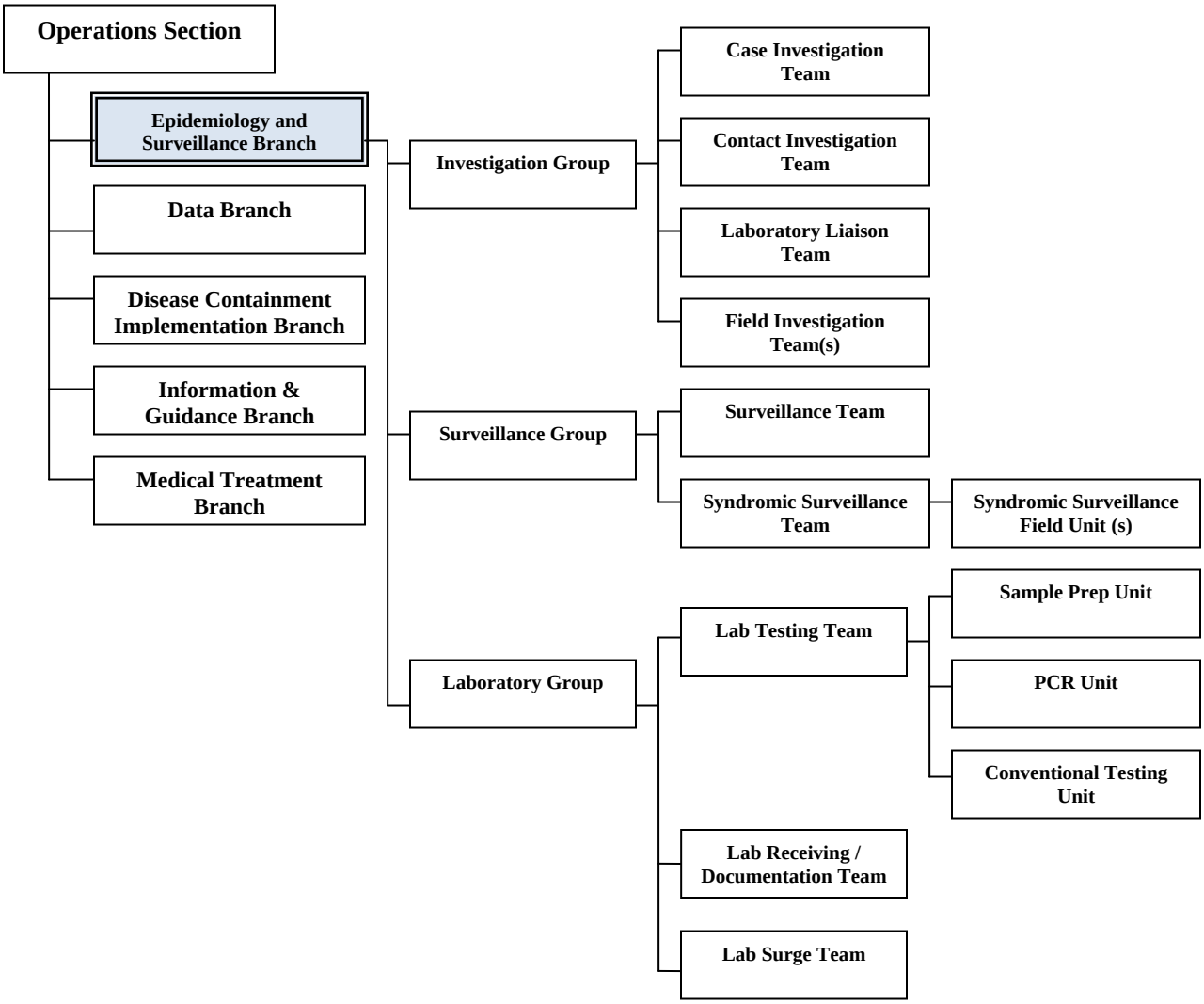
22. EPIDEMIOLOGY AND SURVEILLANCE BRANCH

A. ORGANIZATION CHART



B. DESCRIPTION

a. Purpose & Objectives

The purpose of the Epidemiology and Surveillance Branch is to gather information about the infectious disease emergency. Branch objectives include:

- Determine appropriate epidemiology and surveillance strategies for the infectious disease emergency.
- Conduct surveillance.
- Conduct or facilitate laboratory testing.
- Conduct epidemiological investigations.
- Identify sources of disease and causes of disease spread.
- Monitor trends in the incidence and prevalence of disease to identify new or unrecognized exposures or risk factors.

- Describe the epidemiological and clinical features of an event.
- Report cases to the proper agencies.

b. Methods

Primary strategies for epidemiology and surveillance include:

Surveillance. Surveillance is the continuous analysis, interpretation, and dissemination of systematically collected data, generally using methods distinguished by their practicality, uniformity and rapidity rather than by accuracy or completeness. By observing trends in time, place, and persons, changes can be observed or anticipated and appropriate action, including investigative or control measures, can be taken.

Epidemiological Investigation. Epidemiological investigation uses epidemiology tools, including case investigation, contact investigation, and laboratory testing to establish person, place, and time associated with an event. Additional more labor-intensive epidemiological investigations include cohort and case-control studies.

Laboratory Testing. Testing of human, animal, and environmental specimens/samples can identify or confirm the identification of organisms responsible for an infectious disease emergency. Laboratory testing can also assist in determining the responsible organism's transmissibility, pathogenicity, and/or antibiotic susceptibility.

Consult the Epidemiology and Surveillance Branch modules in the following pages of the IDER plan for details regarding the above strategies.

See the Annexes for information on specific epidemiology and surveillance strategies as they relate to respiratory aerosol transmissible diseases, bioterrorism events, biological agent detections in the environment, and waterborne events.

C. IMPLEMENTATION

a. Epidemiology and Surveillance Branch

Activate the Epidemiology and Surveillance Branch for all IDER activations.

The Epidemiology and Surveillance Branch Director is responsible for completion of epidemiology and surveillance objectives.

Functions of the Epidemiology & Surveillance Branch

- Identify, communicate, and oversee strategies to accomplish objectives and design operational plans in accordance with the Incident Action Plan.
- Approve scope of surveillance strategies and investigation activities.
- Coordinate Surveillance Group, Laboratory Group, and Investigation Group activities.
- Ensure approval from the Incident Commander prior to sharing any de-identified laboratory data or information on suspected/confirmed cases or contacts outside the response.
- Review the case definition and submit to the Operations Section Chief.
- Determine whether to conduct a study, and if so, what type; inform the Operations Section Chief.
- Collaborate with Data Branch to interpret and summarize surveillance information for response and external stakeholders.
- Review any requested data from the Data Branch and provide interpretation and summary data for the response and external partners (in collaboration with Data Branch.)

- Ensure close coordination with Data Branch regarding data collection, summaries, analysis, and questionnaire development.
- Ensure close coordination with Disease Containment Branch, especially regarding any isolation and quarantine or restriction, exclusion and clearance.
- Ensure close coordination with Information & Guidance Branch, especially regarding case definitions, reporting and testing criteria, etc.
- Ensure close coordination with Medical Treatment Branch regarding reporting of cases and /or any coordination of health care systems data transfer.
- Assure coordination with other partners/agencies/modules providing epidemiological assistance.
- Coordinate training of epidemiology and surveillance staff.
- Order mobilization and demobilization of branch response elements to meet incident response needs.
- Prioritize and assign responsibilities according to objectives and plans.
- Communicate with the Operations Section Chief regularly.

D. STAFF POSITIONS

The following positions are required for minimum staffing levels.

Staff Position Roster: Epidemiology and Surveillance Branch				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**No. of Employees**	**Location**
Epidemiology & Surveillance Branch Director	Supervise and manage Epidemiology & Surveillance Branch activities	2804, 2591, 2803, 2230; Supervisory experience; training and/or experience in epidemiological field investigations;	1	DOC
Epidemiology & Surveillance Branch Deputy	Assist Epi & Surveillance Branch Director; assume E&S Branch director position if necessary	2230, 2804, 2591; Supervisory experience; training and/or experience in epidemiological field investigations;		DOC
Administrative Assistant	Assist with administrative duties	1424, 1426; Knowledge of office methods and procedures.	1	DOC

E. REPORTING

The Epidemiology & Surveillance Branch reports directly to the Operations Section Chief. Following approval, incident specific information will be provided to other Operations Section Branch Directors.

F. DELIVERABLES

The Epidemiology and Surveillance Branch is responsible for producing the following:

- Module Objectives and Update, ICS Form 202b (for each Operational Period)
- Documents assigned to Epidemiology and Surveillance Groups, Teams, and Units

G. RESOURCES

The following resources will be required to perform response operations:

a. Protocols, forms, and guidelines, and MOUs

Items	Location
ICS Forms	**Appendix** B
Job Action Sheets	**Appendix C**
Epidemiology and Surveillance	**Appendix I**
CDHS Other Outbreak/Other Reportable Disease or Disease of Unusual Occurrence Report	Appendix I1
CDHS Confidential Morbidity Report	Appendix I2
Investigation	**Appendix Ia**
San Francisco Infectious Disease Joint Investigation MOU	Appendix Ia.1
Go Kits and EPI Go-Kits	**Appendix Ia1**
Overview of Go-Kits	Appendix Ia1.1
Computer Check-out Protocol	Appendix Ia1.2
Go-Kit Check out Protocol	Appendix Ia1.3
List of Go-Kit Supplies	Appendix Ia1.4
Instructions on Donning PPE	Appendix Ia1.5
Specimen Collection	**Appendix Ia2**
Specimen Collection and Handling During Transport	Appendix Ia2.1
Specimen Receiving Information	Appendix Ia2.2
Specimen Submittal Form	Appendix Ia2.3
CDHS VRDL Viral Specimen Submittal Form	Appendix Ia2.4
CDHS Norovirus Outbreak Specimen Submittal Form	Appendix Ia2.5
SFDPH Influenza Specimen Collection Instructions	Appendix Ia2.6
SFDPH Norovirus Specimen Collection Instructions	Appendix Ia2.7
SFDPH VZV Smallpox Specimen Collection Instructions	Appendix Ia2.8
Investigation Forms	**Appendix Ia3**
Anthrax (Human) Case Report Form, CDPH	Appendix Ia3.1
Avian Influenza Screening Form	Appendix Ia3.2
Avian Influenza Contact Monitoring Form	Appendix Ia3.3
Avian Influenza Case Report Form	Appendix Ia3.4
Bioterrorism Disease Specific Investigation Algorithms	Appendix Ia3.5
Botulism Case Report – Wound or Foodborne, CDPH	Appendix Ia3.6
Botulism Investigation Algorithm	Appendix Ia3.7
Brucellosis (Undulant Fever)/Q Fever/Tularemia Case Report Form (CDPH)	Appendix Ia3.8
Brucellosis Investigation Algorithm	Appendix Ia3.9
Cholera and other Vibrio Illness Surveillance Report	Appendix Ia3.10
E. Coli Case Report Form (CDPH)	Appendix Ia3.11
Plague Investigation Algorithm	Appendix Ia3.12
Plague Contact Surveillance Form	Appendix Ia3.13
Plague Individual Contact Surveillance Form	Appendix Ia3.14
SARS Case Report Form, CDC	Appendix Ia3.15
Smallpox Contact Management Algorithm	Appendix Ia3.16
Smallpox Contact Surveillance Form	Appendix Ia3.17
Smallpox Individual Contact Surveillance Form	Appendix Ia3.18
Tularemia Investigation Algorithm	Appendix Ia3.19
Unspecificed Gastrointestinal Illness Case Investigation Form (CDPH)	Appendix Ia3.20
Unspecified Respiratory Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.21
Unspecified Neurologic Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.22
Unspecified Fever Rash Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.23
Viral Hemorrhagic Fevers (VHF) Contact Management Algorithm	Appendix Ia3.24
Viral Hemorrhagic Fevers (VHF) Contact Surveillance Form	Appendix Ia3.25
Viral Hemorrhagic Fevers (VHF) Individual Contact Surveillance Form	Appendix Ia3.26
Viral Hemorrhagic Fevers (VHF) Investigation Algorithm	Appendix Ia3.27

