Requirements for Public Health Preparedness Information Systems

Common Ground:
A National Program of the Robert Wood Johnson Foundation

Public Health
Informatics Institute

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Table of Contents

Executive Summary

Defining requirements is a critical step in developing or acquiring an information system. If the requirements are not correctly and clearly defined, the system will not meet the needs of its users. With public health-defined requirements, agencies will be able to acquire software that is tailored to their own needs, making their work more efficient and effective.

The Common Ground Project was designed to assist chronic disease and preparedness departments in public health agencies to document and define business processes common to each of them, and to identify the requirements for information systems to effectively support these processes. Nine chronic disease programs and six preparedness programs from local and state health agencies collaborated to develop common descriptions of their business processes, and to identify the requirements for information systems to support these processes. The following document summarizes the work of the Preparedness Workgroup. Information from the Preparedness Workgroup is available on the Public Health Informatics Institute (the Institute) website (www.phii.org).

This document is designed to be both a roadmap and a tool. It is a roadmap for moving public health agencies toward developing information systems that will support their work in more effective and efficient ways. It can also help with structuring and implementing topic-specific information system projects and creating comprehensive vendor requests for proposals (RFPs). In addition, this document describes the Public Health Informatics Institute's collaborative approach to performing business process analysis and redesign, the roles of collaborative partners, and key lessons learned, including the importance of engaging system users from the beginning of the development process.

Sections I through IV present details on public health preparedness business processes, and requirements for the information systems needed to support them, as follows:

1. Development of a conceptual framework for the work performed in a preparedness program (Section I).

2. A framework that shows the interdependencies of the business processes (Section II).

3. Delineation of requirements for each business process (Section III).

4. Delineation of vendor-related requirements commonly found in requests for proposals (Section IV).

The Vision

This publication outlines a set of requirements specific to the **Common Ground Preparedness Project** that can be used to inform the purchase, enhancement, or development of information systems that will more effectively and efficiently support preparedness work and make it easier to share preparedness information within public health and among its partners in the health system.

For the purposes of this document, a **requirement** is defined as "a statement that describes what information systems should do to successfully support the activities that comprise a business process." This document does not contain technical specifications for those requirements. It is designed to enable public health agencies to clearly define their information management needs, which will enable vendors and IT departments to design systems to effectively meet those needs.

Background

State and local public health agencies must have timely, accurate, and appropriate information to effectively serve their communities, to promote health, and to make lifesaving decisions that protect the public from health threats. Many public health agencies are examining their existing information systems and seeking to improve their ability to detect, assess, and respond to a range of threats to the public, including infectious diseases; pandemics, such as avian and H1N1 influenza; bioterrorism; and chronic diseases like obesity, diabetes, and asthma. However, current public health information systems often fail to meet their agencies' operational needs and do not provide interconnectivity with other public health agencies or their partners in the healthcare system who perform functions critical for promoting and protecting the public's health.

The Robert Wood Johnson Foundation (RWJF) seeks to strengthen the ability of state and local public health agencies to prevent and respond to threats to the public's health. RWJF recognizes the need for more sophisticated information systems to equip public health agencies to meet the population health challenges they face in the 21st century. To that end, RWJF seeks to change how public health information systems are conceived and developed by transforming from a stand-alone requirements development environment to one in which stakeholders act collaboratively to define requirements for systems that meet the needs of public health agencies and the public they serve.

The Institute has developed a cost-effective and rational approach to developing requirements for effective health information systems. The Institute's equips public health agencies to work together to:

- Analyze their business processes by collaboratively thinking through the tasks they perform to meet specific public health objectives

- Redesign their business processes by rethinking the tasks to increase effectiveness and efficiency

- Define functional requirements by articulating what the information system must do to effectively support those tasks

This approach, called the "Collaborative Requirements Development Methodology," produces a set of information system requirements that are based on common business process definitions, but that can be tailored to meet individual agency needs. With access to consensus-based business process definitions and requirements available, individual public health departments will no longer need to reinvent the wheel when defining their information system needs.

Public health agencies are expected to use sophisticated information technologies effectively to detect, assess, and respond to public health challenges. A collaborative approach to requirements development enables public health agencies to reach agreement on a common vocabulary and descriptions of their business processes. This approach provides opportunities for agencies to review the ways in which they

carry out core business activities, and to collaboratively redesign those processes to improve quality and performance and promote interoperability of systems. Broad adoption and endorsement of those process definitions will advance public health's ability to define information system requirements that meet the needs of many states and communities. Widely-endorsed requirements increase the likelihood that vendors will step up to build products that meet the specific needs of the public health market. Finally, broad adoption of uniform information system requirements will provide public health agencies with the evidence necessary to gain financial support for acquiring systems that align with their strategic goals and core services.

The Collaborative Partners

In this document, the partners involved in the Common Ground Preparedness Project are referred to as the "Collaborative." Profiles of these partners follow.

Public Health Informatics Institute (the Institute)
The Institute is an independent, nonprofit organization dedicated to improving health outcomes worldwide by transforming health practitioners' ability to apply information effectively. The Institute is a program of The Task Force for Global Health, whose mission is to promote collaboration in the public health arena in the key areas of informatics, neglected tropical disease control, child well-being and injury prevention.

Grantees from Preparedness Programs of State and Local Public Health Departments
Six public health agencies received funding from the Robert Wood Johnson Foundation (RWJF) to participate in this project. The preparedness programs must respond to a range of threats to the public's health and safety, including infectious diseases, pandemic flu, and bioterrorism. Responding to this wide range of natural as well as man-made events requires an "all hazards" design, which enables agencies to use their resources efficiently and effectively to address a broad range of events.

National Association of County and City Health Officials (NACCHO)
NACCHO is the national organization representing local health departments. NACCHO supports efforts that protect and improve the health of all people and all communities by promoting national policy, developing resources and programs, seeking health equity, and supporting effective local public health practice and systems.

Association of State and Territorial Health Officials (ASTHO)
ASTHO is the national non-profit organization representing the public health agencies of the United States, the U.S. Territories, and the District of Columbia, as well as the 120,000 public health professionals these agencies employ. ASTHO members, the chief health officials of these jurisdictions, are dedicated to formulating and influencing sound public health policy and to assuring excellence in state-based public health practice.

The benefits of Common Ground are available to preparedness programs in all state and local public health agencies, as the project demonstrates that public health agencies can act collectively to define a common set of requirements for preparedness information systems. These consensus-based requirements can be used by public health agencies nationwide to select or develop preparedness information systems. Such a collective approach promotes the behavior of public health as an "enterprise," thereby establishing a powerful consistency of voice in matters of public health policy, and constituting a cohesive market for vendor development of public-health targeted information systems, tailored to the specific needs of public health preparedness. The information, analyses and requirements developed by the Common Ground Preparedness Workgroup are available to all through the Public Health Informatics Institute, at www.phii.org.

Methodology

The analogy of building a house without an architectural plan is often used to illustrate the approach to information system development that is taken by many public health professionals—an approach that has led to myriad information systems creating data entry redundancy, difficulty in sharing data, and complexity in maintaining systems. The Common Ground Preparedness Project taught participating public health agencies how to apply the basic principles of the Collaborative Requirements Development Methodology (CRDM) 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 Preparedness Workgroup chose to develop the following business processes during the Common Ground national project:

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)

Defining requirements is a critical step in developing or acquiring any information system that will effectively support the work of the organization. Doing so involves analyzing how the work gets done by clearly defining the processes involved in order to describe the requirements for the way in which an information system should help to get the job done. If the requirements are not correctly defined, the system will not meet the needs of the users. The Common Ground Preparedness workgroup defined information system requirements related to their work, which will enable other preparedness programs to communicate with vendors and developers about how to meet their specific software needs, rather than having to buy off-the-shelf products that may not meet those needs, or settle for a vendor recommendation based on arbitrary likes or dislikes, as opposed to one based on product appropriateness.

Emphasizing business processes instead of specific information system services or software programs is a key principle of the CRDM. Consequently, the Common Ground Preparedness Project began with a high-level review of the business of preparedness management—its goals, objectives, customers, and organizational structure. Participants identified 31 business processes that provided the framework for defining workflows and outputs that could logically be supported by a preparedness information system. The workgroup developed requirements for 10 of the 31 processes identified.

A chronology of project workgroup and team activities is outlined in **Table 1**. System users were engaged from inception to completion of the project—an important element for success in requirements development. An outside group of subject matter experts reviewed workgroup products to ensure accuracy and completeness. The broader impact of the document will be determined by its recipients, which include other public health agencies, CDC leaders, and other public health stakeholders.

Date	Participants	Activity	Outcome
September 2008	PHII Project Team, Preparedness Workgroup Members	**Business Process Analysis**: Utilize business process analysis tools to describe the current workflow.	Business Process Matrix, Context Diagrams, Task Flow Diagrams
October – December 2008	PHII Project Team, Preparedness Workgroup Members	**Business Process Redesign**: Utilize business process analysis tools to redesign selected workflows in order to make them more efficient and effective.	Business Process Matrix, Context Diagrams, Task Flow Diagrams
January – July 2009	PHII Project Team, Preparedness Workgroup Members	**Requirements Definition**: Define a set of requirements that describes how information systems should support the work of each business process.	List of Information System Requirements for each business process

Table 1. Chronology of Preparedness Workgroup Activities

Lessons Learned

Insights and "lessons learned" emerged with each milestone of the project. The most significant are listed below:

Establishing process boundaries is essential
When engaging a large group to develop a series of work products, especially task flow diagrams, which illustrate the component tasks that make up a process, everyone in the group must have a common understanding of where the process STARTS and where the process ENDS. This understanding helps the group to maintain focus on the details that are between the boundaries.

Different management structures are supported by common activities
Different types of events, as well as different governing structures, impact the management system that is used. At times, the Incident Command Structure (ICS) was strictly followed, but at other times it was not even implemented. However, the activities that supported the management system were the same regardless of the management structure implemented.

Business Process Analysis

think
How do we do our work now?

- Define goals and objectives
- Model context of work
- Identify business rules
- Describe tasks and workflow
- Identify common task sets

Requirements Definition

describe
How can an information system support our work?

- Define specific tasks to be performed for optimized business processes
- Describe the implementation of business rules
- Describe in words and graphics how an information system must be structured
- Determine scope of next phase of activities

Business Process Redesign

rethink
How should we do our work?

- Examine tasks and workflow
- Identify inefficiencies
- Identify efficiencies with repeatable processes
- Refine business processes and business rules
- Remodel context of work
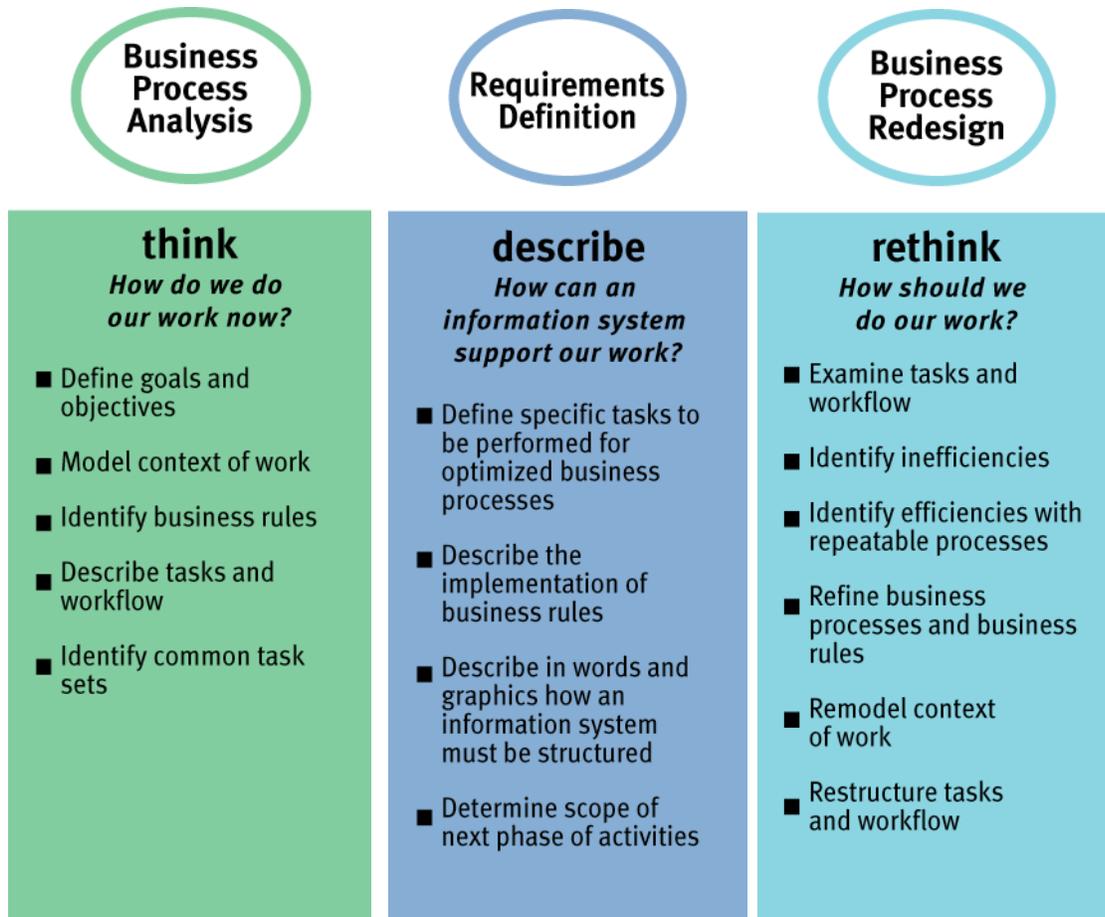- Restructure tasks and workflow

Table 2. Collaborative Requirements Development Methodology for the Common Ground Project

How to Use This Document

This document is designed to be a tool for helping state and local public health agencies acquire or develop information systems to support the work of preparedness programs. It is also meant to provide guidance for creating comprehensive vendor requests for proposals (RFPs). The document includes the following sections:

I. Business Process Descriptions. A high-level summary of the 11 business processes for which the participants in the Preparedness Workgroup collaboratively defined information system requirements.

II. Business Process Framework. A discussion of the relationship of each business process with the other business processes, including those for which the workgroup did not develop requirements. A diagram in this section provides a visual overview of these relationships to provide context for the individual task flows of each business process.

III. Requirements for Preparedness Information Systems. The detailed information system requirements collaboratively developed by the Preparedness Workgroup.

IV. Vendor-related Requirements. A list of elements a preparedness program should consider when using requirement specifications as the basis for an RFP.

V. Explanation of Terminology. A list of some of the terms specific to business process analysis and redesign, along with their definitions.

