Common Ground: Public Health Preparedness Toolkit

Tools and Methodology for Business Process Analysis and Redesign

© 2011 Public Health Informatics Institute
# Table of Contents

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>CRDM Terms and Tools</td>
<td>3</td>
</tr>
<tr>
<td>1.0 Conduct Exercise to Evaluate Organizational Response Capacity</td>
<td>7</td>
</tr>
<tr>
<td>2.0 Conduct Syndromic Surveillance</td>
<td>14</td>
</tr>
<tr>
<td>3.0 Conduct Notifiable Disease Surveillance</td>
<td>17</td>
</tr>
<tr>
<td>4.0 Conduct Active Surveillance</td>
<td>27</td>
</tr>
<tr>
<td>5.0 Conduct Public Health Investigation</td>
<td>33</td>
</tr>
<tr>
<td>6.0 Initiate Alerts</td>
<td>45</td>
</tr>
<tr>
<td>7.0 Develop and Report Situational Information</td>
<td>56</td>
</tr>
<tr>
<td>8.0 Manage Resources</td>
<td>59</td>
</tr>
<tr>
<td>9.0 Develop and Initiate Risk Communication</td>
<td>64</td>
</tr>
<tr>
<td>10.0 Administer Medical Countermeasures</td>
<td>70</td>
</tr>
</tbody>
</table>
Introduction

The Common Ground Project was designed to assist chronic disease and preparedness departments in public health agencies by documenting and defining business processes common to each of them and identifying the requirements for information systems that would support these processes. Nine chronic disease programs and six preparedness programs from local and state health collaborated to achieve consensus to describe their business processes and identify the requirements for information systems to support them using the Collaborative Requirements Development Methodology (CRDM).

About this Toolkit

This toolkit presents the work products developed by the Preparedness Workgroup during CRDM’s business process analysis (think) and business process redesign (re-think) phases. This document is intended to:

- Present the tools and work products of the workgroup, providing insight into the methodology.
- Provide a starting place for organizations interested in using CRDM to think, rethink and describe their own internal processes.

Preparedness Workgroup Business Processes

The Common Ground Preparedness Project provides public health agencies with the opportunity to apply the basic principles of public health informatics to acquiring or developing systems that can reduce re-entry of data, enhance data exchange, increase robustness of public health databases, and streamline systems maintenance. The business processes listed below are those chosen by the Preparedness Workgroup to develop. Because of time constraints, only three business processes were selected for redesign. Those are identified in **bold**.

1. Conduct Exercise to Evaluate Organizational Response Capacity
2. Conduct Syndromic Surveillance
3. **Conduct Notifiable Disease Surveillance**
4. Conduct Active Surveillance
5. **Conduct Public Health Investigation**
6. **Initiate Alerts**
7. Develop and Report Situational Information
8. Manage Resources
9. Develop and Initiate Risk Communication
10. Administer Medical Countermeasures (MCMs)
CRDM Terms and Tools

The Preparedness Workgroup defined and illustrated the components of each process using the following CRDM tools:

- **Business process matrix**: Provides an at-a-glance view of the pertinent information about a business process during business process analysis.
- **Context diagrams**: Provide an overall structure of the entire environment in which a process takes place. They help us make sure that we are identifying all entities and transactions between entities—key transfer points where information systems need to convey information.
- **Task flow diagrams**: Specify the discrete tasks (those that can be performed by an individual or group without interruption once the task has started) that occur within a particular entity.

**Business Process Matrix**

The business process matrix is a table that outlines the components of a business process that describe the process (goal, objective, business rules, trigger, inputs, outputs, and outcome). The business process matrix is designed to be used as a quick reference for groups who are analyzing business processes. It is useful as a reference when developing graphical models such as context and task flow diagrams to keep everyone thinking of the same objectives.

**Defining a Business Process**

Although the term “business process” has been widely used in industry to describe the way in which organizations conduct their activities and achieve specific goals and objectives, the term is not commonly used in public health. The first step in understanding the business processes of public health agencies is to understand the definition of a business process and how the work of public health agencies can be modeled within that context.

A business process:

- Is in response to a trigger event
- Is a collection of activities or steps (tasks)
- Involves entities/participants
- Rarely takes place in isolation. It may be comprised of activities that span across and/or within multiple business units such as departments, organizations, divisions, or branches.
- May contain inputs from and outputs to other business processes
- Can be part of a larger encompassing process
- Can be viewed at various levels of granularity
- Has a clearly defined objective or purpose
- Contains entities that work toward a common goal
- Produces something of value for the benefit of an organization, stakeholder or customer
- Has an outcome that is measurable and may be assigned parameters for establishing performance gains
- Meets customer and/or stakeholder needs and expectations
- Involves the flow of material and/or information (transactions)
- Has a known method or set of business rules, also known as an algorithm to define activities. When the method is applied to the input, certain outputs are created as a result of the business rules.

Components of a Business Process

- **Process Name**: The title given to a business process.
- **Goal**: Explains how the business process supports one or more of the directions of the public health organization.
- **Objective**: A concrete statement describing what the business process is trying to achieve in support of this goal.
- **Business Rule**: A set of criteria that defines or constrains some aspect of the business process.
- **Trigger**: An event, action or state that initiates the first course of action in a business process.
- **Task Set**: The five to seven key activities that are carried out in a business process.
- **Input**: Information or tangible items needed for the business process.
- **Output**: Information or tangible items produced by the business process.
- **Outcome**: The resulting output that indicates the Objective has been met.

Creating a Business Process Matrix

1. Decide the **PROCESS** to work with.
2. Determine the **GOAL** of the business process.
3. Determine the **OBJECTIVE** of the business process. Objectives are clear and concise and include the SMART law: Specific, Measurable, Attainable, Realistic, Time bound.
4. Identify the **OUTCOME** to the business process. This is determining which action or transaction in the business process satisfies the objective and completes a cycle of the process.
5. Determine the **TRIGGER(s)** that initiate the business process. Triggers are typically actions that initiate the set of subsequent process activities.
6. Identify all the **BUSINESS RULES** that guide the process. Business Rules are typically policies, procedures, organizational standards or legal requirements.
7. Determine the five to seven key activities that make up the body of the process, called the **TASK SET**. The Task Set is high-level, yet is called out like other process activities.
8. Determine all of the needed information or items needed to perform the process, called **INPUTS**.

9. Determine all of the produced **OUTPUTS**. Outputs are typically information or tangible items, just like inputs.

10. Be Clear, Concise and Consistent – ensure that the level of detail and format are at the same level across the diagram. This will help the readers to easily comprehend the Context Diagram.

**Context Diagram**

Context diagrams provide an overall structure of the entire environment in which a process takes place and ensure that all entities and transactions between entities are identified.

**Components of a Context Diagram**

- **Entity** – a person or a group of people who perform one or more tasks involved in the process.
- **Transactions** – any information exchange between entities.
- **Outcome** – the resulting transaction that indicates the Objective has been met.
- **Input** - information received by the business process from external sources.

**Creating a Context Diagram**

1. Identify the core **ENTITY** involved in the process – this will be the individual or group that is accountable for the process. Create a dark green circle and label it with the entity name.

2. Identify the other **ENTITIES** involved with the process – those that interact with the core entity. Create light green circles around the core entity and label it with other entity names.

3. Document and label the **OUTCOME** to the business process, using a red arrow.

4. Document and label the **TRANSACTIONS** between each Entity, using a black arrow.

5. Document and label the **OUTPUTS**, using gold, dotted line.

6. Document and label the **INPUTS**, using a blue, dotted line.

7. Label the Context Diagram with the Business Process Name. Be **Clear, Concise and Consistent** – ensure that the level of detail and format are at the same level across the diagram. This will help the readers to easily comprehend the Context Diagram.
Task Flow

While a context diagram shows the environment in which tasks occur and shows all the entities in a business process and the transactions among them, it does not show the activities that occur within each entity. To portray these activities, we use the task flow diagram, which breaks down the discrete tasks that occur within a particular entity.

Components of a Task Flow

- **Pools**: A group, department, organization or unit that contains multiple functional swim lanes (functional groups).
- **Swim Lanes**: A functional individual or group. These are entities that perform or are accountable for designated activities in the process.
- **Start**: A process mapping shape used to define the “start” of the process.
- **Trigger**: An event, action or state that initiates the first course of action in a business process.
- **Activity**: An action performed by the functional individual or group.
- **Decision**: A required conclusion needed in the process. These are typically approvals or resolutions.
- **Pre-defined Process**: A shape used as a call out to another process.
- **Outcome**: The final information or tangible item(s) produced by the business process.
- **End**: A process mapping shape used to define the “end” of the process.
- **Activity Details/Narratives**: The supporting information for each process Activity, Decision and Pre-defined Process.

Creating a Task Flow

1. Using the Context Diagram, document all the Entities in **SWIM LANES**, using the functional band shape.
2. Determine and document the **POOLS** for the Swim Lanes, using the functional band shape.
3. Enter the **START** shape in the Swim Lane where the trigger activity will go.
4. Enter the **TRIGGER** activity in the appropriate Swim Lane.
5. Enter the **OUTCOME** in the appropriate Swim Lane.
6. Enter the **END** shape just after the Outcome.
7. Enter the process **ACTIVITIES**, starting with the action that proceeds the Trigger. Connect Activities using the flow arrow.
8. Be sure to enter any **DECISIONS**. Connect Decisions to other shapes using the decision arrows.
9. Be sure to enter any applicable **PRE-DEFINED PROCESSES**. Connect Pre-Defined Processes to other shapes using the flow arrow.
10. Enter the appropriate **ACTIVITY DETAILS/NARRATIVE** for each process activity.
1.0 Conduct Exercise to Evaluate Organizational Response Capacity

Public Health agencies at federal, state and local levels need to quantitatively and qualitatively evaluate their organizational capacity and readiness to respond to a public health emergency. These evaluations are frequently done through exercises that test capabilities and capacity. Such exercises may include table tops, functional exercises, drills, full scale exercises, etc. The type, scale and scope of the exercise will determine the level (local, state or federal) and number of agencies involved. For example, a multijurisdictional exercise may test transportation capacities. The completion of the exercise will result in a report that includes information from evaluation of the exercise and a post-exercise debrief with recommendations.
1.1 Conduct Exercise to Evaluate Organizational Capacity Business Process Matrix

