routine disease	182	0

Best Practice	Capacity Assessment Baseline
<b>IMMEDIATE</b> diseases often need action right away (within 24 hours).	Acknowledged within 2 days
<b>ROUTINE</b> diseases should have action within about 3 days or so.	Acknowledged within 1 week

# Best Practices for Good Case Investigation AND Future Assessments

- **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.

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

Key Trainings to Check Out

- **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.

## Recordings and Slides on MAVEN Help:

- Introduction to Infectious Disease Epidemiology for Local Health (Beyond COVID-19) Part 1: Surveillance
  - Part 1: Surveillance ([Webinar Recording](#))
  - Part 1: Surveillance ([Slides PDF](#))
- Introduction to Infectious Disease Epidemiology for Local Health (Beyond COVID-19): Part 2: Epidemiology
  - Part 2: Epidemiology ([Webinar Recording](#))
  - Part 2: Epidemiology ([Slides PDF](#))



- 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 step for new and onboarding staff.**

# Infectious Disease Case Investigation: A Programmatic Overview for Local Health

- **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?**

Key Trainings to Check Out

**Recordings and Slides on MAVEN Help:**

- **Infectious Disease Case Investigation:  
A Programmatic Overview for Local Health**
  - ([Webinar Recording](#))
  - ([Slides PDF](#))

You don't have to be on  
MAVEN for this training!

# MAVEN Overview – Tips and Tricks

- Training provides an overview and demonstration of some of the most frequently asked MAVEN questions:
  - Workflows
  - Reports (including NEW reports!)
  - Sharing and tasking
  - MAVEN coverage and communication events
  - MAVEN troubleshooting
  - MAVEN resources
  - ...and more!

## Key Trainings to Check Out

### Recordings and Slides on MAVEN Help:

- MAVEN Overview – Tips and Tricks
  - ([Webinar Recording](#))
  - ([Slides PDF](#))



**Attachments:** Uploaded documents (records, labs, key relevant documents)

#### Notes

**Notes:** Follow-up & Case Management notes.

## Individual Disease Event in MAVEN

### Case Management

Create Event

Search Event

Print Event

Workflow

Import Roster

Create Cluster/Outbreak/Aggregate Event

Share Event

Recent Events

Close Record

Reports

Profile Management

Recorded Sex or Gender: Female  
Home Phone: Phone Info  
Investigation Status: Open  
Linked Events/Contacts: 0 (View)  
Attachments: 0 (Add)

**What's linked?** Go here to see/link to contacts or a cluster event.

#### Notifications

Event/Status/Date/Type Notifier ③

Event Status: Confirmed

Event Date: 01/01/2024

Event Type: Lab Test Date

Concerns ①

Please enter vaccine information in the Vaccine and IG Question Package.

Workflow Status ①

Event ID is in workflows [View List]

Case Classification ②

Age at time of event: 10 years

**Event Status:** Confirmed/Probable/Suspect/Contact

**Concerns:** Key information needed reminder.

**Participants:** Patient Person Details (address, phone)

**Event History Trail:** Electronic Trail for this event. Who has entered data? Where did this case come from?

Event Data Labs Concerns Participants Tasks Event History Trail

#### Question Packages

Question Package

1. Administrative

2. Demographic

3. Clinical

4. Vaccine and IG Information

5. Risk/Exposure/Control & Prevention

6. Epi-linked and Outbreak Information

8. ECR Information

9. Electronic Case Reporting

9. Sequencing Information

**Lab Tab** to see lab tests

**Question Packages:** Where all the Case Information Variables Live.

**Tasks:** Case assignments & other tasks

**View Wizard**

View Question Package

Wizards:

Pertussis CRF Review

View Wizard

**Home**  
**Open Help**

**Event Summary**

**Basic Information**

Case ID: MAVEN ID\*\*\*\*\*  
ussis (and other Bordetella species)  
Person NAME  
DOB Info  
Male  
Phone Info  
n  
ew)  
dd)

**Notes**  
**Notes:** Follow-up & Case Management notes.

**What's linked?** Go here to see/link to contacts or a cluster event.

**Event Status:** Confirmed/Probable/Suspect/Contact

**Concerns:** Key information needed reminder.

**Participants:** Patient Person Details (address, phone)

**Event History Trail:** Electronic Trail for this event. Who has entered data? Where did this case come from?

**Tasks:** Case assignments & other tasks

**View Wizard**

**Question Packages**

Question Package

1. Administrative
2. Demographic
3. Clinical
4. Vaccine and IG Information
5. Risk/Exposure/Control & Prevention
6. Epi-linked and Outbreak Information
8. ECR Information
9. Electronic Case Reporting
9. Sequencing Information

**Lab Tab to see lab tests**

**Question Packages:** Where all the Case Information Variables Live.

**View Question Package** Wizards: Pertussis CRF Review **View Wizard**

**Today we will mostly focus on Notes, Labs, and Cluster Events**

**Individual Disease Event in MAVEN**

Information in the Vaccine and IG Question Package.

View List]

ears

Event

Share Event

Recent Events

Close Record

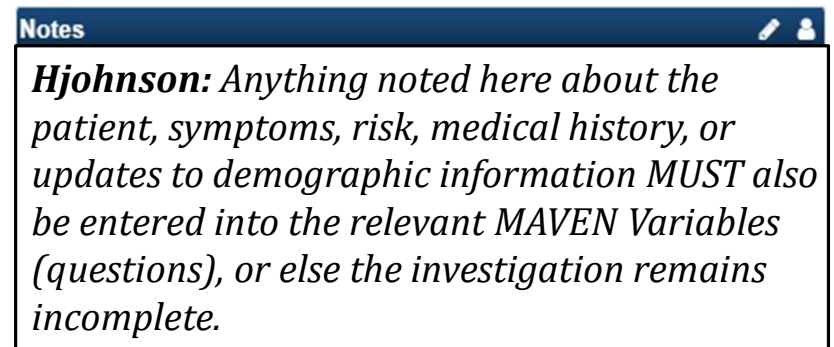
Reports

Profile Management

Massachusetts Department of Health

# Notes Field

- **Remember:** Your data is only as good as the information you collect.
  - Notes are great for summarizing case management activities, but filling in the specific variables will allow you to analyze your data.
  - If the information you collect is only in the notes, it does not automatically fill in the data variables and the case will be incomplete. **Data MUST be entered into the appropriate Question Packages.**



# Laboratory Tests - An Overview



# Common Specimen Types for Infectious Disease



## Blood Samples

**Method:** Venipuncture

**Used to detect:** bloodborne pathogens such as Hepatitis B and C.



## Throat (OP)/Nasopharyngeal (NP) Swabs

**Method:** Swabbing the throat or nasopharynx

**Used to detect:** respiratory infections like COVID-19 and influenza.



## Stool Samples

**Method:** Collection of stool in a sterile container

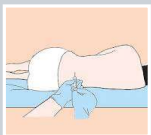
**Used to detect:** GI pathogens such as Salmonella, Shigella, and E. coli.