The requirements chosen by the workgroup for each business process are listed. If the same requirement is used in more than one business process, it is listed again. This way of presenting the requirements enables agencies to easily access the requirements for a specific business process, and to determine if there are other business processes in which they may apply. Users should also note that these requirements describe what is needed from an information system to support a business process; we do not attempt to identify existing software or systems that might meet those needs.

State and local health agencies are invited to modify this document as needed to address specific or unique requirements; for example, deleting business processes not under their jurisdiction. Agencies may also wish to further define or customize the templates presented in this document to ensure greater project success.

I. Business Process Descriptions

This section briefly describes ten business processes and their associated goals and objectives, which the workgroup determined to be critical to the work of public health preparedness, and therefore specifically relevant to the development of preparedness information systems. Not all preparedness business processes are identified here, but each of those represented is believed to be critical to the work of public health at the local, state, and national levels. These descriptions serve as the basis for delineation of the requirement specifications in Section III.

This document does not propose a physical solution for a preparedness information system; rather, it delineates requirement specifications that can be used as a basis for designing such a system. Users may package the requirements into modules or other physical implementation schemes, as desired.

1. Conduct Exercise to Evaluate Organizational Response Capacity

GOAL:

Ensure that a public health organization is able to provide emergency services in sufficient time and at a sufficient level in order to protect population health.

OBJECTIVES:

- To evaluate the ability of delivering a public health control measure in a timely manner.
- To identify and document areas for improvement following the event or response activity.
- To develop a plan that will address the improvement areas after the event or response activity.

2. Conduct Syndromic Surveillance

GOAL:

Timely identification and accurate monitoring of potential threats to public health.

OBJECTIVE:

To ensure the effective and efficient operation of a system for the management and analysis of timely, accurate and complete health-related data, which may precede diagnosis and signal a sufficient probability of a case or outbreak.

3. Conduct Notifiable Disease Surveillance

GOAL:

Timely identification and accurate monitoring of potential threats to public health.

OBJECTIVE:

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.

4. Conduct Active Surveillance

GOAL:

Timely identification and accurate monitoring of potential threats to public health and of health incidents.

OBJECTIVE:

To collect data and specimens to provide accurate, complete, and incident-specific information.

5. Conduct Public Health Investigation

GOAL:

Decrease the time needed to identify causes, risk factors, and appropriate interventions for those affected by threats to the public's health.

OBJECTIVE:

Identify the causative agent, mode of transmission, and population at risk, and recommend control measures with sufficient time remaining to protect the population at risk.

6. Initiate Alerts

GOAL:

Ensure real-time notification of designated LHJ or provider community of a need for action, heightened awareness, or news update that affects their work.

OBJECTIVE:

Quickly, accurately and with certainty, communicate information to selected recipients.

7. Develop and Report Situational Information

GOALS:

- 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.

OBJECTIVE:

Generate sufficient, timely and appropriate situational information so as to support effective management of the incident.

8. Manage Resources

GOAL:

The timely provision of resources necessary to protect population health and minimize the public health impact of a hazard.

OBJECTIVES:

- 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.

9. Develop and Initiate Risk Communication

GOAL:

A public that has the information needed to protect its health and welfare.

OBJECTIVE:

Develop and deliver accurate, consistent, accessible and timely messages to the public to inform about actions already taken and encourage appropriate actions for public to take in response to a verified or perceived health threat.

10. Administer Medical Countermeasures (MCMs)

GOAL:

Mitigate negative health effects caused by any emergency with significant public health threats – wherein medical countermeasures are deemed appropriate.

OBJECTIVE:

Administer adequate public health countermeasures to a population at risk in a timely, efficient and effective manner as defined in the Incident Management Plan.

II. Business Process Framework

Relationship of Inputs, Outputs and Business Processes

From an information system perspective, each business process can be described in terms of an input-process-output model. That is, certain inputs are required to enable the user to perform the business process to produce outputs that represent the completion of the tasks performed within the business process to achieve the process objective(s). In its simplest form, it can be represented as follows:

Figure 1. Relationships of Inputs, Outputs, and Business Processes

This model can be modified to further define inputs and outputs. In this case, the inputs and outputs are categorized as follows:
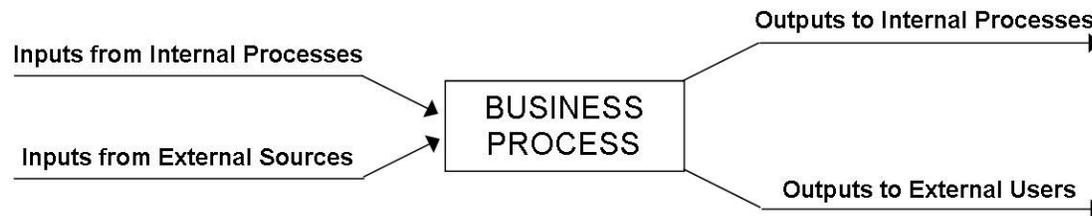
Figure 2. Model for Business Process Interdependencies in Preparedness Information Systems

The outputs associated with each business process are categorized in the business process interdependency descriptions that follow. Inputs to a preparedness program business process are categorized under the business process from which the input was received, in order to avoid duplication.

Business Process Interdependency Descriptions

The business process interdependencies represent exchanges of data sets between two business processes. Figure 3 describes the relationships between the all the business processes that the workgroup identified as the work of preparedness. This relationship is further defined later in this section for each of the ten business processes for which the workgroup developed requirements. The arrows in Figure 3 represent the interdependencies as modeled in Figures 1 and 2, above, with the arrow pointing in the direction of the interaction. Two-headed arrows indicate a two-way exchange of data.

In the following discussion, the interdependency has been stated on the output side only (that is, in association with the business process whose performance created the output), in order to eliminate redundant descriptions.

Some business processes can be grouped together because they are so closely linked that they share the same domain.

NOTE: *In the relationship descriptions, only the ten business processes for which the workgroup developed requirements are numbered.*

Figure 3. Interdependencies Between all Preparedness Program Business Processes.

Explanation of Interdependencies

1: Conduct Exercise to Evaluate Organizational Response Capacity provides output for the following business processes:

- Develop and Maintain All Hazard Management Plan

- Develop Workforce and Response Partners

- Mitigate Public Health Hazards

2: Conduct Syndromic Surveillance provides output for the following business process:

- 7: Develop and Report Situational Information

3: Conduct Notifiable Disease Surveillance provides output for the following business processes:

- Assess Population Trends and Patterns

- Test Samples and Specimens in Laboratory

- 7: Develop and Report Situational Information

4: Conduct Active Surveillance provides output for the following business processes:

- Test Samples and Specimens in Laboratory

- Assess Population Trends and Patterns

- 5: Conduct Public Health Investigation

- 7: Develop and Report Situational Information

5: Conduct Public Health Investigation provides output for the following business processes:

- Test Samples and Specimens in Laboratory

- 4: Conduct Active Surveillance

- 7: Develop and Report Situational Information

6: Initiate Alerts provides output for the following business process:

- 7: Develop and Report Situational Information

7: Deliver and Report Situational Information provides output for the following business process:

- Develop Response Plan

8: Manage Resources provides output for the following business process:

- 7: Deliver and Report Situational Information

9: Develop and Initiate Risk Communication provides output for the following business process:

- 7: Develop and Report Situational Information

10: Administer Medical Countermeasures (MCMs) provides output for the following business process:

- 7: Develop and Report Situational Information

III. Requirements for Preparedness Information Systems

The information system requirements that follow reflect those the Common Ground Preparedness Workgroup identified as supporting the 10 business processes on which they focused. The requirements are intended to be forward looking rather than mimicking current practice. A public health preparedness program may not be able or need to implement all the requirements developed by the group. However, all of the requirements are feasible and practical if the preparedness program is doing or expecting to do all or most of the business processes.

The requirements associated with each business process are not intended to suggest any physical implementation strategy for an information system. A preparedness program could choose to interface the preparedness information system with other software packages or commercial off-the-shelf (COTS) solutions. These are decisions to be made by each preparedness program based on its own needs and those of the broader organizational structure in which it operates.

This section sets forth requirements specifications for each business process and contains information in the following categories for each of the 10 business processes:

- Overview: A summary of the business process

- Requirements: Presentation of the key information system requirements associated with the task flow elements of each business process

Some of the requirements the group defined are required, while others are optional. Specific words in each requirement indicate if a requirement is optional or required:

- **Mandatory**: "Shall," "Must," or "Will" indicate that fulfillment of the requirement is mandatory.

- **Optional**: "Should" suggests that that capability has a significant benefit, but is not mandatory, while "May" indicates that the item would be "nice to have." These requirements are preceded by the word "Optional" in parentheses.

For more details about the Task Flow Diagrams and the individual activities associated with each business process, download the *Common Ground Public Health Preparedness Toolkit*, available from the Public Health Informatics Institute web site (www.phii.org).

Business Process 1: Conduct Exercise to Evaluate Organizational Response Capacity

OVERVIEW:

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.

REQUIREMENTS:

1.1   The system must have the ability to assemble [or receive, contain] grant contract information (e.g., deliverables, deadlines, grant balances, or available resources) to help determine exercise scope.

1.2   The system must have the ability to define the business processes and tasks necessary to the emergency response capabilities that will be assessed during the exercise.

1.3   The system must have the capability to accept and incorporate components of strategic plan to help in determining the scope of the exercise.

1.4   The system must have the capability to accept previous After Action Reports / Improvement Plans (AAR/IP) to help in determining the scope of the exercise.

1.5   The system must have the ability to accept region-specific hazard and risk information.

1.6   The system must have the ability to provide workforce training status.

1.7   The system must have the ability to capture partner/stakeholder information (i.e., organization name, address, point of contact, type, etc).

1.8   The system must have the ability to accept a multi-year training and exercise plan to help in determining the scope of the exercise.

1.9   (Optional) The system might have the ability to provide recommended a potential scope for the exercise.

1.10   (Optional) The system might have the ability to accept the multi-year training and exercise plans of other agencies (i.e., from another jurisdiction or another local government department).

1.11   The system must be able to assist in communicating the exercise scope to designated persons (e.g., members of the exercise planning team, board of health, or other important community stakeholders etc.)

1.12   The system must have the capability to capture the name and contact information exercise leader.

1.13   The system must have the capability to provide a standard set of criteria on need and priority.

1.14   The system must have the ability to allow for the user to setup and manage a project plan.

1.15   The system must have the ability to allow for the user to enter and create **exercise activities or tasks** (tasks).

1.16   The system must have the ability to allow for the user to assign a due date, time, and work duration to each project task.

1.17   The system must have the ability to allow for the user to assign resources to project tasks.

1.18   The system must have the ability to allow for the user to assign a specific role to each resource entered. Roles are "Leader", "Participant", "Evaluator", "VIP", and "Observer". Also, need the ability to add, update, and create roles and associate them with individuals.

1.19   The system must have the capability to allow a user to enter project task interdependencies between tasks (e.g., Finish to Start; Start to Start, etc.).

1.20   The system must have the ability to allow users to present the project timeline at multiple levels of detail in a variety of graphical representations (e.g., Gantt Chart, Calendar, etc.).

1.21   The system must have the ability to send other users meeting requests and tasks from the project plan.

1.22   Included with the calendaring functionality, the system must display to every user the activity duration for exercises that are scheduled.

1.23   The system must have the ability to display major events (holidays, government days) on the calendar.

1.24   The system must allow for users to access and retrieve project data from previous exercises in order to help with event planning and project management.

1.25   (Optional) The system might allow users to import activities (tasks) from previously scheduled exercises.

1.26   The system must allow for the entry of potential team members.

1.27   The system must allow for a functional role to be assigned to each potential team member entered, such as Senior Leader; Exercise Leader, Planning Team Member, Player, Controller, Lead Evaluator, Evaluator, Analyst, Reviewer, or Guest.

1.28   The system must allow for the user to request a specific Team Member. This request will be sent directly to the Team Member, whereby they should be able to respond with an "Accept", "Deny", or "Tentative" (consent).

1.29   The system must allow for the user to adjust and change Team Members and their information.

1.30   The system must allow for the Exercise Leader to view a list of potential human resources, their skills and availability.

1.31   (Optional) The system may have the ability to schedule meetings according to planning team's schedule, project timeline, and venue for meeting.

1.32   The system must have the ability to schedule meetings and locations.

1.33   The system must have the ability to communicate the scheduled planning session details to the appropriate users.

1.34   The system must have the capability to schedule the meeting logistics.

1.35   (Optional) The system might allow for the calendar details to be imported into multiple calendaring systems.

1.36   (Optional) The system might provide recommended exercise types, based upon the exercise scope, and should include definitions and costs for each.

1.37   The system must allow for the entry of exercise types.

1.38   (Optional) The system might provide recommended parameters for each exercise type (duration, number of staff needed).

1.39   The system must provide a planning guidance based on exercise type.

1.40   The system must be able to support the management of data to ensure compliance with all HSEEP requirements, including planning, training, operations and evaluation. This includes allowing the user to plan, conduct, and evaluate the exercise in compliance with HSEEP criteria.

1.41   The system must allow the user to plan, conduct, and evaluate the exercise per site specific criteria and practices.

1.42   The system must capture and display previous After Action Reports (AAR).

1.43   (Optional) The system might capture and display previous After Action Reports (AAR) from other local, state, and federal agencies.

1.44   The system must allow for the entry of exercise objectives.

1.45   The system must be able to provide document management functions.

Requirements for Public Health Preparedness Information Systems:
Conduct Exercise to Evaluate Organizational Response Capacity

22

1.46   The system must be able to support **"versioning"** of the Exercise Plans.

1.47   The system must be able to provide **routing** of the Exercise Plan to the appropriate users (that can be designated by the Exercise Leader).

1.48   The system must be able to provide **approvals** for the Exercise Plan by the appropriate users (that can be designated by the Exercise Leader).

1.49   The system must use HSEEP compliant templates and criteria for the exercise plan.

1.50   The system must pull or extract details from the Exercise Plan and objectives and merge them into the documentation.

1.51   The system must have the capability to create forms and templates for developing exercise documentation.

1.52   The system must produce schedules for the day of the event, broken up by role as well as a "master" schedule.

1.53   (Optional) The system might have the ability to pull/extract information from policy documents, job action sheets, and operational plans, and insert that information into the exercise documentation.

1.54   The system must allow for review and approval of the exercise materials.

1.55   The system must allow for the appropriate users to access the exercise materials for review.

    1.55.1   The system must provide a mechanism for providing feedback on the exercise materials.

1.56   The system must track and store changes made to the exercise materials.

1.57   The system must have a means of tracking the exercise materials to the appropriate roles for review.

1.58   The system must provide lists of the availability of participants and skills.

1.59   The system must provide a list of necessary materials for the exercise.

1.60   (Optional) The system might help facilitate the scheduling and reservation of exercise specific equipment and support staff.

1.61   (Optional) The system might save and archive logistical requirements, including decisions, gaps and comments.