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct Exercise to Evaluate Organizat...</td>
<td>Ensure that a public health organization is able to provide emergency...</td>
<td>- To evaluate the ability of delivering a public health control measure in...</td>
<td>- Unions / Labor Agreements</td>
<td>Determine scope of exercise.</td>
<td>1. Determine scope of exercise</td>
<td>- All hazard plans</td>
<td>- Exercise plan</td>
<td>- Level of capability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- To identify and document areas for improvement following the events or ...</td>
<td>- Regulatory boards for public services (hospitals, fire, police, schools, etc.)</td>
<td></td>
<td>2. Form exercise planning team</td>
<td>- Multi-year exercise plan</td>
<td>- Exercise focus and parameters</td>
<td>- Assessment of performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- To develop plan that will address the improvement areas after the event...</td>
<td>- Capacity Assessment practices.</td>
<td></td>
<td>3. Develop exercise plan</td>
<td>- Identified weakness</td>
<td>- Event schedule</td>
<td>- Response time and duration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Determine scope of exercise.</td>
<td>- HSEEP and Federal Requirements.</td>
<td></td>
<td>4. Coordinate logistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5. Perform exercise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6. Conduct debriefs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7. Develop and submit AAR/IP</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Bold items represent the final Output for the process. All others are Output throughout the process.
1.2 Conduct Exercise to Evaluate Organizational Capacity Context Diagram
1.3 Conduct Exercise to Evaluate Organizational Capacity Task Flow – 1 of 2

See notes below
This task flow is adapted from a workgroup collaborative and best practices from the following website - https://hsee.dhs.gov/support/Volumel.pdf

1. Determine Scope of Exercise
   • The Senior Leadership determines the general scope of the exercise to be performed.

2. Develop Exercise Planning Timeline
   • Exercise planning timelines establish target timeframes for attaining significant, exercise-related milestones, such as planning conferences, training, exercise conduct, after-action reporting, and improvement planning. These timelines should be consistent with the scheduling component of the entity’s Multi-Year Training and exercise Plan.
   • Timelines will vary based on exercise scope and complexity.

3. Form Exercise Planning Team
   • The Exercise Planning Team is responsible for the successful execution of all aspects of an exercise, including exercise planning, conduct, and evaluation.
   • While each exercise has its own planning team, personnel may carry over from one exercise to the next, and entities may find it advantageous to include team members with previous exercise planning experience.
   • The Exercise Planning Team should seek to incorporate representatives from each major participating entity, but should be kept to a manageable size. The membership of an exercise planning team can be modified to fit the type or scope of an exercise.

4. Schedule Planning Conferences
   • Exercise scope, type, and complexity determine the number of meetings necessary to successfully carry out the planning process.
   • Examples of the most common planning meetings include: Concept and Objectives Meetings, Initial Planning Meetings, Mid-Term Planning Meetings, & Final Planning Meetings.

5. Determine Exercise Type, Objectives
   • Exercise capabilities, tasks, and objectives are created to “frame” the context to the exercise, especially the scenario.
   • HSEP advocates the use of objectives that are simple, measurable, achievable, realistic, and task-oriented (SMART).

6. Develop Exercise Plan
   • Developing the plan includes detailed scope, type, complexity, the scenario, an evaluation plan, and lists the appropriate participants.
   • A scenario provides the storyline that drives an exercise. The first step in designing a scenario is determining the type of threat/hazard (e.g., chemical, explosive, cyber, natural disaster) to be used in an exercise.
   • The next step in designing a scenario is to determine the venue (i.e., facility or site) in which exercise play will take place.

7. Develop Exercise Documentation
   • Documentation includes those items that fit most appropriately to the exercise. Some of the most common are Situation Manuals (SitMan), exercise Plan (ExPlan), Controller and Evaluation Handbook (C/E), Master Scenario exercises List (MSEL), Player Handout, exercise Evaluation Guides (EEGs), and Evaluation Plans.
   • In addition, exercise policies are typically created.

9. Submit Exercise Documentation for Review, Approve?
   • Materials (exercise plan, evaluation plan, exercise documentation) put together for the exercise require review and approval by the Senior Leadership.

11. Coordinate Logistics
   • Coordinating logistics requires organization and planning for the aspects of the exercise.
   • The type of exercise (discussion-based or operations-based) will determine the appropriate logistics to organize.
   • Discussion-based exercises typically focus on existing plans, policies, mutual aid agreements, and procedures. These are just that and are normally the simplest and less costly exercises to host. Types of discussion based exercises are workshops, seminars, and tabletops.
   • Operations-based exercises include the full-scale, activity exercises. Examples include drills, functional exercises and full scale exercises.

12. Determine & Enroll Exercise Participants
   • The exercise Planning Team determines the appropriate personnel to participate in the exercise. There are several common groups:
   • Players have an active role in responding to an incident by either discussing (in a discussion-based exercise) or performing (in an operations-based exercise) their regular roles and responsibilities.
   • Actors are volunteers who simulate specific roles, such as disaster casualty victims, in order to add realism to an exercise.
   • Simulators, generally controllers, perform the roles of individuals, agencies, or organizations that are not actually participating in the exercise in order to drive realistic exercise play.

13. Setup Exercise
   • Setup of an exercise is bound by the type, scope and complexity of the exercise.
   • On the day of the exercise, planning team members should arrive several hours before the scheduled start to handle any remaining logistical or administrative items pertaining to setup and to arrange for registration.
   • For a discussion-based exercise, room layout is particularly important. When setting up an operations-based exercise, planners must consider the assembly area, response route, response operations area, parking, registration, observer/media accommodations, and a possible Simulation Cell (SimCell) facility.
1.3.1 Conduct Exercise to Evaluate Organizational Capacity Task Flow – 2 of 2

See notes below
14. Provide Exercise Briefing / Presentation
- Presentations and briefings are important tools for delivering necessary exercise-related information to participants.
- A discussion-based exercise generally includes a multimedia presentation to present the scenario and accompany the SitMap.
- An operations-based exercise may include briefings for controllers/evaluators, actors, players, and observers/media.
- Briefings and presentations are opportune times to distribute exercise documentation, provide necessary instructions and administrative information, and answer any outstanding questions.

15. Perform Exercise
- In both discussion-based and operations-based exercises, facilitators / controllers guide exercise play.
- During a discussion-based exercise, the facilitator is responsible for ensuring that participant discussions remain focused on the exercise objectives and making sure all issues and objectives are explored as thoroughly as possible within the available time.
- In an operations-based exercise, controllers plan and manage exercise play, set up and operate the exercise incident site, give key data to players, and may prompt or initiate certain player actions.

16. Evaluate exercise
- Evaluation documents the strengths and areas for improvement in the public health agencies preparedness.

17. Conduct Hot Wash
- A hot wash is conducted in each functional area by that functional area’s evaluator immediately following an exercise, and it allows players the opportunity to provide immediate feedback. It enables controllers/evaluators to capture exercises while they remain fresh in players’ minds in order to ascertain players’ level of satisfaction with the exercise and identify any issues, concerns, or proposed improvements.
- The information gathered during a hot wash can be used during the AAR/IP process, and exercise-specific suggestions can be used to improve future exercises. Hot washes also provide opportunities to distribute Participant Feedback Forms, which solicit suggestions and constructive criticism geared toward enhancing future exercises.

18. Conduct Debrief
- A debrief is a more formal forum for planners, facilitators, controllers, and evaluators to review and provide feedback on the exercise. It may be held immediately after or within a few days following the exercise.
- The exercise planning team leader facilitates discussion and allows each person an opportunity to provide an overview of the functional area observed. Discussions are recorded, and identified strengths and areas for improvement are analyzed for inclusion in the AAR/IP.

19. Develop After Action Report / Improvement Plan
- An AAR/IP is used to provide feedback to participating entities on their performance during the exercise. The AAR/IP summarizes exercise exercises and analyzes performance of the tasks identified as important during the planning process. It also evaluates achievement of the selected exercise objectives and demonstration of the overall capabilities being validated. The IP portion of the AAR/IP includes corrective actions for improvement, along with timelines for their implementation and assignment to responsible parties.
- To prepare the AAR/IP, exercise evaluators analyze data collected from the hot wash, debrief, Participant Feedback Forms, EEGs, and other sources (e.g., plans, procedures) and compare actual results with the intended outcome. The level of detail in an AAR/IP is based on the exercise type and scope. AAR/IP conclusions are discussed and validated at an After Action Conference that occurs within several weeks after the exercise is conducted.
- The IP portion of an AAR/IP converts lessons learned from the exercise into concrete, measurable steps that result in improved response capabilities. It specifically details the actions that the participating entity will take to address each recommendation presented in the draft AAR/IP, who or what agency will be responsible for taking the action, and the timeline for completion.

- In most cases, the AAR/IP should be reviewed by public health agency leadership prior to distributing to a wide audience.

22. Distribute AAR/IP
- The AAR/IP is distributed to the appropriate stakeholders.
2.0 Conduct Syndromic Surveillance

Syndromic surveillance systems routinely collect population-based data that is automatically computerized and analyzed to reveal patterns outside the norm. These patterns may indicate the probability of an outbreak for which a public health response is indicated.

2.1 Conduct Syndromic Surveillance Business Process Matrix

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| Conduct Syndromic Surveillance | Timely identification and accurate monitoring of potential threats to public health. | • To ensure the effective and efficient operation of a system for the management and analysis of timely, accurate and complete health-related data that may precede diagnosis and signal a sufficient probability of a case or outbreak. | • HIPAA                     | Monitor health data | 1. Monitor health data  
2. Identify aberrations  
3. Assess threat level  
1. Determine next steps | • Surveillance data  
• Clinical data  
• Surveillance tools | • Alert message  
• Disease investigation  
• Administer MCMs  
• Conduct situational surveillance, conduct active surveillance | • Early disease detection and situational awareness |

*Bold items represent the final Output for the process. All others are Output throughout the process.*
2.2 Conduct Syndromic Surveillance Context Diagram
## 2.3 Conduct Syndromic Surveillance Task Flow

1. **Monitor Health Data**  
   - Syndromic surveillance data is monitored regularly (usually on a daily basis).  
   - Custom queries targeting possible health outbreaks or threats may be added to the regular automatic analyses.

2. **Identify Data Aberrations**  
   - The epidemiologist looks for change in patterns in the syndromic surveillance data.  
   - There may be a flag from the automated system alerting the epidemiologist if there is aberrancy in the data.

3. **Review Data**  
   - Collect and review substantiating data to determine if aberration in data is because of a problem with data quality.  
   - This task may be done manually by an epidemiologist, biostatistician, IT person, SME or by an automated system.

4. **Confirm Aberration?**  
   - If the data are found to be accurate, and there is still an aberrant pattern, the epidemiologist and/or SME reexamine the aberration and make a decision about whether to investigate it further or dismiss it.

5. **Assess Threat Level**  
   - The Subject Matter Expert will review the assessment and may then give instructions to investigate further or to dismiss the data aberration, depending on the likelihood and seriousness of the threat to population health.

