

Infectious Disease Surveillance for Case Investigation

Massachusetts 2020

Establishing a surveillance system of record

- In order to ensure complete and accurate case tracking and subsequent contact tracing, a surveillance system of record needs to provide daily COVID-19 case information
- In Massachusetts and over 20 other state and city jurisdictions, a local instance of MAVEN is the system of record
- Other jurisdictions may use a different electronic or paper-based system, but the principle is the same
- COVID-19 case tracking and contact tracing systems can also play an important role feeding supplemental case and contact tracing data back to the system of record to inform state and local public health actions

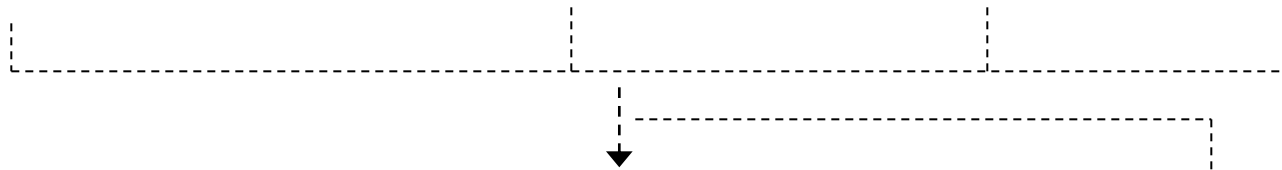
National Disease Reporting System

Healthcare Providers

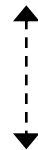
Hospitals

Laboratories

Others



Local Boards of Health



State Health Department

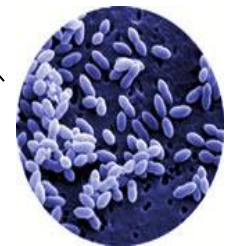
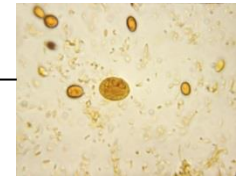


CDC



MAVEN: General Features

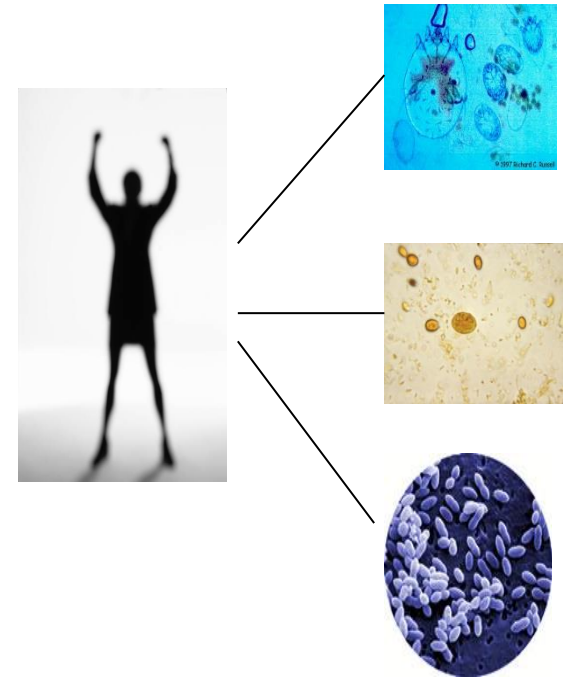
- Complete data capture in a single integrated system for all 90 diseases
- Real-time information sharing with local health
- Electronic laboratory and case reporting (ELR/ eCR) interface



Replaces paper-based methods of reporting and disease-specific surveillance systems