1.62   The system must provide a list of potential volunteers.

1.63   The system must provide notification to participants of their enrollment.

1.64   The system must assist in identifying roles and types of participants

1.65   (Optional) The system might provide a collaborative environment, where participants can learn, interact, share, enroll, and provide feedback on the exercise.

- Environment will allow for participants to confirm enrollment.
- Selection of timeslots.
- Environment is accessible in multiple locations, and can accommodate varied users.

1.66   The system must provide for the creation of a setup plan according to exercise type and plan.

1.67   The system must produce a checklist for people involved in the exercise setup (evaluators, observers, participants) materials, tasks according to the setup plan, job action sheets and just in time training materials.

1.68   The system must provide tracking of people, materials, and tasks according to the setup plan.

1.69   The system must support the ability to store and retrieve graphical representations of the exercise location (such as room layout, etc.).

1.70   The system must log adjustments and changes to the exercise setup plan.

1.71   The system must display the resource contact information.

1.72   The system must provide listing of briefing materials needed per the exercise type and objectives and plan.

1.73   The system must accept prepared briefing / presentation materials.

1.74   The system must have the ability to display the briefing and/or presentation to participants.

1.75   The system must have the ability to track who attended the briefing/presentation.

1.76   The system must have the ability to deliver the briefing/presentation to participants prior to the exercise.

1.77   (Optional) The system might have the ability to provide interactive audio and video of the briefing/presentation.

1.78   The system must prompt and provide "injects" (gentle interruptions of new information to the exercise to help guide it along; for example, "the bridge is out; what do you do now?") to participants according to the exercise plan.

   1.78.1   The system must have the capacity to respond to participants input.

   1.78.2   The system must allow for the facilitator to adjust, add, or delete injects according to agenda.

   1.78.3   The system must allow the injects to be customizable by participants and scenarios.

1.79   The system must support communication between participants and simulation cell.

1.80   (Optional) The system might provide true (mock) simulation environment for the participants and scenarios.

1.81   The system must provide the appropriate exercise tools and information to participants.

1.82   (Optional) The system may enable the receipt and transmission of results and information using current business methods.

1.83   The system must produce a checklist for people, materials, and tasks according to the exercise plan.

1.84   The system must provide tracking of people, materials, and tasks according to the exercise plan.

1.85   The system must be able to allow immediate termination of the exercise and communicate the information to participants.

1.86   The system must log adjustments and changes from the exercise plan.

1.87   The system must be able to allow for Evaluators to measure and evaluate the exercise.

1.88   The system must have the ability to receive and aggregate evaluation data from Participants and Evaluators.

1.89   The system must capture and record observations per the evaluation tools.

1.90   The system must provide analytical tools to evaluate the exercise to the Evaluators.

1.91   The system must have the ability to generate and deliver exercise surveys.

1.92   The system must provide an evaluation report that compiles all the evaluation results.

1.93   (Optional) The system might provide support for capturing time flow analysis.

1.94   (Optional) The system might export the evaluation information to the Hot Wash.

1.95   The system must receive information from the evaluation of the exercise.

1.96   The system must allow for remote communication of the debrief.

1.97   The system must capture hot wash oral discussion and written information.

1.98   The system must provide a hot wash template.

1.99   The system must link the exercise agenda to exercise objectives.

1.100 The system must analyze and review data from hot wash and evaluation.

1.101 The system must capture debrief discussions.

Requirements for Public Health Preparedness Information Systems:
Conduct Exercise to Evaluate Organizational Response Capacity

25

1.102   The system must have the capability to export data and discussions to After Action Report/Improvement Plan (AAR/IP).

1.103   (Optional) The system might have the capability to provide analysis of qualitative information.

1.104   The system must support timeline and tracking of After Action Report/Improvement Plan (AAR/IP) completion.

1.105   The system must have the ability to schedule hot wash/debrief meetings and location venues.

1.106   The system must have the ability to communicate the scheduled hot wash/debrief meeting details to the appropriate users.

1.107   The system must have the capability to schedule the hot wash/debrief logistics.

1.108   The system must have the ability to create an After Action Report/Improvement Plan (AAR/IP) for the exercise.

1.109   The system must support the timeline and tracking of After Action Report/Improvement Plan (AAR/IP) completion.

1.110   The system must provide an After Action Report template for the Facilitator/Coordinator to use when completing the After Action Report.

1.111   The system must provide an Improvement Plan template for the Facilitator/Coordinator to use when completing the Improvement Plan.

1.112   The system must aggregate all of the exercise evaluation data for report.

1.113   The system must pull or extract details from exercise documentation.

1.114   The system must finalize the analysis of the evaluation information.

1.115   The system must have the ability to spell check the After Action Report.

1.116   (Optional) The system might have the ability to re-format the After Action Report for various audiences to protect secured information (e.g., names and phone numbers) or extract sessions applicable to that audience (e.g., the executive summary).

1.117   The system must have the ability to schedule After Action Report (AAR) meetings and location venues.

1.118   The system must have the ability to communicate the scheduled After Action Report (AAR) meeting details to the appropriate users.

1.119   The system must have the capability to schedule the After Action Report (AAR) meeting logistics.

Requirements for Public Health Preparedness Information Systems:
Conduct Exercise to Evaluate Organizational Response Capacity

26

1.120 The system must have the ability to submit the After Action Report/Improvement Plan (AAR/IP) for review to the appropriate users (Senior Leadership).

1.121 Senior Leadership must receive a notification that an After Action Report/Improvement Plan (AAR/IP) is ready for their review and approval.

1.122 The system must capture and store the reasons for disapproval to the After Action Report/Improvement Plan (AAR/IP).

1.123 The system must allow Senior Leadership to annotate the After Action Report/Improvement Plan (AAR/IP) with comments.

1.124 The system must have the ability for Senior Leadership to approve, deny, or adjust the After Action Report/Improvement Plan (AAR/IP).

1.125 The system must have the capability to distribute the After Action Report/Improvement Plan (AAR/IP) to the appropriate groups, whether by electronic or physical distribution.

1.126 (Optional) The system might have the capability to confirm receipt of the After Action Report/Improvement Plan (AAR/IP).

1.127 The system must have a high level of ability to present data in variable visual formats.

1.128 The system must be able to provide an historical summary of the course of the active exercise process-like a detailed event log.

1.129 The system must provide different levels of access and views for a variety of kinds of users.

1.130 The system must have the capacity to archive, index and recall all reports, forms, summaries, etc.

Business Process 2: Conduct Syndromic Surveillance

OVERVIEW:

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.

REQUIREMENTS:

2.1   The system must have the ability to receive information from syndromic surveillance partners in real-time.

2.2   The system must have the ability to transform incoming surveillance data into a usable language and standard vocabulary.

2.3   The system must have the ability to combine and integrate the surveillance data for analysis.

2.4   The system must have the ability to set thresholds for aberration detection.

2.5   (Optional) The system might allow users to select an analytical technique to use when analyzing syndromic surveillance data.

2.6   The system must have the ability to allow users to create user-defined visual displays of the surveillance data.

2.7   The system must allow users to search and extract surveillance data based on user-defined parameters.

2.8   The system must have the ability to translate (natural language processing) incoming syndromic surveillance data into user-defined categories/classifications.

2.9   The system must have the ability to flag or record for "close watch".

2.10   The system must have the ability to perform QA/QC on surveillance data and provide reports on potential errors.

2.11   The system must have the ability to archive the syndromic surveillance data that comes in.

2.12   The system must have the ability to identify and notify users of potential aberrations

2.13   The system must have the ability to allow users to create customized alert notifications.

2.14   The system must allow users to adjust the sensitivity of the alert notification.

2.15   The system must have the ability to incorporate data from separate sources (e.g. drug sales data, ER data, school absenteeism, etc.).

2.16   The system must provide (or calculate) the geographical location of the aberration.

2.17   The system must have a mechanism (interface) to visually review trends (e.g. dashboard view).

2.18   The system must notify users when the aberration alert has gone off.

2.19   The system must provide user-defined data queries (e.g. stratifications, cross-tabulation), and provide appropriate results and output.

2.20   The system must aggregate surveillance data among many data streams/sources.

2.21   (Optional) The system might compare syndromic surveillance data with other surveillance sources (e.g. active surveillance, lab results, sentinel).

2.22   The system must have the ability to receive syndromic surveillance data in multiple formats (e.g. HL7, batch, manual entry).

2.23   The system must have the ability to receive historical trend syndromic surveillance data.

2.24   (Optional) The system might have the ability to verify if surveillance data sources are still active.

2.25   (Optional) The system should have the ability to identify and eliminate duplicative reports, and confirm their elimination.

2.26   (Optional) The system should have the ability to capture and store the contact information for the source of the syndromic surveillance data.

2.27   The system must have the ability to provide visual confirmation of the aberration.

2.28   The system must have the ability for users to confirm the aberration.

2.29   The system must trigger a threat level assessment if the aberration is confirmed.

2.30   (Optional) The system might have the ability to annotate the possible cluster, if the aberration is not confirmed.

2.31   The system must allow users to put the potential aberration on a "watch list" with reminders to users at random times, if the aberration = maybe. The system must also allow users to annotate the possible cluster.

2.32   The system must have the ability to allow users to annotate the Epidemiologist's assessment of why cluster is true.

2.33   The system must allow for the annotated clusters to be shared among appropriate users.

2.34   The system must have the ability to store user-defined threat levels associated with various data sources, number of events, period.

2.35   The system must have the ability to send threat information to other business processes - data sources, number of events, time period, etc.

2.36   The system must have the ability for users to assign a threat level to the aberration.

2.37   The system must have the ability to allow users to enter and capture next steps.

Business Process 3: Conduct Notifiable Disease Surveillance

OVERVIEW:

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).

The purpose of notifiable condition reporting is to estimate the magnitude of the health problem, measuring disease trends, assessing the effectiveness of control and prevention measures, identifying populations or geographic areas at high risk, allocating resources appropriately, formulating prevention strategies, and developing public health policies. Monitoring surveillance data enables public health authorities to detect changes in disease occurrence and distribution, identify changes in disease agents and host factors, and detect changes in healthcare practices.

Notifiable condition reporting at the local level is to protect the public's health by ensuring the proper identification and follow-up of cases. Public health workers follow up on reported cases to ensure that persons who are already ill receive appropriate treatment; trace contacts who need vaccines, treatment, quarantine, or education; investigate and halt outbreaks; eliminate environmental or occupational hazards; and close premises where appropriate.

In this business process, "Data Providers" are any entities (e.g., hospitals, physicians, laboratories) that have knowledge of or data related to persons with suspected or confirmed notifiable diseases and report directly to public health. A "Quality Checker" is responsible for receiving, reviewing, and ensuring the reported information is accurate and complete. "Epidemiologist" is a person responsible for analyzing and interpreting notifiable disease investigation data. An "Epi Team" is a team of epidemiologists responsible for making immediate and actionable decisions regarding notifiable disease analysis indicative of a public health threat.

REQUIREMENTS:

3.1   The system must have the capability to receive clinical encounter data in multiple formats.

3.2   The system must have the capability to accept, provide, edit, and display the list of notifiable conditions.

3.3   The system must accept the criteria for reporting a clinical encounter to the Surveillance Data Providers.

3.4   The system must allow for the Surveillance Data Providers to key in the pieces of clinical encounter information to be reported.

3.5   The system must provide an implementation guide to the Surveillance Data Providers for reporting clinical encounters.

3.6   The system must note the high priority/specific frequency and mechanism for high priority clinical encounters.

3.7   (Optional) The system might provide Surveillance Data Providers with a current knowledge base of information on notifiable conditions (e.g. isolation requirements, school / work exclusion, antimicrobial recommendations, contact needs)

3.8   The system must have the capability to record and store the clinical information that is reported.

3.9   (Optional) The system should provide notification of current disease activity to data providers.

3.10   (Optional) The system might be able to provide guidelines on decision support parameters for detecting potential cases.

3.11   The system must allow for Surveillance Data Providers to enter the clinical encounter information.

3.12   The system must provide a standard form for the Surveillance Data Providers to assist in documenting and entering critical information.

3.13   The system must allow for the Surveillance Data Providers to enter the contact information when submitting a clinical encounter.

3.14   The system must allow for the Surveillance Data Providers to submit their clinical encounter information to the public health department.

3.15   The system must allow for the data to be kept secure during the transmission process (HIPAA).

3.16   (Optional) The system might allow for supplemental clinical information to be reported.

3.17   The system must have the capability to accept different data formats from Surveillance Data Providers.

3.18   The system must alert the Quality Checker that clinical encounter data has been received.

3.19   The system must have the capability to identify missing data points.

3.20   The system must allow for the Surveillance Data Provider contact information to be displayable to the Quality Checker.

3.21   The system must notify the Quality Checker of potential dropped services.

3.22   (Optional) The system should compare incoming data needs to pre-defined standards (completion, coding, accuracy).

3.23   The system must capture date received and timestamp.

3.24   The system must provide confirmation receipt that the clinical encounter was reported.

3.25   The system must have the capability to flag and alert high priority disease.

3.26   The system must allow for the Quality Checker to modify disease priority by event activity.

3.27   The system must have the ability to assign public health jurisdiction and track changes in jurisdictional assignments (who made assignment, on what basis, etc.), based upon the data provided by the Surveillance Data Providers.

3.28   The system must have the ability to forward cases to the appropriate Quality Checkers.

3.29   (Optional) The system might provide a vocabulary ontology to assist in mapping local codes to standard.

3.30   The system must have the ability to receive notes with supplemental information.

3.31   The system must have the ability to transmit a high priority case report directly to Epi Team.

3.32   The system must provide a list of Primary POC by expertise with contact information.

3.33   (Optional) The system might identify which clinical encounters are high priority.

3.34   (Optional) The system should track the trail of transmissions.

3.35   The system must have the capability to recognize the status of info completion.

3.36   The system must have the capability for the Quality Checker to request missing information from Surveillance Data Providers.

3.37   The system must have the capability for Surveillance Data Providers to provide the missing information back to the Quality Checker.

3.38   The system must generate a confirmation receipt.

3.39   The system must track the status of requests, should also include date.

3.40   The system must have the capability to allow the Quality Checker to create a new record, based upon the clinical encounter information received.

3.41   The system must have the capability to import the clinical encounter information into the new record.

3.42   The system must allow for the Quality Checker to update existing records.

3.43   The system must allow for specific clinical encounter information to be imported into existing records.

3.44   The system must allow for the clinical encounter records to be transmitted the appropriate Communicable Disease personnel (or Epi Team).

3.45   The system must provide notification to the Communicable Disease personnel (or Epi Team) when they have received a clinical encounter update.

3.46   The system must provide a confirmation receipt to the Quality Checker.

3.47   The system must have the capability to compare the clinical encounter record to the Case
Definition.

3.48   The system must have the capability to report the comparisons determined between the clinical
encounter record and the Case Definition.