## Sputum Samples

**Method:** Coughing up sputum into a sterile container

**Used to detect:** certain respiratory infections such as Tuberculosis.



## Cerebrospinal Fluid (CSF) Samples

**Method:** Lumbar puncture (spinal tap)

**Used to detect:** meningitis and encephalitis-causing pathogens.



# Gold Standard Laboratory Tests

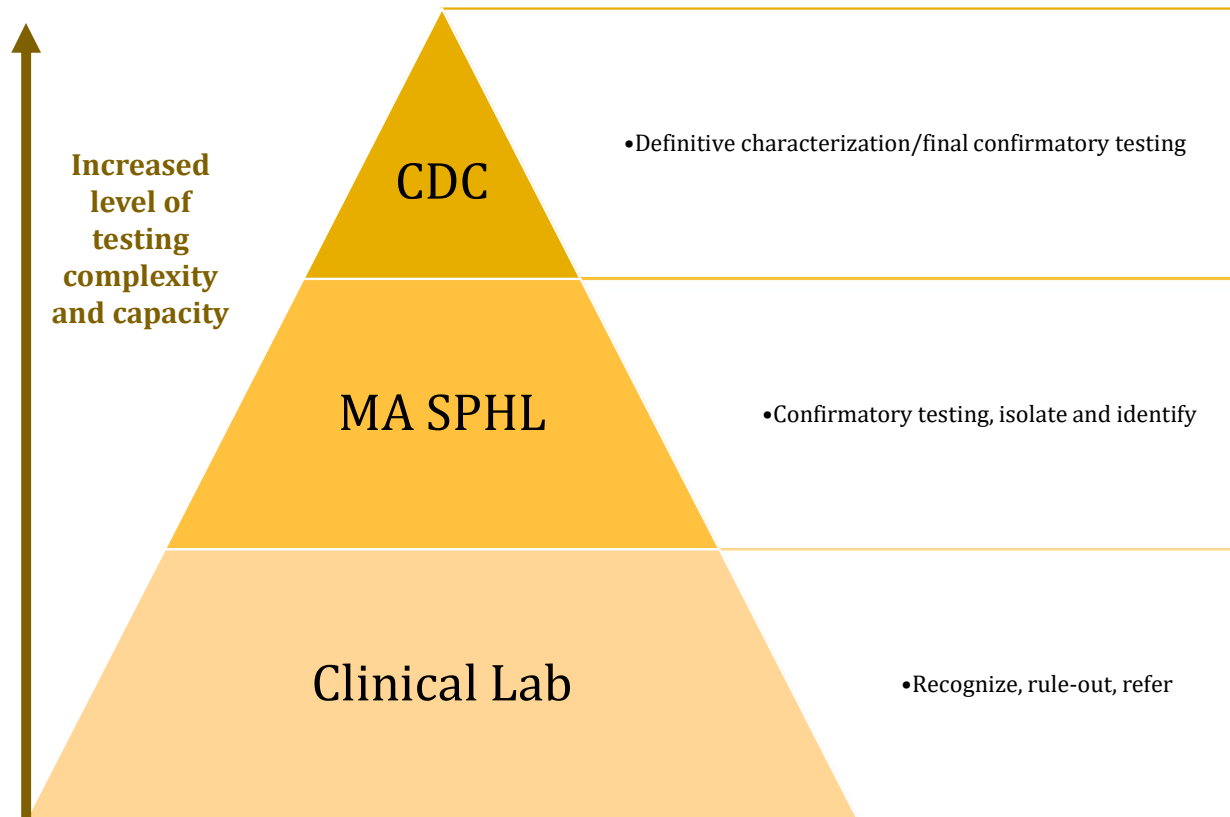
**Gold Standard Test:** a test that is widely accepted as the best available for diagnosing a particular disease.

The following are considered gold standard for most infectious diseases:

- **Nucleic Acid Amplification Tests (NAATs) or Polymerase Chain Reaction (PCR)**
  - Also called molecular testing. A PCR is a type of NAAT
  - Preferred for their rapid, sensitive and accurate detection of pathogens.
  - Examples: COVID or Flu
- **Culture**
  - Remains the gold standard for identifying bacterial pathogens and determining their antibiotic resistance.
  - Limitations: Compared to PCR, results can take days to obtain. May not be as sensitive.
  - Examples: Blood cultures for Group A Streptococcus or stool cultures for Salmonella or Shigella.

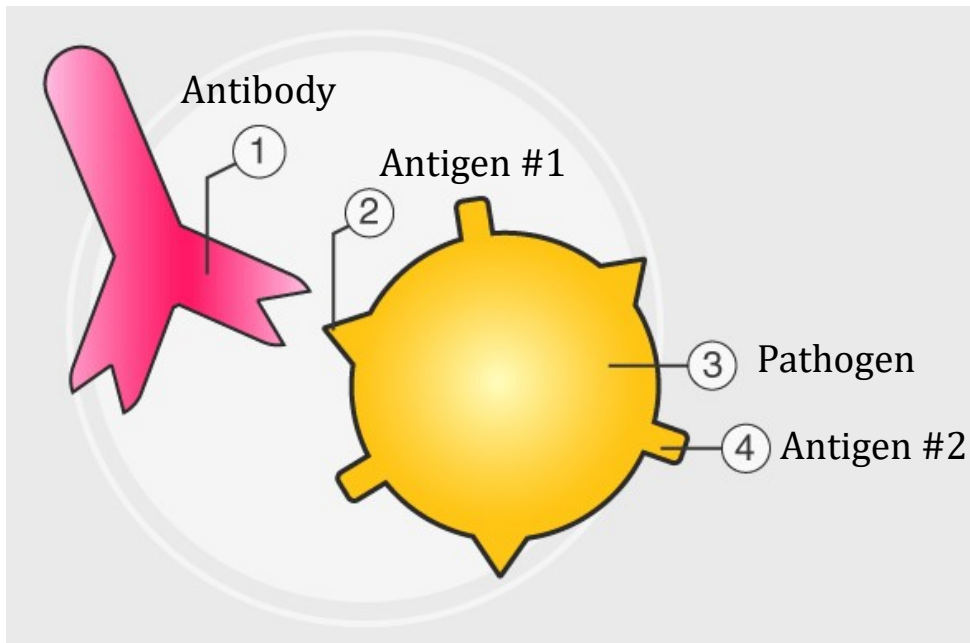


# US Public Health Laboratory Infrastructure



- CDC is the gold standard for tests done at MA SPHL.
- Not every case requires testing at each level, but depending on the specific situation, additional testing may be critical to the investigation.

# Antibodies



- **When your immune system first encounters a pathogen, it:**
  1. First recognizes the pathogen's antigen as a foreign substance and
  2. Then will make antibodies (protective proteins) which bind to the antigen to remove the antigen/pathogen from your body.
- **Once the antibodies are made for this antigen they will continue to circulate in your blood.**
- There are five main classes of antibodies (immunoglobulin A, E, D, M and G), but only two are most important for interpretation of serology testing:
  - **IgM**
  - **IgG**

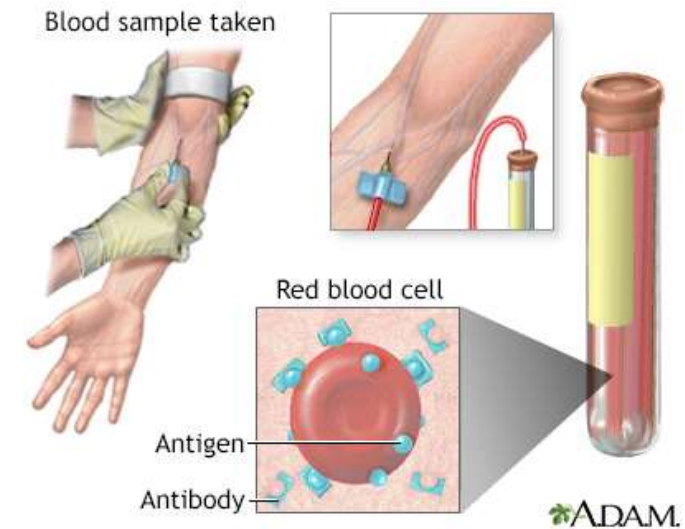


# Serology Tests

Serology tests detect the presence of specific antibodies in a person's blood, which indicates if someone has been exposed to a particular pathogen.