6. **Determine Next Steps**  
   - The Person of Authority may contact local hospitals for more information or collect additional data through other work streams.  
   - The Person in Authority or Subject Matter Expert may act on syndromic surveillance information by triggering additional processes.  
   - Next steps will include a combination of or all of the “control processes”. Control processes are those business processes that occur during a public health incident: Conduct Active Surveillance, Conduct Disease Investigation, Develop and Report Situational Information, Initiate Alerts, Administer Medical Countermeasures.
3.0 Conduct Notifiable Disease Surveillance

Notifiable conditions are those for which regular, frequent, and timely information regarding individual cases is considered necessary for the prevention and control of the disease. Public health surveillance for nationally notifiable conditions can include infectious diseases, including human immunodeficiency virus (HIV), tuberculosis (TB), sexually transmitted disease (STDs), and hepatitis, chronic conditions, injuries, and occupational and environmental injuries and diseases. Within states and territories, the term "reportable condition" generally refers to conditions that physicians, laboratories, or other entities are required under state law to report to local or state public health authorities. Nationally, the term "notifiable condition" refers to conditions that state health departments agree to voluntary report to the Centers for Disease Control and Prevention (CDC).
### 3.1 Conduct Notifiable Disease Surveillance Business Process Matrix – Original

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct Notifiable Disease Surveillance</td>
<td>Timely identification and accurate monitoring of potential threats to public health.</td>
<td>- Ensure the effective and efficient operation of a system for the management and analysis of timely, accurate and complete health-related data from notifiable disease systems.</td>
<td>- State laws</td>
<td>Review initial suspected case report</td>
<td>1. Review initial suspected case report</td>
<td>- Initial case reports</td>
<td>- New case, Alerts, Disease investigation, Risk communication, Administer MCMs</td>
<td>- Disease counts meet quality standards for accuracy, timeliness, completeness</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Case definitions</td>
<td>2. Receive additional information</td>
<td></td>
<td>- Lab reports</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- HIPAA</td>
<td>3. Assess threat level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4. Create case</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5. Create and submit case report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 3.1 Conduct Notifiable Disease Surveillance Business Process Matrix – Redesign

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor</td>
<td>Timely identification and accurate monitoring of potential threats to</td>
<td>• Ensure the effective and efficient operation of a system for the</td>
<td>State laws</td>
<td>Review initial suspected case report.</td>
<td>1. Report clinical encounter.</td>
<td>Initial case</td>
<td>• New case</td>
<td>Disease counts meet quality standards for accuracy, timeliness, completeness</td>
</tr>
<tr>
<td>Conduct Notifiable Disease</td>
<td>public health.</td>
<td>management and analysis of timely, accurate and complete health- related</td>
<td>Case definitions</td>
<td>2. Enter new records.</td>
<td>2. Enter new records.</td>
<td>reports</td>
<td>Alerts</td>
<td></td>
</tr>
<tr>
<td>Surveillance</td>
<td></td>
<td>data from notifiable disease systems.</td>
<td>HIPAA</td>
<td>3. Submit &amp; tally case.</td>
<td>3. Submit &amp; tally case.</td>
<td>Lab reports</td>
<td>Disease investigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4. Communicate updates.</td>
<td>4. Communicate updates.</td>
<td></td>
<td>Risk communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5. Hold daily review.</td>
<td>5. Hold daily review.</td>
<td></td>
<td>Administer MCMs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7. Generate summary reports.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Bold items represent the final Output for the process. All others are Output throughout the process.*
3.2 Conduct Notifiable Disease Surveillance Context Diagram -- Original
3.2.1 Conduct Notifiable Disease Surveillance Context Diagram – Redesign
3.3 Conduct Notifiable Disease Surveillance Task Flow – Original

See notes below
<table>
<thead>
<tr>
<th>1. Review Initial Suspected Case Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Health Department Receives Notification of Suspected Case – usually goes to the local department of health or region first.</td>
</tr>
<tr>
<td>• The source of the information about the suspected case may come from a clinical lab, clinician, Infection Control Staff from a hospital, etc.</td>
</tr>
<tr>
<td>• Assign appropriate staff to follow up on suspected case. This may require identifying the jurisdiction within which the case has been identified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Determine Additional Information Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review case report to see what additional information is needed to confirm case.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Request and Receive Additional Information (about Suspected Case)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Additional information on the suspected case (demographics, address, contact information, signs and symptoms, etc.) is needed. Healthcare providers would be asked to supply this information.</td>
</tr>
<tr>
<td>• The lab may be contacted to provide more detailed or confirmatory lab results for a suspected case to determine if it is an actual case.</td>
</tr>
<tr>
<td>• Find out if case was previously reported by checking the Case List Database. Run de-duplication process to be sure case is not reported</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Potential, Presumptive, or Confirmed Case?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The person who determines whether it is a case or not varies. Typically an assigned person at the local level will refer to the CDC case definition, compares the suspected case with the case definition, and reports results to a person of authority.</td>
</tr>
<tr>
<td>• State and local departments of health communicate on whether or not a suspected case meets criteria for confirmed case. State has right of review or refusal on case determination. At times the local jurisdiction and state differ in their opinions about whether the suspected case is an actual case.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Assess Threat Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Query case report database for disease incidence information.</td>
</tr>
<tr>
<td>• Perform population level analysis to determine if it looks like the case may be part of an outbreak or if the case-related condition or disease is increasing.</td>
</tr>
<tr>
<td>• Discuss with involved jurisdictions and SMEs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Determine Next Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Next steps will include a combination of or all of the “control processes”. Control processes are those business processes that occur during a public health incident: Conduct Active Surveillance, Conduct Disease Investigation, Develop and Report Situational Information, Initiate Alerts, Administer Medical Countermeasures.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Threat Level High?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• IF NO: Go to creating and entering a new case. IF YES: Go to appropriate next steps.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Determine Next Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next steps will include a combination of or all of the “control processes”. Control processes are those business processes that occur during a public health incident: Conduct Active Surveillance, Conduct Disease Investigation, Develop and Report Situational Information, Initiate Alerts, Administer Medical Countermeasures.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Create and Enter New Case Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>The case report includes all available pertinent data that documents case signs and symptoms, lab reports, sequence of events, location, etc. Because some case information may be very difficult to obtain, or may not exist, there is some subjective judgment involved in deciding when a case report is sufficiently complete. Typically the Case Investigator makes that decision. The case report is then sent to a State Case Report Database, which also receives case reports from other local health departments conducting notifiable disease surveillance.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. Submit Case Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case report is reviewed by other state and local epidemiologists.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11. Review Case Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case report is reviewed by other state and local epidemiologists.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12. Submit Case Report to CDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once the Case Report has been reviewed, it is submitted to the CDC.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. Generate Summary Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Epidemiologist will generate regular, periodic (typically weekly or monthly) summary reports.</td>
</tr>
</tbody>
</table>
3.3.1 Conduct Notifiable Disease Surveillance Task Flow – 1 of 2 – Redesign

See notes below
<table>
<thead>
<tr>
<th>1. Identify Reportable Clinical Encounter</th>
<th>7. Request Missing Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hospitals, physicians and other notifiable disease data providers identify a potential disease that is on the recommended list of notifiable diseases.</td>
<td>• Inaccurate / incomplete information is requested to complete the needed encounter information.</td>
</tr>
<tr>
<td>2. Document Clinical Encounter Data</td>
<td>8. New Record?</td>
</tr>
<tr>
<td>The potential notifiable disease data is documented so that it can be shared with partners.</td>
<td>• Encounter considered to be new data or entry?</td>
</tr>
<tr>
<td>• Once the notifiable disease is documented, it is submitted to the appropriate local or state health department.</td>
<td>• New encounters are entered as new records.</td>
</tr>
<tr>
<td>4. Receive and Review Encounter Information</td>
<td>10. Update Record</td>
</tr>
<tr>
<td>• Quality Checker is accountable for ensuring the report encounter data is both accurate and complete.</td>
<td>Previously reported encounters are updated with new data. New data could potentially change the status of the case encounter.</td>
</tr>
<tr>
<td>• Is the encounter considered to be a high priority case, based upon severity, location, population, etc?</td>
<td>Updates to previously reported encounters are communicated to the appropriate stakeholders.</td>
</tr>
<tr>
<td>6. Information Complete?</td>
<td>12. Compare Record to CSTE Case Definition</td>
</tr>
<tr>
<td>• Encounter information accurate and complete?</td>
<td>• Encounter record is compared to CSTE Case Definition materials to determine status.</td>
</tr>
<tr>
<td></td>
<td>• Case definition used by the jurisdiction may differ from CSTE’s.</td>
</tr>
</tbody>
</table>

13. Hold Encounter Review
   • Encounters determined as “hot” are reviewed in the Epi Team daily meeting to assess the threat level and determine next steps.
   • The Epi Team can include nurses, physicians, other health workers, etc.

14. Assess Threat Level
   • Encounter case is assessed to determine level of threat.

15. Action Required?
   • Based upon the threat level, is there action required?

16. Determine Next Steps
   • The threat level will determine which next steps are required. Generally, immediate communication and action will be required.
3.3.2 Conduct Notifiable Disease Surveillance Task Flow – 2 of 2

17. Case Status?
- A case status is determined, based upon the record comparison to the CSTE Case Description.

18. Request & Receive Additional Information
- Suspected cases are monitored for additional information.

19. Report Case
- Confirmed cases are submitted to either the state or federal (CDC) jurisdictions.

20. Tally Case
- Upon submission of the case, it is tallied (counted).

21. Generate Summary Reports
- A summary report is generated to provide the case information to appropriate stakeholders and partners.
- Summary report contains data on incidence of cases in the population.
4.0 Conduct Active Surveillance

The purpose of active surveillance is to gather information that will help determine whether a suspected public health threat is confirmed as a threat or not. Multiple sources can trigger the need for active surveillance. This business process is usually initiated upon the receipt of some health condition data that triggers the need for more information related to a potential public health threat. Data could include unique clinical presentation, clusters of "cases" or of clinical or environmental laboratory test results. An integral part of Active Surveillance is characterization of the threat.
### 4.1 Conduct Active Surveillance Business Process Matrix