MAVEN Features

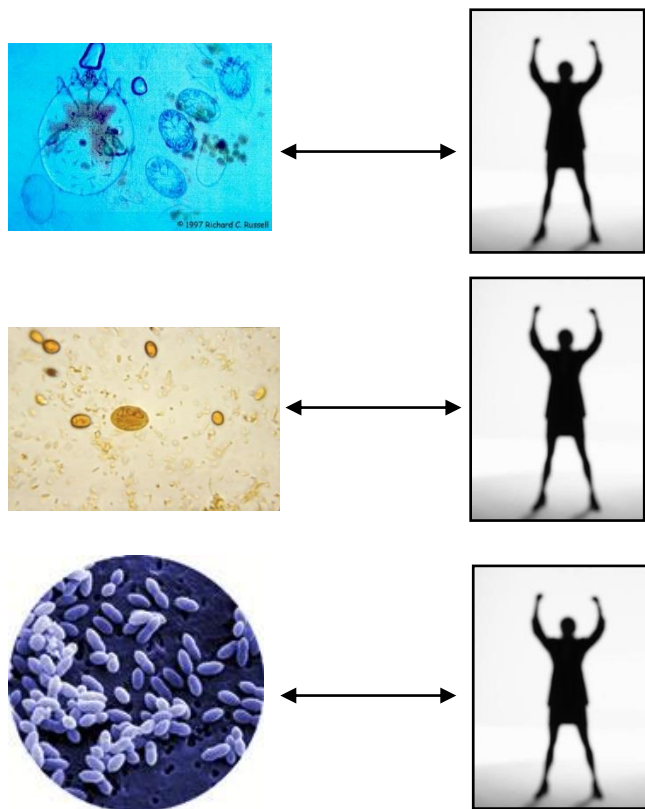
- Deduplication
 - person level
(by weighted algorithm)
 - disease event level
(by event time periods)
- Automated triage and prioritization of information
- Workflow management
 - streamlines business processes for triaging and prioritizing case investigation and surveillance
- Disease specific question packages
 - reports and data extracts for analysis, including COVID-19 case data for tracking purposes



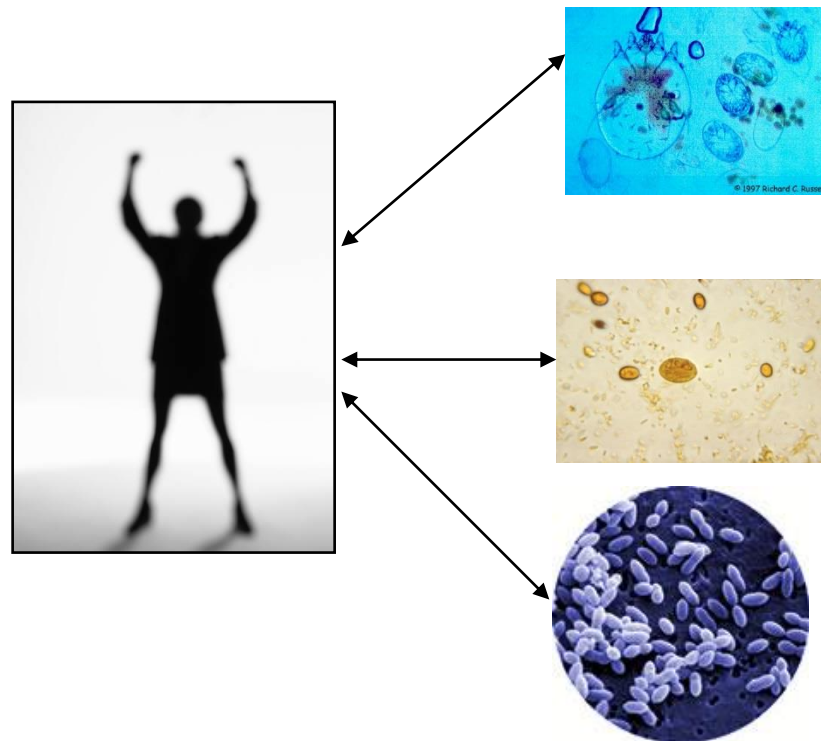
Security Features

- Same encryption technology (secure socket layer or SSL) as the banking industry
 - point-to-point encryption
- Access is limited by an individual user's roles and groups
 - access to specific disease events and data based on programmatic oversight and role within program
 - e.g. TB program does not have access to zoonotic disease events
 - independent variable access restrictions within disease events
 - LBOH have access to disease events reportable to local health and only for their residents
- Limited points of entry- MAVEN oversees connection points
 - MAVEN pulls data from ELR
 - deidentified extracts sent to CDC pushed by MAVEN