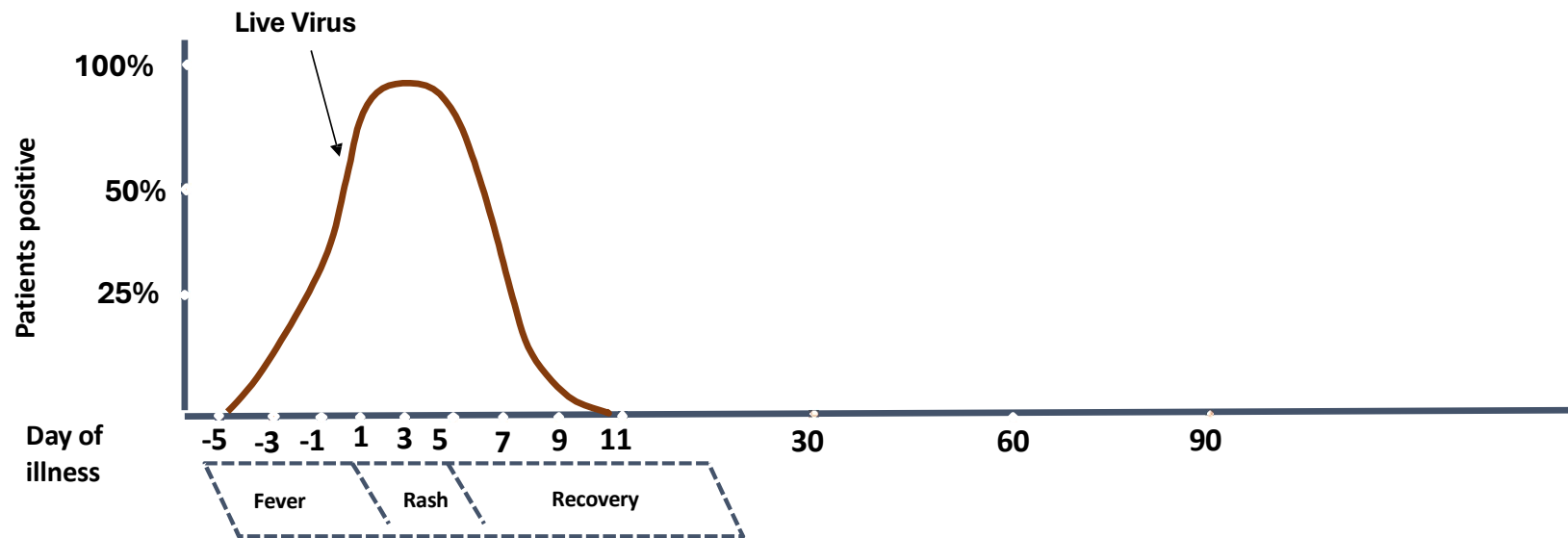
**Serology tests can be used for identifying:**

- **Acute Infection:** Detecting IgM antibodies can help diagnose an ongoing or recent infection.
- **Past Infection or Immunity:** The presence of IgG antibodies may indicate past exposure or immunity to a particular pathogen.
- **Vaccination:** Serology can assess whether a person has developed immunity after vaccination by detecting specific antibodies.



# Immune Response to a New Virus

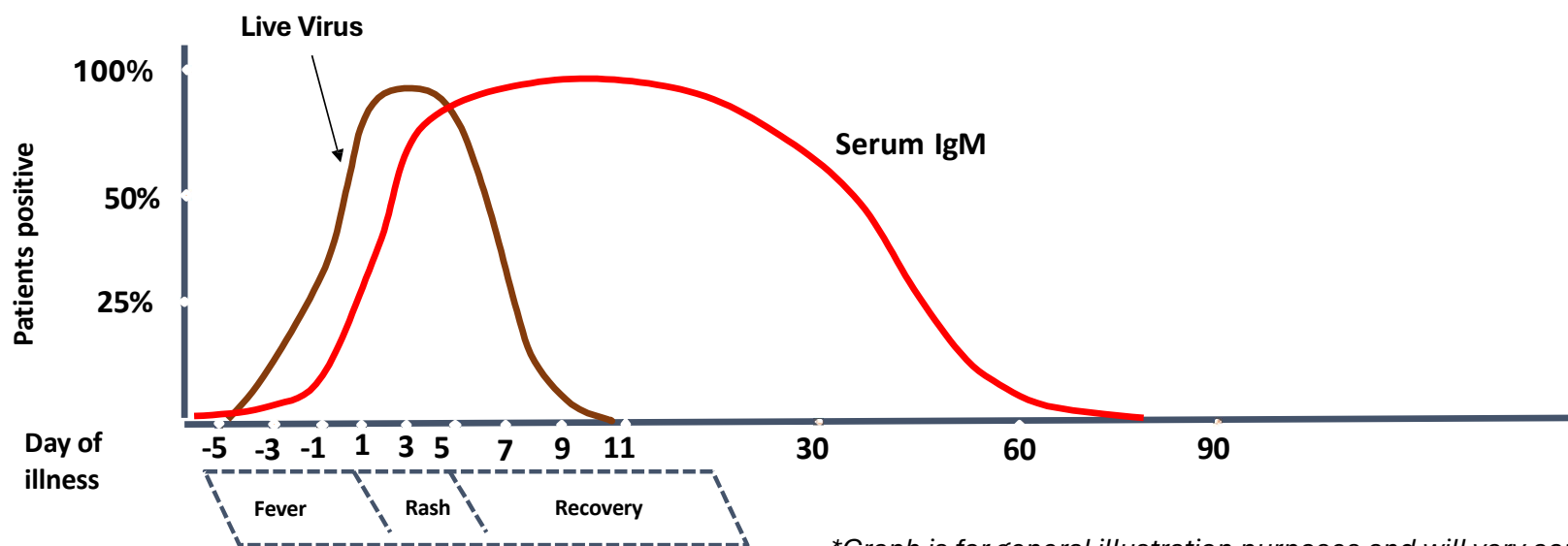
- Live virus replicates or multiplies in the body
- The person begins to experience early symptoms like fever or rash



*\*Graph is for general illustration purposes and will vary across specific viruses.*

# Serum IgM Response

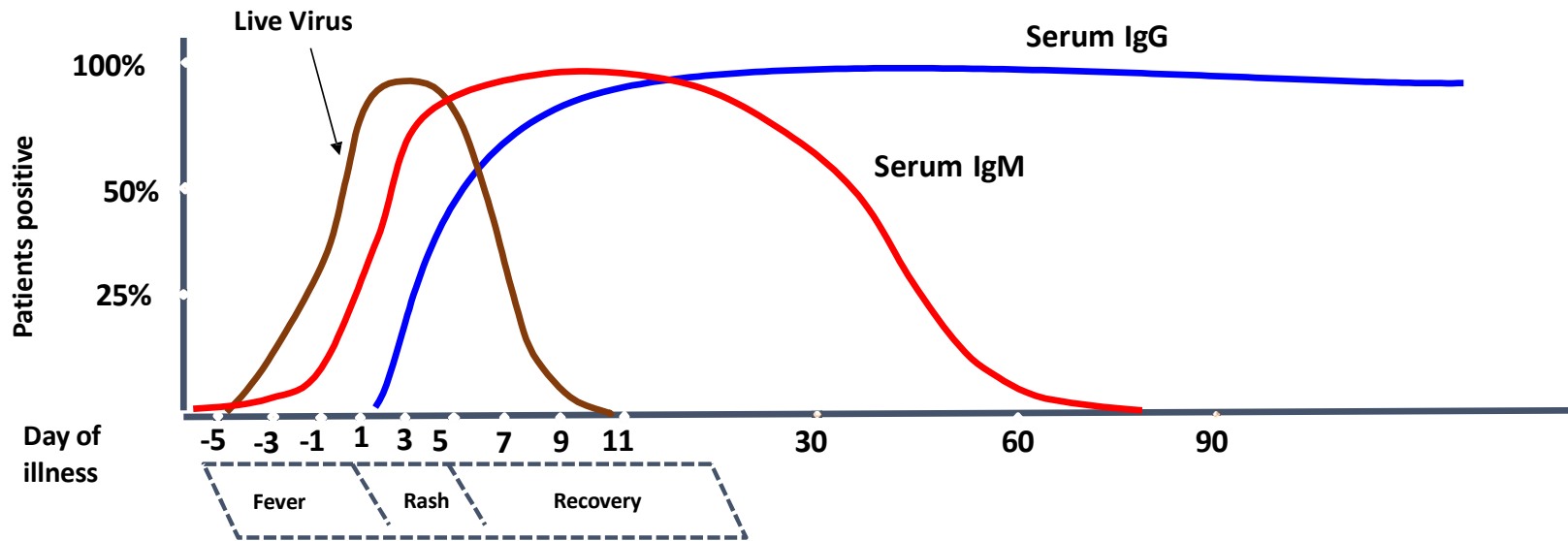
- IgM antibodies are made against the antigen in the early stages of infection and are detectable in the blood after 4 to 7 days.
- IgM antibodies are short-lived and may indicate that the virus is still present.
- **In short, presence of IgM antibodies indicate a new, acute, or more recent infection.**



*\*Graph is for general illustration purposes and will vary across specific viruses.*

# Serum IgG Response

- IgG antibodies are made 7 - 14 days after infection, and are detectable for months and even years, depending upon the antigen and the individual.
- IgG antibodies are more durable and are key to lasting immunity.
- **In short, presence of IgG antibodies suggests past infection and/or possible immunity (from prior infection or vaccine).**



*\*Graph is for general illustration purposes and will vary across specific viruses.*

# Do serology tests require public health follow up?

**A. YES** - MAVEN automatically filters out tests that don't require follow up. What you see in MAVEN requires follow up in most cases.