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| Conduct Active Surveillance | Timely identification and accurate monitoring of potential threats to public health and health incidents. | To collect data and specimens to provide accurate, complete, and incident-specific information. | • Surveillance data methods / protocols • Epidemiological analysis methods | Identify Need for Active Surveillance | 1. Identify need for active surveillance  
2. Convene active surveillance team  
3. Determine active surveillance strategy and methods  
4. Gather necessary resources  
5. Deploy active surveillance strategy  
6. Collect and analyze active surveillance data  
7. Develop active surveillance report  
8. Assess threat level  
9. Determine next steps  
10. Distribute active surveillance report | • Surveillance strategies  
• Surveillance methods and protocols  
• Epidemiological analysis methods  
• Health incident hypothesis  
• Incident case reports | • Active surveillance strategy and plan  
• Information Technology assessment  
• Surveillance data  
• Active surveillance report  
• Distribute final active surveillance report | • Timely, comprehensive and accurate incident specific surveillance data.  
• Timely, comprehensive and accurate surveillance reports. |

*Bold items represent the final Output for the process. All others are Output throughout the process.*
4.2 Conduct Active Surveillance Context Diagram
### 4.3 Conduct Active Surveillance Task Flow – 1 of 3

<table>
<thead>
<tr>
<th>Task Number</th>
<th>Task Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identify Need for Active Surveillance</td>
<td>- An incident, man-made disaster, potential incident, heightened health concern and/or request is identified confirming the need for active surveillance—e.g. unique case definition or natural disaster.</td>
</tr>
<tr>
<td>2.</td>
<td>Clarify Parameters</td>
<td>- The focus of the active surveillance is evaluated and the parameters defining the scope of the surveillance are clarified.</td>
</tr>
<tr>
<td>3.</td>
<td>Convene Active Surveillance Team</td>
<td>- An Active Surveillance Team is convened based upon the perceived requirements of the incident and expertise needed. This could be a standing team or an ad hoc team convened to address the specific focus of the surveillance.</td>
</tr>
</tbody>
</table>
| 4.          | Analyze Incident Data | - The Active Surveillance Team reviews available information related to the specific incident that generated the hypothesis to begin Active Surveillance. 
- The Incident Data analyzed may act as a trigger for the Public Health Investigation process. |
| 5.          | Determine Active Surveillance Strategy | - The Active Surveillance Team selects an appropriate surveillance strategy or develops a custom approach to the collection of active surveillance data. The primary objectives are to determine the methodology for active surveillance and identify the supporting systems and the resource needs to support that methodology. |
| 6.          | Determine if Active Surveillance Strategy Tools are Available? | - Determine the adequacy of available internal and external IT surveillance systems for the current investigation. 
- If a similar investigation has been done and the tools to do it have been developed, tested, and are deemed appropriate for the current active surveillance, they may be used. |
| 7.          | Develop Incident-Specific Surveillance Tools | - If appropriate and/or adequate tools for the current active surveillance are not available, new tools designed to collect pertinent incident or outbreak information will need to be developed. 
- In addition, a communication plan is developed. |
| 8.          | Notify Partners of Surveillance Strategy | - The Active Surveillance Team will notify their partners of their roles in the investigation and define the requirements of those roles. 
- Partners may include data collectors, data managers, information technologists, and any other partners involved in the surveillance data submission process. |
| 9.          | Apply for Necessary Resources | - Determine the surveillance resource needs and submit a request to the appropriate entity for the needed resources. |
| 10.         | Resources Available? | - IF YES: then move on to notifying partners of the methods and resources. 
- IF NO: then go back to applying for the necessary resources. |
4.3.1 Conduct Active Surveillance Task Flow – 2 of 3

11. Notify Partners of Tools, Methods, and Resources
   - The resources available and plans for surveillance methods are communicated to the appropriate partners.

12. Deploy Active Surveillance Strategy
   - The active surveillance is begun using methodology and strategy as defined.

13. Collect Active Surveillance Data
   - Surveillance Team uses tools to gather information using methodology as defined in the surveillance strategy.
   - Partners may assist in the collection of surveillance data.

14. Analyze Active Surveillance Information
   - Active Surveillance Team data providers will submit their surveillance data to the Active Surveillance Team.
   - The Active Surveillance Team performs epidemiological and biostatistical analysis of the surveillance data in accordance with methodology defined in strategy.

15. Develop Internal Active Surveillance Report
   - The surveillance data analysis will be depicted in ways that maximize interpretation of the results.
   - Included in the report will be background information, methodology, results of analysis, and conclusions. Citations of resources used are included.

16. Assess Threat Level
   - Determine how severe the threat is to the public.

17. Threat Level High?
   - IF YES: then move on to determining the next steps based upon the high threat level.
   - IF NO: then move on to distributing the surveillance report.

18. Determine Next Steps
   - Next steps will include a combination of or all of the “control processes”. Control processes are those business processes that occur during a public health incident: Conduct Active Surveillance, Conduct Disease Investigation, Develop and Report Situational Information, Initiate Alerts, Administer Medical Countermeasures.
4.3.2 Conduct Active Surveillance Task Flow – 3 of 3

21. Distribute Active Surveillance Report
   • Once the Active Surveillance Report has been finalized, it is disseminated to the appropriate public health and emergency management partners.

22. Determine if Active Surveillance Should be Terminated
   • Based on feedback on the surveillance report and additional information revealed in the active surveillance, a determination will be made about whether or not to continue the active surveillance.

23. Terminate Active Surveillance?
   • IF NO: then re-evaluate your methods and resources.
   • IF YES: then move on to distribution of the final active surveillance report.

24. Develop & Distribute Final Active Surveillance Report
   If the decision is made to terminate the Active Surveillance, then a final Active Surveillance Report is generated and distributed to partners and emergency operations management personnel.
5.0 Conduct Public Health Investigation

A public health investigation is an organized and systematic approach among a collaborative, multi-disciplinary team to collect, analyze and interpret data in response to an identified, suspected, and/or confirmed threat to the health of the public. It involves the iterative collection of relevant individual clinical, risk factor, and exposure data, incident-level data, and collection and analysis of clinical and environmental laboratory specimens needed to effectively and efficiently determine the etiologic agent, mode of transmission, exposure mechanism, and the risk factors for and clinical spectrum of disease. The timely collection, management, analysis, and appropriate sharing of the data is critical to identify and eliminate the public health threat, identify those at risk for disease and provide clinical evaluation, laboratory testing, and countermeasure recommendations to treat those affected and halt further transmission of disease.
### 5.1 Conduct Public Health Investigation Business Process Matrix – Original

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| Conduct Public Health Investigation | Decrease the time needed to identify causes, risk factors, and appropriate interventions for those affected by threats to the public's health | Identify the causative agent, mode of transmission, population at risk and recommend control measures with sufficient time remaining to protect the population at risk. | • Statistical rules for significance testing  
  • HIPAA  
  • Epidemiological methods | Identify public health threat | 1. Identify public health threat  
  2. Convene investigation team  
  3. Develop investigation strategies, tools and methods  
  4. Gather resources  
  5. Perform investigation  
  6. Collect and analyze samples  
  7. Develop PH threat definition and recommendations  
  8. Submit final PH investigation report. | • Investigation strategies and methods  
  • Case report  
  • Surveillance report  
  • Investigation tools | • Investigation samples  
  • Investigation strategy  
  • Final investigation report  
  • Next steps | • Disease identified  
  • All suspect cases/contacts are investigated appropriately in a timely manner |
5.1.1 Conduct Public Health Investigation Business Process Matrix – Redesign

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| Conduct Public Health Investigation | Decrease the time needed to identify causes, risk factors, and appropriate interventions for those affected by threats to the public’s health | Identify the causative agent, mode of transmission, population at risk and recommend control measures with sufficient time remaining to protect the population at risk. | • Statistical rules for significance testing  
• HIPAA  
• Epidemiological methods | • Identify public health threat | 1. Identify public health threat  
2. Convene investigation team  
3. Develop investigation strategies, tools and methods  
4. Gather resources  
5. Perform investigation  
6. Collect and analyze samples  
7. Develop PH threat definition and recommendation  
8. Submit final PH investigation report. | • Investigation strategies and methods  
• Case report  
• Surveillance report  
• Investigation tools | • Investigation samples  
• Investigation strategy  
• Final investigation report  
• Next steps | • Disease identified  
• All suspect cases/contacts are investigated appropriately in a timely manner |
5.2 Conduct Public Health Investigation Context Diagram – Original
5.2.1 Conduct Public Health Investigation Context Diagram – Redesign
5.3 Conduct Public Health Investigation Task Flow – 1 of 2 – Original

See notes below
### 1. Identify Possible Threat
- Review of routinely collected surveillance (active, syndromic, notifiable) data can detect outbreaks of known diseases.

### 1b. Receive Notification of Confirmed Incident
- Possible incidents of disease come to the attention of public health officials in various ways. Often, an astute clinician, infection control nurse, or clinical laboratory worker first notices an unusual disease or an unusual number of cases of a disease and alerts public health officials.
- Actual recipient will vary by public health jurisdiction.

### 2. Determine the Existence of a Threat, 3. Threat Confirmed?
- Epidemiologists will determine the existence of a public health threat by performing several procedures, but typically it’s determining if the observed number of cases is greater than the expected.
- The comparable data usually comes from surveillance records, hospital discharge records, mortality statistics, cancer or birth defect registries, and community surveys to establish background or historical levels of disease.
- This task can typically be the “routine” or “initial” investigation.

### 4. Notify Partners
- The appropriate partners (e.g. stakeholders, laboratory) are notified if there is the potential threat of an outbreak and a public health investigation is required.

### 5. Convene Investigation Team
- The Investigation Team is organized and convened to perform the public health investigation.

### 6. Develop Investigation Strategy & Hypothesis
- Typically a thorough strategy is needed to smoothly conduct the investigation, especially those that are considered to be non-routine.
- A hypothesis is a conclusion drawn before all the facts are established and tentatively accepted as a basis for further investigation.
- Typical items addressed in the hypothesis are (a.) causative agent, (b.) modes of transmission, and (c.) exposures that caused the outbreak.

### 7. Assemble Investigation Tools & Supplies
- Gathering and understanding the appropriate forms, equipment and personal protection objects needed to conduct a thorough investigation.

### 8. Prepare for Fieldwork
- Familiarize yourself with the suspected disease; know the event site(s) and locations, learn the conditions and symptoms, etc.

### 9. Create Case Definition
- A Case definition is a standard set of criteria for deciding whether an individual should be classified as having the health condition of interest. It includes clinical criteria and restrictions by time, place and person, and they are based on criteria from the CDC or California Department of Health Services (CDHS).
- There are 3 types of case classifications:
  - **Confirmed case**: A case that is classified as confirmed for reporting purposes. May also be epidemiologically linked case or laboratory-confirmed as a case.
  - **Probable case**: A case that is classified as probable for reporting purposes. There may be supportive laboratory results or inconclusive laboratory results.
  - **Suspected case**: A case that is classified as suspected for reporting purposes. Some diseases require laboratory confirmation for diagnosis regardless of clinical symptoms; others are diagnosed based on epidemiologic data. Suspect cases may be dropped when case definition is tightened over the course of the investigation.