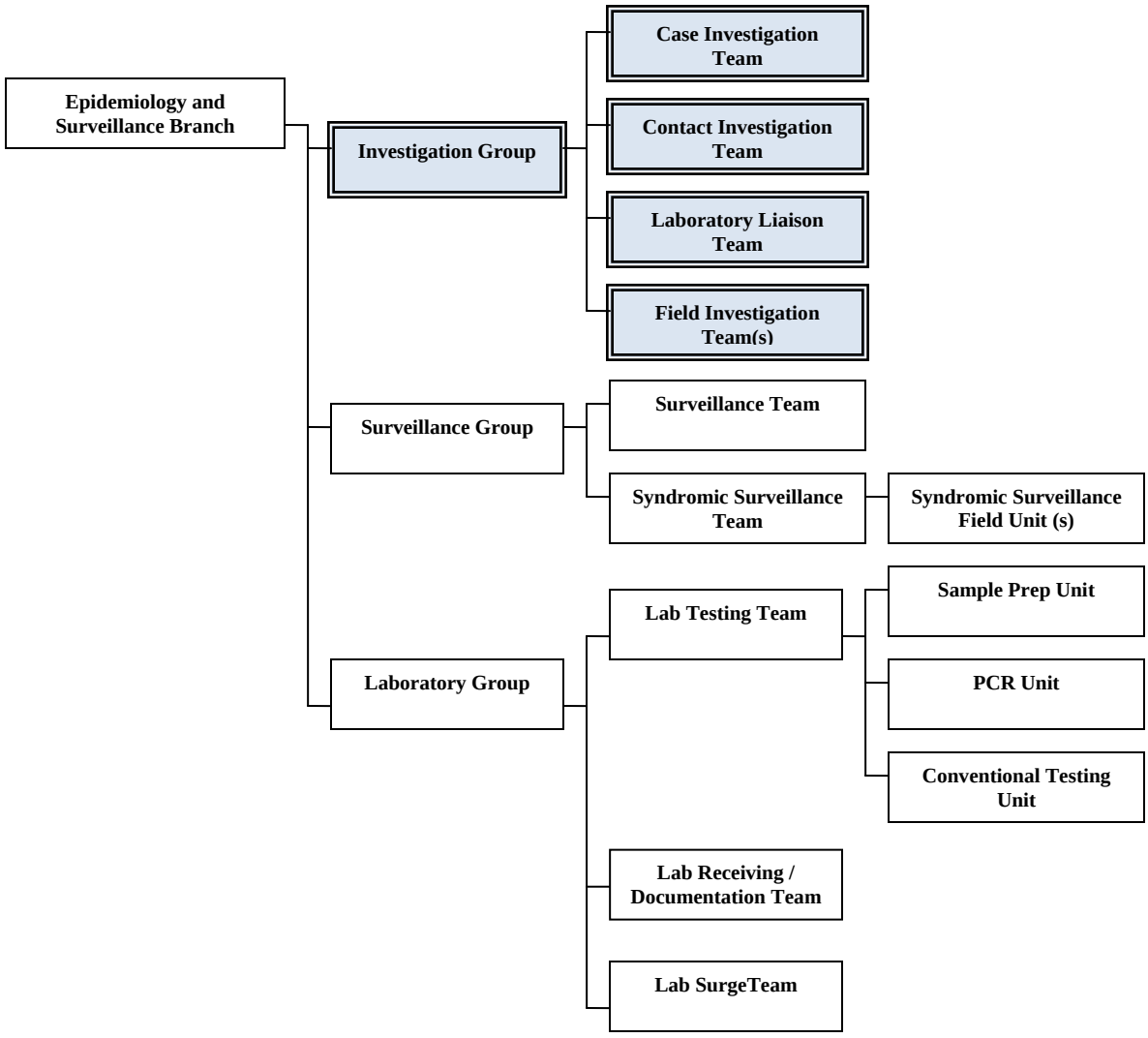
Waterborne Disease Outbreak Report (CDPH)	Appendix Ia3.28
Interview Guidance for a Criminal and Epidemiological Investigation	Appendix Ia3.29
Laboratory	**Appendix Ic**
Laboratory Submission Forms	Appendix Ic1
Laboratory Testing Protocols	Appendix Ic2
Laboratory Detection Capabilities (Rapid (PCR) or non-rapid method format)	Appendix Ic3
Protocol for Handling White Powders (as hazards to be tested and potential evidence)	Appendix Ic4
Chain of Custody Forms	Appendix Ic5
Lab Forwarding Procedure	Appendix Ic6
Lab Testing Surge Acceptors	Appendix Ic7
Lab Influenza Testing Capabilities and Supplies	Appendix Ic8
Lab Personnel for IDER	Appendix Ic9
MLAB Access Instructions	Appendix Ic10
Preventive Maintenance	Appendix Ic11
SFDPH Public Health Laboratory IDE Agent Identification Capabilities	Appendix Ic12
SFDPH Public Health Laboratory Capabilities	Appendix Ic13
Laboratory Guidance for a RAT Disease	Appendix Ic14
San Francisco Sentinel Labs Contact Information	Appendix Ic15
Biological Detection Monitors	**Appendix Id**
Incubation Period of BioWatch Agents	Appendix Id1
Local Profile of BioWatch Agents	Appendix Id2
BDS Exposure Criteria and Groups	Appendix Id3

b. Office and Communication Supplies

Item	No. Required	Location or Request From
Telephone	1	Logistics
Fax machine access	1	Logistics
Computer with local network, internet access	1+	Logistics
Printer access	1	Logistics
800 MHz Radio/cell phone/pager	1	Logistics
Copy machine access	1	Logistics

23. INVESTIGATION GROUP

A. ORGANIZATION CHART



B. DESCRIPTION

a. Purpose & Objectives

The purpose of the Investigation Group is to carry out case and contact investigations in order to determine the cause of disease, the source of disease, the mode of transmission, risk factors for disease, exposures and any other factors that may be associated with illness. The Group objectives include:

- Select appropriate investigation strategies for the response.
- Conduct case investigation and contact investigation.
- Collect information about suspected cases, possible contacts, disease characteristics, clinical characteristics, and possible disease exposures in a methodologically appropriate and efficient manner.
- Obtain, prioritize, and submit specimens for laboratory testing.
- Determine if epidemiologic study is needed, and if so, design and implement it with the assistance of the Data Branch.

b. Methods

The Investigation Group will use the following strategies depending on the disease, information needs, and resources associated with the emergency event:

Case investigation. Case investigation is used to identify cases of an infectious disease, evaluate cases for possible risk factors, identify exposures, assess case characteristics, provide approved recommendations to cases and/or their medical provider (or refer them to the Clinician Consultation Team), identify possible contacts to the case, collect, manage and/or track laboratory specimens, and/or provide recommendations to help interrupt the transmission of disease. Case investigation can be important throughout an event but is particularly important during the initial stages of an infectious disease emergency response. Investigations may be conducted over the telephone or in-person, depending on the nature of the outbreak and available resources. Go-kits are available for staff conducting field investigations.

Epidemiologic study. An epidemiologic study may be needed to understand and discover the source of disease, mode of transmission, exposures, and risk factors. For example, in an outbreak suspected to have originated from one source ("point source") this may mean identifying a specific food item, activity, location, animal(s), or other exposure that was the source of infection. Study results and analysis enables responders to create targeted public health interventions to remove the source of disease.

Two commonly used epidemiological study types are cohort studies, in which the frequency of disease (or other outcome) is compared between exposed persons and unexposed persons, and case-control studies, in which the frequency of exposure is compared between those who are ill (or other outcome) and those who are well (or other outcome). Both study types can be prospective or retrospective, and both types involve surveying both ill and well persons. A cohort study may be used if the exposed population is readily defined. A case-control study may be used when the exposed population is not easily defined, when multiple exposures need to be examined, and/or when the disease occurrence is rare.

Contact investigation. Contact investigation is used to identify contacts to an infectious case, evaluate contacts for infection/disease, recommend strategies to treat and/or prevent infection/disease in the individual contact and/or interrupt the transmission of disease.

- Individual contact investigation may be more effective in controlling the spread of disease when there are low numbers of cases, when chemoprophylaxis or vaccination is available and can be promptly administered to the contact on initial investigation, and/or when no chemoprophylaxis is available but quarantine can be promptly implemented.
- Individual contact investigation may not be feasible or an effective use of scarce personnel resources when the prevalence/incidence of infection is high (e.g., pandemic influenza), when many transmission routes exist, when the contact tracing process is slower than the infection process (the incubation period is short, or the basic reproductive ratio is high or a combination of both), and/or when a disease has airborne transmission (e.g., smallpox).