EVENT-BASED SYSTEM VS. PERSON-BASED SYSTEM

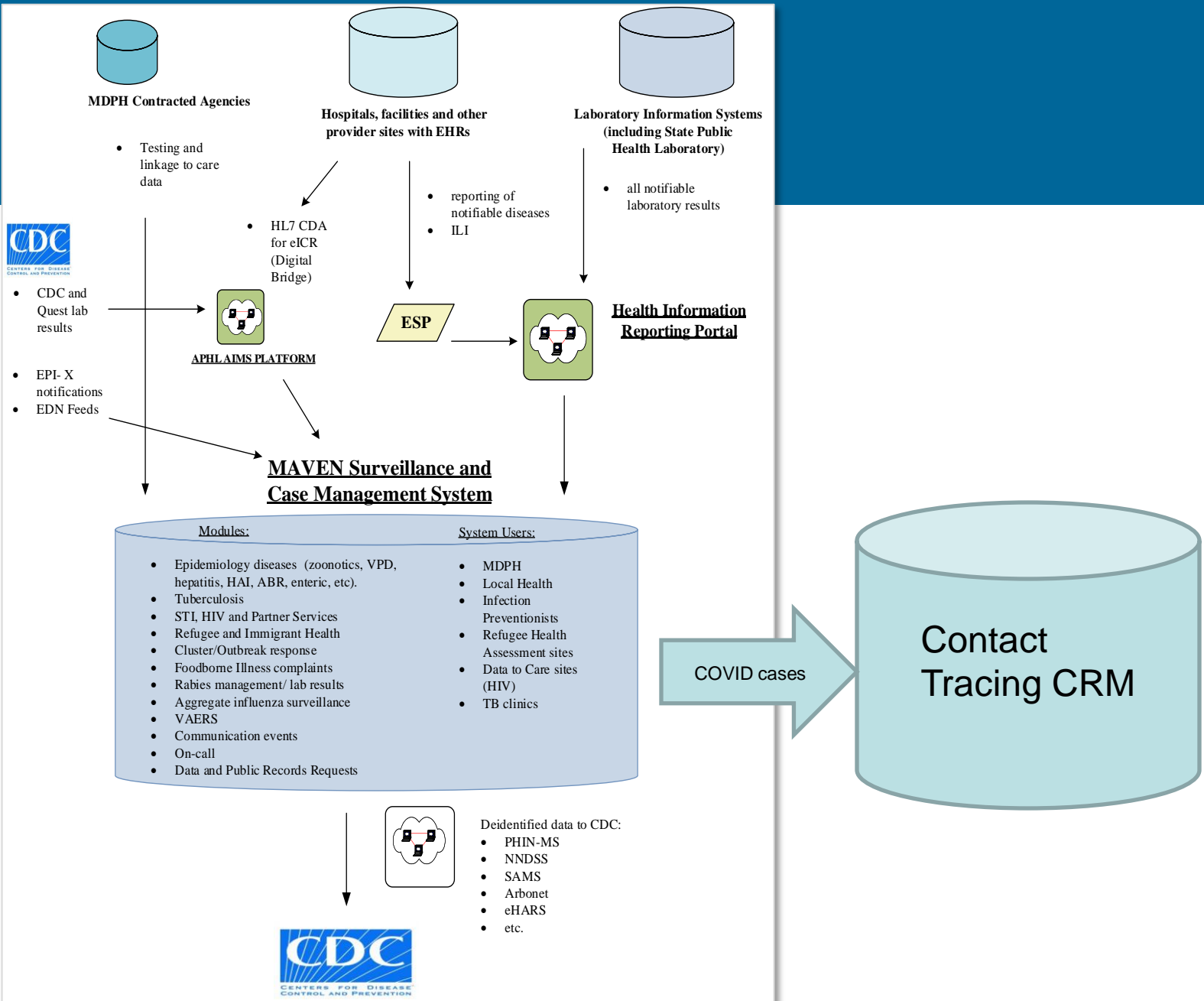


3 diseases/events for the same person, but in the system as 3 different, unrelated events