- For certain serology results Epis will review and decide if it meets the threshold for local health to investigate.
  - Sometimes this threshold is a certain titer value reported with IgM or IgG positive result. A titer value is a numeric value for the level of antibodies measured in the blood (usually noted as 1:125 or <1:60).
  - Some disease case classifications include titer thresholds for a case to be considered suspect. If below the titer threshold, this is not considered a case and requires no follow up.
- Look for Epi instructions in the notes to see if follow up is required.
- Detailed laboratory results interpretation is not expected of LBOH.

# Do IgM + tests require public health follow up?

**A. In most cases, a single IgM+ result is not enough to confirm a case.**

- Information about compatible symptoms and additional risk history or epi-linkage is crucial.
- If the case only has serology testing done, you will want to **start by asking the ordering provider if, based on their clinical judgement, they are treating this as a true acute case of illness.**
- This question is important to answer to avoid unnecessary public health investigations.

Examples of diseases where an IgM + result would trigger a suspect case in MAVEN include:

- Hepatitis A
- Tularemia
- Rubella
- Measles
- West Nile Virus (WNV) and Eastern Equine Encephalitis (EEE)
- Certain tickborne diseases

# IgM false positives or negatives

Common reasons an IgM+ result may be a false-positive:

- The case is asymptomatic or does not have compatible symptoms (common with Hepatitis A).
  - The case was recently vaccinated.
  - The provider was looking to test for IgG for immunity purposes and selected the wrong test.
  - Cross-reactivity - because IgM is the first antibody made in response to an infection sometimes the antibody will bind to antigens of pathogens that are similar the one being tested.
- 
- Serologic tests can also result in false-negative results when serum specimens are collected too early for a given disease.

# Do IgG + tests require public health follow up?

- If you see the case in MAVEN, likely yes. An Epi will review IgG results and decide if it meets the threshold to investigate.
- Suspect cases with only IgG + results are common for certain tickborne diseases.
- Since IgG antibodies can remain in the body for so long, it is difficult to interpret the results of IgG tests without the context of recent symptoms and risk information.
- Investigation of cases with only an IgG + result may not require an immediate public health action (routine disease) but they are still important.

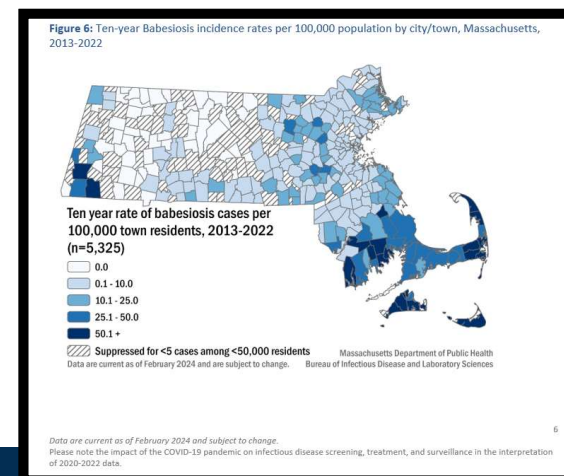
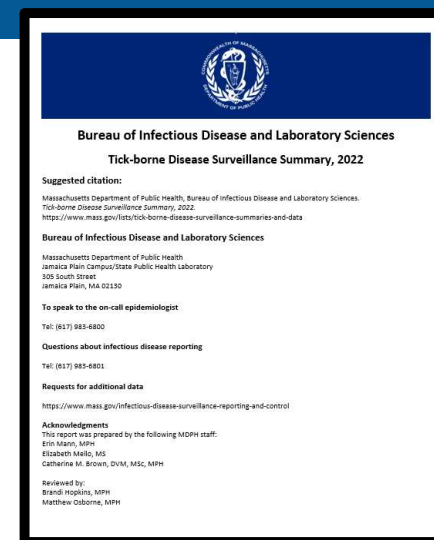
## Notes

**Pschubert:** This antibody titer MAY OR MAY NOT represent actual infection. Please contact the provider. If he/she indicates to you that this IS NOT the patient's diagnosis, no additional follow up is required. Please note accordingly in MAVEN. If the provider states that this IS a case of disease, a case report form should be completed with information either from the provider or the patient. For helpful information on tick-borne disease follow up and test results, please go to the "Help" section and click on the tip sheet for: "Follow up of suspect cases of tick-borne disease."



# Do IgG + tests require public health follow up?

- This clinical and risk information helps Epidemiologists classify probable cases.
  - Classifying cases help us understand disease burden and prevalence (surveillance) in the state.
- MDPH Epidemiologists analyze and report on population disease burden in yearly surveillance reports.
- At the local level this is something your local Epidemiologist can help with if there's interest in more detailed local data.



# Summary

- MAVEN filters serology tests that meet criteria to be investigated.
- MDPH Epidemiologists review these results and decide what should be investigated.
- Look for Epi instructions in the notes to see if follow up is required.
- With serology tests, we typically need more information to know if it's a true case.
- Call x6800 if you're not sure if IgG or IgM result requires investigation

# Lab Tab: Investigation Tips

- A large percentage of cases originate in MAVEN through electronic lab reporting (ELR), and often the Lab Tab has key information on the ordering provider and where the patient sought care.
- **The Lab Tab** is often the best place to start when looking for who to contact for more information.
- Ordering provider information is in the “Labs” tab
- Double click on a lab result to open it, scroll down to “Ordering Provider”



Labs									
Lab No.	Specimen Date	Specimen Number	Specimen Source	Test	Result	Lab	Ordering Facility	Last Update	
2	12/29/2019	99999		Rubella virus Ab IgG: ACnc: Pt. Flu: Qn:	Positive	Baystate Reference Laborato...	Other Hospital/Health Facility	01/13/2020	
2	12/21/19	9999		Measles virus Ab IgG: ACnc: Pt. Flu: Qn:	Positive	Baystate Reference Laborato...	Other Hospital/Health Facility	01/13/2020	
2	12/21/19	9999		Measles virus Ab IgM: Titr: Pt. Ser: Qn:	Negative	Baystate Reference Laborato...	Other Hospital/Health Facility	01/13/2020	

# 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](https://npidb.org) | [National Provider Identifier \(NPI\) Number Lookup for doctors & medical groups](#)
  - [Mass.gov](https://mass.gov) | [Board of Registration in Medicine \(BORIM\) Physician License Verification](#)

Investigation Resources

Ordering Provider

Name  
First Name Last Name

Facility

Address  
Facility Address

City

State

Zip

Phone  
Provider's Number

Clinician Lookup

Nurse Practitioner Lookup

If you are hitting a dead end with a provider number, you may need to **GOOGLE** or ask the lab.

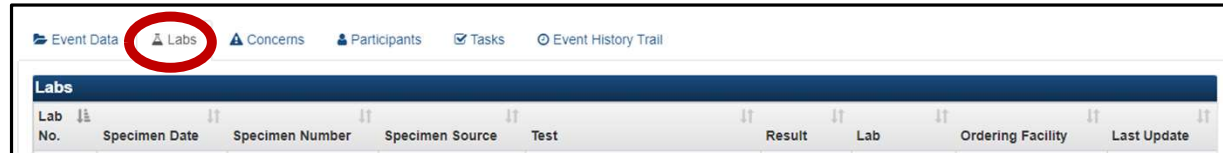
# MAVEN: Identifying the Correct Ordering Provider

- Many provider offices and smaller clinics, and even some hospitals, are part of consolidated lab testing programs and send out their specimens to a different hospital laboratory or location to PERFORM the test.
  - **A Current Example:** Beth Israel Lahey Health network providers (*include several Eastern MA hospitals like Addison Gilbert, Ana Jaques, Beverly Hospital, Mount Auburn, Lahey Burlington, Lahey Peabody, BID Milton, BID Plymouth, BIDMC, New England Baptist, etc.*) have consolidated clinical micro lab services in their network.
    - Thus, **Winchester Hospital** now performs these services for about a dozen acute care hospitals and several dozen outpatient facilities.