Symptom monitoring (if Isolation & Quarantine is not activated.) Symptom monitoring involves monitoring either cases or contacts of a case for new signs and symptoms of disease. There are two types of monitoring: active and passive. During active monitoring, a healthcare or public health worker evaluates a case or contact on a regular basis by phone and/or in person for signs and symptoms suggestive of disease. During passive monitoring, a case or contact is asked to perform regular self-assessment and to contact the health department immediately if specific signs or symptoms develop. Choosing active versus passive monitoring will depend on available resources and the disease. To reduce workload in active symptom monitorning, consider conducting symptom checks once per day for low suspect cases.

Survey development. Questionnaires or survey forms will be needed for case investigations, contact investigations, epidemiologic studies and symptom monitoring. Many template surveys have been pre-developed; see Appendix I. Questionnaires and surveys can be administered via the telephone, in-person, or through a computer, depending on the population being targeted (cognitive skills, education level, access to a telephone or computer, etc) and available resources. Please note: many online tools have been created to help users create web-based surveys quickly and easily. Many of these cannot be used when collecting health information, because privacy of information cannot be ensured.

See Appendix I for case and contact investigation and management forms and protocols. See the Annexes for information on specific investigation strategies as they relate to respiratory aerosol transmissible diseases, bioterrorism events, biological agent detections in the environment and waterborne events.

C. IMPLEMENTATION

a. Investigation Group

Activate the Investigation Group when:

1. Case investigation is required, OR
2. Contact investigation is required, OR
3. An epidemiologic study is needed, OR
4. Symptom monitoring is needed (if Isolation & Quarantine is not activated.)

The Investigation Group will usually be activated at the beginning of a response.

The Investigation Group Supervisor will receive situational information from the Epidemiology and Surveillance Branch Director, including but not limited to, person, time, place, disease information, severity of illness (hospitalization and mortality), need for laboratory confirmation of diagnosis, and mode of transmission - particularly whether the disease is transmitted from person-to-person.

The Investigation Group will work with the Surveillance Group and Data Branch to develop the investigation strategy and forms, surveys, and questionnaires required for investigation.

Considerations for Conducting an Investigation

When a point source exposure is suspected
To generate a hypothesis about possible exposures:

- Review cases' residence, work addresses, and travel history for common location or exposure.
- During exploratory interviews, consider activities or sites where exposures may occur (e.g., health care settings, animal processing, animal fecal aerosolization, outdoor venues, community events, large social events).

To test a hypothesis about possible exposures:

- Conduct an analytic study to identify the source or vehicle of the pathogen to control or eliminate the source of disease to prevent further primary cases.
- Conduct an environmental study and/or collect environmental samples (request assistance from Environmental Health via the DOC). Feasibility depends on the persistence of the pathogen in the environment and the suspected setting/source. It may be useful to define the population at risk from the initial point source exposure.

When the disease is naturally-occurring and spread person-to-person

- Once the pathogen is characterized and the number of cases increase, case investigation and lab confirmation may not be necessary or can be scaled back (e.g., pandemic influenza – as the pandemic reaches mid to later stages).
- When widespread community transmission is occurring, contact investigation activities may be scaled back due to lack of resources (e.g., extensive smallpox, pneumonic plague, SARS).
- If surveillance suggests a change in clinical presentation (e.g., the fatality rate increases dramatically) or the epidemiology of disease (e.g., certain populations are more severely affected), then more thorough or different case investigation strategy may be necessary.

Functions of Investigation Group

- Determine the scope of investigation activities and which teams and units should be activated or deactivated.
- Decide if an epidemiologic study is needed; if needed, determine the study design and create the survey instruments in coordination with the Data Branch.
- Approve, monitor, evaluate, and modify Investigation Group products and processes.
- Coordinate Investigation Group activities with Surveillance Group Leader.

a.1. Case Investigation Team

The Case Investigation Team will be activated when:

1. Case investigation is required (case investigation may already be in process prior to activation); OR
2. An epidemiologic study is needed.

The main objective is to interview suspect cases or their proxies (e.g., family member, guardian) and healthcare personnel for case demographics, clinical information, exposure information, and contact identification.

Key steps for Case Investigation

1. Receive information from the Investigation Group Supervisor regarding the event, investigation strategy, and cases to interview.
2. Refine the case definition for investigation purposes.
3. Receive case information. A list of cases will initially be provided by the CDCP Communicable Disease Control Unit (which functions during normal operations). During the emergency response potential cases may be provided by the following modules (if activated):
    - The Surveillance Group may identify cases as they receive provider reports.
    - The Contact Investigation Team may identify symptomatic contacts or contacts that know of other suspect cases.
    - The Field Investigation Team(s) may identify cases through their possible activities: active surveillance, case investigation and contact investigation.
    - The Laboratory Liaison Team may identify new cases through laboratory test reports.
    - Unactivated health department disease control team members may receive case reports during their routine activities.
    - The Isolation and Quarantine Group may identify individuals in quarantine who develop symptoms.
    - The Mass Prophylaxis Group may identify cases during screening activities at the PODs.
4. Interview cases and fill out any forms, surveys, or questionnaires provided by the Investigation Group Supervisor or the Case Investigation Team Leader.
5. If potential contacts are identified during the investigation, forward information to the Contact Investigation Team.

6. If cases work in sensitive occupations or work/live in sensitive situations, forward information to the Restriction, Exclusion, and Clearance Group.
7. If cases should be isolated, forward information to the Isolation & Quarantine Group.
8. Provide all case data and forms to the Data Branch.
9. Create a paper-based line list and use paper forms for recording information during the first few operational periods until ICOMS has been equipped with a proper module.

Functions of Case Investigation Team

- Interview cases and complete CDC and CDPH Case Report Forms and submit to the Data Branch.
- Develop method, timeline, and protocols for contacting and interviewing cases.
- Identify possible contacts to cases if the disease is transmitted from person-to-person. Refer potential contacts to the Contact Investigation Team.
- Determine if suspected case meets current case definition.
- Educate cases about disease and disease control measures as appropriate.
- Transmit data to the Data Branch.
- Refer cases to the Isolation and Quarantine Group, the Restriction, Exclusion, and Clearance Group, or the Field Investigation Team(s), as appropriate.
- If a study is conducted, interview cases and controls using the survey(s) developed by the Investigation Group epidemiologist.

a.2. Contact Investigation Team

The Contact Investigation Team will be activated when:

1. The disease can be transmitted person-to-person, AND
2. Referral of contacts for treatment or prophylaxis is needed, OR
3. Symptom monitoring is needed.

The main objective is to identify and locate persons who may have been exposed to a case, which may result in monitoring for evidence of illness or referral for treatment or prophylaxis. Contact investigation activities include locating, notifying, and interviewing contacts and symptom monitoring (active and/or passive).

Choosing active versus passive monitoring and frequency of symptom monitoring (e.g., once/twice daily) will depend on available resources, disease progression and clinical characteristics.

When Contact Investigation is a Priority

- There are low numbers of cases, or
- Controlling the spread of novel (e.g., SARS) or re-emerging infections, or
- Chemoprophylaxis or vaccine is available (e.g., pneumonic plague, smallpox), or
- Ring vaccination is possible (Ring vaccination: the vaccination of all susceptible individuals in a prescribed area around an outbreak of an infectious disease. Ring vaccination controls an outbreak by vaccinating and monitoring a ring of people around each infected individual – used in the past to control smallpox outbreaks).

When Contact Investigation is Not a Priority

- The prevalence of infection in the population is high (e.g., pandemic influenza in the mid to later stages), or
- Disease occurs in high-risk groups with many possible transmission routes and a high incidence of infection, or

- The contact investigation process is slower than the infection process (the incubation period is short or the basic reproductive ratio is high or a combination of both), making it difficult to keep pace with disease transmission. Consider
    - Prioritizing contacts to be investigated and monitored, or
    - Contacting investigation a secondary activity, or
- Cases are infectious before they become symptomatic (e.g., influenza); however, note that contact investigation may be a priority when there are low numbers of cases.

Key steps for Contact Investigation

1. Receive information from the Investigation Group Supervisor regarding the event, investigation strategy, and contacts to interview.
2. Refine the contact definition for investigation purposes.
3. Receive contact information. A list of cases may initially be provided by the CDCP Communicable Disease Control Unit (which functions during normal operations). During the emergency response potential contacts may be provided by the following modules (if activated):
    - The Case Investigation Team will be the primary source contacts to investigate.
    - The Surveillance Group will identify cases and may also identify contacts as they receive provider reports.
    - The Field Investigation Team(s) may identify contacts through their possible activities: active surveillance, case investigation and contact investigation.
    - The Isolation and Quarantine Group may identify individuals who have come into contact with cases.
    - The Phone Bank may identify contacts through phone calls with the general public.
    - The Safety Officer may provide information about responders who have been in contact with cases.
4. Prioritize which contacts are investigated and monitored.
    - First priority should be on identifying:
        - Contacts that were exposed to the infectious disease event/cases; and
        - Contacts who are at highest risk for developing the infectious disease (disease morbidity/mortality is higher in certain groups of contacts, e.g., children, pregnant women, immunocompromised).
    - Other factors to help prioritize contacts include:
        - Whether the case was suspected or confirmed
        - Case symptom onset date and the infectious period
        - Type of contact/exposure
        - Length of exposure in hours
        - Dates of first and last exposure
5. Interview contacts and fill out any forms, surveys, or questionnaires provided by the Investigation Group Supervisor and/or the Contact Investigation Team Leader.
6. If potential cases are identified during the investigation, forward information to the Case Investigation Team.
7. If contacts work in sensitive occupations or work/live in sensitive situations, forward information to the Restriction, Exclusion, and Clearance Group.
8. If contacts should be quarantined, forward information to the Isolation & Quarantine Group.
9. Provide all contact data and forms to the Data Branch.
10. Create a paper-based line list and use paper forms for recording information during the first few operational periods until the Interpreted Case and Outbreak Management System (ICOMS) has been equipped with a proper module.

Functions of the Contact Investigation Team

- Develop method, time-line, and protocol for monitoring contacts (e.g., how frequently contacts are monitored, duration of contact surveillance). Reference, refine, or develop protocols.
- Identify and interview contacts.
- Conduct contact symptom monitoring. If contact is quarantined and the Isolation and Quarantine Group has been activated, then the Isolation and Quarantine Group will perform symptom monitoring.
- Educate contacts about symptoms and home care/infection control if appropriate.
- If appropriate refer contacts for post-exposure prophylaxis.
- Refer contacts to the Case Investigation Team, Field Investigation Team, the Isolation and Quarantine Group, or the Restriction, Exclusion and Clearance Group as appropriate.
- Refer ill contacts for medical care.
- Transmit data to the Data Branch.

a.3. Laboratory Liaison Team

Activate the Laboratory Liaison Team when confirmatory or diagnostic laboratory testing for human specimens is required.