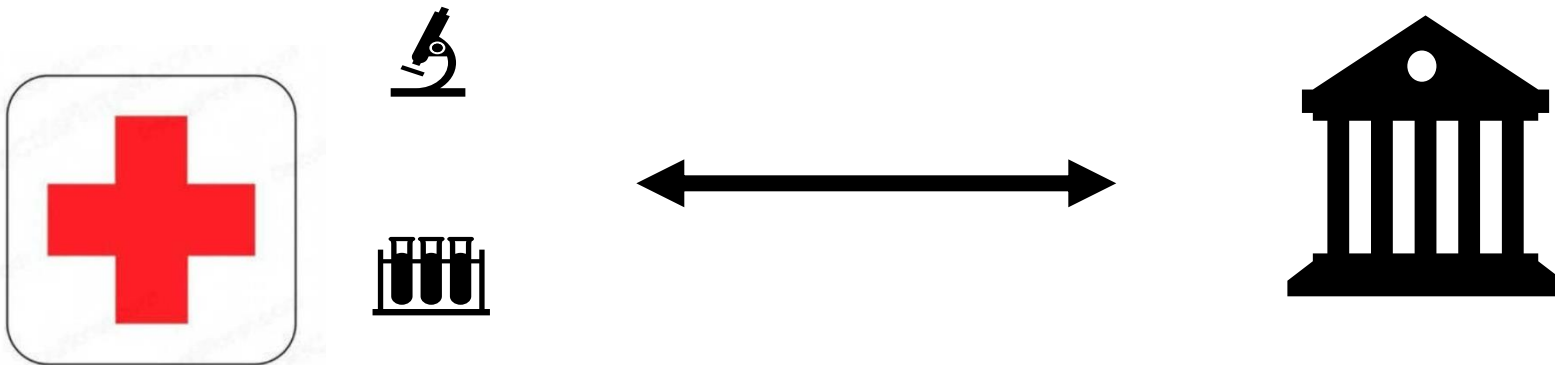
3 events linked together by the person. Appropriate demographic information on the case is shared across diseases/events for a single case.

Data Flow



Electronic Lab Reporting (ELR)

Automated electronic reporting - ELR - replaces fax, email, and ad hoc electronic data. ELR Message Gateway translates the reported information from local coding systems into standardized LOINC, SNOMED, and HL7 equivalents. The LOINC and SNOMED codes are used for test names and results.



Electronic Laboratory Processing 2018 Data

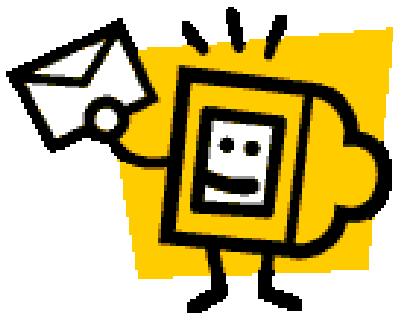
Hospital clinical laboratories transmitting ELR	90*
Commercial laboratories transmitting ELR	17*
Percent of laboratory reports sent via ELR	98%
Electronic laboratory and case reporting throughput	~ 9,300,000

* These numbers include 2020 laboratories reporting for COVID-19 response and is increasing daily

LBOH receives email or text email on cell phone for COVID-19 event



Event 100006029 - suspected COVID-19 for Worcester. Access event at www.mass.gov/vg. Please coordinate follow-up with MDPH.