### 10. Gather Evidence
- Information and data are collected pertaining to the investigation.
- Evidence gathering must include consideration of each of the following – indicators, sources of evidence, methods for data collection, quality, quantity, and logistics.
- An evaluation should strive to collect information that will convey a well-rounded picture of the program so that the information is seen as credible by the evaluation’s primary users. Information (i.e., evidence) should be perceived by stakeholders as believable and relevant for answering their questions.
- Identify & research other cases - after the Case Definition is developed, the Epidemiologist identifies and counts related cases by “casting the net wide”. They use as many sources as they can. For example, use enhanced passive surveillance, send out letters asking for reports, conduct Active Surveillance, telephone or visit facilities to collect case information, alert the public directly through local media, conduct a survey if outbreak is in a restricted population, and possibly ask case-patients if they know of anyone with same condition.
- Perform descriptive epidemiology analysis - this includes multiple layers of analysis, including epidemic curve analysis (depicts time course of the outbreak), place analysis (provides geographic extent of problem), and person analysis (defines population by host characteristics and exposures).

### 11. Determine if Laboratory Analysis Required, 12. Lab Analysis Required?
- The Investigation Team may determine that laboratory analysis may need to be performed on the outbreak samples.
5.3.1 Conduct Public Health Investigation Task Flow – 2 of 2 - Original

13. Prepare to Receive Samples
   - Laboratories provide sample test kits to investigation teams in order to gather appropriate samples. In other cases, the labs will provide instructions on how to gather and capture the appropriate specimens.

14. Collect Samples
   - Samples are collected and sent to the laboratory to perform analysis. Samples could be environmental and/or clinical.

15. Test Samples
   - Samples from the investigation site and tested and analyzed to produce an outcome. Once tested, the results are provided to the Investigation Team for review.

16. Analyze Findings
   - Findings from the laboratory are received, reviewed and analyzed to help establish a Case Definition.

17. Review Findings
   - Results from investigation analysis are reviewed to determine if the threat has been diagnosed correctly.

18. Threat Sufficiently?
   - Determine if the public health threat has been appropriately characterized and assessed.
   - From the information gathered in an investigation, other epidemiologists (mostly county) can run analyses to test whether hypotheses about the source of the outbreak are true. They compare hypotheses with established facts and quantify relationships (typically done through relative risk analysis and cohort studies).
   - Sometimes analytic studies are unrevealing, which means the Investigation Team might consider new modes of transmission and/or execute additional epidemiologic studies.

19. Summarize Findings
   - Results are summarized to be fit into a public health investigation report for communication.

20. Communicate Findings
   - The findings and results are communicated to the appropriate audience. In some cases, this communication may also contain control and prevention measures.

21. Determine Next Steps
   - Next steps will include a combination of or all of the “control processes”. Control processes are those business processes that occur during a public health incident: Conduct Active Surveillance, Conduct Disease Investigation, Develop and Report Situational Information, Initiate Alerts, Administer Medical Countermeasures.
5.3.2 Conduct Public Health Investigation Task Flow – 1 of 2 - Redesign

See notes below
General Process Notes
- This task flow represents the proposed future state design put together by the Preparedness Workgroup of Common Ground. The approach applies not only to infectious disease outbreaks but also to outbreaks due to noninfectious causes (e.g., toxic exposure).
- Surveillance Analyst
- Investigation Team – team of individuals who fulfill various roles in an investigation, including, but not limited to field investigators, staff support, clinical, and data analyst/ managers.
- Lead Investigator (could also be Epidemiologists) - study a diverse range of health conditions as well as the impact that various exposures have on the manifestation of disease. Investigators play a significant role in investigation public health events (disasters, outbreaks, epidemics, clusters, etc.). Typically, they conduct studies to examine the impact of various determinants of health, conduct the outbreak investigations, and examine the impact of diseases and conditions on populations.
- Laboratory – an individual or group that functions to analyze and report on site samples and data.
- Person of Authority – a public health official who is accountable for overseeing a public health investigation. They are typically the function that approves the investigation and provides the results. This person is typically the Public Health Officer.
- Liaison – a role to develop relationships with the various entities. This role would help facilitate the transactions between various roles to expedite the process.

1a. Identify Possible Threat
- Review of routinely collected surveillance (active, syndromic, notifiable) data can detect outbreaks of known diseases.

1b. Receive Notification of Confirmed Incident / Event
- Possible incidents of disease come to the attention of public health officials in various ways. Often, an astute clinician, infection control nurse, or clinical laboratory worker first notices an unusual disease or an unusual number of cases of a disease and alerts public health officials.
- Actual recipient will vary by public health jurisdiction.

1. Determine the Existence of a Threat, 3. Threshold Met?
- Epidemiologists will determine the existence of a public health threat by performing several procedures, but typically it’s determining if the observed number of cases is greater than the expected.
- The comparable data usually comes from surveillance records, hospital discharge records, mortality statistics, cancer or birth defect registries, and community surveys to establish background or historical levels of disease.
- This task can typically be the “routine” or “initial” investigation.

2. Document the Initiation of Investigation

3. Name Lead Investigator

4. Develop Initial Action Plan and Convene Team
- The Investigation Team is organized and convened to perform the public health investigation.

5. Notify Partners
- The appropriate partners (e.g. stakeholders, laboratory) are notified if there is the potential threat of an outbreak and a public health investigation is required.
- Can be performed through the Alerting process.

8. Develop Investigation Strategy, Case Definition, and Hypothesis
- Typically a thorough strategy is needed to smoothly conduct the investigation, especially those that are considered to be non-routine.
- A hypothesis is a hypothesis is a tentative conclusion drawn before all the facts are established and used as a basis for further investigation.
- Typical items addressed in the hypothesis are (a.) causative agent, (b.) modes of transmission, and (c.) exposures that caused the outbreak.
- There are 3 types of case classifications:
- Confirmed case: A case that is classified as confirmed for reporting purposes. May also be epidemiologically linked case or laboratory-confirmed as a case.
- Probable case: A case that is classified as probable for reporting purposes. There may be supportive laboratory results or inconclusive laboratory results.
- Suspected case: A case that is classified as suspected for reporting purposes. Some diseases require laboratory confirmation for diagnosis regardless of clinical symptoms; others are diagnosed based on epidemiologic data. Suspect cases may be dropped when case definition is tightened over the course of the investigation.

9. Update Partners

10. Facilitate Just-in-time-training

11. Reassign Competing Priorities of Investigation Team
5.3.3 Conduct Public Health Investigation Task Flow – 2 of 2 -- Redesign

See notes below
### 12. Deploy Investigation Strategies

#### 13. Lab Analysis Required?
- The Investigation Team may determine that laboratory analysis may need to be performed on the outbreak samples.

#### 14. Prepare to Receive Samples
- Laboratories provide sample test kits to investigation teams in order to gather appropriate samples. In other cases, the labs will provide instructions on how to gather and capture the appropriate specimens.

#### 15. Provide Guidance & Tools Assistance

#### 16. Assemble Investigation Resources
- Gathering and understanding the appropriate forms, equipment and personal protection objects needed to conduct a thorough investigation.
- Familiarize yourself with the suspected disease; know the event site(s) and locations learn the conditions and symptoms, etc.

#### 17. Gather Evidence
- Information and data are collected pertaining to the investigation.
- Evidence gathering must include consideration of each of the following – indicators, sources of evidence/methods for data collection, quality, quantity, and logistics.
- An evaluation should strive to collect information that will convey a well-rounded picture of the program so that the information is seen as credible by the evaluation’s primary users. Information (i.e., evidence) should be perceived by stakeholders as believable and relevant for answering their questions.

#### 18. Facilitate Specimen Submission
- Liaison would negotiate with lab to prioritize samples as needed and facilitate resources needed to transmit samples.

#### 19. Receive & Analyze Samples
- Samples from the investigation site and tested and analyzed to produce an outcome. Once tested, the results are provided to the Investigation Team for review.

#### 20. Report Results
- Identify & research other cases - after the Case Definition is developed, the Epidemiologist identifies and counts related cases by “casting the net wide”. They use as many sources as they can.
  - For example, use enhanced passive surveillance, send out letters asking for reports, conduct Active Surveillance, telephone or visit facilities to collect case information, alert the public directly through local media, conduct a survey if outbreak is in a restricted population, and possibly ask case-patients if they know of anyone with same condition.
- Perform descriptive epidemiology analysis - this includes multiple layers of analysis, including epidemic curve analysis (depicts time course of the outbreak), place analysis (provides geographic extent of problem), and person analysis (defines population by host characteristics and exposures).

#### 21. Analyze & Summarize Data
- Findings are received, reviewed and analyzed to refine the case definition.
- Results from investigation analysis are reviewed to determine if the threat has been diagnosed correctly.
- Data are analyzed to test hypotheses on exposure and disease associations. Associations are typically quantified with calculation of relative risk or odds ratios.

#### 22. Conduct Review Meeting
- Determine if the public health threat has been appropriately characterized and assessed.
- Sometimes analytic studies are unrevealing, which means the Investigation Team might consider new modes of transmission and/or execute additional epidemiologic studies.

#### 23. Continue Investigation?

#### 24. Recommend Termination

#### 25. Accept Termination?

#### 26. Develop Final Report
- Results are summarized into a public health investigation report for communication.
- The findings and results are communicated to the appropriate audience. In some cases, this communication may also contain control and prevention measures.
6.0 Initiate Alerts

The purpose of alerts is to ensure that communities have rapid and timely access to emergent health information; a resource of highly-trained professional personnel; and evidence-based practices and procedures for effective public health preparedness, response, and service on a 24/7 basis.
6.1 Initiate Alerts Business Process Matrix – Original

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| Initiate Alerts  | Decrease the time needed to identify causes, risk factors, and appropriate interventions for those affected by threats to the public’s health | Identify the causative agent, mode of transmission, population at risk and recommend control measures with sufficient time remaining to protect the population at risk. | - Statistical rules for significance testing  
- HIPAA  
- Epidemiological methods | Identify public health threat | 1. Identify public health threat  
2. Convene investigation team  
3. Develop investigation strategies, tools and methods  
4. Gather resources  
5. Perform investigation  
6. Collect and analyze samples  
7. Develop PH threat definition and recommendations  
8. Submit final PH investigation report. | - Investigation strategies and methods  
- Case report  
- Surveillance report  
- Investigation tools | - Investigation samples  
- Investigation strategy  
- Final investigation report  
- Next steps | - Disease identified  
- All suspect cases/contacts are investigated appropriately in a timely manner |

*Bold items represent the final Output for the process. All others are Output throughout the process.*
### 6.1.1 Initiate Alerts Business Process Matrix – Redesign

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intervene</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiate Alerts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|                  | Ensure real-time notification of designated LHI or provider community of a need for action, heightened awareness, or news update that affects their work. | Quickly, accurately and with certainty, communicate information with selected recipients | ● CDC alert rules for confirmation of dissemination.  
● Notifiable Lab reporting rules. | Distribution of CDC HAN message / Identify need for alert message | 1. Identify need for alert.  
2. Determine alert audience.  
3. Format and send alert.  
4. Receive alert.  
5. Send confirmation. | ● Information from other processes | ● Recipient list  
● Alert message  
● File alert message | ● Time to pick up alert and number of recipients that picked up alert |
6.2 Initiate Alerts Context Diagram – Original
6.2 Initiate Alerts Context Diagram – Redesign
6.3 Initiate Alerts Task Flow 1 of 2 - Original

See notes below
1A. Identify Need for Alert Message
- The HAN coordinator will use a state template for health alerts to create an incident-specific message for the alert.