3.49   The system must provide an initial threat level, based upon the clinical information documented
in the record.

3.50   The system must allow for the threat level to be adjusted by the Epi Team.

3.51   The system must provide suggestions on what populations, environments, etc. could be affected
by the clinical encounter.

3.52   The system must provide suggested next steps for responding to prevention needs as presented
by assumptions generated from the clinical encounter.

3.53   The system must communicate the next steps to the appropriate Communicable Disease
personnel (or Epi Team).

3.54   The system must allow for the suggested next steps to be adjusted by the Epi Team.

3.55   The system must provide an initial case status (suspected, probable, or confirmed), based upon
the clinical encounter information.

3.56   The system must have the ability to report (communicate) the case to the appropriate
stakeholders. These stakeholders include state and federal jurisdictions. The status of cases
should be represented as "confirmed" "probable" or "suspect."

3.57   The system must have the capability to tally (count) the number of cases identified.

3.58   The system must have the capability to generate summary reports based upon the case
information including requested date range. Summary reports must contain information on
incidence of cases in the population.

3.59   The system must have a high level of ability to present data in variable visual formats.

3.60   The system must provide different levels of access and views for a variety of kinds of users.

3.61   The system must have the capacity to archive, index and recall all reports, forms, summaries, etc.

3.62   The system must have the capacity to interface with required reporting transmission systems-e.g.
PHIN MS.

3.63   The system must have the capacity to provide analyses on clinical encounters, laboratory results,
and provisional and reported cases that will indicate potential outbreaks.

3.64   The system will be able to seamlessly interact with other PHEP information systems.

3.65   The system will support on-line and telephonic case reporting.

3.66   The system will support a mechanism for automated provider diagnosis confirmation.

3.67   The system will support seamless connectivity with electronic medical records.

3.68   The system will support electronic laboratory reporting.

Business Process 4: Conduct Active Surveillance

OVERVIEW:

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. Business Process 3: Conduct Notifiable Disease Surveillance or Business Process 4: Conduct Active Surveillance may trigger this business process. An integral part of Active Surveillance is characterization of the threat.

REQUIREMENTS:

4. 1   The system must have the capability to identify public health events or incidents, and alert the appropriate active surveillance team members.

4. 2   The system must have the capability to provide and communicate standards for initializing active surveillance.

   4.2.1   The system must provide confirmation of the need for active surveillance in comparison to the standards and templates for requiring active surveillance.

4. 3   The system must have the capability to provide a report that describes where the surveillance data came from, the quantifiable cases/suspects, timeframe, and any historical data.

4. 4   (Optional) The system might have the capability to accept other surveillance data (threat level) from other surveillance systems.

4. 5   The system must have the capability to provide evaluated active surveillance data.

4. 6   The system must have the capability to pull surveillance data from regular sources (hospital, clinics, sentinel).

4. 7   The system must be able to record/capture the active surveillance objectives, as determined by the Active Surveillance team

4. 8   The system must provide possible parameters available.

4. 9   (Optional) The system should have the capability to accept, record, file, display, and prioritize scenarios based upon the active surveillance data. These scenarios should be sortable by the user.

4. 10   The system must provide criteria for creating and prioritizing active surveillance parameters

4. 11   (Optional) The system should provide a hazard vulnerability risk assessment.

4. 12   They system must have the ability to provide suggested resources that are needed with the event or issue that is identified. For example, what area of public health, communicable, environmental, food safety, air quality.

4. 13   (Optional) The system might have the capability to provide potential hazards with the incident, case, or issue and it should model the likely population or jurisdictions involved.

4. 14   The system must store and provide Active Surveillance Team contact information for resources and availability.

4. 15   The system must store and provide Active Surveillance Team resource skills, training, and experience.

   4.15.1   The system must allow for the appropriate users to update the Active Surveillance Team skills, training, and experience information.

4. 16   (Optional) The system might provide pre-determined (pre-identified) resources that can be placed on the Active Surveillance Team, based upon the active surveillance need.

4. 17   The system must provide options for (virtual) venue locations and securing venue for the Active Surveillance Team to convene at.

4. 18   The system must provide a method for communicating with the Active Surveillance team members and resources. This communication must also have the capability to act remotely.

4. 19   (Optional) The system might have the capability to identify "outside" resources (e.g. stakeholders) to be a part of the Active Surveillance Team

4. 20   The system must provide a standard format and approach for running meeting. This will include an agenda, roles & responsibilities, and timeframes.

4. 21   The system must allow for the appropriate supervisors to review and approve the Active Surveillance Team.

4. 22   The system must have the ability to record and store the hypothesis, including the agents and sources.

4. 23   The system must have the ability to present data in consistent and uniform standard that is aligned to current standards.

4. 24   The system must display data in PH agency's standard format, current with today's standard format.

4. 25   The system must provide standard analysis tools and methods (standard deviation, thresholds).

4. 26   The system must have the capability to receive input data from the situational report.

4. 27   The system must provide a standard process for analyzing incident data.

4. 28 The system must provide analysis information to be available in multiple locations; accessible to multiple users.

4. 29 The system must be reliable and accurate.

4. 30 (Optional) The system might have the capability to reference historical incidents, per agent / source, in order to analyze incident data.

4. 31 The system must provide statistical code sets for data.

4. 32 The system must ensure data is confidential and secure.

4. 33 The system must provide protocol options for the Active Surveillance Team to utilize.

4. 34 (Optional) The system might provide a listing of successful surveillance strategies performed in the past and by other active surveillance teams.

4. 35 The system must calculate and provide an acceptable variable for collection of active surveillance data.

4. 36 (Optional) The system might provide recommended resources needed for Active Surveillance (including leadership and organizational structure and which kind of people.

4. 37 The system must accept and provide a communication plan.

4. 38 The system must provide a standard process for selecting an active surveillance strategy - frequency of data collection, methodologies, case definition, and threat level.

4. 39 The system must have the ability to create, within 1 day, the options for standard process tools/ instruments to collect surveillance data.

4. 40 The system must adapt/ customize existing tools (instruments, approach, timeframe) to meet the needs of the active surveillance.

4. 41 The system must provide a forum for review and approval of the surveillance tools (of team lead or health officer, participating subjects).

4. 42 The system must create and accept tactics to match the method and incident specific scenario.

4. 43 (Optional) The system might utilize clinical standards in the implementation of these methods.

4. 44 The system must ensure the active surveillance methods adhere to standards (survey standards).

4. 45 The system must allow for the communication of the active surveillance strategy and approach to organizations that need to be aware of surveillance and those with who you are coordinating surveillance.

    4.45.1 The system must provide an activation and alerting protocol.

4.45.2   The system must provide a list of partners/stakeholders that should receive communication regarding active surveillance.

4.45.3   The system must define the partners roles & responsibilities

4.45.4   The system must have the ability to communicate to partners in a variety of methods (including their preferred method).

4.46   The system must have the capability to receive a receipt confirmation that the communication message was received by stakeholders.

4.47   The system must have the capability to define or suggest needed resources specific to the active surveillance process.

4.48   The system must be able to calculate resources available versus resources needed.

4.49   The system must have the capability to relate the source of the resource with the resource.

4.50   The system must provide immediate request and response.

4.51   The system must have the capability to accept input of resource costs and expenses. Further, these costs and expenses must be displayed to users.

4.52   The system must have the capability to allow for resources to be reviewed and approved by the appropriate supervisors.

4.53   (Optional) The system might provide a list of resources and contact information.

4.54   (Optional) The system might have the capability to identify "outside" resources available to help implement active surveillance.

4.55   The system must have the capability to communicate to partners from the Active Surveillance Team. This specific communication should provide the active surveillance tools, methods, and resources.

4.56   The system must have the capability to alert appropriate stakeholders and partners that active surveillance has been initiated.

4.57   The system must have the capability to confirm receipt of the message to stakeholders and partners.

4.58   The system must have the capability to organize information related to the tools and material resources needed for the active surveillance.

4.59   The system must have the capability to manage the deployment of staff to appropriate data collections sites.

4.60   The system must have the capability to track and coordinate the active surveillance staff.

4.61   The system must have the capability to display the contact information for the resources involved.

4.62   The system must have the capability to capture and communicate active surveillance deployment status.

4.63   (Optional) The system might have the capability to facilitate an incentive program for the active surveillance data collectors.

4.64   The system must have the capability to provide just-in-time tracking to the active surveillance data collectors.

4.65   They system must have the ability to allow for the entry or upload of active surveillance data.

4.66   The system must have the ability to accept data on a rapid and repeatable basis.

4.67   The system must allow users to enter active surveillance data on a field-based entry system.

4.68   The system must have the capability to translate the active surveillance data into a readable format by the Active Surveillance Team.

4.69   The system must have the capability to provide data error checking and auto-correction services.

4.70   The system must have the capability to make each recorded case uniquely identifiable.

4.71   The system must have the capability to save and archive data.

4.72   (Optional) The system might have the capability to send a confirmed receipt to the data collectors that their data has been received.

4.73   The system must have the capability to identify and report on duplication of cases.

4.74   The system must have the capability to link the data record to source.

4.75   The system must keep a transaction history of the changes or updates made to the active surveillance data.

4.76   The system must allow for users to make requests and "mine" for active surveillance data to other sources.

4.77   The system must have the capability to support multiple languages.

4.78   The system must have the capability to capture and store data sharing agreements between the Active Surveillance Team and data providers.

4.79   The system must present the active surveillance data in the form of text, tables, and visuals.

4.80   The system must have the capability to export data into other applications (e.g. MS Excel).

4.81   The system must have the capability to apply analytical methods (frequency distribution analysis, rate calculation, CUSOM, 2X2 table, etc).

4.82   The system must have the capability to establish a baseline average based upon historical active surveillance data.

4.83   (Optional) The system might be able to provide recommended analyses (templates) based on past analyses, across agencies.

4.84   The system must have the capability to update and revise the analytical results based on additional and/or information.

4.85   The system must have the capability to perform analysis on a predetermined schedule per the strategy and on-demand.

4.86   The system must have the capability to provide a report of missing information and prioritization of follow-up activities.

4.87   The system must be able to identify potential candidates for medical intervention.

4.88   The system must be able to provide an ongoing status of active surveillance activities.

4.89   The system must be able to identify candidates for isolation or restriction of activities (restrict food service workers) (output to intervene processes).

4.90   The system must have the capability to develop an active surveillance report.

4.91   The system must have the capability to adjust the language and format of the Active Surveillance Report to meet varying audience requirements.

4.92   (Optional) The system might have Active Surveillance Report templates for users to utilize for report creation.

4.93   The system must provide a report format that is publishable and portable (print or website).

4.94   The system must have security-based access to the Active Surveillance Report, with the ability to specify access levels to different users.

4.95   The system must have the ability to indicate whether report is preliminary or final. It must include the date history with it.

4.96   The system must have the capability to define the reporting period for the Active Surveillance Report. The Active Surveillance Report must also be date & time stamped.

4.97   (Optional) The system might have the capability to display how the Active Surveillance Report is linked to the surveillance strategy.

4.98   The system must have the capability for the Active Surveillance Report to pull all appropriate data and information and display it according to user-specifications.

4.99   The system must have the capability to "smooth" data (data security) prior to displaying it in the Active Surveillance Report.

4.100   The system must have the capability to allow for the Active Surveillance Report to be reviewed and approved by the appropriate supervisors.

4.101   The system must have the capability to assess the threat level of the incident.

4.102   The system must have the capability to compare the current threat level to past incidents.

4.103   The system must have the ability to assess threat level, based upon parameters that can be set by the users.

4.104   The system must have the ability to characterize disease etiology.

4.105   (Optional) The system might be able to provide predictive modeling.

4.106   The system must be able to provide severity of disease level (morbidity and mortality) with the incident identified.

4.107   The system must identify the population at risk, based upon the incoming active surveillance data.

4.108   The system must have the capability to accept a decision matrix that is developed by the Active Surveillance Team

4.109   The system must have the capability to document the decisions made regarding the threat level.

4.110   The system must have the capability to facilitate communication between the assessors.

4.111   The system must have the capability to defer or route decisions to other users.

4.112   The system must have the capability to document decisions made regarding next steps for active surveillance (including comments).

4.113   (Optional) The system might have the capability to provide a list of potential next steps to the Active Surveillance Team.

4.114   (Optional) The system might notify the Active Surveillance Team of the need to reassess strategy.

4.115   (Optional) The system might provide a list of partners or stakeholders to distribute the Active Surveillance Report to.

4.116   The system must allow for review and approval by supervisors prior to distribution of the Active Surveillance Report.

4.117   The system must allow for partners and stakeholders to respond to the Active Surveillance Report.

4.118   The system must allow for the feedback received on the Active Surveillance Report to be stored and viewable by the Active Surveillance Team.

4.119   The system must allow for the Active Surveillance Report to be readable to all stakeholders and partners that receive it.

4.120   The system must allow for the Active Surveillance Report to be distributable in multiple communication methods - email, text, and fax.

4.121   (Optional) The system might allow for receipt confirmation from the partners and stakeholders that the Active Surveillance Report has been received.

4.122   The system must allow for the Active Surveillance Report to be distributed according to audience, where the target is decision-makers.

4.123   The system must include timeframe for responses to be made on the Active Surveillance Report.

4.124   The system must have the capability to compile and report on the feedback provided from the Active Surveillance Report.

4.125   The system must have the capability to provide status of event or incident.

4.126   The system must provide reports from public health interventions, which includes dates & times.

4.127   The system must provide an estimate on the costs for implementation and resource utilization.

4.128   (Optional) The system might have the capability to assess if continuation is needed as a PH benefit.

4.129   The system must have the capability to allow for the final Active Surveillance Report to be reviewed and approved.

4.130   The system must have a high level of ability to present data in variable visual formats.

4.131   The system must be able to provide an historical summary of the course of the active surveillance process-like a detailed event log.

4.132   The system must provide different levels of access and views for a variety of kinds of users.

4.133   The system must have the capacity to archive, index and recall all reports, forms, summaries, etc.

4.134   The system must interface seamlessly with other components of the PHEP information management system.

Business Process 5: Conduct Public Health Investigation

OVERVIEW:

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.

The public health investigation team is comprised of subject-matter experts (SMEs) from public health and other agencies necessary to identify, understand, and determine (1) the appropriate response to eliminate the threat and (2) the necessary clinical management and laboratory evaluation of those affected. The jurisdictional level involvement (e.g., local, state, federal) is dependent on the condition, the magnitude of the investigation, and the currently and potentially affected geographic location of the incident.

REQUIREMENTS:

5.1   The system must be able to receive input from individuals internal and external to the health department.

   5.1.1   (Optional) The system should be able to receive input in a variety of modes.

   5.1.2   The system must be able to receive data from other jurisdictions.

5.2   The system must be able to bring together data from a variety of sources for appropriate analysis.

   5.2.1   The system must be able to provide a high level summary of incidence per disease upon request including a high level characterization of the threat including date, symptoms, demographic, spatial, and temporal.