Main Dashboard

Maven Disease Surveillance Suite - Training

Enter Case ID Search Gillian Haney

Recent Records

Event ID	Name	Event
☆ 100032842	HOSP_SALEM_05MAY2015	Hepatitis C
☆ 100032883	Troppy, Scott	Hepatitis A
☆ 100032853	HOSP_WESTFIELD_03MAR2019	Hepatitis A
☆ 100033022	Connor, John	Measles
☆ 100032732	Marshall, Jared	Hepatitis A

More...

Workflows

Workflow Queue	Events	Assigned
☆ Acute HBV Final Review	0	0
☆ Acute HBV Identification	7	0
☆ Acute HBV Pending Investigation	3	0
☆ Acute HCV Final Review	0	0
☆ Acute HCV Identification	2	0
☆ Acute HCV Pending Investigation	0	0
☆ Boston Pending Arbovirus	0	0
☆ Bulk Action Teleform Open	0	0
☆ CRF needs review - Active Surveillance	22	0
☆ CRF needs review - Enteric and Waterborne Diseases	48	0

More...

Tasks

No tasks to display

Quick Links

MAVEN System News

If you missed our recent webinar **Next Steps for Latent TB Infection Events in the LBOH LTBI Priority Follow-Up Workflow in MAVEN** the recording and webinar slides are available for viewing.

Click on the following links to view the webinar recording and webinar slides.

[LBOH LTBI Priority Follow-Up Workflow in MAVEN Webinar / LBOH LTBI Priority Follow-Up Workflow Webinar Slides](#)

MAVEN System Support

If you encounter a problem in MAVEN, please e-mail isishelp@state.ma.us. Please provide detailed information such as date, time, description, username, contact information, and attach screen shots. If you encounter an error message, copy and paste the details into your email.

Remember to update your security questions and contact information in the event that you need to reset your password. Password reset functionality is accessed through the logon page or by contacting the Virtual Gateway Customer Service, Monday through Friday 8:30 am to 5:00 pm at 800-421-0938 (Voice) and 617-847-6578 (TTY for the deaf and hard of hearing).

MAVEN Resources

[Help Section](#) (programmatic web-links, ePostcards, fact sheets, tip sheets, case report forms, release notes)
[Infection Preventionists Contact List](#)
[MDPH Disease Fact Sheets](#)
[Meningitis and Meningococcal Disease Fact Sheets](#)
[Guide to Surveillance, Reporting and Control \(2nd Edition\)](#)
[Foodborne Illness Investigation and Control Manual](#)

Laboratory Data

Event Data Labs Concerns Participants Tasks Event Properties Event History Trail

Labs

Lab No.	Specimen Date	Specimen Number	Specimen Source	Test	Result	Lab	Ordering Facility	Last Update
1	03/16/2020	1236598	Nasopharynx	2019-nCoV Real-time RT-PCR	Positive	William A Hinton State Labo...	Lawrence General Hospital - ...	03/24/2020
2	03/16/2020	12398765	Oropharynx	2019-nCoV Real-time RT-PCR	Positive	William A Hinton State Labo...	Lawrence General Hospital - ...	03/24/2020

Search:

Add Lab Result Update Lab Result Delete Lab Result

Details

Last Update:	03/24/2020
Updated By:	LBOH Test User [lbohtest1]
Specimen Date:	03/16/2020
Specimen Number:	1236598
Specimen Source:	Nasopharynx
Test:	2019-nCoV Real-time RT-PCR
Result:	Positive
ISIS Received Date:	03/16/2020
Result Date:	03/16/2020
Lab Facility:	William A Hinton State Laboratory Institute - 305 South Street, Jamaica Plain, MA 02130, (617) 983-6201
Lab Facility:	Lawrence General Hospital - 1 General Street, Lawrence, MA 01841, (978) 946-8066
Name:	Dr. Joe Smoe
Facility:	Lawrence General Hospital
Address:	1 General Street
City:	Lawrence
State:	MA
Zip:	01841
Phone:	617-555-1234