1B. Distribute HAN Message
- The message is distributed by the CDC to those who are a part of the Health Alert Network.
- The typical mode of communication is via email, which directs recipients to a secure website to view the alert details. The CDC also posts the message on their external website.
- The HAN Coordinator at the local or state public health department receives the HAN Message. In some cases, other public health employees will receive the message, if they are a part of the HAN.

2. Determine Recipient List
- The audience and list of recipients for the alert message is determined.

3. Select & Complete Alert Template
- The HAN coordinator may use a state template for health alerts to create an incident-specific message for the alert.

4. Evaluate Message
- The HAN Coordinator will determine the impact of the message on the local or public health department.
- The question to answer is whether the message impacts the state or region.

5. Distribute Alert Message for Review
- The alert message is usually sent to the public health department incident-specific subject matter experts for review and input.

6. Receive and Review Alert Message, 7. Approve Alert Message?
- The Subject Matter Experts receive the message and interpret it as necessary.
- The message may then be approved for distribution within the affected jurisdiction.

8. Provide Content Change
- The Subject Matter Experts will suggest changes to the message to clarify and/or improve it in other ways.

9. Update Alert Message
- If there are changes requested by the Subject Matter Experts, the HAN Coordinator will make the requested changes.

10. Assign Alert Level
- The level of alert assigned impacts the state or region and helps determine method and timing of disseminating information about alert. Levels may include:
  - Health Alert - conveys the highest level of importance; warrants immediate action or attention.
  - Health Advisory - Provides important information for a specific incident or situation; may not require immediate action.
  - Health Update - Provides updated information regarding an incident or situation; unlikely to require immediate action.

11. Finalize Alert Message
- In some cases, the HAN Coordinator will adjust the message to be more specific to the state or local jurisdiction. This activity involves applying the state-specific template details to the alert message. For example, applying the state symbol on the alert message document.

12. Determine Communication Method
- Determine the appropriate communication method to be used in the distribution of the alert message.

13. Submit for Approval
- The Alert message and method of distribution must be approved by a person of authority.

14. Review Alert Message, 15. Approve?
- If YES: Then move to determining the appropriate recipient list.
- If NO: Then go to adjusting the Alert Message.
6.3.1 Initiate Alerts Task Flow – 2 of 2 - Original

See notes below
<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Adjust Alert Message</td>
<td>Edit the message to address feedback from senior management.</td>
<td>Cultural and/or language adaptations may need to be made to message for some groups.</td>
</tr>
<tr>
<td>17. Distribute Alert Message</td>
<td>Use agreed-upon mechanisms for distributing message to send out the alert. If the alert is high, the media channels are able to broadcast the message immediately may be chosen.</td>
<td></td>
</tr>
<tr>
<td>18. Receive Alert Message</td>
<td>The recipients may or may not be able to acknowledge the receipt of the Alert Message.</td>
<td></td>
</tr>
<tr>
<td>19. Acknowledge Receipt of Message</td>
<td>The HAN coordinator may monitor which recipients received the message.</td>
<td></td>
</tr>
<tr>
<td>20. Assess Message Impact</td>
<td>When possible, the effectiveness of the alert message should be evaluated.</td>
<td>Changes in behavior after the dissemination of the alert may be noted.</td>
</tr>
<tr>
<td>22. File Alert Message</td>
<td>The alert-related report and message are filed in a database for future reference.</td>
<td>In some cases, they could also be Risk Communication performed.</td>
</tr>
</tbody>
</table>
6.3.2 Initiate Alerts Task Flow – Redesign

See notes below
1. Identify Need for Alert
- The need for an alert is triggered by the presence of a public health threat or the need to send a communication to key individuals, groups and/or organizations.

2. Determine Audience Groups
- Each alert message requires a specific set of audience members to receive the communication.

3. Assign Alert Level
- Depending on the severity of the message, an alert level is determined and assigned.
- The level of alert assigned impacts the actions to be taken by the recipients and helps determine method and timing of disseminating information about alert. Levels may include:
  - Health Alert - conveys the highest level of importance; warrants immediate action or attention.
  - Health Advisory - Provides important information for a specific incident or situation; may not require immediate action.
  - Health Update - Provides updated information regarding an incident or situation; unlikely to require immediate action.

4. Format Alert
- The alert message content is created. In some cases, a template is applied that may match the communication.
- The alert message will be reviewed and approved by the appropriate person of authority. This may also involve determining how the message will impact public health.
- In some cases, the message will also need to be translated to the appropriate languages.
- In addition, the appropriate message channel and format is selected.

5. Send Alert
- The alert message is distributed to the appropriate audiences.

6. Receipt Confirmation Requested?
- Is the Receiver required to send a response to the Sender that the message was received?

7. Wait for Confirmation
- The Sender will wait for the Receiver to submit a receipt request from the Receiver.

8. Confirmation Received?
- Has the message receipt been received by the Sender?

9. Resend Alert Message
- If the Receiver has not responded in an acceptable amount of time, then the Sender will resend the message.

10. Receive Alert
- The alert message is received by the Receiver.

11. Review Alert
- The Receiver determines the appropriate action to take based upon the alert.

12. Requested to Send Confirmation?
- In some cases, the Receiver is not required to send a confirmation to the Sender. In other cases, they are required to. This is usually determined by the severity and action needed by the alert.

13. Send Confirmation
- In cases where confirmation is required, the Receiver submits a confirmation message to the Sender.
7.0 Develop and Report Situational Information

The Develop and Report Situational Information business process involves gathering, analyzing, and reporting incident-specific information, and occurs on an ongoing basis until the incident has ended. Situational information is used to develop incident response plans. The business process may be triggered by the following preparedness business processes: Conduct Syndromic Surveillance, Conduct Notifiable Disease Surveillance, Conduct Active Surveillance, and Conduct Public Health Investigation. Ideally, this business process is triggered by one of the business processes in the Monitor group, when an unusual result or incident triggers the development of a concise set of information which is used for planning. This initial assembling of information may be informal, with the Develop and Report Situational Awareness process not being visible in a formal way until later in the response.

7.1 Develop and Report Situational Information Business Process Matrix

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| **Develop and Report Situational Information** | Decrease the time needed to identify causes, risk factors, and appropriate interventions for those affected by threats to the public’s health. Mitigate or diminish the negative health effects of incidents requiring public health intervention. | Generate sufficient, timely and appropriate situational information as to support effective management of the incident | • NIMS (ICS)  
• Date Sharing agreements  
• Legislation  
• IT standard  
• State and local policies  
• Data systems requirements  
• Communications standards and protocols  
• CDC ASTHO, NACCHO and CSTE Guidelines  
• Analytical protocols  
• Emergency response plans, protocols and guidelines  
• Systems architecture protocols  
• Contributing partner plans, protocols and standards | Identify public health emergency | 1. Identify public health emergency  
2. Receive situational data  
3. Analyze situational data  
4. Develop & distribute situational report | • Incident command structure  
• Technical infrastructure  
• Data management tools and protocols  
• Emergency plans  
• Data sharing agreement  
• Data system requirements | • Public health situation report  
• Incident situation data management plan  
• **Incident action report** | • Conforms to format of NIMS Form 209, and IAP 215 A within X minutes in accordance with the IAP  
• Provides timely, accurate and comprehensive situation information to those managing public health and related interventions. |
7.2 Develop and Report Situational Information Context Diagram
### 7.3 Develop and Report Situational Information Task Flow

<table>
<thead>
<tr>
<th>Step</th>
<th>Task Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identify Public Health Event</td>
</tr>
<tr>
<td>2.</td>
<td>Develop Data Collection &amp; Analysis Plan</td>
</tr>
<tr>
<td>3.</td>
<td>Receive Situational Data</td>
</tr>
<tr>
<td>4.</td>
<td>Analyze Situational Data Surveillance</td>
</tr>
<tr>
<td>5.</td>
<td>Develop and Approve Situational Report</td>
</tr>
<tr>
<td>6.</td>
<td>Distribute Situational Report</td>
</tr>
<tr>
<td>7.</td>
<td>Determine if Incident has Ended</td>
</tr>
<tr>
<td>8.</td>
<td>Incident Ended?</td>
</tr>
<tr>
<td>9.</td>
<td>Develop Final Situational Report</td>
</tr>
</tbody>
</table>

#### 1. Identify Public Health Event
This process is usually triggered by a potential public health emergency.

#### 2. Develop Data Collection & Analysis Plan
- A data collection and analysis plan is put together with input from subject matter experts.
- In addition, it may call upon the initiation of the emergency operations center.

#### 3. Receive Situational Data
- In the event that a Public Health Threat is identified, then Public Health Emergency Management will develop a data management plan to collect and analyze specific incident data.
- The plan also determines the technical infrastructure, specific data requirements, available resources, and data collection / management tools.
- On an on-going basis, often daily, surveillance data reports are submitted to Public Health Situation Unit.

#### 4. Analyze Situational Data Surveillance
- Data that is received is routinely analyzed for changes that may be related to the PH emergency
- Data analysis is done and documented to include in reports back to the EOC.
- If analysis of the surveillance data indicates a public health threat (incident), then Public Health Emergency Management will take the appropriate next steps.

#### 5. Develop and Approve Situational Report
- A Public Health Situational Report is prepared, based upon information received and analysis performed. This report describes the current state of the incident.
- The contents and elements of the Situational Report may change to reflect the evolving nature of the incident

#### 6. Distribute Situational Report
- The Situational Report is continually distributed to the appropriate partners until the specific incident has concluded – Public Health Emergency Management and others.