The Laboratory Liaison Team facilitates specimen collection, forwarding of specimens from private laboratories, prioritizing specimens for testing, and coordinates with the Laboratory Group. Specimens will primarily be received from the Investigation Group modules and the Disease Containment Implementation Branch modules (Restriction, Exclusion, and Clearance Group, Isolation and Quarantine Group).

The following criteria may be used to establish prioritization of lab testing (priority is in descending order):

1. Specimens from symptomatic suspect cases
2. Isolation and quarantine specimens
3. Specimens from symptomatic contacts (for diseases that are person-to-person transmissible)
4. Restriction and clearance specimens
5. Specimens from asymptomatic contacts (for diseases that are person-to-person transmissible)

Other factors may influence the priority of specimen testing.

Functions of the Laboratory Liaison Team
- Coordinate with the Laboratory Group on specimen testing issues.
- Prioritize laboratory testing, balancing the needs of the various teams in the Investigation Group and groups in the Disease Containment Implementation Branch.
- Receive specimens from Investigation Group teams, groups in the Disease Containment Implementation Branch, or from private laboratories and transport to lab.
- Ensure that laboratory data is shared with the Data Branch.
- Provide laboratory testing results to appropriate modules.
- Work with the Logistics Section to request and prioritize needed courier services for specimen transport.

D. Field Investigation Team(s)

Activate the Field Investigation Team(s) when:

1. Active surveillance must be conducted in person, OR
2. Case and contact investigation cannot be conducted over the telephone, OR

3. Lab specimens must be obtained (e.g. blood collection, NP swab)

Numerous field teams can be deployed if needed. Their composition will depend on the event, staffing, and resource availability. When one or more Field Investigation Teams are deployed, a coordinating team should be activated at the DOC.

Functions of the Coordinating Field Investigation Team

- Receive requests and assignments from the Case Investigation Team, the Contact Investigation Team, and the Surveillance Group. Prioritize requests and make assignments to various field teams.
- Receive logistical requests from the Field Investigation Team and make requests through the Investigation Group Leader.
- Facilitate communication between the Field Investigation Team(s) and other team, units, or groups in the Operations Section, as necessary.
- Provide status update to the Investigation Group on all Field Investigation Teams.

Functions of the Field Investigation Team

- Conduct field-based case investigation under the guidance of the Case Investigation Team.
- Conduct contact investigation/tracing/management under the guidance of the Contact Investigation Team.
- Conduct active surveillance for cases in hospitals and other settings under the direction and guidance of the Surveillance Group.
- Investigate geographically-defined clusters of suspected/probable cases and suspected community transmission under the guidance of the Case Investigation Team.
- Establish a method for receiving rosters/linelists and transmitting data from the field to the Data Branch. Coordinate.
- Document and evaluate field-based case investigation and contact tracing/management.
- Document active surveillance activities for cases in hospitals and other clinical settings.
- Identify individual cases in sensitive occupations and situations and provide information to the Restriction, Exclusion, and Clearance Group and the Isolation and Quarantine Group.
- If new cases or contacts are identified, refer individuals to the Case Investigation Team or the Contact Investigation Team, as appropriate.
- Follow protocols for infection control and use of personal protective equipment (consult with Safety Officer if activated, or Information & Guidance Branch Infection Control/Occupational Health Group.)
- Provide updates to the Coordinating Field Investigation Team.

D. STAFF POSITIONS

The following positions are required for minimum staffing levels.

Staff Position Roster: Investigation Group				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**

Investigation Group Supervisor	Manage and coordinate Investigation Group activities	2591, 2230, 2806, 2589, 2588. Supervisory or project coordination experience; experience and/or education in epidemiology field investigations	1	DOC
Investigational Epidemiologist	Assist Investigation Group Supervisor	2802, 2803; Epidemiologist; experience or education in study design; experience creating survey, forms, and questionnaires	1	DOC

Staff Position Roster: Case Investigation Team				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**No. of Employees**	**Location**
Case Investigation Team Leader	Manage and coordinate Case Investigation Team activities	2588, 2589, 2806; Supervisory or project coordination experience; some experience or knowledge of epidemiological investigations	1	DOC
Case Investigator	Conduct case investigation	2587, 2806; Interviewer skills, particularly of a probing type of health/medical interview	1	DOC

Staff Position Roster: Contact Investigation Team				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Contact Investigation Team Leader	Manage and coordinate Contact Investigation Team activities	2588, 2589, 2806; Supervisory or project coordination experience; some experience or knowledge of epidemiological investigations	1	DOC
Contact Investigator	Conduct contact investigation	2587, 2806 ; Interviewer skills for health/medical interview	1	DOC

Staff Position Roster: Laboratory Liaison Team				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Laboratory Liaison Team Leader	Manage and coordinate Laboratory Liaison Team activities	2588, 2589, 2806; Ability to understand	1	DOC

		lab test results; familiarity with lab procedures; experience using MLAB.		
Laboratory Liaison Team Member	Liaises with laboratories	2587, 2806; Ability to understand lab test results; familiarity with lab procedures; experience using MLAB.		DOC

Staff Position Roster: Field Investigation Team(s)				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Coordinating Field Investigation Team Leader	Manage and coordinate Field Investigation Teams' activities	Supervisory or project coordination experience	1	DOC
Field Investigation Team Leader	Manage and coordinate Field Investigation Team activities	Supervisory or project coordination experience	1	DOC
Field Investigator	Conduct active surveillance and field case/contact investigation	Depends on function of the team; may need interviewer skills, particularly of a probing type of health/medical interview; experience conducting chart reviews; clinical skills for specimen collection	1	DOC

E. REPORTING

The Investigation Group reports directly to the Epidemiology and Surveillance Response Branch. Incident specific information will also be provided to the Surveillance Group, Data Branch, and Disease Containment Implementation Branch (Restriction, Exclusion, and Clearance Group and Isolation and Quarantine Group).

F. DELIVERABLES

The Investigation Group is responsible for producing the following:

- Investigation questionnaires/surveys/forms
- List of Referrals to Restriction, Exclusion, and Clearance Group and the Isolation and Quarantine Group.
- Module Objectives and Update, ICS Form 202b (for each Operational Period)

G. RESOURCES

The following resources will be required to perform response operations:

a. Protocols, forms, guidelines, and MOUs

Items	Location
ICS Forms	**Appendix** B
Job Action Sheets	**Appendix C**
Epidemiology and Surveillance	**Appendix I**
CDHS Other Outbreak/Other Reportable Disease or Disease of Unusual Occurrence Report	Appendix I1
CDHS Confidential Morbidity Report	Appendix I2
Investigation	**Appendix Ia**
San Francisco Infectious Disease Joint Investigation MOU	Appendix Ia.1
Go Kits and EPI Go-Kits	**Appendix Ia1**
Overview of Go-Kits	Appendix Ia1.1
Computer Check-out Protocol	Appendix Ia1.2
Go-Kit Check out Protocol	Appendix Ia1.3
List of Go-Kit Supplies	Appendix Ia1.4
Instructions on Donning PPE	Appendix Ia1.5
Specimen Collection	**Appendix Ia2**
Specimen Collection and Handling During Transport	Appendix Ia2.1
Specimen Receiving Information	Appendix Ia2.2
Specimen Submittal Form	Appendix Ia2.3
CDHS VRDL Viral Specimen Submittal Form	Appendix Ia2.4
CDHS Norovirus Outbreak Specimen Submittal Form	Appendix Ia2.5
SFDPH Influenza Specimen Collection Instructions	Appendix Ia2.6
SFDPH Norovirus Specimen Collection Instructions	Appendix Ia2.7
SFDPH VZV Smallpox Specimen Collection Instructions	Appendix Ia2.8
Investigation Forms	**Appendix Ia3**
Anthrax (Human) Case Report Form, CDPH	Appendix Ia3.1
Avian Influenza Screening Form	Appendix Ia3.2
Avian Influenza Contact Monitoring Form	Appendix Ia3.3
Avian Influenza Case Report Form	Appendix Ia3.4
Bioterrorism Disease Specific Investigation Algorithms	Appendix Ia3.5
Botulism Case Report – Wound or Foodborne, CDPH	Appendix Ia3.6
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Brucellosis (Undulant Fever)/Q Fever/Tularemia Case Report Form (CDPH)	Appendix Ia3.8
Brucellosis Investigation Algorithm	Appendix Ia3.9
Cholera and other Vibrio Illness Surveillance Report	Appendix Ia3.10
E. Coli Case Report Form (CDPH)	Appendix Ia3.11
Plague Investigation Algorithm	Appendix Ia3.12
Plague Contact Surveillance Form	Appendix Ia3.13
Plague Individual Contact Surveillance Form	Appendix Ia3.14
SARS Case Report Form, CDC	Appendix Ia3.15
Smallpox Contact Management Algorithm	Appendix Ia3.16
Smallpox Contact Surveillance Form	Appendix Ia3.17
Smallpox Individual Contact Surveillance Form	Appendix Ia3.18
Tularemia Investigation Algorithm	Appendix Ia3.19
Unspecificed Gastrointestinal Illness Case Investigation Form (CDPH)	Appendix Ia3.20
Unspecified Respiratory Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.21
Unspecified Neurologic Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.22
Unspecified Fever Rash Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.23
Viral Hemorrhagic Fevers (VHF) Contact Management Algorithm	Appendix Ia3.24
Viral Hemorrhagic Fevers (VHF) Contact Surveillance Form	Appendix Ia3.25
Viral Hemorrhagic Fevers (VHF) Individual Contact Surveillance Form	Appendix Ia3.26
Viral Hemorrhagic Fevers (VHF) Investigation Algorithm	Appendix Ia3.27
Waterborne Disease Outbreak Report (CDPH)	Appendix Ia3.28