Workflows

Maven Disease Surveillance Suite | Training Enter Case ID

Workflow Queues Show Empty Workflows

Maven Disease Surveillance Suite - Training Enter Case ID

Workflow Queues Show Empty Workflows

Boston Specific

Workflow Queue	Total Count	Priority	Last Update
☆ Lyme teleform print - Boston	4	Medium	11/04/2019 02:37 PM ⓘ
☆ Varicella teleform print - Boston	1	Medium	11/04/2019 02:37 PM ⓘ

Epidemiology Program

Workflow Queue	Total Count	Priority	Last Update
☆ Epi EOD Follow up	113	Very High	11/04/2019 02:37 PM ⓘ
☆ CRF needs review - Active Surveillance	22	High	11/04/2019 02:37 PM ⓘ
☆ CRF needs review - Enteric and Waterborne Diseases	48	High	11/04/2019 02:37 PM ⓘ
☆ Enteric and Waterborne Lab Review	2	High	11/04/2019 02:37 PM ⓘ
☆ HUS For Review	3	High	11/04/2019 02:37 PM ⓘ

Food Protection Program

Workflow Queue	Total Count	Priority	Last Update
☆ FDP - Notification of newly created FBI events	46	Very High	11/04/2019 02:37 PM ⓘ
☆ FDP - Events with an open WFOIC disposition	1	Medium	11/04/2019 02:37 PM ⓘ

HIV

Workflow Queue	Total Count	Priority	Last Update
☆ HIV - CRF Received, Need Confirmatory Lab	1	Medium	11/04/2019 02:37 PM ⓘ
☆ HIV - Confirmatory HIV, no assigned States	3	Medium	11/04/2019 02:37 PM ⓘ
☆ HIV - HIV/AIDS needs complete CRF	3	Medium	11/04/2019 02:37 PM ⓘ
☆ HIV - Incomplete ARV Use History	2	Medium	11/04/2019 02:37 PM ⓘ
☆ HIV - Missing required demographic information	2	Medium	11/04/2019 02:37 PM ⓘ
☆ HIV - Missing residence and facility at HIV diagnosis	2	Medium	11/04/2019 02:37 PM ⓘ
☆ HIV - Suspect AIDS progressors	1	Medium	11/04/2019 02:37 PM ⓘ

Hepatitis Team - Epidemiology

Workflow Queue	Total Count	Priority	Last Update
☆ Acute HBV Identification	7	High	11/04/2019 02:37 PM ⓘ
☆ Revoked HCV Events with Positive NAT Results for Review	1	High	11/04/2019 02:37 PM ⓘ
☆ Acute HBV Pending Investigation	3	Medium	11/04/2019 02:37 PM ⓘ
☆ Acute HCV Identification	2	Medium	11/04/2019 02:37 PM ⓘ

Disease Event/ Question Packages

Event Summary

Basic Information

Case ID:	100033778
Event:	Novel Coronavirus (SARS, MERS, etc)
Name:	TEST CASE COVID #3
Birth Date:	03/25/1975
Gender:	Female
Home Phone:	(617) 555-1369
Investigation Status:	Open
Linked Events/Contacts:	0 (View)
Attachments:	0 (Add)

Notes

Scott Troppy [stroppy] - (Generic) 03/29/2020 05:37 PM
Notes go here

Notifications

Event/Status/Date/Type Notifier 3

Event Status: Confirmed
Event Date: 03/19/2020
Event Type: Symptom Onset Date

Workflow Status 1

Event ID is in workflows [View List]

Case Classification 2

Age at time of event: 44.98
Age unit: Years

[Edit Event Properties](#) [Copy Event](#)

[Event Data](#)
[Labs](#)
[Concerns](#)
[Participants](#)
[Tasks](#)
[Event Properties](#)
[Event History Trail](#)