5.3   The system must have a knowledge base of known diseases and hazards

   5.3.1   The system must store predefined criteria defining acceptable threshold levels for each disease and hazard(spatial, temporal, demographics)

   5.3.2   The system must have the ability for users to adjust thresholds for risk to population health (per community, per location)

   5.3.3   The system must provide an automated alert notifying the analyst that a threshold for a disease has been exceeded

5.4   The system must confirm receipt of the alert by the analyst

5.4.1   The system must automatically send alerts to another individual to escalate if no receipt confirmation is received.

5.5   The system must be able to receive notification of a confirmed event

5.6   System must be able to send, receive, and merge event notifications that include initiating agency, contact info, suspected cause/agent, number of cases, etc.

5.6.1   (Optional) The system should accept notification in standard formats

5.6.2   The system must have flexibility in methods to receive notification

5.6.3   The system must be able to capture and display the initiating agency and person's name

5.6.4   (Optional) The system should be able to provide receipt confirmation to the initiating agency.

5.7   (Optional) The system should capture contact for follow-up if needed.

5.8   The system must be able to capture and display details of the event's likely cause / source

5.9   The system must have the capacity to edit and transmit the information to other jurisdictions.

5.10   The system must be able to query sources to confirm data.

5.11   The system must be able to query related surveillance information.

5.12   (Optional) The system should contain a list of standard criteria (based on history) for the validation of threats.

5.13   The system must provide contact information for providers to request additional data.

5.13.1   (Optional) The system may provide an electronic mechanism for bidirectional communication.

5.14   The system must be able to merge data from a variety of sources for appropriate analysis.

5.15   The system must be able to design and author summary reports.

5.16   The system must be able to sort data according to characteristics.

5.17   The system must provide decision support and documentation about the threshold

5.18   The system must document the decision and rationalization for the decision

5.19   The system must support the review and approval of the decision.

5.20   The system must create a unique identifier for outbreak with an identifiable, meaningful name.

5.21   The system must provide a standardized template to characterize event.

5.22   The template must include the date started, suspect causative agent / source, type of investigation (environmental/ epidemiological), number of cases, contacts (with status info).

5.23   The system must have a list of available potential lead investigators based on availability, experience, expertise, and location.

5.24   The system must be able to contact potential lead investigators.

    5.24.1   (Optional) The system should provide a confirmation of receipt of notification from the potential lead investigator.

5.25   The system must be able to communicate with the possible lead investigator and director of jurisdiction with summary information about outbreak.

5.26   The system must have the ability to update the record with the name and contact information of the lead investigator with documentation about the decision.

5.27   The system must have a list of available potential team members based on availability, experience, expertise, and location.

5.28   The system must be able to contact potential team members.

    5.28.1   (Optional) The system should provide a confirmation of receipt of notification from the potential team members.

5.29   The system must support libraries of customizable templates for action plans.

5.30   The system must have the ability to update the investigation record.

5.31   The system must provide access of the investigation documentation to all team members.

5.32   The system must establish the urgency and timeline of the investigation based on characteristics of the agent (e.g., incubation period, infective period, etc.).

5.33   The system must capture and display the roles and responsibilities of all involved for the plan.

5.34   The system must track completion of all tasks for the plan.

    5.34.1   The system must send reminders about uncompleted tasks.

5.35   The system must allow for the entry of potential team members.

5.36   The system must allow for a functional role to be assigned to each potential team member entered.

5.37   The system must allow for the user to request a specific Team Member. This request will be sent directly to the Team Member, whereby they should be able to respond with an "Accept", "Deny", or "Tentative" (consent).

5.38 The system must allow for the user to adjust and change Team Members and their information.

5.39 The system must allow for the Lead Investigator to view a list of potential resources available and their skills.

5.40 The system must be able to provide **routing** of the Action Plan to the appropriate users (that can be designated by the Lead Investigator).

5.41 The system must be able to provide **approvals** for the Action Plan by the appropriate users (that can be designated by the Lead Investigator).

5.42 The system must have the capability to create forms and templates for developing Action Plans.

5.43 (Optional) The system might have the ability to pull/extract information from policy documents, job action sheets, and operational plans, and insert that information into the action plan.

5.44 The system must have a list of partners with contact information to broadly inform as needed.

   5.44.1 The system must have the ability to create distribution groups.

   5.44.2 The system must archive distribution groups for use in future events.

   5.44.3 (Optional) The system should have the ability to confirm receipt of information distributed.

5.45 The system must have a summary of the event with action plans that are accessible in multiple modes.

5.46 The system must support two-way communication with partners with the ability to request and require a response.

5.47 The system must allow for the communication of the public health investigation strategy and approach to organizations that need to be aware of investigation and those with who you are coordinating investigation.

   5.47.1 The system must provide an activation and alerting protocol.

   5.47.2 The system must provide a list of partners/stakeholders that should receive communication regarding the investigation.

   5.47.3 The system must define the partners' roles & responsibilities.

   5.47.4 The system must have the ability to communicate to partners in a variety of methods (including their preferred method).

5.48 The system must have the capability to receive a receipt confirmation that the communication message was received by stakeholders.

5.49   The system must provide a list of potential strategies, team, and investigation tools, sortable by agent, threat, and magnitude.

    5.49.1   (Optional) The system may provide this information from neighboring jurisdictions or best practices.

5.50   The system must summarize information from initial action plan (ex: staff availability, sampling requirements, logistical needs, and geographic scope.)

5.51   The system must support the review and approval of the strategy, case definition, and hypothesis.

5.52   The system must incorporate the summary of the event characterization.

5.53   (Optional) The system should access references about common assertions from knowledge base, including academic research, and historical data.

5.54   The system must accept input of modeling algorithms.

5.55   (Optional) The system should provide predictive modeling algorithms.

5.56   The system must capture and display the roles and responsibilities of teams & partners involved for the plan.

    5.56.1   The system must document the team structure.

    5.56.2   The system must document the initial hypotheses.

    5.56.3   (Optional) The system should provide decision support about appropriate strategies and tools.

    5.56.4   The system must provide multiple types of templates (ICS, non-ICS) appropriate for all types of investigations.

    5.56.5   The system must provide a timeline of investigation activities.

    5.56.6   The system must provide a template for standardized status reports including a summary of the investigation plan and roles & responsibilities to each team member.

    5.56.7   The system must document the management process including the operation period, logistical needs, setting objectives, meeting schedule, and scope assistance.

    5.56.8   (Optional) The system should be able to capture words (audio) and translate to text.

    5.56.9   The system must be able to accept clinical, lab and epidemiologic criteria for case definition.

    5.56.10   The system must be able to establish and update the case definition with symptoms (epidemiology: person, place, time)

5.57   The system must have template investigation tools for assessment, sampling, questionnaires in modifiable formats.

5.58   The system must archive tools, case definition, and strategies.

5.59   The system must allow for review and approval of the investigation strategy, case definition & hypothesis.

5.60   (Optional) The system might be able to provide error checking (e.g. spell check) on all investigation strategy, case definition & hypothesis.

5.61   The system must allow for the appropriate users to access the investigation strategy, case definition & hypothesis for review.

5.62   The system must provide a mechanism for providing feedback on the investigation strategy, case definition & hypothesis.

5.63   The system must track and store changes made to the investigation strategy, case definition & hypothesis.

5.64   The system must route the investigation strategy, case definition & hypothesis to the appropriate roles for review.

5.65   The system must pull or extract details from the investigation strategy, case definition & hypothesis and merge them into the documentation.

5.66   The system must have the capability to create forms and templates for developing investigation strategy, case definition & hypothesis.

5.67   (Optional) The system might have the ability to pull/extract information from policy documents, job action sheets, and operational plans, and insert that information into the investigation strategy, case definition & hypothesis.

    5.67.1   The system must archive with version control and audit trails of changes.

5.68   (Optional) The system should provide modeling to project resource needs.

5.69   The system must document partner responsibilities.

5.70   The system must be capable of two-way communication with partners.

5.71   The system must have the ability to request and receive a response.

5.72   The system must create job action sheets for each role from predicted information.

5.73   The system must provide a library of training material.

5.74   The system must distribute and provide access to training materials and other resources.

5.75   The system must support the planning of meetings with a list of potential venues & logistics (available trainers, facilitators, agenda, schedule)

5.76   The system must support a multiple modes for training (webinar, conference calls, etc)

5.77   The system must have the ability to identify and contact potential staff.

5.78   The system must document the completion of training for all participants.

5.79   (Optional) The system should be able to evaluate training effectiveness.

5.80   The system must have a list of replacement staff who have the necessary training.

5.81   The system must be able to contact the appropriate authority for reassignment.

5.82   The system must provide job action sheets.

5.83   The system must provide a summary of the event.

5.84   (Optional) The system should model an estimate of "out" time.

5.85   The system must provide a list of the resources needed.

5.86   The system must identify resource gaps.

5.87   The system must track the hours of reassigned employees for accounting.

5.88   The system must provide notification of deployment to team members, investigation personnel, and partners.

5.89   The system must provide a brief to investigation personnel on the investigation.

5.90   The system must confirm receipt and access to tools.

5.91   (Optional) The system might provide an inventory of field supplies (PPE, clinical/ lab collection, communication devices, money, transportation).

5.92   The system must be able to reference the strategy developed.

5.93   The system must identify the suspected agent to identify the appropriate test.

5.94   The system must provide an inventory of tests including supplies and kits.

5.95   The system must be able to estimate the volume of tests.

5.96   The system must be able to estimate the timing of lab supply.

5.97   The system must be able identify the priority of test completion.

5.98   The system must document the certification for tests.

5.99   The system must identify a certified lab.

5.100   The system must have the ability to reassign staffing resources.

5.101   The system must support the packing and shipping of tools.

5.102   The system must provide safety instructions including the use of PPE.

5.103   The system must provide collection instructions including type and number of specimens to collect and sampling strategies.

5.104   The system must provide a lab contact for questions.

5.105   The system must provide an updatable contact list of cases and/or sample locations & frequency

5.106   The system must track tools (such as questionnaires) completed.

5.107   The system must capture data in a standardized format.

5.108   The system must have the capability to provide data error checking and auto-correction services.

5.109   The system must have the data formatted ready for analysis.

5.110   They system must have the ability to allow for the entry or upload of public health investigation data.

    5.110.1   The system must have the ability to accept data on a rapid and repeatable basis.

    5.110.2   The system must allow users to enter public health investigation data on a field-based entry system.

5.111   The system must have the capability to translate the public health investigation data into a readable format by the Investigation Team.

5.112   The system must have the capability to make each recorded case uniquely identifiable.

5.113   The system must have the capability to save and archive data.

5.114   (Optional) The system might have the capability to send a confirmed receipt to the data collectors that their data has been received.

5.115   The system must have the capability to identify and report on duplication of cases.

5.116   The system must have the capability to link the data record to source.

5.117   The system must keep a transaction history of the changes or updates made to the public health investigation data.

5.118   (Optional) The system might allow for users to make requests to other sources and "mine" for public health investigation data.

5.119   The system must have the capability to support multiple languages.

5.120   The system must have the capability to capture and store data sharing agreements between the Public Health Investigation Team and data providers.

5.121   The system must present the public health investigation data in the form of text, tables, and visuals.

5.122   The system must have the capability to export data into other applications (e.g. MS Excel).

5.123   The system must have the capability to apply analytical methods (frequency distribution analysis, rate calculation, CUSUM, 2X2 table, odds ratios, etc).

5.124   The system must have the capability to establish a baseline disease incidence based upon historical public health investigation data.

5.125   (Optional) The system might be able to provide recommended analyses (templates) based on past analyses, across agencies.

5.126   The system must have the capability to update and revise the analytical results based on additional information.

5.127   The system must have the capability to perform analysis on a predetermined schedule per the strategy and on-demand.

5.128   The system must have the capability to provide a report of missing information and prioritization of follow-up activities.

5.129   The system must be able to identify potential medical interventions.

5.130   The system must be able to provide an ongoing status of public health investigation activities.

5.131   The system must be able to identify candidates for isolation or restriction of activities (restrict food service workers) (output to intervene processes).

5.132   The system must provide quality checks for samples.

5.133   The system must have contact information for partner labs, including lab specialty, capacity.

5.134   The system must allow for two-way communication between the public health agency and the lab.

5.135   The system must record a list of collected specimens.

5.136   The system must track specimens, including sample type and status of test.

5.137   (Optional) The system might allow for remote accessioning (pre-log of samples by collectors).

5.138   The system must alert other partner labs if needed.

5.139   The system must capture the chain of custody of all samples to ensure compliance.

5.140   The system must link specimen records to the investigation record.

5.141   The system must be able to communicate information to other applicable agencies (FBI, etc)

5.142   The system must be able to track samples.

5.143   The system must restrict access to data based on role.

5.144   The system must be able to communicate preliminary results, progress, and expectations of results.

5.145   The system must be able to send data in (HL7) standardized format.

5.146   The system must provide a confirmation of receipt of results.

5.147   The system must provide a private, secure transmission of results.

5.148   The system must provide the reference range for each result specific to that lab.

5.149   The system must provide test quality indicators (specificity & sensitivity) for each result to identify limits of detection / quantification.

5.150   The system must archive all data including test result and sampling location.

5.151   The system must track the physical storage of all samples.

5.152   The system must communicate test results to CDC, regional, and state labs as necessary.

   5.152.1   (Optional) The system might provide bidirectional communication to characterize the incident.

   5.152.2   The system must communicate results per the investigation strategy.

5.153   The system must be able to receive data.

5.154   The system must be able to perform appropriate statistical analyses.

5.155   The system must be able to store and archive data.

5.156   The system must be able to aggregate data (temporally, spatially).

5.157   The system must be able to compare reference doses to sample.

5.158 The system must have the ability to present data in consistent and uniform standard that is aligned to current standards.

5.159 The system must display data in PH agency's standard format, current with today's standard format.

5.160 The system must provide standard analytical tools and methods (standard deviation, thresholds).

5.161 The system must provide a standard process for analyzing investigation data.

5.162 The system must provide analysis information to be available in multiple locations; accessible to multiple users.

5.163 The system must be reliable and accurate.

5.164 (Optional) The system might have the capability to reference historical incidents, per agent / source, in order to analyze investigation data.

5.165 The system must provide intervention options based on the characterization of the investigation.

5.166 The system must allow users to review and refine the case definition

5.167 The system must allow communication to decision makers

5.168 The system must make recommendations / present options for interventions based on the investigation findings

5.169 (Optional) The system should highlight urgent findings when needed.

5.170 The system must document the justification of the decision to terminate investigation

5.171 The system must document the decision to terminate by the person of authority.

5.172 The system must have the capability to allow for the final Public Health Investigation Report to be reviewed and approved.