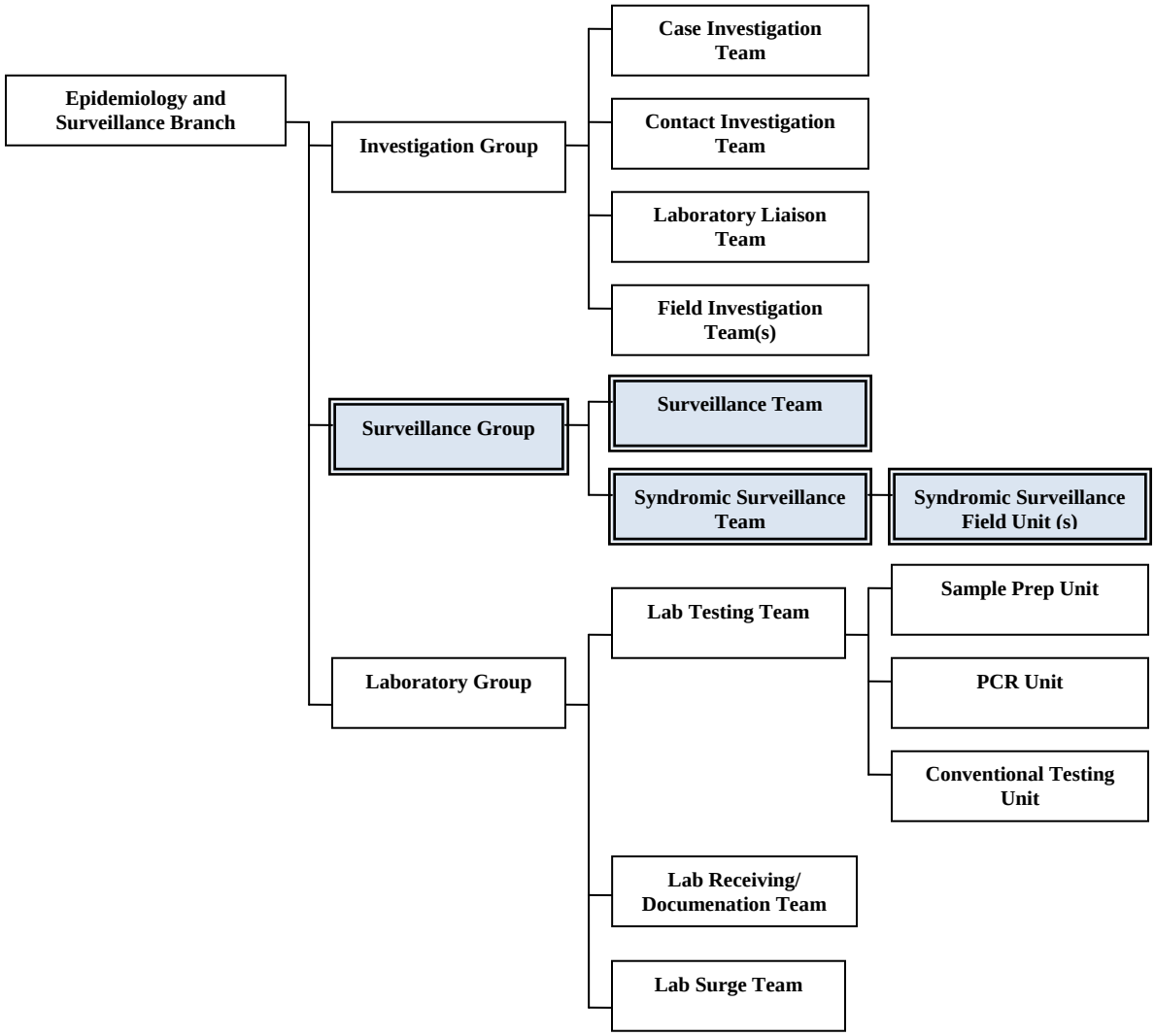
Interview Guidance for a Criminal and Epidemiological Investigation	Appendix Ia3.29
Laboratory	**Appendix Ic**
Laboratory Submission Forms	Appendix Ic1
Laboratory Testing Protocols	Appendix Ic2
Laboratory Detection Capabilities (Rapid (PCR) or non-rapid method format)	Appendix Ic3
Protocol for Handling White Powders (as hazards to be tested and potential evidence)	Appendix Ic4
Chain of Custody Forms	Appendix Ic5
Lab Forwarding Procedure	Appendix Ic6
Lab Testing Surge Acceptors	Appendix Ic7
Lab Influenza Testing Capabilities and Supplies	Appendix Ic8
Lab Personnel for IDER	Appendix Ic9
MLAB Access Instructions	Appendix Ic10
Preventive Maintenance	Appendix Ic11
SFDPH Public Health Laboratory IDE Agent Identification Capabilities	Appendix Ic12
SFDPH Public Health Laboratory Capabilities	Appendix Ic13
Laboratory Guidance for a RAT Disease	Appendix Ic14
San Francisco Sentinel Labs Contact Information	Appendix Ic15
Biological Detection Monitors	**Appendix Id**
Incubation Period of BioWatch Agents	Appendix Id1
Local Profile of BioWatch Agents	Appendix Id2
BDS Exposure Criteria and Groups	Appendix Id3

b. Office and Communication Supplies

Items	**Units Required**	**Location or Request From**
Telephone	1+	Logistics
Fax machine access	1	Logistics
Computer with local network, internet access, statistical software (1 per position in Syndromic Surveillance Data Unit)	1+	Logistics
Printer access	1	Logistics
800 MHz Radio/cell phone/pager (1 per leader/supervisor, 1 per field unit)	1+	Logistics
Copy machine access	1	Logistics
Laptops (1 per Field Team)	1+	Logistics

24. SURVEILLANCE GROUP

A. ORGANIZATION CHART



B. DESCRIPTION

a. Purpose & Objectives

The purpose of the Surveillance Group is to identify, as rapidly as possible, cases and clusters of the infectious disease. The Group objectives are to:

- Develop, refine, and disseminate case definitions.
- Develop a case-finding strategy.
- Verify the accuracy and completeness of surveillance data.
- Identify cases for further detailed investigation by the Investigation Group.
- In selected situations, conduct syndromic surveillance to detect additional potential disease outbreaks occurring concurrently.

b. Methods

Depending on the disease, information needs, and/or resources the Surveillance Group may use the following methods to achieve objectives:

Passive surveillance. Passive surveillance is the collection of data from existing unsolicited reports of the diseases(s). This data may be received from the San Francisco clinician community, San Francisco hospitals and laboratories serving San Francisco medical facilities. This data is used to identify cases and to determine the magnitude of the outbreak.

Enhanced passive surveillance. Enhanced passive surveillance employs a mix of active techniques in addition to the passive surveillance described above, for example, sending a health alert that highlights a specific disease or syndrome to clinical providers. This would stimulate clinician and/or laboratory reporting.

Active surveillance. Active surveillance involves actively finding cases of the disease; for example, calling medical facilities (e.g., laboratories or emergency departments) or sending field teams to hospitals to extract information from hospital records.

Surveillance of Healthcare Workers. Surveillance to detect exposure or infection in healthcare workers so that they can be separated from uninfected patients to prevent further transmission of disease.

Syndromic surveillance. Syndromic surveillance is the collection and analysis of non-specific data from multiple data sources to detect a possible change or trend in the health of a population. Traditionally, syndromic surveillance has referred to the collection and analysis of syndrome-related data, but has expanded to include almost any non-specific data from multiple sources that may indicate a potential biologic event has occurred. Syndromic surveillance data sources may include: data from hospital emergency departments or other emergency encounters, physician office visits, over-the-counter pharmaceutical sales, and school absenteeism records. Currently DPH does not regularly conduct syndromic surveillance; any such system would need to be designed and built during a response should it be necessary to complement other surveillance activities. Through the federal BioSense program, DPH also has access to syndromic data from Veteran's Administration and Department of Defense clinics and test order data from a large reference laboratory. While this data is not representative of the San Francisco population, it is available for use to complement other data sources.

See the Annexes for information on specific surveillance strategies to be used with respiratory aerosol transmissible diseases, bioterrorism events, biological agent detection in the environment, and waterborne events.

C. IMPLEMENTATION

a. Surveillance Group

The Surveillance Group should be activated at the beginning of a response.

The Surveillance Group consists of the Surveillance Team and the Syndromic Surveillance Team and will be activated as needed.

The Surveillance Group Supervisor will receive situational information from the Epidemiology and Surveillance Branch Director, including but not limited to, person, time, place, disease information, severity of illness (hospitalization and mortality), and need for laboratory confirmation of diagnosis.

Key steps for Surveillance

1. Refine the case definition for surveillance needs:
   - When the disease is known see existing disease specific case definitions. When pathogen or disease is unknown (e.g., an emerging disease) or laboratory testing is not readily available (e.g., SARS), the case definition should be based on the clinical presentation.
   - If a point source outbreak is suspected, the exposure and symptom onset should be a part of the case definition (this is less likely for a respiratory aerosol transmissible disease, but would more likely occur during a bioterrorism event).
   - When the prevalence of disease is low, a more specific case definition should be used (e.g.,, incorporating laboratory confirmation).

2. Develop a surveillance strategy. Possible surveillance strategies include:
   - **Enhanced Passive Disease Surveillance.** Enhanced passive surveillance will be conducted in most infectious disease emergencies. The primary approach used will be for the Communicable Disease Information Branch to send out a Health Alert, requesting San Francisco providers to report suspected cases. The Surveillance Team will be responsible for receiving provider reports.
   - **Active Disease Surveillance.** Active surveillance will be used (with assistance from the Investigation Group) when it is critical to identify as many cases as possible, for short-term intensive investigation, as part of an analytic study, and when failure to detect a case could result in severe morbidity or mortality. Potential reporting sources include San Francisco General Hospital Active Surveillance System, emergency room department data, hospital admission data, and sentinel outpatient care providers. Consider deploying teams to conduct surveillance when surveillance can not be adequately performed through other means of communication. The Surveillance Team will normally be responsible for conducting surveillance, unless it is necessary to send field teams on-site to the reporting source. If field investigation is required, the Surveillance Group should request assistance from the Investigation Group
   - **Active Death Surveillance.** To capture as many cases as possible, consider conducting active surveillance (with assistance from the Investigation Group) for deaths related to the infectious disease (as defined by the case definition) and/or deaths due to unknown causes when relatively few cases have been identified. Potential reporting sources include San Francisco Division of Vital Statistics and the San Francisco Office of the Chief Medical Examiner.
   - **Aggregate or Batch Surveillance.** Use aggregate surveillance to monitor the impact on the health care system and community. Consider using if a naturally-occurring disease is widespread in the community (e.g., pandemic influenza). Potential reporting sources include hospitals, largest providers of outpatient care, major triage points (for example, emergency room department logs), and/or schools. Potential information to collect includes demographics (age and sex), admitting or preliminary diagnosis, and number of deaths. Reporting sources will need help determining methods for de-duplicating numbers. Consider deploying teams to conduct active aggregate surveillance when this can not be adequately performed. The Surveillance Team will normally be responsible for conducting surveillance, unless it is necessary to send on-site to the reporting source. If field investigation is required, the Surveillance Group should request assistance from the Investigation Group.
   - **Non-traditional Surveillance.** Additional non-healthcare setting surveillance may be considered if the healthcare system is overwhelmed and cases are potentially cared for outside traditional healthcare settings and in homes.