Question Packages

Question Package	Person	Last Update
1. Administrative	Event ID	03/29/2020
2. Demographic	TEST CASE COVID #3	03/24/2020
3. Clinical	TEST CASE COVID #3	03/29/2020
5. Risk/Exposure/Control & Prevention	TEST CASE COVID #3	03/26/2020
6. Contact Monitoring	TEST CASE COVID #3	03/29/2020
6. Epi-linked and Outbreak Information	TEST CASE COVID #3	03/24/2020
8. ECR Information	TEST CASE COVID #3	03/24/2020

Contact Tracing Assistance

Local Health and Investigation Steps (1 - 5)

COVID Assistance Requested:
Yes

Date Requested:
04/13/2020

Step 1 - LBOH acknowledged:
[Dropdown]

Step 2 - Investigation started:
[Dropdown]

Step 3 - LBOH/Agency Investigator:
[Text Field]

Step 4 - Case Report Form Completed:
[Dropdown]

Step 5 - LBOH final review:
[Dropdown]

Save Save & Stay Cancel Help

Please answer **Yes** if you would like contact tracing assistance or **No** if you do not require assistance for your COVID-19 cases

Investigation

3. Clinical - TEST CASE COVID #3 - Novel Coronavirus (SARS, MERS, etc)

Diagnosis date:	<input type="text" value="03/22/2020"/>	
Did case have symptoms?	<input type="text" value="Yes"/>	
Symptom onset date:	<input type="text" value="03/19/2020"/>	
Abdominal pain:	<input type="text" value="No"/>	
Chills:	<input type="text" value="Yes"/>	
Cough:	<input type="text" value="Yes"/>	
Diarrhea:	<input type="text" value="No"/>	
Difficulty breathing/Shortness of breath:	<input type="text"/>	
Fever:	<input type="text" value="Yes"/>	
Highest temperature:	<input type="text" value="101.1"/>	unit <input type="text" value="Fahrenheit"/>
Fever onset date:	<input type="text" value="03/26/2020"/>	
Duration (days):	<input type="text" value="7"/>	
Headache:	<input type="text" value="Yes"/>	

Contact Monitoring

6. Contact Monitoring - TEST CASE COVID #3 - Novel Coronavirus (SARS, MERS, etc)

Contact Monitoring
Contact monitoring status: <input type="text" value="Completed"/>
Contact established within 72 hours: <input type="text" value="Yes"/>
Risk status: <input type="text" value="Medium"/>
Symptomatic at time of initial assessment? <input type="text" value="Symptomatic"/>
Did contact receive official notification of isolation or quarantine requirements? <input type="text" value="Yes"/>
Date received: <input type="text" value="03/22/2020"/>
Recommended monitoring <input type="text" value="Self-monitoring with public health supervision"/>
Last potential exposure date: <input type="text" value="03/26/2020"/>
Date arrived in USA: <input type="text" value="mm/dd/yyyy"/>
First day of required monitoring: <input type="text" value="mm/dd/yyyy"/>
Last day of required monitoring: <input type="text" value="mm/dd/yyyy"/>
Any scheduled out-of-state travel planned during the monitoring period? <input type="text"/>
Assessment date: <input type="text" value="mm/dd/yyyy"/>

Disease Case Classification

confirmed, probable, suspect, revoked

- CRF (Case Report Form) data submitted by LBOH
- All CRF data reviewed by an MDPH epidemiologist
 - case definitions based on clinical and laboratory information
- Data submitted to CDC

1. Administrative - TEST CASE COVID #3 - Novel Coronavirus (SARS, MERS, etc)

Disease classification status: *

Confirmed

nCoV Strain

2019-nCoV

Suspect/RUI status:

CDC ID:

MA123456

Reporting source:

CRF reviewed:

Yes

CRF reviewed date:

03/29/2020

Reviewer Name:

Scott Troppy

Add New