**Key Takeaway:** The Ordering Provider/Facility is the correct place to call for more information on a case, not the Infection Preventionist (IP) at the hospital with the lab services. They will not be able to help.

# MAVEN: Identifying the Correct Ordering Provider

- When investigating an event:



1. Please carefully review the information contained in the Lab Tab and pay close attention to the ordering provider and submitting facility information.
2. If there is not sufficient contact information (i.e., no phone number) for either the ordering provider or submitting facility in the Lab Tab, then please call the Microbiology Laboratory number contained in the Lab Tab, in order to obtain contact information for the ordering provider or submitting facility.

# MAVEN: Identifying the Correct Ordering Provider

- To start – when you view these labs from the lab tab without scrolling down or clicking into the lab, they look like they are missing an ordering facility.

Let's take a look at an example.

Labs									
Lab No.	Specimen Date	Specimen Number	Specimen Source	Test	Result	Lab	Ordering Facility	Last Update	
1			Stool	Ciprofloxacin [Mic]	Susceptible	Winchester Hospital - 262/2...			
1			Stool	Ampicillin [Not Specified]	Susceptible	Winchester Hospital - 262/2...			
1			Stool	Trimethoprim+Sulfamethoxazole [Mic]	Susceptible	Winchester Hospital - 262/2...			
1			Stool	Ampicillin [Not Specified]	Susceptible	Winchester Hospital - 262/2...			
1			Stool	Trimethoprim+Sulfamethoxazole [Mic]	Susceptible	Winchester Hospital - 262/2...			
1			Stool	Ciprofloxacin [Mic]	Susceptible	Winchester Hospital - 262/2...			
1			Stool	Microorganism: Prid: Pt: xxx: Nom: Culture	Salmonella species	Winchester Hospital - 262/2...			
1			Stool	Microorganism: Prid: Pt: xxx: Nom: Culture	Salmonella species	Winchester Hospital - 262/2...			
1			Stool	Microorganism: Prid: Pt: xxx: Nom: Culture	Salmonella species	Winchester Hospital - 262/2...			
2			Stool	Microorganism: Prid: Pt: Isit: Nom: Bacterial subtyping	Salmonella species	William A Hinton State Labo...	Winchester Hospital - 41 Hi...		

# MAVEN: Identifying the Correct Ordering Provider

- If you scroll down though, you can see in the “Details” section that there is often a “Lab Facility (Other)” that corresponds to the Ordering facility (the front end label of this variable is, admittedly, confusing!). Beneath that is the ordering provider:

Lab Facility:	Winchester Hospital - 262/264 West Cummings Park, Woburn, MA 01801, (781) 756-2321
CLIA:	22D1057427
Lab Facility (Other):	Anna Jaques Hospital Lab For Interface
Name:	[REDACTED]
Address:	[REDACTED]
City:	[REDACTED]
State:	[REDACTED]
Zip:	[REDACTED]
Notes:	Rare Salmonella species Susceptibility testing of non-typhoidal Salmonella from stool is NOT routinely performed which is consistent with current recommended guidelines. Please call the lab to request [REDACTED]



# MAVEN: Identifying the Correct Ordering Provider

- Click into an individual lab to see more information on the ordering provider.

**Lab Facility**

Lab Facility  
Winchester Hospital - 252/254 West Cummings Park, Woburn, MA 01801, (781) 756-2321

Lab Facility (Other)

CLIA  
22D1057427

**Ordering Facility**

Lab Facility

Ordering Facility Phone

Lab Facility (Other)  
Anna Jaques Hospital Lab For Interface

CLIA

**Ordering Provider**

Name

Facility

Address

City

State

Zip

Phone

Email

Clinician Lookup

Nurse Practitioner Lookup

**Ordering Provider**

Name

Facility

Address

City

State

Zip

Phone

Email

Clinician Lookup

Nurse Practitioner Lookup

# MAVEN: Identifying the Correct Ordering Provider

- **Final Note:** Many positive specimens will be sent to the State Public Health Lab (SPHL or William A Hinton State Laboratory) for 'subtyping.' The processing lab will send those to SPHL (and would look like the ordering provider for that line). It is best to select a different line to see who original ordering provider is.

Check one of these to obtain original ordering provider.

Labs								
Lab No.	Specimen Date	Specimen Number	Specimen Source	Test	Result	Lab	Ordering Facility	Last
1			Stool	Ciprofloxacin [Mic]	Susceptible	Winchester Hospital - 262/2...		
1			Stool	Ampicillin [Not Specified]	Susceptible	Winchester Hospital - 262/2...		
1			Stool	Trimethoprim+Sulfamethoxazole [Mic]	Susceptible	Winchester Hospital - 262/2...		
1			Stool	Ampicillin [Not Specified]	Susceptible	Winchester Hospital - 262/2...		
			Stool	Trimethoprim+Sulfamethoxazole [Mic]	Susceptible	Winchester Hospital - 262/2...		
1			Stool	Ciprofloxacin [Mic]	Susceptible	Winchester Hospital - 262/2...		
1			Stool	Microorganism: Prid: Pt: xxx: Nom: Culture	Salmonella species	Winchester Hospital - 262/2...		
1			Stool	Microorganism: Prid: Pt: xxx: Nom: Culture	Salmonella species	Winchester Hospital - 262/2...		
1			Stool	Microorganism: Prid: Pt: xxx: Nom: Culture	Salmonella species	Winchester Hospital - 262/2...		
2			Stool	Microorganism: Prid: Pt: Islt: Nom: Bacterial subtyping	Salmonella species	William A Hinton State Labo...	Winchester Hospital - 41 Hi...	

# Contacting the Ordering Provider

- Ask to speak to a nurse or doctor who can provide additional clinical information regarding the positive lab result that was reported to you (someone with access to medical record/ on the care team).
  - Resource: [HIPAA memo for LBOHs](#) in Maven Help under “HIPAA Documents”
- Good lead-ins: *Why did this patient seek care? Why did the doctor test? What brought this patient in?*
  - Ask doctor or nurse all missing demographic (i.e., occupation, race, etc.) questions, as well as any clinical questions and relevant vaccine history.
  - Ask if the case-patient recently traveled or there were any exposures of note
  - Ask if the case-patient has been informed of their diagnosis
  - Confirm the case-patient’s contact information. Update MAVEN event with additional phone numbers or corrections to existing information.
  - Make sure information collected is appropriately documented in the Demographic, Clinical and Risk/Exposure/Control & Prevention Question Packages

# CLUSTER EVENTS in MAVEN



# What to Know About Cluster Events in MAVEN

- What is a Cluster event and how is it used?
- How to find a Cluster in MAVEN?
  - Cluster Naming Conventions
- How to report a Cluster to MDPH?
- Linking individual MAVEN cases to a Cluster Event
- Cluster Tips & Tricks

**2024 Cluster Update:** Cluster expectations and guidance for LBOH have significantly changed post-COVID (fewer scenarios where LBOH create a cluster event from scratch). Today we are keeping it simple! Most cluster events today can be created through an online reporting form from a facility or by calling the Epi Program at 617-983-6800.

# What is a Cluster? (The term is used in many ways)

- **CDC:** “a cluster of public health concern is defined by an unusual aggregation, real or perceived, of health events in time and space that is reported to a health agency”
- In general, **DPH** defines a cluster as:
  - At least two confirmed cases from different households with a shared exposure and/or close contact is known or suspected to have taken place.
  - We have a lower threshold for creating cluster events for certain settings: LTCFs and other healthcare facilities, correctional facilities, shelters, etc.
- For our purposes in **MAVEN**, we utilize the term “cluster” in reference to a shared exposure setting.
  - **Clusters:** Facility-based events (as opposed to an individual person event). In MAVEN they are called **Outbreak Events**.