3. If field surveillance is required to conduct the surveillance strategy, request assistance from the Investigation Group.

4. Work with the Investigation Group and Data Branch to develop the surveillance and investigation strategies and required forms, surveys, and questionnaires. Provide guidance to teams regarding the use of these documents.

5. Ensure that identified cases, contacts, and surveillance data is shared with the Investigation Group and Data Branch. Identified data and information collected, and received will be used only for public health purposes and will be kept confidential to the extent provided by law.

Functions of the Surveillance Group:

- Determine which surveillance strategies (e.g., passive surveillance, active surveillance, or syndromic surveillance) are used and recommend to the Branch director for approval.
- Determine which component teams and units should be activated or deactivated.
- Monitor, evaluate, and modify Surveillance Group products and processes.
- Notify the Branch Director as syndromic surveillance investigation yields new information (e.g., an outbreak previously undetected),.
- Create case definition in coordination with the Investigation Group.

a.1. Surveillance Team

The Surveillance Team will be activated when:

1. Detection of cases of the disease is needed, OR
2. Monitoring the magnitude of the outbreak is needed.

Passive surveillance, routinely performed for Title 17 reportable diseases, is addressed in the Continuity of Operations Branch.

Key steps for Implementing Surveillance

1. Receive information from the Surveillance Group Supervisor regarding the event and surveillance strategy.
2. Carry out the surveillance strategy and fill out any forms, surveys, or questionnaires provided by the Surveillance Group Supervisor.
3. Forward potential case and contact information to the Investigation Group.
4. Provide all surveillance data and forms to the Data Branch.

Functions of the Surveillance Team

- Ensure case determination is consistent; monitor flow of data.
- Provide regular reports to the Surveillance Group Leader.
- Receive passive reports of suspected/probable/confirmed cases from providers and laboratories.
- Receive passive reports of suspected/probable cases from other activated modules (e.g., Disease Containment Implementation Branch, Phone Bank).
- Determine who may meet case criteria; send reports to the Investigation Group and the Data Branch. (The Surveillance Team is not responsible for completing the case report forms or any additional interview forms; this is the purview of the Case Investigation Team.)
- Identify when investigation assistance is needed to conduct active case finding.
- Provide technical guidance to the Investigation Group performing active surveillance (e.g., create screening questions/forms).
- Report surveillance data to the Data Branch.

a.2. Syndromic Surveillance Team

Consider activating the Syndromic Surveillance Team when a bioterrorist event is suspected or confirmed.

Refer to the Bioterrorism Event Annex for operational details. Syndromic Surveillance Team activities include syndromic surveillance data collection, data management, and field investigation. The Syndromic Surveillance Team consists of the Syndromic Surveillance Field Unit(s).

Functions of the Syndromic Surveillance Team

- Define syndromic surveillance objectives and determine the scope of data collection necessary to achieve the objectives.
- Approve data analysis plan created with the Data Branch.
- Approve statistical aberration alert thresholds developed by the Data Branch.
- Develop plans for investigation of statistical aberrations. If data analysis is required, coordinate with the Data Branch.
- Monitor progress and findings of statistical aberration alert investigations and report regularly.
- Alert the Surveillance Group Supervisor of syndromic aberrations and provide updates on the investigation as often as necessary.

a.2.1. Syndromic Surveillance Field Unit(s)

Consider activating the Syndromic Surveillance Field Unit(s) when:

1. Active collection of syndromic surveillance data is needed, AND
2. Sites are unable to automatically transmit electronic files.

The Syndromic Surveillance Field Unit(s) will investigate syndromic surveillance alerts through review of clinical records at health care facilities and interviews of clinicians and patients. The number of field units deployed will be scaled according to the incident needs and available resources. Each Syndromic Surveillance Field Unit has a leader who will report to the Syndromic Surveillance Team Leader, who manages the deployment of Syndromic Surveillance Field Units.

Functions of the Syndromic Surveillance Field Unit

- Collect syndromic surveillance data from clinical sites and transmit it to the Data Branch.
- Conduct follow-up investigations of statistical aberration alerts per protocols developed by the Syndromic Surveillance Data Unit.
- Facilitate data collection processes at clinical sites and provide the Data Branch with information about data limitations.

D. STAFF POSITIONS

The following positions are required for minimum staffing levels.

Staff Position Roster: Surveillance Group				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Surveillance Group Supervisor	Coordinates and manages Surveillance Group and unit and Teams. Decides on surveillance strategy	2589, 2591, 2802, 2803, 2806. Supervisory or project coordinator experience; familiarity with surveillance	1	DOC
Surveillance Epidemiologist	Assists Surveillance Group Leader; serves as epidemiological resource within the group	2802, 2803; Epidemiological or biostatistical skills; experience setting up		DOC

		surveillance systems		

Staff Position Roster: Surveillance Team				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Surveillance Team Leader	Coordinates and manages Surveillance Team and active surveillance activities	2587, 2588, 2806, 2589; Supervisory/project coordinator experience; Surveillance experience	1	DOC
Surveillance Team Member	Conducts passive and active surveillance activities	2587, 2802, 2806; Familiarity with surveillance		DOC

Staff Position Roster: Syndromic Surveillance Team				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Syndromic Surveillance Team Leader	Coordinates and manages the Syndromic Surveillance Group	2589, 2591, 2802, 2803; Experience conducting syndromic surveillance and/or syndromic surveillance data analysis; supervisory or project coordinator experience	1	DOC
Syndromic Surveillance Field Unit Leader	Coordinates and manages Syndromic Surveillance Field Unit activities	2588, 2589, 2591,2806; Education or experience conducting syndromic surveillance; supervisory or project coordinator experience		Field
Syndromic Surveillance Field Unit Epidemiologist	Collects syndromic surveillance data	Experience collecting surveillance or epidemiological data; experience extracting data from medical charts		Field

E. REPORTING

The Surveillance Group reports directly to the Epidemiology and Surveillance Branch Director. Incident specific information will be provided to the Investigation Group and the Data Branch.

F. DELIVERABLES

The Surveillance Group is responsible for producing the following:

- Module Objectives and Update, ICS Form 202b (for each Operational Period)
- Surveillance case definition
- Surveillance case report forms
- Chart abstraction forms (if necessary)

- Active surveillance protocols/guidance documents
- Syndromic Surveillance data analysis plan (produced with the Data Branch)
- Syndromic surveillance data collection tools and investigation protocols (produced with the Data Branch)
- Syndromic surveillance alert thresholds (produced with the Data Branch)
- Syndromic surveillance data analysis report (produced with the Data Branch)

G. RESOURCES

The following resources will be required to perform minimum response operations:

a. Protocols, forms, and guidelines, and MOUs

Items	Location
ICS Forms	**Appendix** B
Job Action Sheets	**Appendix C**
Epidemiology and Surveillance	**Appendix I**
CDHS Other Outbreak/Other Reportable Disease or Disease of Unusual Occurrence Report	Appendix I1
CDHS Confidential Morbidity Report	Appendix I2
Investigation	**Appendix Ia**
San Francisco Infectious Disease Joint Investigation MOU	Appendix Ia.1
Go Kits and EPI Go-Kits	**Appendix Ia1**
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Botulism Investigation Algorithm	Appendix Ia3.7
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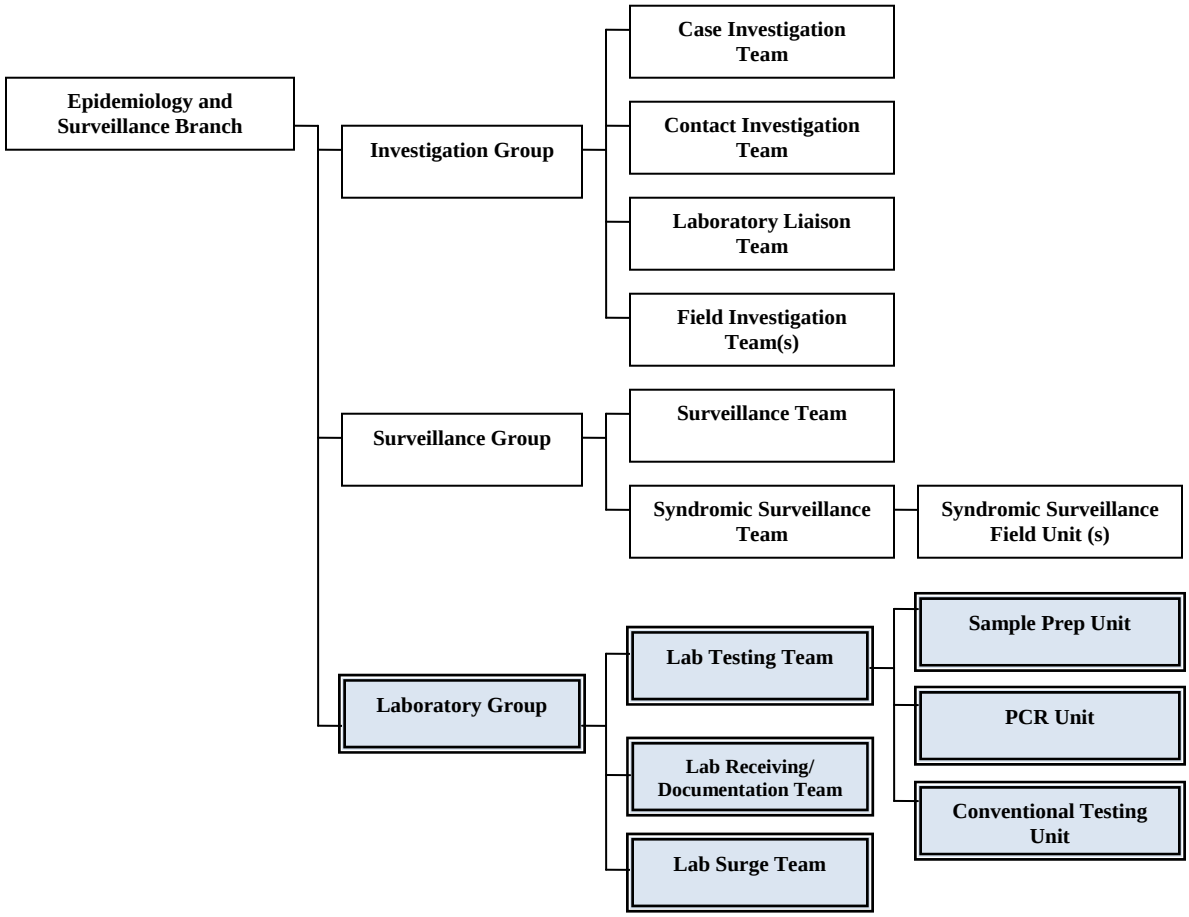
Viral Hemorrhagic Fevers (VHF) Investigation Algorithm	Appendix Ia3.27
Waterborne Disease Outbreak Report (CDPH)	Appendix Ia3.28
Interview Guidance for a Criminal and Epidemiological Investigation	Appendix Ia3.29
Laboratory	**Appendix Ic**
Laboratory Submission Forms	Appendix Ic1
Laboratory Testing Protocols	Appendix Ic2
Laboratory Detection Capabilities (Rapid (PCR) or non-rapid method format)	Appendix Ic3
Protocol for Handling White Powders (as hazards to be tested and potential evidence)	Appendix Ic4
Chain of Custody Forms	Appendix Ic5
Lab Forwarding Procedure	Appendix Ic6
Lab Testing Surge Acceptors	Appendix Ic7
Lab Influenza Testing Capabilities and Supplies	Appendix Ic8
Lab Personnel for IDER	Appendix Ic9
MLAB Access Instructions	Appendix Ic10
Preventive Maintenance	Appendix Ic11
SFDPH Public Health Laboratory IDE Agent Identification Capabilities	Appendix Ic12
SFDPH Public Health Laboratory Capabilities	Appendix Ic13
Laboratory Guidance for a RAT Disease	Appendix Ic14
San Francisco Sentinel Labs Contact Information	Appendix Ic15
Biological Detection Monitors	**Appendix Id**
Incubation Period of BioWatch Agents	Appendix Id1
Local Profile of BioWatch Agents	Appendix Id2
BDS Exposure Criteria and Groups	Appendix Id3