#### 7. Determine if Incident has Ended
- As ongoing situational data is collected, analyzed and reported on, eventually the incident is resolved and Public Health Emergency Management will determine if the cycle should continue or end.
- If the Situation Reporting Cycle ends, then a report is distributed to partners, especially healthcare systems organizations.

#### 8. Incident Ended?
- IF YES: Then situational reporting ends.
- IF NO: Then Emergency Management will continue to receive situational data.

#### 9. Develop Final Situational Report
8.0 Manage Resources

The Manage Resources business process defines the activities performed during an incident, related to requesting, mobilizing, and tracking resources. Resources can include staff, volunteers, supplies, and equipment. The workgroup recognizes that there are many important activities that are performed prior to and following an incident to support this process.
# 8.1 Manage Resources Business Process Matrix

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| Manage Resources | The timely provision of resources necessary to protect population health and minimize the public health impact of a hazard. | - Receive and process valid and accurate resource requests expeditiously.  
- Identify, locate and acquire requested resources in requested time.  
- Ensure the transportation of resource to the site of operations or staging in a timely manner. | - Federal regulations  
- State and local laws  
- Emergency Management Plans  
- Any plan specific to a countermeasure (e.g. storage and handling of vaccines, controlled substances);  
- Restrictions on access to sensitive information (i.e., Rx caches)  
- NIMS: Resource Typing | Incident occurs (from the perspective that resource planning has occurred pre-incident). | 1. Incident occurs  
2. Request resources  
3. Fulfill resource order  
4. Check-in resources  
5. Mobilize, track and report on resources  
6. Recover resources | - Incident Action Plan  
- Resources (e.g., volunteers, department staff, syringes, strategic national stockpile material, donated goods)  
- Plan for resource allocation  
- All hazards plan | - Resources received  
- Resources deployed  
- Resources tracked  
- Evaluate and de-mobilize resources | - Requested assets delivered within timelines and within resource boundaries  
- Assignment and deployment of trained staff  
- Fulfillment of material request within time allotted and within fiscal boundaries  
- Sufficient countermeasures delivered to appropriate locations within required time frame |

*Bold items represent the final Output for the process. All others are Output throughout the process.*
8.2 Manage Resources Context Diagram
8.3 Manage Resources Task Flow – 1 of 1

See notes below
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Operational Period Begins</strong></td>
<td></td>
</tr>
<tr>
<td><strong>2. Request Resources</strong></td>
<td></td>
</tr>
<tr>
<td>• Upon an incident occurring, the Incident Commander will request the needed resources.</td>
<td></td>
</tr>
<tr>
<td><strong>3. Public Health Resources Needed?</strong></td>
<td></td>
</tr>
<tr>
<td>• Requests for items that the IC cannot obtain locally are submitted through the local EOC using standardized resource-ordering procedures. If the servicing EOC is unable to fill the order locally, the order is forwarded to the next level—generally an adjacent local, State, regional EOC, or multiagency coordination entity.</td>
<td></td>
</tr>
<tr>
<td>• For non-localized resources, the Incident Commander may request public health to provide resources.</td>
<td></td>
</tr>
<tr>
<td><strong>4. Validate Resource Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>• Resource managers identify, refine, and validate resource requirements throughout the incident life cycle. This activity involves accurately identifying, what and how much is needed, where and when it is needed, and who will be receiving or using it. Resources to be identified in this way include supplies, equipment, facilities, and incident management personnel and/or emergency response teams.</td>
<td></td>
</tr>
<tr>
<td>• If a requestor is unable to describe an item by resource type or classification system, resource managers provide technical advice to enable the requirements to be defined and translated into a specification.</td>
<td></td>
</tr>
<tr>
<td>• Public health will meet the resource requirements by starting locally, then looking state-wide, and finally federally.</td>
<td></td>
</tr>
<tr>
<td><strong>5. Resources Local?</strong></td>
<td></td>
</tr>
<tr>
<td>• The Resource Manager determines if the requested resources can be found in the warehouse or need to be ordered on-demand.</td>
<td></td>
</tr>
<tr>
<td><strong>6. Order Resources On-Demand</strong></td>
<td></td>
</tr>
<tr>
<td>• The appropriate resources are ordered on-demand, based upon the IC’s request and requirements.</td>
<td></td>
</tr>
<tr>
<td><strong>7. Fulfill Order Request</strong></td>
<td></td>
</tr>
<tr>
<td>• The resources are fulfilled, whether warehouse or on-demand items, and distributed to the Coordinating Entity.</td>
<td></td>
</tr>
<tr>
<td><strong>8. Check-in Resources</strong></td>
<td></td>
</tr>
<tr>
<td>• When resources arrive on scene, they must formally check in, which typically occurs at the staging area. This starts the on-scene in-processing and validates the order requirements.</td>
<td></td>
</tr>
<tr>
<td><strong>9. Mobilize Resources</strong></td>
<td></td>
</tr>
<tr>
<td>• Incident personnel begin mobilizing when notified through established channels.</td>
<td></td>
</tr>
<tr>
<td>• At the time of notification, they are given the date, time, and place of departure; mode of transportation to the incident; estimated date and time of arrival; reporting location (address, contact name, and phone number); anticipated incident assignment; anticipated duration of deployment; resource order number; incident number; and applicable cost and funding codes.</td>
<td></td>
</tr>
<tr>
<td>• For resource managers, the mobilization process may include equipping, training, and/or inoculating personnel; designating assembly points that have facilities suitable for logistical support; and obtaining transportation to deliver resources to the incident most quickly, in line with priorities and budgets.</td>
<td></td>
</tr>
<tr>
<td><strong>10. Track and Report Resources</strong></td>
<td></td>
</tr>
<tr>
<td>• Resource tracking is a standardized, integrated process conducted throughout the life cycle of an incident by all agencies at all levels.</td>
<td></td>
</tr>
<tr>
<td>• Coordinating Entities use established procedures to track resources continuously from mobilization through demobilization.</td>
<td></td>
</tr>
<tr>
<td>• Tracking resources throughout the incident lifecycle, allows for accurate and timely reporting.</td>
<td></td>
</tr>
<tr>
<td><strong>11. Additional Resources Needed?</strong></td>
<td></td>
</tr>
<tr>
<td>• As the incident progresses, the Coordinating Entity may determine that additional resources are needed to combat the incident. The first place to look in determining this is at the Incident Action Plan.</td>
<td></td>
</tr>
<tr>
<td><strong>12. Incident Over?</strong></td>
<td></td>
</tr>
<tr>
<td>• Where additional resources are not needed, the likely next step is that the incident has ended.</td>
<td></td>
</tr>
</tbody>
</table>
9.0 Develop and Initiate Risk Communication

The purpose of the Develop and Initiate Risk Communication business process during a Public Health Emergency is to rapidly provide the public, healthcare providers, policymakers, and the media with access to accurate, consistent, and comprehensive information about the outbreak or event, and the management of the situation. The intent is to minimize misinformation, panic, and adverse events.
### 9.1 Develop and Initiate Risk Communication Business Process Matrix

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| Develop and Initiate Risk        | A public that has the information needed to protect its health and    | Develop and deliver accurate, consistent, accessible, and timely messages  | • Incident Command System (ICS)  
• Incident Action Plan (IAP)  
• Joint Information Center (JIC) roles and responsibilities  
• Messaging guidelines  
• Budget  
• Legal constraints | Directive to develop risk communication                              | 1. Directive to develop risk communication  
2. Establish core communications team  
3. Prepare incident message  
4. Distribute communication directives  
5. Submit communications  
6. Monitor communication  
7. Prepare assessment | • Incident information  
• Existing risk communication s | • Incident communication  
• Prepare communication assessment | • Public health messages communicated via selected modes within X hours of directive to begin  
• Call center or hotline setup and staffed within X hours of deployment decision  
• Wait time for hotline callers is 1 minute or less; X percent of individuals directed to take protective action do so  
• Content of media reports is X percent accurate regarding core message(s) |

*Bold items represent the final Output for the process. All others are Output throughout the process.*
9.2 Develop and Initiate Risk Communication Context Diagram
9.3 Develop and Initiate Risk Communication Task Flow – 1 of 2

See notes below
<table>
<thead>
<tr>
<th></th>
<th>Identify Need for Risk Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Standing directives may result in communication protocols.</td>
</tr>
<tr>
<td>2.</td>
<td>Brief Key Officials</td>
</tr>
<tr>
<td>3.</td>
<td>Review Incident Information</td>
</tr>
<tr>
<td></td>
<td>• The Information Officer will review the scope and parameters of the event or outbreak as described in the comments, such as surveillance and investigation reports and/or Directive.</td>
</tr>
<tr>
<td>4.</td>
<td>Establish Core Communications Team</td>
</tr>
<tr>
<td></td>
<td>• A Core Communications Team is established to develop the risk communications to be disseminated. This team is usually led by an Information Officer or JIC (Joint Information Center) Manager.</td>
</tr>
<tr>
<td></td>
<td>• Situation-specific content experts may be brought in to brief the team as needed.</td>
</tr>
<tr>
<td></td>
<td>• The Communications Team may be a standing team or an ad hoc team convened to address the specific focus of the Risk Communication. The team will likely include experts from IT.</td>
</tr>
<tr>
<td>5.</td>
<td>Define Characteristics of Target Audiences</td>
</tr>
<tr>
<td></td>
<td>• Identify people impacted by the event or outbreak who will be the target audience. There may be multiple targeted audiences, and multiple messages that should be consistent.</td>
</tr>
<tr>
<td></td>
<td>• Assess demographics, communication needs, cultural/language issues, media most likely to be used, etc. of target audience.</td>
</tr>
<tr>
<td>6.</td>
<td>Review Existing Risk Communications</td>
</tr>
<tr>
<td></td>
<td>• Determine the adequacy of available risk communications for the current situation.</td>
</tr>
<tr>
<td></td>
<td>• If a similar situation has occurred and risk communications have been developed, tested, and are deemed effective for the current situation, they may be used or modified for use.</td>
</tr>
<tr>
<td></td>
<td>• If appropriate and/or risk communications messages for the current situation are not available, new messages must be developed that are situation-specific.</td>
</tr>
<tr>
<td>7.</td>
<td>Use Existing Risk Communications?</td>
</tr>
<tr>
<td></td>
<td>• IF YES: then review the incident communication.</td>
</tr>
<tr>
<td></td>
<td>• IF NO: then prepare a new incident message.</td>
</tr>
<tr>
<td>8.</td>
<td>Prepare Incident-Specific Message</td>
</tr>
<tr>
<td></td>
<td>• Existing risk communications may be used as a template and modified to be more appropriate for the current situation.</td>
</tr>
<tr>
<td></td>
<td>• Information / guidelines particular to the DOH where the situation occurs may be used.</td>
</tr>
<tr>
<td></td>
<td>• Information sources and external content experts may be consulted to help develop and refine risk communications.</td>
</tr>
<tr>
<td>9.</td>
<td>Work with Consultants?</td>
</tr>
<tr>
<td></td>
<td>• IF YES: go on to Step 9</td>
</tr>
<tr>
<td>10.</td>
<td>Review Message</td>
</tr>
<tr>
<td></td>
<td>• Risk communications appropriate for varying comprehension levels and roles in the health community may need to be developed.</td>
</tr>
<tr>
<td></td>
<td>• Cultural and language issues may need to be addressed for the target audience.</td>
</tr>
<tr>
<td></td>
<td>• As the situation requiring risk communication changes, the message may also need to change. Experts may also recommend modalities to reach the target audience.</td>
</tr>
<tr>
<td></td>
<td>• If time permits, the Risk communications may then be tested with a test group, whose feedback and response can be used to refine the risk communication.</td>
</tr>
<tr>
<td></td>
<td>• Subject matter experts review content for message accuracy and consistency.</td>
</tr>
<tr>
<td>11.</td>
<td>Review Incident Communications</td>
</tr>
<tr>
<td></td>
<td>• Share and the draft risk communication with Senior Management for feedback and approval.</td>
</tr>
<tr>
<td>12.</td>
<td>Approve?</td>
</tr>
<tr>
<td></td>
<td>• IF YES: then distribute the communication directive.</td>
</tr>
<tr>
<td></td>
<td>• IF NO: then refine the incident message.</td>
</tr>
</tbody>
</table>
9.3.1 Develop and Initiate Risk Communication Task Flow – 2 of 2