# What's in a Cluster Event?

## CLUSTERS

Executive Office of Health | MAVEN Online Help | FAQ- Share Events\_ver1 | FAQ- Reports\_ver1\_Nov | Microsoft Word - 11-SI- | Coronavirus Disease 2019 | Maven Disease Surveillance Suite - Training

Not secure | maventrainingsite.com/LBOH/main.do

Maven Disease Surveillance Suite - Training

Enter Case ID Search LBOH Test User

### Outbreak Summary

#### Basic Information

Case ID:	100033867
Event:	Novel Coronavirus (SARS, MERS, etc)
Name:	LTCF_Lawrence_21MAY2020
Investigation Status:	Open
Linked Events/Contacts:	1 (View)
Attachments:	0 (Add)

#### Notifications

Event/Status/Date/Type Notifier	3
Event Status:	N/A
Event Date:	05/21/2020
Event Type:	N/A

#### Notes

LBOH Test User [lbohtest1] - (Generic) 05/25/2020 07:46 PM  
Nurse manager called to report 15 positive residents, 4 positive staff. Will be faxing the list shortly. They have designated the first floor Wing A as the covid+ unit, and have designated Wing B on the second floor as the quarantine unit.

LBOH Test User [lbohtest1] - (Generic) 05/25/2020 07:44 PM  
Event is for the Sunshine Senior Living Facility on 123 Main St in Lawrence MA. There are a 3 unit facility, with 50 rooms on each of the 3 floors. All residents have private bathrooms. 15 residents are in memory dementia unit. Nurse Manager is Jane Smith, 617-999-9999. Called to report 5 positive residents. National Guard testing for the whole facility took place yesterday. Waiting test results.

#### Question Packages

Question Package	Last Update
Administrative	05/21/2020
Respiratory/ILI Questions	05/21/2020
Standard Questions	05/21/2020

View Question Package

Event Data Labs Concerns Tasks Additional Question Packages Event History Trail

Type here to search

7:49 PM 5/25/2020

Link cases and sometimes close contacts here.

Can attach documents /lists here

Tasks & Assignments

Who Reported Cluster

Key Contact Information and towns affected (who can view this cluster). Add new towns if this cluster is shared (so LBOH of staff can read it).

General facility follow-up notes

# Cluster Naming Conventions

- **Naming Convention for Facility-based Clusters:**

- FACILITYTYPE FACILITYNAME TOWN

## Examples:

- DAYC HAPPYVILLAGE SPRINGFIELD
- LTCF CAREONE NEWTON
- OTHR U2CONCERT BOSTON
- SCHL BUWOMENSSOCCERTEAM BOSTON



# Standard Abbreviations for Facility Types

[Tip Sheet on Cluster Naming](#) available on MAVEN Help.

Standard Abbreviations for Facility Types	
ALF	Assisted living facility
BUS	Any workplace, business, or company not captured in other categories
CORR	Correctional facility (prison, jail, etc.)
DAYC	Daycare centers
GH	Group home
HC_OTHR	Other healthcare facility
HOMELESS	Homeless encampment (homeless shelters captured as SHELТ)
HOSP	Hospital or medical center
IND	Independent living facility
LTAC	Long-term acute care
LTCF	Long-term care facility
SCHL	School (all types, including elementary, secondary, and colleges/universities)***
OTHR	Other settings, such as an event (e.g., protest, concert), program (e.g., adult day program, camp), or community resource (e.g., place of worship, community center)
OOS	Out of State

# Clusters – How to find one that already exists

- **Cluster:** A facility or location-based event (**Outbreak Event in MAVEN**)

- Schools, LTCF, Rest Homes, Nursing Homes, Group Homes, etc.

- Find one in MAVEN

- Then Link individual people events to cluster

1. Select the “Search Event” icon on the left-hand menu of the MAVEN dashboard.

2. To search for a cluster event, change “Event” from “Normal” to “Outbreak”

SEARCH

If you cannot find a Cluster or are not sure if one already exists, you can also call the Epi Program at 617-983-6800.

Clusters are only viewable if your “Town” has been added to the cluster event.

Update Type to “Outbreak” (from Normal)

SEARCH

Adding “Disease” to Event Search Can Help Narrow Search (LOTS OF COVID CLUSTERS EXIST FROM PANDEMIC)

# Searching for an Existing Cluster

3. The “Name” field searches on the cluster name (i.e., FACILITYTYPE\_FACILITYNAME\_TOWN). The search functionality is not sensitive to capitalization.
- Use the wildcard function (\*) to search for components of a cluster name.
  - Example: all clusters associated with daycares will be populated by searching for “DAYC\*”.
- You can search for a key word in the middle of a cluster’s name by using the wildcard before and after your search term.
  - Example: all clusters that have “party” anywhere in the name can be found by searching for “\*PARTY\*”
- Use the From and To Dates to narrow the range of your search. These dates search on the date the cluster event was created.

The screenshot shows a search interface with two main sections: 'Search Criteria' and 'Search Options'. The 'Search Criteria' section includes fields for Type (set to 'Outbreak'), Name (containing '\*party\*'), Event ID, Event, From Date, To Date, and Jurisdiction/Town. The 'Search Options' section contains 'Search' and 'Clear' buttons.

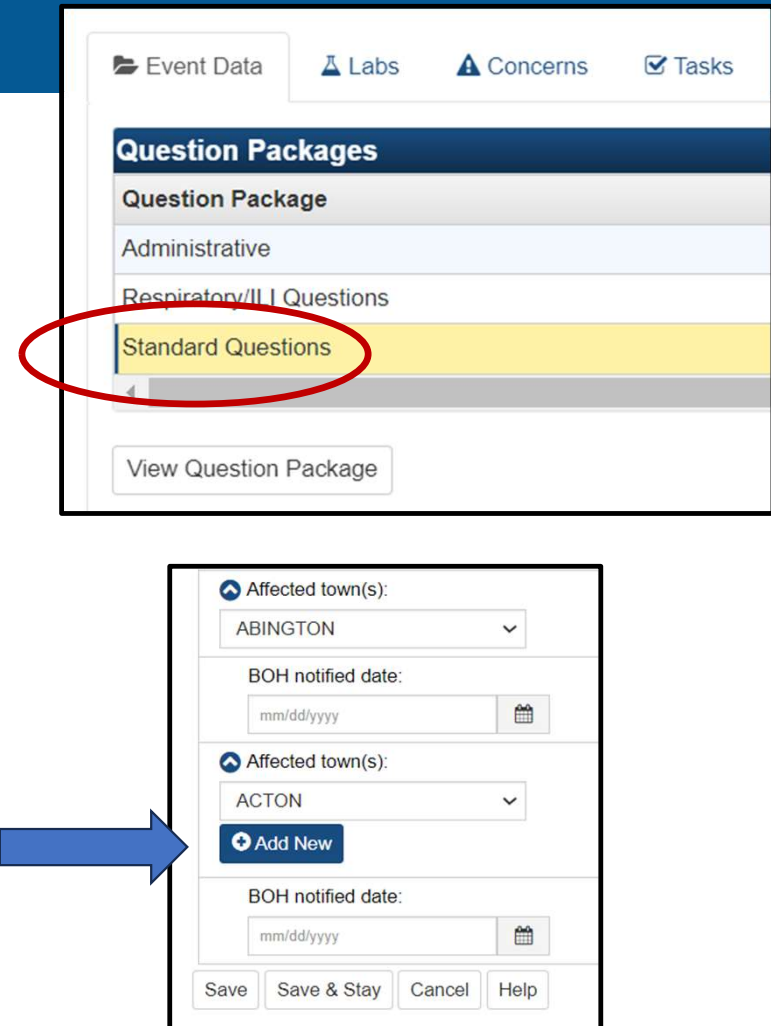
Create Date	Name
08/25/2020	SCHL_BOSTONCOLLEGE_OFFCAMP PARTY
09/03/2020	OTHR_PARTYCITY_CAMBRIDGE
09/03/2020	SCHL_HARVARDUNIVERSITY_SOCCERPARTY

**WILD CARD RULE:** When doing a text search, remember your search must be “exact” or it will not match. A Wildcard search (using \*) is a tool to help when you are less sure of exact matching. Everything you type BEFORE the \* must be an exact match.