Business Process 6: Initiate Alerts

OVERVIEW:

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.

CDC has a Health Alert Network (HAN) at the federal level. States and local jurisdictions may have their own systems for health alerts, but not all are called a HAN.

REQUIREMENTS:

6.1   The system must have the capability to allow users to assign a type to groups.

6.2   The system must have the ability to allow users to assign/subscribe users to a group, and groups to groups.

6.3   The system must have the ability for users and groups to belong to more than group, but not received duplicate messages.

6.4   The system must accept or access existing directories of users.

6.5   The system must have the ability to create new groups as needed based on user-defined criteria, such as location, sub-specialty, organization.

6.6   The system must require a unique group name or ID to be assigned to users and groups.

6.7   The system must allow a user to identify or look-up a group's authority or authorities.

6.8   The system must have the ability to update group directories and user profile information after: 1) The addition of a new user; 2) The deactivation of a user; 3) messages bounce; and 4) an employee is terminated.

6.9   (Optional) The system might have the ability to quantify group integrity (e.g., % of group with complete profile, % of group as active users, user count of group).

6.10   (Optional) The system might have the ability to suggest groups based on Alert purpose/content/ alert history.

6.11   The system must have the ability to allow users to assign roles and rights to users by group membership. Roles are: Alerter; reader; authority.

6.12   The system must allow users to update their individual profile.

6.13   The system must prompt users to make updates to their profiles.

6.14   The system must have the ability to batch enroll users.

6.15   The system must have the ability to invite new users and process acceptance.

6.16   The system must present users with definitions of the alert levels or operational implications and examples.

6.17   The system must provide a list of actions to be taken for each alert level by recipient of message. (For more specificity see HAN definitions. Also see process narrative.)

6.18   The system must record who assigned level and reasons alert level chosen.

6.19   The system must have the ability to allow users to amend an alert level.

6.20   The system must have user-defined templates for different alert/sensitivity levels.

6.21   The system must have the ability to designate a security level for the alert.

6.22   The system must provide user-defined/configurable alert messages templates.

6.23   The system must allow for alert message creation and expeditious routing to the group's authority for approval.

6.24   The system must allow for the alert message to be reviewed and approved by the appropriate users.

6.25   The system must allow a user to receive a message and use the message content in a new alert message.

6.26   The system must allow for 2-way communication in the review and approval process, file sharing, comment and approval option.

6.27   The system must archive previous alert messages, and allow for them to be searchable and selectable by users.

6.28   Upon archiving the alerts, the system must categorize them by situation, topic and audience.

6.29   The system must allow for designated users to be assigned as "Approvers".

6.30   (Optional) The system might have the ability to present statistics about users by group membership (e.g., % logged in past 30 days; cross tabulation of users per alerting profile level against number of modalities).

6.31   (Optional) The system might be able to estimate the time to deliver a message to a group by modality/technology (i.e., phone, email, fax).

6.32   The system must compile or count the number of alert confirmations received and when.

6.33   The system must trigger a notification to an alerter to resend an alert message if confirmation has not been received within X amount of time (where x is defined by the group.

6.34   The system must only resend alerts to those recipients who have not confirmed.

6.35   The system must provide a report to the alert sender on which / what percent of recipients have confirmed / per time period / by mode.

6.36   The system must notify the alert sender when a notification has been received. Additionally, the system must allow the alert sender to set if a notification is to be sent for confirmations.

6.37   The system must have the ability to identify which receivers have not confirmed and also which ones have confirmed.

6.38   The system must have the ability for a user to delegate the ability to confirm alerts to another user, principally the user with a group alerter role.

6.39   (Optional) The system might accept electronic inputs in some detailed format to delete recipients who have left roles (e.g., when someone leaves the health dept, the HR system can send a message to the alert recipient list to delete that recipient)

6.40   The system must restrict receipt to the recipient of the alert message.

6.41   The system must track and document receipt of alert (including mode, call info, etc).

6.42   The system must allow the user (recipient) to access/log in to get the alert (if sensitive/confidential).

6.43   The system must allow for recipients to receive the alert message.

6.44   The system must have the ability to receive the alert report in multiple modalities.

6.45   The system must have the ability for the recipient to provide confirmation (when necessary/required) within 1 or 2 steps max (ex: reply to text message or email, click button on audio message).

6.46   The system must provide the alert to receivers in a format that is viewable/printable/asynchronously retrievable (re-playable, if audio).

6.47   The system must provide any necessary links to other systems associated with appropriate PH actions/response activities (e.g., 100K for new lab results).

6.48   The system must provide mechanism(s) to confirm receipt of alert to the alert sender.

6.49   The system must provide notification that confirmation is necessary to the receiver

6.50   The system must provide users with the ability to provide instructions on how to confirm alerts.

6.51   (Optional) If the mode allows, the system might confirm the delivery of alert (in addition to receiver confirming receipt per request).

Business Process 7: Develop and Report Situational Information

OVERVIEW:

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.

REQUIREMENTS:

7.1   The system must associate a name and unique identifier with an event and display the name and identifier of the event.

7.2   The system must have the ability to record and display user-defined data related to the incident.

7.2.1   The system must have the ability to capture and display the **date/time** of the public health event.

7.2.2   The system must have the ability to capture and display the **location** of the public health event.

7.2.3   The system must have the ability to capture and display a user-defined **description** of the public health event.

7.2.4   (Optional) The system might have the ability to capture and display the **number of cases** associated with the public health event.

7.2.5   The system must have the ability to capture and display the user-defined **magnitude/severity** of the public health event in a free-text description.

7.2.6   The system must have the ability to capture and display the user-defined **type** of the public health event.

7.2.7   (Optional) The system might have the ability to geocode and map user-defined public health events.

7.2.8   (Optional) The system might have the ability to store user-defined stakeholder contact information and display the stakeholders who should be informed based on user-defined rules associated with the description and type of the public health event.

7.2.9   (Optional) The system might have the ability to capture and display the **number of persons affected** by the public health event by user-defined categories, e.g., the number of persons (a) hospitalized, (b) died, and (c) otherwise affected.

7.2.10   (Optional) The system might have the ability to capture and display a description of the person affected that may be edited according to incident updates.

7.2.11   The system must have the ability to capture and display the **suspected and/or confirmed agent** of the public health event.

7.2.12   (Optional) The system should capture and display key evidence supporting the suspected and/or confirmed agent of the public health event.

7.3   The system must have the ability to share user-defined incident data with the user-defined individuals, groups, and/or organizations.

7.4   The system must have the ability to accept data from multiple sources in a variety of formats.

7.5   The system must have the ability to accept alert messages from other electronic alerting systems (e.g., Health Alert Network).

7.6   The system must provide the user with the ability to query user-defined data sources.

7.7   The system must have the capability to be accessed by users from remote locations through mobile devices and computers.

7.8   The system must comply with all data requirements laid out by HIPAA.

7.9   The system must comply with all data requirements laid out by federal, state, and local governing bodies.

7.10   The system must perform the standard epidemiological calculations.

7.11   The system must have provide the capability to build, view, and execute a user-defined workflow describing data sources, analytical methods and parameters, outputs, and scheduled runs.

7.12   The system must provide tools for user-defined report to create templates.

7.12.1   (Optional) The system might have the ability to allow for users to configure and customize the Analysis Report templates.

7.12.2   (Optional) The system might have the ability to create both electronic and paper-based reports

7.13   The system shall provide a list of user-defined data sources from which inputs to analytical methods can be selected.

7.13.1   The system shall allow the user to prioritize data.

7.14   The system shall provide a configurable list of available SME and their area of expertise for the SITREP to user.

7.14.1   The system shall allow the user to prioritize SMEs knowledge of the incident issues.

7.15   The system shall allow the user to define reporting periods (reporting period: time from data collected to report generated).

7.16   The system must have the capability to receive, accept, store, and display situational data from sources identified in the data collection & analysis plan.

7.17   The system shall have the capability for the user to manually input and/or import missing data.

7.18   The system shall have the capability for the user to edit data.

7.19   The system shall have the capability to log the receipt of situational data.

7.20   (Optional) The system might have the capability to alert users if situational data from which periodic data transfers are expected, and alert users if any transfers are not received as expected.

7.21   (Optional) The system might have the capability for users to modify the period of time when data updates are expected to be received from a particular source.

7.22   The system shall provide analysis of the situational data that it has received according to the data collection & analysis plan.

7.23   (Optional) The system might provide information regarding the reliability of the situation data received.

7.24   The system shall provide the capability to export the components of the situation report, such as text, graphs, and tables.

7.25   The system must provide a template for the Situational Report.

7.26   The system must aggregate the situational data and analysis for use in the Situational Report.

7.27   The system must be able to provide routing of the Situational Report to the appropriate users.

7.28   The system must be able to allow feedback on the Situational Report from appropriate users.

7.29   The system must be able to provide approvals of the Situational Report from appropriate users.

7.30   The system must have the capability to distribute the Situational Report to the appropriate groups, whether by electronic or physical distribution.

7.31   (Optional) The system might have the capability to confirm receipt of the Situational Report.

7.32   The system must have the capability to communicate the decision on whether the incident has ended to incident stakeholders.

7.33   The system must provide a template for the Final Situational Report.

7.34   The system must aggregate the situational data and analysis for use in the Final Situational Report.

7.35   The system must be able to provide routing of the Final Situational Report to the appropriate users.

7.36   The system must be able to allow feedback on the Final Situational Report from appropriate users.

7.37   The system must be able to provide approvals of the Final Situational Report from appropriate users.

7.38   The system must present data in various, user-configurable visual formats (e.g., epi-curves, charts, tables, graphs, maps, etc.)

7.39   The system must provide different levels of access and views for a variety of kinds of users.

7.40   The system must have the capacity to archive, index and recall all reports, forms, summaries, etc.

7.41   (Optional) The system should provide ready access to previous SITREPs.

7.42   (Optional) The system should have the capacity for keyword searches of information from other sources.

7.43   (Optional) The system should have the capacity to transition rapidly from routine to incident-specific formats.

7.44   (Optional) The system should be able to track user-defined carry over issues from one situational report to the next.

Business Process 8: Manage Resources

OVERVIEW:

The Manage Resources business process defines the activities performed <u>during an incident</u>, 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.

REQUIREMENTS:

8.1   The system must have the ability to set up a resource request record.

8.2   The system must have the ability to record the details of an incident (date, time, incident type, location).

8.3   The system must have the ability to receive information from the incident report.

8.4   The system must have the ability to receive information from the Incident Action Report (IAR).

8.5   The system must have the ability to access the details of the incident.

8.6   The system must have the ability to suggest a list of resources needed for the incident.

8.7   The system must have the ability to submit resource requests for the needed resources.

8.8   The system must have the ability to import or specify resource categories, kinds, components, and type (See Appendix B in NIMS March 2004 document).

8.9   The system must have the ability to track the status of resource requests.

8.10   The system must have the ability to classify public health resources vs. non public health resources.

8.11   (Optional) The system should present a list of resource types probably needed for different types of incidents.

8.12   The system must keep an inventory of public health resources available, including from where local vs. non-local.

8.13   The system must have the ability to forward a resource request to the coordinating entity.

8.14   The system must have the ability to receive the resource request.

8.15   The system must record the requirements for resources needed throughout the life cycle of the incident (what is needed, how much is needed, where the resources are needed, when they are needed, and what resources have been requested).

8.16   The system must identify the resource requestor.

8.17   They system must flag an incomplete resource request.

8.18   The system must provide cross-checking, generic edit checks, and validate for completeness, valid values.

8.19   The system must be able to allow resources requests to be updated.

8.20   (Optional) The system might have a predictive list of NIMS resource types.

8.21   The system must have the ability to maintain a list of resource types and allow changes for local typing.

8.22   The system must have the ability to interface with external inventory data sources.

8.23   The system must the capability to link to other inventory systems.

8.24   The system must support bi-directional communication between resource requestor and resource provider for request refinement.

8.25   The system must manage resource requests by priority.

8.26   The system must provide reports on resource requests and resource requirements upon demand.

8.27   The system must maintain lists of potential sources for filling requests (e.g., local/regional/state/federal mutual aid agreements).

8.28   The system must record the order for resources.

8.29   The system must be able to transmit the order information to identify sources.

8.30   The system must allow external sources access to indicate the status of filling the order.

8.31   The system must track status of the resource order (e.g. ordered, filled, back ordered, partial).

8.32   (Optional) The system should allow for the appropriate auditing of purchasing guidelines.

8.33   The system must pre-fill forms for ordering resources and resource requirements from common sources (e.g., has Best Buy's order in the system already).

8.34   The system must cascade a request to a secondary or tertiary source if the resource is not available from the initial source.

8.35   The system must flag orders for which no source is found within a user defined period (i.e., some buffer period when they are needed).

8.36   The system must have the capability to receive requests for non-inventoried resources.

8.37   The system must allow for the ordering of resources on-demand.

8.38   The system must have the ability to receive the order for resources.

8.39   The system must have the ability to track status of fulfillment, including resource location.

8.40   The system must have the ability to match the orders to the available resources on demand.

8.41   The system must have the ability to keep an inventory of resources and their location (shelf, phone number, etc.) and equipment needed to deliver it.

8.42   The system must have the ability to update the inventory of resources after fulfillment.

8.43   The system must have the ability to check in the resources.

8.44   The system must be able to add resource ID, and log resource ID, name (if applicable), type, source agency, current location, and check-in date and time.

8.45   The system must associate resource records with the related resource request and order fulfillment.

8.46   The system must identify and track the needs of the resources before the resources are mobilized.

8.47   The system must have the ability for users to complete the ICS Check in Form.

8.48   The system must have the ability to receive information on the resources ordered (type, quantity).

8.49   The system must have the ability to flag any gaps between resources ordered and resources checking in.

8.50   The system must provide for bi-directional communication between the Coordinating Entity for checking in resources and the Resource Manager for order fulfillment.

8.51   The system must identify resource (status) by NIMS status (e.g. assigned out of services).

8.52   The system must have the ability to record resource location/staging area (map graph, floor plan).

8.53   The system must allow for the Coordinating Entity to receive notification to mobilize by resource.

8.54   The system must allow for the Coordinating Entity to acknowledge the notification to mobilize by resource.

8.55   The system must have the ability to receive assignment and job action sheets from multiple formats including those specified by the Incident Command System (e.g., Incident Action Plan assignment forms).

8.56   The system must have the ability to send assignments and job action sheets to other users.

8.57   The system must receive and log assignment details.

8.58   The system must have the ability to send mobilization instructions to resources.

8.59   The system must update the status of resources from available to assigned, when they are mobilized.

8.60   The system must access and display JIT training materials.

8.61   The system must generate interim reports upon request on mobilization status.

8.62   The system must have the ability to identify any equipment mobilized and match with appropriate resource.

8.63   The system must allow the user to select criteria to be captured on report.

8.64   The system must assign equipment, supplies, appropriate transportation (cold chain/fragile) to each of these requirements to cover all possibilities.