b. Office and Communication Supplies

Items	**Units Required**	**Location or Request From**
Telephone (1 per Surveillance Unit position, per leader/supervisor position)	1+	Logistics
Fax machine access	1	Logistics
Computer with local network, internet access, statistical software (1 per position in Syndromic Surveillance Data Unit)	1+	Logistics
Printer access	1	Logistics
800 MHz Radio/cell phone/pager (1 per Syndromic Surveillance Field Unit)	1+	Logistics
Copy machine access	1	Logistics
Laptops (1 per position in Syndromic Surveillance Field Unit)	1+	

12. LABORATORY GROUP

A. ORGANIZATION CHART



B. DESCRIPTION

a. Purpose & Objectives

The purpose of the Laboratory Group is to provide testing of human, animal, and environmental specimens/samples to aid in the identification of organisms responsible for an infectious disease emergency. The lab can also assist in determining the responsible organism's transmissibility, pathogenicity, and/or antibiotic susceptibility. The Group objectives include:

- Provide technical consultation and guidance on appropriate specimens and lab testing.
- Provide technical consultation and guidance on potential hazards (e.g. transmissibility, pathogenicity) and specimen collection tools for responders, clinicians, and other sentinel clinical laboratories.
- Perform laboratory-based analysis of specimens to detect infectious disease agents.
- Manage and report on laboratory test results from the San Francisco Public Health Lab and other reference or surge capacity labs.
- Coordinate testing at other sites.
- Handle and/or store specimens prior to transport to alternative testing sites.

b. Methods

The Laboratory Branch will use the following methods to achieve objectives:

PCR (Polymerase Chain Reaction). PCR is a molecular biology technique for enzymatically replicating nucleic acids (DNA/RNA) without using a living organism. The technique allows a small amount of the DNA or RNA molecules to be amplified exponentially which can enhance speed and sensitivity of laboratory analysis. PCR is commonly used in medical and biological research labs for a variety of tasks, such as the detection of hereditary diseases, the identification of genetic fingerprints, the identification of an infectious disease, paternity testing, and the cloning of genes. PCR is typically preceded by purification of nucleic acid from specimens to be tested. PCR can be accomplished on up to 30 specimens within a 3-6 hour timeframe.

Conventional Testing. Conventional testing comprises serologic techniques (the detection of antibodies to infectious agents), antigen detection methods, culture techniques and biochemical testing. These testing methodologies, used individually or in consort with one another serve to detect and speciate many infectious agents. While serologic and antigen testing can be accomplished in a matter of hours, culture techniques often take at least 24 hours, with 24-72 hours being the norm for definitive results.

Laboratory Response Network (LRN). The LRN is an integrated state, national and international network of laboratories that are fully equipped to respond quickly to acts of chemical or biological terrorism, emerging infectious diseases, and other public health threats and emergencies. The LRN, accessible via the internet, provides protocols for the detection of various infectious organisms and can arrange to test samples sent to them.

Local Lab Network for Expanded Testing. The laboratory has established relationships with other laboratories within the region. Such alliances allow the San Francisco Public Health Laboratory to obtain support in the form of reagents, expertise or acceptance of surge specimens (specimens that cannot be tested at the San Francisco Public Health Laboratory due to insufficient lab capacity).

C. IMPLEMENTATION

a. Laboratory Group

The Laboratory Group should be activated when there is a public health emergency suspected to be caused by an infectious organism and:

1. It is necessary to test specimens at the San Francisco Department of Public Health Laboratory, OR
2. It is necessary to facilitate testing at other laboratories, OR
3. It is necessary to provide guidance on specimen collection and/or laboratory testing.

The Laboratory Group is composed of the Laboratory Receiving/Documentation Team, Laboratory Testing Team, and the Laboratory Surge Team which are responsible for testing or facilitating testing of specimens occurring from the emergency event. This may involve the performance of laboratory testing onsite at the Public Health Laboratory, or the forwarding of specimens to a State or Regional LRN laboratory. The Laboratory Group Supervisor will oversee the safety of laboratory staff during an emergency and coordinate with the Safety Officer.

Confidential Guidelines Regarding Laboratory Tests. Laboratory test data shall be considered strictly confidential. Individual test results and/or summaries from multiple test subjects can be generated in the form of a single document. Such summaries shall include testing statistics and notes regarding testing anomalies, if any. Following Incident Commander approval summary or de-identified laboratory test data can be shared with the EOC, City agencies, San Francisco hospitals and clinics, the California Department of Public Health, and the Centers for Disease Control and Prevention, in addition to other Local, State, and Federal Agencies. Individually identified lab results shall only be shared with officials,

responders, or other health agencies with a need to know. No other agencies or individuals shall have access to individually identified data without signed patient consent or a subpoena.

Functions of the Laboratory Group

- Forecast incoming specimens
- Oversee laboratory safety
- Provide technical guidance on sample collection, laboratory testing, and transmissibility, pathogenicity, and/or antibiotic susceptibility.
- Activate laboratory groups.
- Ensure that laboratory results are electronically reported by entering information into the Laboratory Information Management System (LIMS) in a timely manner and that hardcopy back-ups are maintained.
- Report individual and/or summary testing results to modules requiring testing information (e.g., Investigation Group, Restriction, Exclusion, and Clearance Group, Isolation and Quarantine Group, and other modules as approved.
- Ensure Incident Commander approval for the dissemination of summary (de-identified) lab results to modules outside the response.

a.1. Specimen Receiving/Documentation Team

Activate the Specimen Receiving/Documentation Team when samples are received or are expected.

Specimens will primarily be provided by the Epidemiology and Surveillance Branch and the Disease Containment Branch. All specimens must be accompanied by a Laboratory Specimen Submission Form, (see Appendix Ia). Specimens are then processed by this Team for laboratory testing through the Laboratory Testing Team at the San Francisco Department of Public Health Lab or forwarded to the Lab Surge Team for testing at other laboratories (State or local LRN).

Laboratory test results shall be entered electronically into the LIMS, where they can subsequently be printed into hard-copy form whereupon they are filed on the premises.

Functions of the Specimen Receiving/Documentation Team

- Document incoming specimens.
- Forward specimens to the Laboratory Testing Team for testing at the San Francisco Department of Public Health Lab or to the Surge Team for testing at other labs.
- Update the Lab Group Supervisor on number of specimens received, testing flow, and capacity issues.

a.2. Laboratory Testing Team

Activate the Laboratory Testing Team when it is necessary to test or facilitate testing of specimens occurring from the emergency event.

The Laboratory Testing Team is is responsible for coordinating testing at the San Francisco Department of Public Health Lab and is composed of the Sample Preparation Unit, PCR Unit, and Conventional Testing Unit.

Functions of the Laboratory Testing Team

- Perform laboratory testing on relevant specimens.
- Keep inventory of testing reagents used, and projected to be used. Notify Team Leader when Reagents run low.
- Provide updates on testing capacity.
- Ensure that testing results are entered into LIMS and that hardcopy backups are maintained.

- Report testing results to Laboratory Group Supervisor.
- Upon authorization of Laboratory Group Supervisor, report testing results.

a.2.1. Sample Preparation Unit

Activate the Sample Preparation Unit when samples are received or are expected.

Functions of the Sample Preparation Unit
- Identify type of testing that is needed.
- Prepare samples for PCR or conventional testing analysis.
- Enter specimen data into Lab Information Management System (LIMS)
- Ensure that Chain of Custody is properly documented and maintained upon receipt, and any subsequent release of testing specimens

a.2.2. PCR Unit

Activate the PCR Unit when the suspected agent is one for which the laboratory maintains analyte (organismal) -specific reagents. A current list of agents that can be tested by PCR at the San Francisco Department of Public Health Laboratory can be found in Appendix Ic.

Functions of the PCR Unit
- Test specimens.
- Enter results into LIMS and maintain hardcopy backups of all data generated.
- Provide results to Laboratory Testing Team Leader.

a.2.3. Conventional Testing Unit

Activate the Conventional Testing Unit when:

1. Testing cannot be performed by PCR Testing Team, OR
2. Culture, Serology, or other testing is deemed a reasonable testing method for the suspected agent, according to lab's expertise and LRN testing recommendations.

A list of agents that can be tested by conventional methods at the San Francisco Department of Public Health Laboratory can be found in Appendix Ic.