# Who Can See A Cluster?

- The Affected Town(s) variable must be completed to allow a LBOH viewing access to the cluster.
  - This Variable is in the Standard Question Package of a Cluster.
  - Select “Add New” to add Affected Town(s).
  - This is how you “share” a cluster event.

**NOTE:** The SHARE option is for individual (person) disease events. You must “add an Affected Town” for cluster events.



The top screenshot shows a web interface with tabs for 'Event Data', 'Labs', 'Concerns', and 'Tasks'. Under 'Question Packages', there is a list with 'Administrative', 'Respiratory/ILI Questions', and 'Standard Questions' (highlighted in yellow and circled in red). A 'View Question Package' button is at the bottom.

The bottom screenshot, indicated by a blue arrow, shows a form for adding affected towns. It has two sections, each with an 'Affected town(s):' dropdown (first set to 'ABINGTON', second to 'ACTON') and a 'BOH notified date:' field with a calendar icon. Between the sections is an 'Add New' button. At the bottom are 'Save', 'Save & Stay', 'Cancel', and 'Help' buttons.

# Notes Field

The screenshot displays the 'Maven Disease Surveillance Suite - Training' web application. The left sidebar contains navigation options: Home, Open Help, History, Case Management (with sub-options: Create Event, Search Event, Print Event, Workflow, Import Roster, Create Cluster/Outbreak/Aggregate Event, Recent Events, Close Record, Reports, Profile Management), and a search bar. The main content area is titled 'Outbreak Summary' and includes a 'Basic Information' table, a 'Notifications' section, and a 'Question Packages' section. A blue arrow points from the 'Notifications' section to the 'Notes' field on the right. The 'Notes' field contains two entries from 'LBOH Test User [lbohtest1] - (Generic)' dated 05/25/2020 07:46 PM and 07:44 PM, detailing a COVID-19 outbreak at the Sunshine Senior Living Facility.

**Outbreak Summary**

**Basic Information**

Case ID:	100033867
Event:	Novel Coronavirus (SARS, MERS, etc)
Name:	LTCF_Lawrence_21MAY2020
Investigation Status:	Open
Linked Events/Contacts:	1 (View)
Attachments:	0 (Add)

**Notifications**

Event/Status/Date/Type Notifier **3**

Event Status:	N/A
Event Date:	05/21/2020
Event Type:	N/A

**Notes**

**LBOH Test User [lbohtest1] - (Generic)** 05/25/2020 07:46 PM  
Nurse manager called to report 15 positive residents, 4 positive staff. Will be faxing the list shortly. They have designated the first floor Wing A as the covid+ unit, and have designated Wing B on the first floor as the quarantine unit.

**LBOH Test User [lbohtest1] - (Generic)** 05/25/2020 07:44 PM  
This event is for the Sunshine Senior Living Facility on 123 Main St in Lawrence MA. They are a 3 unit facility, with 50 rooms on each of the 3 floors. All residents have private bathrooms. 1st floor is memory dementia unit. Nurse Manager is Jane Smith, 617-999-9999. Called to report 5 symptomatic residents. National Guard testing for the whole facility took place yesterday. Waiting test results.

**Notes:** Should include a summary of information known at time of cluster creation, including who reported it/how it was identified. When new cases are identified and linked, status updates should be added to this field. Notes will appear in chronological order – most recent on top. The notes field should include summary updates, and also case management actions taken by DPH or at the local level. Anyone viewing the event should be able to read the notes field to understand a summary of the cluster activity and follow-up investigations.

# Is This a Cluster? Things to Consider

- **Often people may start out as linked contacts to an index case.**
  - **Example:** You are interviewing a case and find out he worked closely yesterday with 10 colleagues (while he was infectious).
    - We do not yet have a cluster, but you should work to create contact events for all the close contacts and link them to your index case.
- **Identifying a shared source of exposure for confirmed cases through your interviews can lead to identifying a cluster.**
  - **Example:** 3 of the exposed colleagues became cases.
    - The workplace now meets our definition of a cluster, and could be created as a cluster event in MAVEN. (Call Epi program. We'll help create the cluster.)
    - Notes in the cluster event could include details about the work activities, work setting, risk behaviors, things that help inform our work. It could also include facility communication and details on the follow-up at the worksite.

# Is This a Cluster? Things to Consider

- **You can always link contacts to their index case. That should be your primary action.**
  - Cluster identification may come after further interviews and information gathering, as well as observing outcomes in quarantining contacts.
- **If you have questions about what constitutes a cluster, please call Epi Program 617-983-6800. We are happy to discuss the scenario and provide recommendations.**
  - Don't get caught up with whether the 2 cases you have should be a cluster event or not. Call the Epi Program.

# Cluster Events in MAVEN – Some Caution

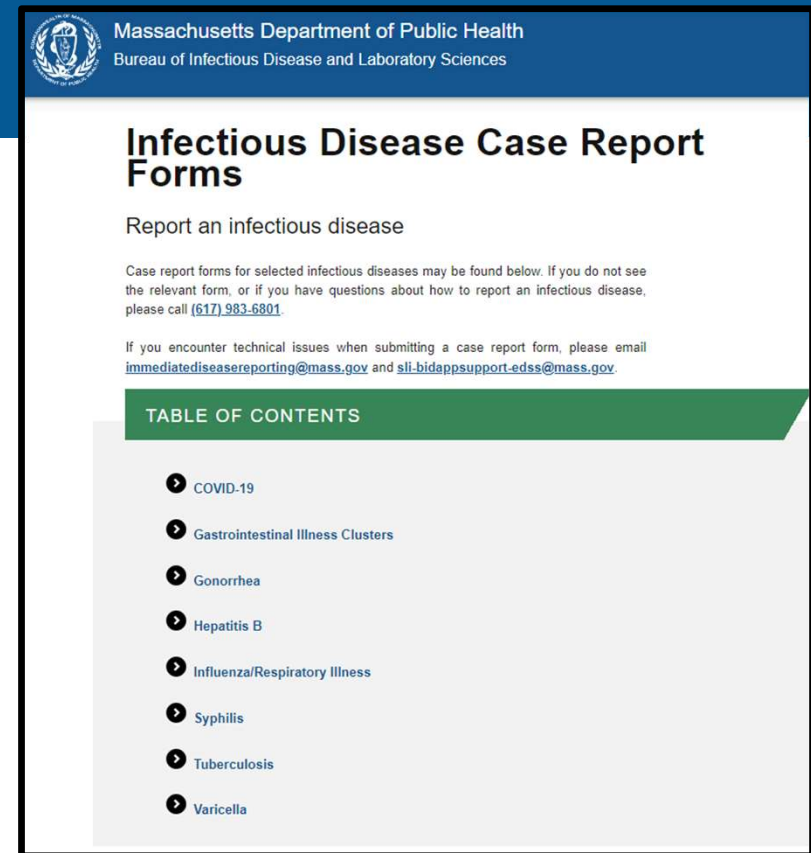
- **During the COVID-19 Pandemic, significant work was put into local health creating many individual cluster events.**
  - Took lots of time for training and for the work in MAVEN.
  - Incorrect Key Variables in Clusters can result in difficulty “searching” for a cluster or in granting correct access.
  - Duplicate Cluster Events frequently Occurred.
- **Now...**
  - Non-healthcare associated COVID clusters are no longer analyzed or reviewed by DPH Epi staff.
  - **New** [Online Infectious Disease Case Report Forms](#) are now available to improve reporting and automatically create MAVEN events as needed.
  - **Most** Clusters are created by MDPH Epis or online forms.
  - LBOH can call Epi Program to discuss if a cluster is needed and to prevent possible duplicates.



# Cluster Reporting Forms

- Utilize an online Cluster Reporting Form to report clusters in most common settings:
  - [COVID-19 Healthcare Facility Cluster Reporting Form](#)
  - [Gastrointestinal Illness Healthcare Cluster Reporting Form](#)
  - [Influenza/Respiratory Illness Facility Cluster Reporting Form](#)
  - [Varicella Cluster Report](#)
- More Online Forms are in Development!
- Providers (like LTCFs) can report directly with these forms!