8.65   The system must have the ability to aggregate information and report on all resources mobilized.

8.66   The system must have the ability to track, for each resource, ID, location, time, responsible person, assignment, functional status, perishables, consumables, transportation resources & performance metrics.

8.67   The system must have the ability to get reports on actual resource status and forward the information for inclusion in the situational report.

8.68   The system must have the ability send resource reports to a situational reporting process/system.

8.69   The system must have the ability to reconcile or replenish (vaccines, gloves) and have information of wasted doses.

8.70   The system must have the ability for responsible person to provide performance metrics info from field to Coordinating Entity.

8.71   The system must have the ability for responsible person to request additional resources from the field through the chain of command to the coordinating entity.

8.72   The system must aggregate the report information from multiple sources.

8.73   The system must have the ability to check resources back in.

8.74   The system must have the ability to identify resources no longer needed and process checkout.

8.75   The system must have the ability for users to complete a checkout form.

8.76   The system must have available input from other places/resources.

8.77   The system must ability to track performance metrics.

8.78   The system must have the ability to track who/when/where check out took place.

8.79   The system must have the ability to track personnel checkout (i.e. leaving the site) and update record.

8.80   The system must receive latest track and report information.

8.81   The system must have the ability to receive information from IAP Plan.

8.82   The system must have the ability to compare resources needed and status of current resources.

8.83   The system must have the ability to summarize/compile resource usage log (complete history).

8.84   The system must provide details on how each resource was used throughout as defined period.

8.85   The system must update inventory tracking as resources are recovered.

8.86   The system must output information required for reimbursement.

8.87   The system must output information required for follow-up care of participants in the incident.

8.88   The system must output information required for restocking expendable resources.

8.89   The system must provide details on the owner of each resource to facilitate resource return and recovery.

8.90   Though perhaps complex in operation, the system must appear simple to users. Configuration must be limited by user type.

8.91   The system must be easily accessed and used by users without sophisticated technical expertise.

8.92   The system must be closely integrated with the MCM system (same system).

8.93   The system must be able to generate a broad scope of analyses (temporal, spatial) and generate action recommendations.

8.94   The system must be easily configurable for organizations NOT using the Incident Command Structure and nomenclature.

8.95   The system must support real time updating, analyses and presentation.

8.96   The system must be configured for a variety of self-monitoring and evaluation tasks.

Business Process 9: Develop and Initiate Risk Communication

OVERVIEW:

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.

Throughout this process, the Core Communications Team will provide periodic briefs to key partners, such as elected officials, other health departments, and local, county, state and federal agencies, and Senior Management. These briefs may also include information about the content, form, and modes of the risk communications; results of communicating the risks; and feedback from the public.

Risk Communication may be triggered by the following preparedness business processes: Conduct Syndromic Surveillance, Conduct Notifiable Disease Surveillance, Conduct Active Surveillance, Public Health Investigation, Alerts, and/or Develop Situational Information.

REQUIREMENTS:

9.1   The system must have the ability to access and display alert data from surveillance processes.

9.2   The system must have the ability to access and display information from other business processes (e.g., public health investigation report, Incident Action Plan, Situational Report)

9.3   The system must have the ability to record the directive to perform risk communication (if one is given).

9.4   The system must have the ability to find and display risk communications from previous incidents that are similar in nature to the current one.

9.5   The system must allow users to select key officials and backups from a role-based distribution list.

9.6   The system must have the ability to allow the user to setup a distribution list, including entering contact info, setting up contact roles.

9.7   (Optional) The system might have the ability to continuously update key officials throughout the incident, either synchronously or asynchronously.

9.8   (Optional) The system might have the ability to electronically highlight the updated or newer information.

9.9   The system must have the ability to receive feedback on the risk communication from key officials.

9.10   The system must request and receive confirmation from key officials that were briefed. If confirmation is not received then the message request is sent to key officials. Confirmation message receipt criteria can be set by the user.

9.11   The system must access and display incident information from other business processes (e.g., PH investigation report, Incident Action Plan, Situational Report).

9.12   The system must provide a list of potential core communication team members and supporting information (e.g. expertise, availability).

9.13   The system must have the ability to query the situational report information from appropriate personnel (e.g., SME, IC).

9.14   (Optional) The system might formulate preliminary or initial communication objectives.

9.15   The system must evaluate sources of data.

9.16   (Optional) The system might determine (or indicate) confidentiality of data and determine rights and protection of info (who has access to it).

9.17   The system must provide a list of the following information related to the communications team - possible members available, levels of expertise, experience, and contact information.

9.18   The system must allow for entry of potential team members.

9.19   The system must allow for a functional role to be assigned to each team member.

9.20   The system must allow for users to request a specific communications team member.

9.21   The system must allow for user to update team member contact and role information.

9.22   The system must be able to display potential team members, their skills and their availability.

9.23   The system must allow for users to invite potential team members to be a part of a listing for a core communications team.

9.24   The system must be able to receive confirmation of core communications team acceptance.

9.25   The system must have the ability to distribute the incident information (e.g., situational report) to team for review.

9.26   The system must have the ability to communicate preliminary risk communication objectives to team.

9.27   The system must have the ability for team members to comment & contribute to the formulation of communication objectives & strategies.

9.28   The system must provide information on current communication system (e.g., HAN) capacity to inform options for strategies.

9.29   The system must allow selection of potential target groups from a pre-defined list.

9.30   The system must have the ability to capture characteristics of potential target groups (e.g., educational level, culture, ethnicity, language, age, etc.).

9.31   The system must be able to prioritize communications by level of risk.

9.32   Must have the ability to recall existing communication plans, and risk communication message templates/message maps by target audience. Existing from a variety of sources (i.e., different agencies, levels of government, jurisdictions), past or present.

9.33   The system must have the ability for users to create a new risk communication message and store it.

9.34   The system must be able to support "versioning" of the risk communications.

9.35   The system must be able to provide routing of the risk communication to the appropriate users (that can be designated by the Information Officer).

9.36   The system must be able to accept feedback on the risk communication.

9.37   The system must have the ability to Import or access pertinent risk communication templates.

9.38   The system must allow for users to edit risk communication templates to be specific to situation or target audience.

9.39   The system must store the incident message for archiving and future use.

9.40   The system must establish version control for risk communication messages.

9.41   (Optional) If interpretation required, then the system should identify potential translators and route the risk communication message for interpretation.

9.42   (Optional) The system might be able to translate (or otherwise adapt) the risk communication message to target audiences.

9.43   The system must accept input from the core communications team and subject matter experts.

9.44   The system must have the ability to adapt the risk communication message for selected communication modalities.

9.45   The system must provide information on in-house expertise and capacity for risk communication message review and adaptation.

9.46   (Optional) The system might provide a cost estimate for consultant work to perform a review on the risk communication.

9.47   The system must provide the ability to see communication objectives and population characteristics.

9.48   The system must have the ability to map the risk communication message to the organizational communication objectives and strategy. It must determine if the objectives can be met.

9.49   The system must have the ability check/evaluate the risk communication message to target audience characteristics (e.g., reading level, culture, language, etc).

9.50   The system must capture expert opinions and recommendations for changes.

9.51   The system must capture the subject matter expert identifier and expertise level.

9.52   (Optional) The system might have the ability to deliver the risk communication message to a test group.

9.53   The system must capture a message of recommendations from the test group.

9.54   The system must make note of suggestions/recommendations and reasons changes are made.

9.55   The system must identify time frame to get comments back and follow up with reminders to those subject matter experts who did not respond.

9.56   The system must have the ability to forward the SME review to senior management for feedback and approval.

9.57   The system must have the ability to translate the risk communication to other languages.

9.58   The system must have the ability to route and receive translation products.

9.59   The system must have the ability to perform consistency checks between media and across all modalities.

9.60   The system must have the ability to route the incident communication message to the appropriate Senior Management personnel.

9.61   The system must have the ability to capture suggested changes or feedback from the SME's and submit them to Senior Management.

9.62   The system must allow for Senior Management to approve the risk communication for distribution and capture the reasons for disapproval.

9.63   The system must have the ability to see the SME review and sign off on the changes.

9.64   The system must allow for Senior Management users to review and approve the risk communication mode.

9.65   The system must have the ability to access a list of Senior Management users and identify ones needing to review and approve messages and confirm receipt of message.

9.66   The system must notify the Core Communications Team of approval to distribute the risk communication message.

9.67   The system must have the ability to identify past experience, skills, and training for potential risk communication spokespersons.

9.68   The system must allow for the documentation of the selected spokesperson for the message.

9.69   The system must inform the stakeholder of the official spokesperson (and control who is not spokesperson).

9.70   (Optional) The system might have the ability to recommend spokesperson based on communication message or criteria.

9.71   (Optional) The system might determine the spokesperson representative by the incident situation and level of risk to population (real or perceived impact on population).

9.72   The system must maintain a list of spokespersons, contact information, training, experience & match to situation.

9.73   The system must produce forms containing the information to be disseminated that are specific to the outlets for dissemination.

9.74   The system must provide a list of potential communication outlets (contact information and dissemination mode).

9.75   The system must list criteria required for submission from each communication outlet.

9.76   The system must add and update the list of potential outlets by appropriate mode.

9.77   The system must electronically deliver communications media and messages to the communication outlet and confirm receipt of the message.

9.78   The system must have the ability to help create a summary of all news media communications that have taken place in the last X hours/days.

9.79   The system must keep track of time lag from distribution of the risk communication by the health department until outlet releases info.

9.80   The system must archive actual published form of the message.

9.81   (Optional) The system might allow users to query the number of times user-defined key words or phrases were used in/by outlets/media.

9.82   (Optional) The system might track the number of inaccuracies in information distributed by the communications outlets.

9.83   The system must provide a FAQ Section.

9.84   The system must be able to receive inquiries regarding the risk communication message from various outlets and put them into a user-defined format.

9.85   The system must allow for the risk communication inquiries to be searchable/sortable by type based on who needs to respond, or by type, topic, etc.

9.86   The system must allow for two-way communication for responding to the inquiries (dept to outlets).

9.87   The system must have the ability to store/archive inquiries and responses.

9.88   The system must have a user-defined threshold (e.g., number of inquiries indicating confusion) that triggers a review of the communication for possible updates.

9.89   The system must track inquiries and responses from each public health department.

9.90   The system must route inquiries to communications team, confirm receipt, and monitor responses.

9.91   (Optional) The system might have list of set responses to common questions.

9.92   (Optional) The system may use output of 2-4 to modify public web page/ blog/wiki etc. to better serve Q&A needs of population.

9.93   The system must record the reason the message was revised.

9.94   The system must capture how the risk communication message was distributed and which audience groups received it.

9.95   The system must capture and display the risk communication details, which should include the strategy and objectives.

9.96   The system must provide a list of officials first contacted with the risk communication.

9.97   The system must allow for the selection of additional officials who needed to be contacted by the appropriate users.

9.98   The system must capture how many individuals/groups received message (i.e., outlets, target audience).

9.99   The system must capture how many individuals/groups were not reached and who they were.

9.100 The system must summarize quantified info from the monitoring of communications outlets and review of message inquiries to produce a report on number of people receiving communications through the media outlets used to communication the message.

9.101 The system must have the ability to submit the risk communication assessment and the after action report.

9.102   The system must archive current communication plans and map text, media, etc. to repository.

9.103   The system must have the ability to gather and store all communications and feedback.

9.104   The system must have the ability to add evaluation and assessment of effectiveness to the risk communication strategies based on template.

9.105   The system must provide an evaluation template for users to develop, edit, and submit evaluations of risk communication messages.

9.105.1   (Optional) The evaluation template should include the following details or capabilities: Dates used (AAR/IP), authors/editors, method of evaluation, after action information, public reaction to the risk communication, quality or quantity of effectiveness, suggestions for change, aspects of template, allows you to make a change to the standard E&A template, plans to reach those not reached for next situation, open ended fill in, identify barriers to communication, how well communication addressed needs of specific population.

Business Process 10: Administer Medical Countermeasures (MCMs)

OVERVIEW:

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/phin/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.

REQUIREMENTS:

10.1   The system must have the ability to accept outputs from other business processes i.e., Notifiable Disease Surveillance, Public Health Investigation.

10.2   The system must have the ability to access and display information from the All Hazards Plan.

10.3   The system must have the ability to access and display information from SNS guidelines.

10.4   The system must have the ability to accept reports of PH significance (e.g., white powder positive for anthrax).

10.5   The system must have the ability to determine if there are existing and available MCM's for the situation/agent/disease.

10.6   The system must have the ability to allow users to record a MCM leader to approve MCM deployment, and enter his/her contact info.

10.7   The system must have the ability to access and refer to standard of care to protect the Population At Risk (P.A.R.)

10.8   The system must have the ability to present MCM approach alternatives.

10.9   The system must have the ability for users to designate MCM and standard of care references.

10.10 The system must have the ability to calculate necessary medical resources (actual physical items, i.e., number of syringes) based on MCM and PAR.

10.11 The system must have the ability to assess available staff and MCM resource inventories.

10.12 The system must have the ability to import or access pertinent MCM approach templates.

10.13 The system must store the MCM approach for archiving and future use.

10.14 The system must have the ability to document decisions, feedback, criteria and the basis for MCM approach (altered standard of care).

10.15   The system must provide access to the legal precedent for situation.

10.16   The system must route the details of the MCM approach to the appropriate users for review and approval.

10.17   The system must have the ability to show which forms must be completed for MCM (i.e., EUA, IND).

10.18   The system must give users the ability to modify the necessary MCM forms.

10.19   The system must have the ability to disseminate/send computed authorized forms to their point of use.

10.20   The system must have the ability to modify or create an approach to include existing timeframe, resources, scheduling, etc.

10.21   The system must be able to support "versioning" of the MCM approach.

10.22   The system must provide the means to record and display Standing Orders for the medications, vaccines, or other treatments that are to be provided. These must be written, updated, and signed by a physician with the authority to do so for the Health Department.

10.23   The system must allow users to select partners and backups from a role-based distribution list.

10.24   The system must have the ability to allow the user to set up a distribution list, including entering contact information, setting up contact roles.

10.25   (Optional) The system might have the ability to asynchronously (synchronously) and continuously update key officials throughout risk communication.

10.26   (Optional) The system might have the ability to electronically highlight the updated or newer information.

10.27   The system must have the ability to receive feedback on the MCM approach.

10.28   The system must request and receive confirmation from partners that were notified. If confirmation is not received then message request is sent to partner backups. Confirmation message receipt criteria can be set by the user.

10.29   The system must notify the Incident Commander and partners when the MCMs are deployed.

10.30   The system must have the ability to catalogue existing deployment plans.

10.31   The system must have the ability to relay pertinent information about MCM to partners, including just-in-time training.