Functions of the Conventional Testing Unit
- Test specimens.
- Enter results into LIMS and maintain hardcopy backups of all data generated.
- Provide results to Laboratory Testing Group Supervisor.

a.3. Laboratory Surge Team

Activate the Lab Surge Team when the:

- The amount of testing that needs to be done exceeds the capabilities of the San Francisco Public Health Lab, OR
- Testing can not be performed at the San Francisco Public Health lab.

The Lab Surge Team will communicate with local laboratories and/or the regional state lab to ensure that specimens are packaged correctly and sent for testing.

Functions of the Lab Surge Team

- Monitor laboratory testing at the San Francisco Department of Public Health Laboratory.
- Manage specimen receipt and documentation.
- Contact alternative testing sites (see Appendix Ic for list of sites).
- Coordinate transportation to alternative testing site.
- Receive testing results from alternative testing sites, log results in LIMS, maintain hardcopy backups of all data generated, and communicate those results to the Laboratory Group Supervisor.

D. STAFF POSITIONS

The following positions are required for minimum staffing levels.

Staff Position Roster: Laboratory Group				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Laboratory Branch Director	Manage all laboratory operations	2492	1	DOC

Staff Position Roster: Specimen Receiving/Documentation Team				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Specimen Receiving/Documentation Team Leader	Receive specimens for testing, document, and forward to Lab Testing Team or Lab Surge Team.	2462, 2464	1	Lab
Laboratory Testing / Data Entry Assistant	Assist Microbiologists and Supervisors; perform data entry into LIMS	2416, 2402, 2462	1	Lab

Staff Position Roster: Laboratory Testing Team				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Lab Testing Team Leader	Manage lab testing of specimens including inventory, specimen receiving, documentation, and testing capacity. Forward specimens to Lab Surge Team as necessary.	2464, 2466	1	DOC

Staff Position Roster: Sample Preparation Unit				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Lab Testing Microbiologist	Perform specialized lab testing	2462, 2464, 2466	1	Lab
Laboratory Testing / Data Entry Assistant	Assist Microbiologists and Supervisors; perform data entry into LIMS	2416, 2402, 2462	1	Lab

Staff Position Roster: PCR Unit				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Lab Testing Microbiologist	Perform specialized lab testing	2462, 2464, 2466	1	Lab

Staff Position Roster: Conventional Testing Unit				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Lab Testing Microbiologist	Perform specialized lab testing	2462, 2464, 2466	1	Lab

Staff Position Roster: Surge Capacity Team				
Job Title	**Task Overview**	**Job Classification / Critical Skills**	**Minimum No. of Employees**	**Location**
Lab Surge Capacity Team Leader	Assess adequacy for testing of incoming specimens; prepare specimens for testing	2462, 2464	1	Lab
Laboratory Testing / Data Entry Assistant	Assist Microbiologists and Supervisors; perform data entry into LIMS	2416, 2402, 2462	1	Lab

E. REPORTING

The Laboratory Group reports to the Epidemiology and Surveillance Branch Director. Following approval, summary (de-identified) data may be provided directly to other modules.

F. DELIVERABLES

The Lab Group is responsible for producing the following:

- Laboratory Test Results and Reports
- De-identified Summary Reports
- Guidelines regarding specimen collection
- Proper storage for specimens involved in emergency events (noting that specimens may be considered evidence in legal proceedings – e.g. chain or custody documentation)
- Module Objectives and Update, ICS Form 202b (for each Operational Period)

G. RESOURCES

The following resources will be required in order to perform minimum response operations:

a. Protocols, forms, guidelines, and MOUs

Items	Location
ICS Forms	**Appendix** B
Job Action Sheets	**Appendix C**
Epidemiology and Surveillance	**Appendix I**
CDHS Other Outbreak/Other Reportable Disease or Disease of Unusual	Appendix I1

Occurrence Report	
CDHS Confidential Morbidity Report	Appendix I2
Investigation	**Appendix Ia**
San Francisco Infectious Disease Joint Investigation MOU	Appendix Ia.1
Go Kits and EPI Go-Kits	**Appendix Ia1**
Overview of Go-Kits	Appendix Ia1.1
Computer Check-out Protocol	Appendix Ia1.2
Go-Kit Check out Protocol	Appendix Ia1.3
List of Go-Kit Supplies	Appendix Ia1.4
Instructions on Donning PPE	Appendix Ia1.5
Specimen Collection	**Appendix Ia2**
Specimen Collection and Handling During Transport	Appendix Ia2.1
Specimen Receiving Information	Appendix Ia2.2
Specimen Submittal Form	Appendix Ia2.3
CDHS VRDL Viral Specimen Submittal Form	Appendix Ia2.4
CDHS Norovirus Outbreak Specimen Submittal Form	Appendix Ia2.5
SFDPH Influenza Specimen Collection Instructions	Appendix Ia2.6
SFDPH Norovirus Specimen Collection Instructions	Appendix Ia2.7
SFDPH VZV Smallpox Specimen Collection Instructions	Appendix Ia2.8
Investigation Forms	**Appendix Ia3**
Anthrax (Human) Case Report Form, CDPH	Appendix Ia3.1
Avian Influenza Screening Form	Appendix Ia3.2
Avian Influenza Contact Monitoring Form	Appendix Ia3.3
Avian Influenza Case Report Form	Appendix Ia3.4
Bioterrorism Disease Specific Investigation Algorithms	Appendix Ia3.5
Botulism Case Report – Wound or Foodborne, CDPH	Appendix Ia3.6
Botulism Investigation Algorithm	Appendix Ia3.7
Brucellosis (Undulant Fever)/Q Fever/Tularemia Case Report Form (CDPH)	Appendix Ia3.8
Brucellosis Investigation Algorithm	Appendix Ia3.9
Cholera and other Vibrio Illness Surveillance Report	Appendix Ia3.10
E. Coli Case Report Form (CDPH)	Appendix Ia3.11
Plague Investigation Algorithm	Appendix Ia3.12
Plague Contact Surveillance Form	Appendix Ia3.13
Plague Individual Contact Surveillance Form	Appendix Ia3.14
SARS Case Report Form, CDC	Appendix Ia3.15
Smallpox Contact Management Algorithm	Appendix Ia3.16
Smallpox Contact Surveillance Form	Appendix Ia3.17
Smallpox Individual Contact Surveillance Form	Appendix Ia3.18
Tularemia Investigation Algorithm	Appendix Ia3.19
Unspecificed Gastrointestinal Illness Case Investigation Form (CDPH)	Appendix Ia3.20
Unspecified Respiratory Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.21
Unspecified Neurologic Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.22
Unspecified Fever Rash Illness Outbreak Case Investigation Form (CDPH)	Appendix Ia3.23
Viral Hemorrhagic Fevers (VHF) Contact Management Algorithm	Appendix Ia3.24
Viral Hemorrhagic Fevers (VHF) Contact Surveillance Form	Appendix Ia3.25
Viral Hemorrhagic Fevers (VHF) Individual Contact Surveillance Form	Appendix Ia3.26
Viral Hemorrhagic Fevers (VHF) Investigation Algorithm	Appendix Ia3.27
Waterborne Disease Outbreak Report (CDPH)	Appendix Ia3.28
Interview Guidance for a Criminal and Epidemiological Investigation	Appendix Ia3.29
Laboratory	**Appendix Ic**
Laboratory Submission Forms	Appendix Ic1
Laboratory Testing Protocols	Appendix Ic2
Laboratory Detection Capabilities (Rapid (PCR) or non-rapid method format)	Appendix Ic3
Protocol for Handling White Powders (as hazards to be tested and potential evidence)	Appendix Ic4
Chain of Custody Forms	Appendix Ic5

Lab Forwarding Procedure	Appendix Ic6
Lab Testing Surge Acceptors	Appendix Ic7
Lab Influenza Testing Capabilities and Supplies	Appendix Ic8
Lab Personnel for IDER	Appendix Ic9
MLAB Access Instructions	Appendix Ic10
Preventive Maintenance	Appendix Ic11
SFDPH Public Health Laboratory IDE Agent Identification Capabilities	Appendix Ic12
SFDPH Public Health Laboratory Capabilities	Appendix Ic13
Laboratory Guidance for a RAT Disease	Appendix Ic14
San Francisco Sentinel Labs Contact Information	Appendix Ic15
Biological Detection Monitors	**Appendix Id**
Incubation Period of BioWatch Agents	Appendix Id1
Local Profile of BioWatch Agents	Appendix Id2
BDS Exposure Criteria and Groups	Appendix Id3

b. Office and Communication Supplies

Items	Units Required	Location or Request From
Telephone	1+	Logistics
Fax machine access	1	Logistics
Computer with local network, internet access, LIMS Software	1+	Logistics
Printer access	1	Logistics
800 MHz Radio	1	Logistics
Computer Screen Projector	1	Logistics
Copy machine access	1	Logistics

c. Material Resources

General categories of the resources required for the Lab Branch are listed below.

Items	Location or Request From
Thermal Cycler (for Polymerase Chain Reaction)	101 Grove (4th floor) / Logistics
Agent-specific antisera / testing kits	101 Grove (4th floor) / Logistics
Polymerase Chain Reaction Master Mix kits for DNA	101 Grove (4th floor) / Logistics
Plasticware for serology and cell culture	101 Grove (4th floor) / Logistics
Plasticware for bacterial culture and testing	101 Grove (4th floor) / Logistics
Glass and plastic pipettes for measuring	101 Grove (4th floor) / Logistics
Water Purification system	101 Grove (4th floor) / Logistics
Polymerase Chain Reaction Master Mix kits for RNA	101 Grove (4th floor) / Logistics
Specimen collection plasticware	101 Grove (4th floor) / Logistics
Safety supplies (disinfectants, goggles, gloves, lab coats, splash guards, gowns)	101 Grove (4th floor) / Logistics
Biological Safety Cabinets	101 Grove (4th floor) / Logistics
Chemicals	101 Grove (4th floor) / Logistics
Freezers and Refrigerators	101 Grove (4th floor) / Logistics
Incubators	101 Grove (4th floor) / Logistics
Temperature-controlled water baths	101 Grove (4th floor) / Logistics
Autoclaves	101 Grove (4th floor) / Logistics
Dishwashers	101 Grove (4th floor) / Logistics
Balances and Scales	101 Grove (4th floor) / Logistics
pH meter	101 Grove (4th floor) / Logistics
Centrifuges	101 Grove (4th floor) / Logistics