<https://infectious-disease-reporting.dph.mass.gov/pages/CaseReportForms>



Massachusetts Department of Public Health  
Bureau of Infectious Disease and Laboratory Sciences

## Infectious Disease Case Report Forms

Report an infectious disease

Case report forms for selected infectious diseases may be found below. If you do not see the relevant form, or if you have questions about how to report an infectious disease, please call [\(617\) 983-6801](tel:617-983-6801).

If you encounter technical issues when submitting a case report form, please email [immediatediseasereporting@mass.gov](mailto:immediatediseasereporting@mass.gov) and [slr-bidappsupport-edss@mass.gov](mailto:slr-bidappsupport-edss@mass.gov).

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- [Tuberculosis](#)
- [Varicella](#)


# Linking Cases to Cluster Events

- Today there is less expectation that LBOH will create cluster events directly, however you may identify a case through your interviewing that should then be LINKED to a Cluster Event.
  - Linking two maven events (like a case to a cluster or a case to a contact) is a quick process.
  - There is a [MAVEN Tip Sheet for Linking Two Existing Events](#) in MAVEN Help.

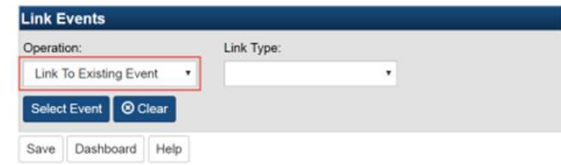
**How do I link two existing cases in MAVEN?**

Let's say you have two cases within MAVEN that you would like to link together—a confirmed and a contact case. How would you do that? Please see below for step by step instructions.

- 1.) Go into one of the two cases that you would like to link together.
- 2.) Once you're in the case, find the **Basic Information** section. Within the Basic Information section, you will see a line called **Linked Events/Contacts**. To the right, you will see a blue link called **View**. Click on it.



3.) You will be brought to a new page. Scroll down until you see a section called **Link Events**. Under the **Operation** dropdown menu, select **Link To Existing Event**.



4.) Next, click the **Select Event** button below the **Operation** dropdown menu. A new window will open in your browser where you are allowed to search for the existing event you would like to link to the case. You may search using any number of criteria in the search window, but since you already know which case you would like to link it to, the best option is to use the MAVEN

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# Linking to Clusters

- Use the [tip sheet](#).
- You can be in either event and link to the other via the “Linked Events ([View](#))”
  - Keep track of what event you are “in” and what event you are “looking” for.

Basic Information	
Case ID:	100034263
Event:	Novel Coronavirus (SARS, MERS, etc)
Name:	SCHL_HAPPYELEMENTARY_SPRINGFIELD
Investigation Status:	Open
Linked Events/Contacts:	5 ( <a href="#">View</a> )
Attachments:	0 ( <a href="#">Add</a> )

- Most often, you will be linking to an “existing” event when linking people to clusters.
  - As opposed to creating and linking to a “new” contact event when linking a contact to an index case.

Link Events	
Operation:	Link Type:
<div>Link To Existing Event</div>	<div></div>
<div>Select Event</div>	<div>Clear</div>
<div>Save</div>	<div>Dashboard Help</div>

# Cluster Events – How to View the Linked Events

← → ↺ 🏠 ⓘ Not secure | maven Trainings Site | LBOH/main.do ☆ ⓘ ⓘ ⓘ ⓘ

Maven Disease Surveillance Suite - Training 🏠 ⓘ ↺ Enter Case ID Search LBOH Test User ▾

**LTCF\_Lawrence\_21MAY2020**

- Home
- Open Help
- History
- Case Management
  - Create Event
  - Search Event
  - Print Event
  - Workflow
  - Import Roster
  - Create Cluster/Outbreak/Aggregate Event
- Recent Events
- Close Record
- Reports
- Profile Management

### Outbreak Summary

#### Basic Information

Case ID:	100033867
Event:	Novel Coronavirus (SARS, MERS, etc)
Name:	LTCF_Lawrence_21MAY2020
Investigation Status:	Open
Linked Events/Contacts:	289 (View)
Attachments:	0 (Add)

#### Notifications

Event/Status/Date/Type Notifier	
Event Status: N/A	
Event Date: 05/21/2020	
Event Type: N/A	

Edit

#### Notes

**LBOH Test User [lbohtest1] - (Generic)** 05/25/2020 07:46 PM  
Nurse manager called to report 15 positive residents, 4 positive staff. Will be faxing the list shortly. They have designated the first floor Wing A as the covid+ unit, and have designated Wing B on the first floor as the quarantine unit.

**LBOH Test User [lbohtest1] - (Generic)** 05/25/2020 07:44 PM  
Shine Senior Living Facility on 123 Main St in Lawrence MA. They are a 3 unit each of the 3 floors. All residents have private bathrooms. 1st floor is Nurse Manger is Jane Smith, 617-999-9999. Called to report 5 symptomatic and testing for the whole facility took place yesterday. Waiting test results.

You can see how many people are linked to this cluster!

### Question Packages

Question Package	Last Update
Administrative	05/21/2020
Respiratory/ILI Questions	05/21/2020
Standard Questions	05/21/2020

View Question Package

# Every Event has a Linked Events Page

- **Link Type should always be Primary when linking events to a cluster event.**
- There are more options for link types when linking contacts to each other. You can use the best link type in that situation (household contact, daycare contact, etc.)

**Filter Linked Events**

Event:  Status:

**Linked Events**

Event ID	Name	Status	Create Date	Event	Event Date	Type	Action
100033866	Jane, Lady	Open	05/21/2020	Novel Coronavirus (SARS, MERS, etc)	05/03/2020	Primary	Edit Delete
100033880	lastname, resident1	Open	05/25/2020	Novel Coronavirus (SARS, MERS, etc)	05/25/2020	Secondary	Edit Delete
100033881	Lastname, ResidentTWO	Open	05/25/2020	Novel Coronavirus (SARS, MERS, etc)	05/25/2020	Primary	Edit Delete
100033882	residentTHREE, fred	Open	05/25/2020	Novel Coronavirus (SARS, MERS, etc)	05/25/2020	Primary	Edit Delete
100033883	johnson, Resident4	Open	05/25/2020	Novel Coronavirus (SARS, MERS, etc)	05/25/2020	Primary	Edit Delete
100033884	Resident, Another	Open	05/25/2020	Novel Coronavirus (SARS, MERS, etc)	05/25/2020	Primary	Edit Delete

**Link Events**

Operation:  Link Type:

**You can sort by column headers.**

**You can link to more events here.**

Primary  
Secondary  
Index  
Source  
Control  
Mass Immunization

# Questions on Clusters (Outbreak Events)

- **How do I find a cluster event in MAVEN?**
  - Remember to change “Type” from Normal to Outbreak in the Search Screen.
- **How do I create a cluster in MAVEN?**
  - First search – does one already exist?
  - Can you utilize one of the [online REPORTING FORMS](#) to report/create the cluster?
  - Recommend that you call 617-983-6800 and an Epi will do it with you on the phone.
    - There may already be a Cluster Event that needs your “affected town” added so that you can also access the Cluster Event.
    - The situation may not need a cluster event.

# What to Know About Cluster Events in MAVEN

- **What is a Cluster event and how is it used?**
  - Clusters are facility-based events (as opposed to an individual person event). In MAVEN they are called Outbreak Events and are used to track a shared exposure setting and the linked cases.
- **How to find a Cluster in MAVEN?**
  - Remember change “Normal” to “Outbreak” type when using Search Box.
- **Cluster Naming Conventions**
  - FACILITYTYPE\_FACILITYNAME\_TOWN
  - Use the [Cluster Naming Tip Sheet](#)
- **How to report a Cluster to MDPH?**
  - Use the [Online Reporting Form](#) if available
  - Call Epi Program (617) 983-6800 to confirm its appropriate and ensure no duplicates.
- **Linking individual MAVEN cases to a Cluster Event**
  - Use the [Linking Events Tip Sheet](#).

**2024 Cluster Update:** To ensure accuracy, appropriateness, and prevent duplicates, most cluster events today can be created through an online reporting form from a facility or by calling the Epi Program at 617-983-6800.



**QUESTIONS?**