13. Identify the Spokesperson
   - The agency will select the most credible spokesperson to deliver the message, whenever this is feasible. For example, doctors and nurses may be the most credible spokespersons for messages related to health care.

14. Submit Communication to Outlets
   - Appropriate communications are submitted to the media outlet channels.

15. Monitor Communication Outlets
   - To measure effectiveness and accuracy of the interpretation of the risk communication, the Core Communications Team may monitor various communications outlets. These may include; mass media reports, internet blogs, phone calls from the public, etc.

16. Receive & Review Message Inquiries
   - After the risk communications are disseminated, the public and/or health professionals may request more information
   - The risk communications may be amended as part of regular updates on the incident are received.
   - If the evaluation done in Step 13 reveals a lack of effectiveness and/or reception of the risk communication, changes may need to be made.

17. Updates Needed?
   - IF YES: then refine the communication message appropriately.
   - IF NO: then move on to briefing key officials.

18. Brief Key Officials
   - The core team may give periodic briefs to key partners, such as elected officials, other health departments, local, county, state and federal agencies, and senior management.
   - These briefs may include information about the content, form, and modes of the risk communications, progress in communicating the risks, and feedback from the public.

19. Prepare Assessment
   - A Report on the Effectiveness of the Risk Communications will be completed when the situation requiring it is resolved. Included in the report will be background information, methods used, effects of the communications, feedback received, recommendations for future similar situations, and conclusions.
   - The Report on the Effectiveness of the Risk Communications will be distributed to all appropriate partners involved in the process.
10.0 Administer Medical Countermeasures

Administer Medical Countermeasures as used in this business process includes the deployment and tracking of vaccines, drugs, therapies, and diagnostic tools for public health and medical emergencies. Countermeasures include vaccination and other types of drug prophylaxis, as well as non-drug actions such as patient follow up activities and isolation and quarantine monitoring (http://www.cdc.gov/phn/library/documents/pdf/CRA_RSv1.0.pdf). Depending upon the type of incident, any of the entities involved in disaster preparedness and response may be involved in the activities described in this business process. The Common Ground collaborative is focused particularly on public health.
### 10.1 Administer Medical Countermeasures Business Process Matrix

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
</table>
| Administer Medical Countermeasures | Mitigate negative health effects caused by any emergency with significant public health threats — wherein medical countermeasure are deemed appropriate. | Administer adequate public health countermeasures to a population at risk in a timely, efficient and effective manner as defined in the Incident Management Plan. | • Communicable disease control best practices and standards; food and environmental safety standards  
• ACIP protocols  
• CEMP  
• TEMP  
• Investigational New Drug protocol (FDA)  
• Cities Readiness Initiative (CRI)  
• Biohazard Detection System  
• Points of Distribution (PODs) design  
• Inspection guidelines  
• Strategic National Stockpile Plan (SNS)  
• State and Local Preparedness Plans.  
• Scope of Practice – often set by state regulatory bodies regarding who can prescribe/who can dispense/who can administer | Identification of public health risks that can be mitigated by implementation of medical countermeasures. | 1. Review plans / protocols  
2. Review policies / directives  
3. Develop Incident Action Plan  
4. Mobilize MCMs IAP  
5. Communicate with partners  
6. Deploy assets  
7. Activate sites  
8. Activate asset tracking software  
9. Notify constituents and customers  
10. Institute community interventions  
11. Conduct medical countermeasures activities  
12. Conduct periodic evaluation  
13. Modify IAP as needed | • SNS Inventory  
• Chempack  
• State pharmaceutical cache  
• ESAR-VHP database  
• Site maps  
• Transportation routes  
• Distribution vehicle inventory  
• Road conditions  
• Staff assignment logs  
• Vaccine / therapy guidelines  
• OSHA Rules  
• Policy directives  
• Incident Action Plan  
• Job Action Sheets on-site safety complaints/issues logs. | • HAN(s)  
• News releases  
• Updated inventories  
• Staffing reports  
• Encounter reports / summaries  
• Adverse event reports  
• Safety logs  
• Distribution reports (shipped / received)  
• Site schedules  
• Vaccine and Rx follow-up reports  
• Security reports  
• Modified IAPs  
• After action reports  
• Distribution site status reports | • Expected v. actual cases  
• Medical countermeasures IAP developed within X hours of decision to employ MCM  
• Mobilization of MCM IAP  
• Communication with X% of partners within Y hrs of mobilization order (i.e. X% of intended/req’d Health Alert recipients received HAN(s) within Y hrs of mobilization order  
• X% of asset management personnel notified to deploy within Y hrs of mobilization order  
• X% of required human assets deployed within Y hrs of deployment notification / mobilization order  
• X% of req’d medical assets deployed within Y hrs of deployment notification / mobilization order  
• X% sites activated within Y hrs |
<table>
<thead>
<tr>
<th>Business Process</th>
<th>Goals</th>
<th>Objectives</th>
<th>Business Rules</th>
<th>Trigger</th>
<th>Task Set</th>
<th>Inputs</th>
<th>Output*</th>
<th>Measurable Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*Bold items represent the final Output for the process. All others are Output throughout the process.</td>
</tr>
</tbody>
</table>

- Asset tracking software activated within Y hrs of mobilization order
- X% of constituents notified within Y hrs of mobilization order
- Statewide public emergency broadcast made within Y hrs of mobilization order
- 95% of the target pop receives vaccine or therapy within 24 hours
- Periodic evaluations conducted every Y hrs
- X% of assets replenished within Y hours/ days/ weeks of deactivation order
- Completeness of data collection
- Absence of injury risk
- Injuries
- Effectively treated within X hours.
- Shelters inspected every X hours; # of injuries/illnesses occurring in shelters
10.2 Administer Medical Countermeasures Context Diagram
10.3 Administer Medical Countermeasures Task Flow – 1 of 2

See notes below
1. Identify Need to Deploy Medical Countermeasures (MCMs)
   - A need for medical countermeasures is determined by the occurrence of a PH emergency that necessitates medical treatment to reduce morbidity and/or mortality resulting from the outbreak, incident, or event.
   - Medical countermeasures might involve local resources and caches, mutual aid at the regional or state level, SNS. The type of incident or event will determine where medical countermeasures come from.
   - The decision to deploy MCMs includes tasks to acquire needed resources and supplies and may involve getting the approval for accessing the Strategic National Stockpile (SNS).
   - Need for MCM may be triggered by other Preparedness business processes (BP): Conduct Notifiable Disease Surveillance, Conduct Syndromic Surveillance, Conduct PH Investigation, and Develop Situational Information

2. Determine MCM Approach, 3. Approach Available?
   - The type of incident will determine what is needed, where MCMs are needed, how and when the MCM should be dispensed, and to whom. Each of these will factor into the decisions involved in determining the MCM approach.

3. Approach Available?
   - Current identified approaches for acquiring vaccines, for instance, may include accessing the SNS, Chempack, and/or other state or locally held pharmaceutical caches, vaccine stores, etc.

4. Develop New MCM Approach
   - Determine the adequacy of existing MCM approaches for the incident and decide if a new approach needs to be developed.
   - Decision to deploy SNS is included in this evaluation, which will involve the request and authorization.
   - This also includes determining if the available resources are adequate.

5. Notify Appropriate Partners
   - The medical countermeasure approach and protocols are shared with the appropriate partners.

6. Deploy MCM
   - Deploying MCMs is complex, where actual dispensing and administering involves a lot of decisions and steps.

7. Conduct Performance Assessment
   - Deploying the medical countermeasures to the appropriate site may result in the business processes of transportation, security, risk assessment, risk communication and staffing.

8. Monitor Effects of MCM
   - An ongoing part of the process is to determine the effectiveness and efficiency of the use of medical countermeasures related to the incident.
   - These ongoing assessments may result in modifications to existing or customized protocols and procedures.

9. Effects Acceptable?
   - If YES: then determine if the deployment should be terminated.
   - IF NO: then go back to adjust the MCM Approach.
10.3.1 Administer Medical Countermeasures Task Flow – 2 of 2

10. Terminate Deployment?
- IF YES: then terminate the MCM deployment.
- IF NO: then continue deploying the MCMs.

11. Terminate MCM Deployment
- The decision to terminate or continue MCM deployment is based on the effectiveness of the MCM and the degree and number of adverse events related to the MCM.
- Termination of MCM may also be determined by availability of resources (e.g. vaccines, pharmaceuticals, etc.), human resources, changes in federal strategy, resolution of an incident, etc.

12. Notify Partners
- Upon termination of the MCM deployment, the appropriate partners will be notified.

13. Execute Recovery Plans
- After termination of MCM deployment, Emergency Management will initiate the recovery strategy to return to normal operations.

14. Develop MCM Report on Deployment and Results
- The MCM Deployment Report will include data that will summarize the MCM process, effects of MCM on those receiving MCM, and outcome of the event or outbreak.
- Included in the report will be background information, methodology, results of analysis, adverse events, recommendations for future similar situations, and conclusions. Citations of resources used are included.
- In some cases, a final report may be submitted to state and/or federal agencies.