10.32   The system must have the ability to receive and give specific instructions upon request.

10.33 The system must have the ability to register and archive client information defined in the MCM approach (e.g., contact information, lot number, service location, time served, risk indicators, exposure risk, geographic location).

10.34 The system must have the ability to subtract onsite MCM inventory as materials are used, in real time, by site-of-dispensing

10.35 The system must have the ability to capture number and demographics of clients treated, and which specific measure was provided to each.

10.36 The system must access and display MCM utilization information from other business processes (e.g., Manage Resources).

10.37 The system must have the ability to calculate percent of PAR served and number served per a user-defined period of time.

10.38 The system must have the ability to capture or calculate the duration of the MCM deployment.

10.39 The system must have the ability to capture or input adverse events that require MCM's, and adverse events that occur following or as a result of the MCM.

10.40 The system must have the ability to provide/report Adverse Events to public health partners and regulatory agencies.

10.41 The system must have the ability to track changes in population morbidity and mortality over the course of the event.

10.42 The system must have the ability to estimate or project time to meet MCM response objective based on throughput rates, available supplies and PAR size.

10.43 The system must have the ability to input user-defined threshold for acceptance based on response objective.

10.44 The system must have the ability to set a threshold dependent on risk benefit analysis based on severity of disease and adverse events incidence.

10.45 The system must have the ability to input user-defined termination criteria.

10.46 The system must query and accept information from other business processes or activities within this process.

10.47 The system must assess the number of adverse events and determine when the threshold has been reached for MCM deployment.

10.48 (Optional) The system might assess the operational impact of MCM policy changes while dispensing is on-going (e.g., if during an operation, it was determined that children should not be vaccinated and this is a change, the system would recalculate projection of time to operation completion.

10.49   The system must accept comment/input from partners to make the decision to terminate the MCM deployment or not.

10.50   The system must have the ability to allow users to record a MCM leader to approve MCM termination, and enter his/her contact info.

10.51   The system must have the ability to document the decisions to terminate MCM deployment.

10.52   The system must have the ability to allow other users to confirm the decision to terminate MCM deployment.

10.53   The system must have the ability to send directives to all resources to return to normal (via the Incident Commander, Manage Resources business process).

10.54   The system must have the ability to provide information on the effectiveness of the recovery plan.

10.55   The system must have the ability to set up list of partners and contact info to receive final report.

10.56   The system must have the ability to require confirmation of receipt of the termination decision.

10.57   The system must have the ability to pull in information from all preceding steps and other relevant business processes, i.e., Notifiable Disease Surveillance, Manage Resources.

10.58   The system must have the ability to supply appropriate template for reporting MCM Deployment results.

10.59   The system must allow for review and approval of the MCM report by the appropriate users.

10.60   The system must be accessible/usable from remote locations with limited technical resources, e.g., from a laptop in Houlton, Maine.

10.61   The system must have a scalable level of access, i.e., use only the parts of the system you need.

10.62   The system must connect to the public health alerting system and create (at least internal) alerts.

10.63   The system must be able to connect to healthcare systems inventory systems or to summaries of those inventory systems.

10.64   The system must be able to prepare and deliver required reports (especially Federal).

10.65   The system must be able to connect with the ESAR-VHP software and produce reports from that system.

10.66   (Optional) The system should be the same as or link entirely with the "Manage Resources" system.

10.67   The system must be able to track and report on adverse reactions and other medical outcomes.

10.68   The system must maintain activity logs for each specialized MCM activity.

10.69   The system must clearly display the current MCM strategy.

10.70   The system must provide analysis-based action recommendations and suggestions.

10.71   The system must be accessible and usable by users with a wide variety of skills. The system must have very simple user training requirements, for volunteers, for example.

10.72   The system must have a simple (owner-based) process for configuration and change management.

10.73   The system must have the ability to distribute the report to all appropriate parties (MCHD).

IV. Vendor-Related Requirements

Information about the Vendor

This section contains vendor considerations that will be relevant if a preparedness program wants to convert this requirements specification into a Request for Proposal (RFP).

1. ORGANIZATION HISTORY

    1.1   Number of years in preparedness information system business.

    1.2   Number of staff in organization.

    1.3   Number of staff assigned to preparedness information system related operations.

    1.4   Number of staff in preparedness information system development.

    1.5   Number of staff in preparedness information system implementation and training.

    1.6   Number of staff in preparedness information system supporting current install base.

    1.7   Describe history of your preparedness information system development efforts.

    1.8   Date of original version/release.

    1.9   Date of current version/release.

2. CURRENT INSTALLATION BASE

    2.1   Total number of unique customer installations of preparedness information systems.

    2.2   Total number of customers on latest version of preparedness information system.

    2.3   References from three customers on latest version of preparedness information system, who have system needs similar those stated in this RFP.

    2.4   References from three additional customers.

    2.5   Total number of concurrent user licenses or workstations on which preparedness information system software is installed.

    2.6   Total revenue from preparedness information systems for last fiscal year.

    2.7   Number of new customer installations of preparedness information systems.

3. PRODUCT MARKETING

    3.1   Describe the primary market preparedness information systems.

3.2 Is the product marketed as (indicate all that apply):

- Part of a bundled product offering?

- Part of multi-vendor suite?

- A standalone product offering?

3.3 Describe ways in which the product can be demonstrated.

3.4 Describe any warranty provided (i.e., length, coverage, etc.).

3.5 Describe the new version release strategy (i.e., how often, to whom is it available, and at what cost, if any).

4. IMPLEMENTATION SUPPORT (INSTALLATION, TRAINING, DATABASE CONVERSION)

4.1 Describe the application and database installation procedure.

4.2 Describe the administrative and user training provided as a part of the implementation process.

4.3 Describe available customer database conversion services.

4.4 Describe database conversion tools/programs used for converting a legacy database.

4.5 Describe the project management strategy for implementation, including customer sign-offs.

5. PREPAREDNESS INFORMATION SYSTEM TECHNICAL SUPPORT

5.1 Describe Help Desk support and problem investigation including:

- Hours of operation.

- Access method(s) (800 numbers, Internet, on site, online remote, etc.).

- Help desk operator training and preparedness information system experience.

- Problem-logging mechanism.

- Documentation of complaint history and resolution.

5.2 Describe strategy for system patches and fixes including:

- Application method: individually or in groups.

- How they are applied at user site (e.g., remote, by user, etc.).

- To whom they are distributed (e.g., entire base, version specific users only, etc.).

- Bug-fix prioritization and average timeframe between report and installed fix.

5.3 Describe continuing training opportunities and associated costs (if any).

5.4 Describe how new versions and releases are deployed.

6. USER GROUPS AND OTHER SERVICES

6.1 Provide name of user group and contact information (name, phone number, address and/or e-mail address).

6.2 Describe group organizational structure and membership requirements.

6.3 Describe group purpose and objectives.

6.4 Provide frequency of meetings and location(s).

6.5 Provide number of members (organizations and average attendance at last two meetings).

6.6 Describe other customer services and benefits.

7. VENDOR RISK ASSESSMENT

7.1 Provide Dunn and Bradstreet rating, if available.

7.2 Provide percent personnel turnover last year.

7.3 Provide financial statement (balance sheet and income statement) for last full year.

7.4 Provide banking reference (name, account officer, address, and telephone number).

8. DOCUMENTATION

8.1 Describe the level of detail the documentation addresses (e.g., general operation, low-level configuration, report design, API access, etc.).

8.2 Describe online documentation that can be accessed by the user directly from the application screens.

8.3 Describe how the documentation is organized and provide a hard copy version for inspection.

Information about the Preparedness Information System Product

1. GENERAL SYSTEM CHARACTERISTICS

   1.1   Describe the basic system architecture (e.g., host-based, client/server, multi-tiered, etc.) and operating architecture (e.g., ASP, server location, etc.).

   1.2   Describe the operating systems supported on the client (if applicable) and the server.

   1.3   Describe any database back-ends supported and note if they use native drivers, ODBC, or another access technology.

   1.4   Describe user interfaces supported (thin client, thick client, Web, PDA, API, ADO, DDE, etc.).

   1.5   If separate site servers are utilized, describe how site synchronization is achieved in the event of network failure in multi-site implementations.

   1.6   Describe other products with which the preparedness information system is designed to integrate.

   1.7   Describe the user interfaces supported by the product that are used by two or more customers (include PDA, Web, GUI, etc.).

   1.8   Can a customer install multiple non-interacting instances of the preparedness information system in order to support training and testing? If so, describe approach most commonly used by customers, and give two supporting customer references.

   1.9   Describe the system's audit trail capability.

   1.10   Describe the minimum requirements for workstations and associated peripherals, such as printers and barcode readers.

2. DATABASE

   2.1   Provide the name of the database product, if one is used.

   2.2   Describe the data model (e.g., flat file, relational, object-oriented, proprietary, etc.).

   2.3   Provide the size of the largest database installed for a customer's preparedness information system (Mbytes and number of test records).

   2.4   Describe the relationship of server size to database size, and impact of server memory (all in relationship to system response time).

   2.5   Describe the impact of workstation sizing (if any) on response time.

   2.6   Describe the relationship of response time to number of concurrent users.

2.7   What is the maximum number of concurrent users that can be efficiently supported (if there is a maximum)?

2.8   What is the application development language?

2.9   Does the database product support ODBC?

2.10   Does the design of the application database tables support the use of ODBC?

2.11   Describe the database tools supplied with the application.

2.12   Describe the archiving capability and approach utilized in your application.

2.13   Describe the audit trail capability and approach utilized to address HIPAA requirements.

Bid Sheet

Bid sheet formats are generally dictated by governmental organizations. A preparedness information system bid should include the following categories:

- License costs and terms
- Implementation costs
- Warranty (if there is a cost)
- Annual Maintenance

Try to avoid incurring extra costs for documentation, user training following implementation and onsite travel.

V. Explanation of Terminology

The following terms are included to clarify the meaning of words used within this document.

automating
Attempting to reduce an existing manual job to a set of computer programs that can replace the existing manual effort with the minimum of human effort or understanding.

best practice
A technique or methodology that, through experience and research, has shown to reliably lead to a desired result.

business practice
Habitual or customary actions or acts in which an organization engages. Also used in the plural to describe a set of business operations that are routinely followed.

business process
A set of related work tasks designed to produce a specific desired programmatic (business) result. The process involves multiple parties internal or external to the organization and frequently cuts across organization boundaries.

business process analysis
The effort to understand an organization and its purpose while identifying the activities, participants and information flows that enable the organization to do its work. The output of the business process analysis phase is a model of the business processes consisting of a set of diagrams and textual descriptions to be used for design or redesign of business processes.

business process redesign
The effort to improve the performance of an organization's business processes and increase customer satisfaction. Business process redesign seeks to restructure tasks and workflow to be more effective and more efficient.

business rules
A set of statements that define or constrain some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behavior of the health agency (business).

context diagram (entity diagram)
Reflects relationships and boundaries that exist between individuals and groups within a work environment, and shows how they relate to one another to achieve the goals and objectives of the process. It consists of the following elements:

> (1) **entity**: a person or group of people (e.g., accounts payable clerk or accounts payable department) who performs one or more tasks involved in a process,
> (2) **transaction**: Information exchanges between entities. Entities are represented by circles and transactions are represented by arrows. A context diagram may involve all the transactions of a single user of a system or of multiple users. Usually, single-user diagrams are attempted first (for ease), but multi-user diagrams are needed to get a good look at an entire process.

critical task
An action or set of actions that adds an identifiable value to a given business process objective.

customer
Groups or individuals who have a business relationship with the organization— those who receive and use

or are directly affected by the services of the organization. Customers include direct recipients of treatment and services, internal customers who provide services and resources for final recipients, and other organizations and entities that interact with an LHD to provide treatment and services.

entity
A person, group of people, or organization that performs one or more tasks involved in a process. The entities are the participants in the process. Entities are represented by circles in context diagrams.

framework
A defined support structure in which other components can be organized and developed. A logical structure for classifying and organizing complex information. A system of rules, ideas or principles that provides a unified view of the needs and functionality of a particular service.

function
A repeatable task series or operation that is used in more than one instance and can be shared across multiple business processes.

goal
The major health goal that the business process supports. The goal is the end state to be achieved by the work of the health agency and should be defined in terms of the benefits provided to the community/population or individual/client.

information system
Refers to the interaction between processes and technology, which may occur within or between organizations. It includes the information technology an organization uses, the ways the organizations interacts with the technology, and the ways technology works with the organization's business processes.

input(s)
Information received by the business process from external sources. Inputs are not generated within the process.

logical design
Logical design describes textually and graphically how an information system must be structured to support the requirements. Logical design is the final step in the process prior to physical design, and the products provide guidelines from which the programmer can work.

objective
A concrete statement describing what the business process seeks to achieve. The objective should be specific to the process such that one can evaluate the process or reengineer the process and understand how the process is performing towards achieving the specific objective. A well-worded objective will be SMART (Specific, Measurable, Attainable/Achievable, Realistic and Time-bound).

operation
A task series that completes a transaction.

outcome
The resulting transaction of a business process that indicates the objective has been met. Producing or delivering the outcome satisfies the stakeholder of the first event that triggered the business process. Often, measures can be associated with the outcome (e.g., how much, how often, decrease in incidents, etc.). An outcome can be, but is not necessarily, an output of the process.

output(s)
Information transferred out from a process. The information may have been the resulting transformation of an input, or it may have been information created within the business process.

result
A task output that may be used in one of three ways: (a) as an input to the next sequential step, (b) as an input to a downstream step within a task series; or (c) as the achievement of an organizational objective.

requirements
Define the specific tasks that need to be performed by an information system to complete a task.

requirements definition
Serves to specifically define the functionality to be supported. Requirements are also specified to ensure that activities within the business process remain within physical and operational boundaries. Requirements definition answers the question: "How would you see information systems supporting Task X?"

requirements development methodology
A logical, step-wise approach to think through the tasks that are performed to meet the specific public health objectives (analyze business processes), rethink the tasks to increase effectiveness and efficiency (redesign business processes), and describe what the information system must do to support those tasks (define system requirements).

stakeholder
A person, group, or business unit that has a share or interest in a particular activity or set of activities.

task
A definable piece of work that can be done at one time; i.e., what happens between the in-box and the out-box on someone's desk. A business process is made up of a series of work tasks.

task flow diagram
Graphic depiction of tasks showing inputs, processes, and results for each step that makes up a task.

task series
Any succession or progression of discrete tasks. A business process may contain more than one task series.

task set
The set of tasks that are carried out in a business process.

transaction
Information exchanges between entities. May also be the exchange of goods (e.g., a vaccine or payment) or services (e.g., an inspection) between two entities. Transactions are represented by arrows in context diagrams.

trigger
Event, action, or state that initiates the first course of action in a business process. A trigger may also be an input, but not necessarily so.