Requirements for SNS Inventory Tracking and Management
Acknowledgement

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**Background**

The Public Health Informatics Institute (the Institute) and CDC have worked collaboratively to enhance the capabilities of the public health system since April 2008. The partnership is a part of the Cooperative Agreement, to **Strengthen and Improve the Nation’s Public Health Capacity through National, Non-Profit, Professional Public Health Organizations to Increase Health Protection and Health Equity**. Through the Cooperative Agreement, CDC seeks to address three major health goals:

- Improve public health system performance of the essential services and the needed infrastructure.
- Assure that public health as a system of collaborating entities can meet the challenges of significant threats to health through preparedness.
- Improve the public health system’s ability to manage health information.

The Countermeasure Inventory Tracking (CIT) project was proposed as part of supplemental funding for year 2009. In 2009 – 2010, the response to the H1N1 virus highlighted critical needs for inventory tracking and management of medical countermeasures during a public health emergency. CDC requested the Institute to focus efforts on meeting a specific need: to develop requirements for tracking inventory of medical and non-medical countermeasures during an event for the Strategic National Stockpile (SNS). The scope of the project included collaboratively developing requirements to inform further development of an inventory tracking and management system to be used by SNS, state and local public health, and other CDC preparedness programs.

The current CIT system is a national program to help federal and state emergency response authorities identify the locations and quantities of critical medical countermeasures during public health emergencies. The SNS Supply Chain Dashboard is a situational awareness tool that provides CDC with visibility of the commercial supply chain and public sector stockpiles to assist decision makers at all levels in responding to a public health emergency, such as the recent H1N1 influenza pandemic. One of its primary purposes is to assist federal and state officials to decide when it is necessary to release stockpiled assets. The dashboard provides a view of the overall supply chain to include data on production, current supplies, and ability of manufacturers and distributors to meet current demand.

The goal of the SNS Inventory Tracking and Management project is to provide the capability to track the quantity and location of vital countermeasures that can be used daily and in response to a public health threat or event. CDC must have the ability to utilize the items within SNS as well as have the technology to access the current and historical inventory levels, locations and ordering availability of critical pharmaceuticals and medical materials in the private sector.
Core Workgroup
The core workgroup consisted of members from the Institute, CDC and state and local public health agencies.

SNS Inventory Tracking and Management Core Workgroup Members

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How to Use This Document

This document is designed to be both a roadmap and a tool. It serves as a roadmap for helping CDC move toward the vision expressed in this document. At the same time, it is a tool for structuring specific implementation projects and the basis for the creation of comprehensive vendor requests for proposals (RFPs). It provides a high level description of the business processes and a description of functional requirements for inventory tracking and management that can serve as input for creating technical information system specifications.

CDC and public health agencies are invited to customize this document to meet individual needs and can modify the business process sections, adding specific or unique requirements, and deleting business processes not under their jurisdiction.

General organizational support processes normally supported by separate information systems, such as payroll and general accounting, are not included in these requirements. The document has been organized to lead the reader from a “macro” to a “micro” view of an inventory tracking and its functionality. Individual requirements specifications can only be communicated within the context of an overall inventory tracking and management system structure.


**Business Process Descriptions**

This section briefly describes the inventory tracking information and management systems model and the 9 targeted business processes and their associated objectives that were addressed within the SNS Inventory Tracking and Management project.

This document does not propose a physical solution for an inventory tracking and management system that would support these business processes; rather, it delineates the appropriate requirements specifications, which can be used as a basis for determining systems support. Users are encouraged to package the requirements into modules or any other physical implementation scheme desired.
Business Process #1: Mobilize

OBJECTIVE: Activate people and resources in response to an event when resources are exhausted or expected to be exhausted. Consider recommendation to decision makers for implementation of asset request process.

MEASURABLE OUTCOMES: Prepare to receive and distribute and/or dispense medical counter measures, outside resources needed are requested and there is a fully operational response in accordance to state, tribal, regional, territorial, and local plans.

The mobilize business process describes the activities by which resources should be requested to anticipate resource requirements for a specific time period at state and local levels. This process is a cyclical process that is active until the event has ended.

Business Process #2: Order/Request Resources

OBJECTIVE: Accurately and efficiently request resources needed based on justification criteria as identified by the respective jurisdiction.

MEASURABLE OUTCOMES: There is an increased percentage of orders/requests that accurately reflect identified needs of requesting jurisdiction, a high percentage of jurisdictions maintain at or above par levels and reports are generated and error free.

The Order/Request Resources business process should facilitate inventory control and provide a tracing mechanism for goods justification as identified by appropriate authority.

Business Process #3: Approve Request

OBJECTIVE: Verify and determine the disposition of requests for resources in a timely manner.

MEASURABLE OUTCOMES: Ability to track turnaround time for requests and percentage of orders processed as filled, partially filled, backordered, and killed. The request status communicated to requestor in a timely manner.

This business process provides the mechanism for approving orders and request for resources by lower and adjacent and higher levels. This process may be different according to the jurisdictional level.
Business Process #4: Receiving

OBJECTIVE: Physically receive, inspect and verify accurate inventory in a specific amount of time.

MEASURABLE OUTCOMES: There is an ability to track accurate counts of inventory for a user-specified time measure. Goods are available for distribution and ready to be assigned a storage location. Discrepancies are reconciled and there is a paper trail, i.e. the chain of custody procedures are properly followed.

The receiving business process describes the process at all levels of the system. The activities of receiving are often performed by different individuals or functional roles based on which level receiving is taking place. The manner in which arriving good will be handled will depend on the requirements of cold storage and security.

Business Process #5: Store Inventory

OBJECTIVE: Ability to identify appropriate locations and accurate inventory of all items to ensure stock is readily available.

MEASURABLE OUTCOMES: There are accurate counts and location of inventory items and a low discrepancy percentage during physical inventory. There is 100% inventory placement in accordance with jurisdictional plan and 100% accountability, availability and usability at all times for goods in inventory.

The store inventory business process describes the activities to record all stock movement in and out of storage areas. Stock should be stored according to the manufacturer’s requirements, i.e. controlled temperature and/or humidity. Chain of custody implies the monitoring of the flow of stock items within the logistics system. Monitoring both stock environment and stock movement facilitate line of sight as well as proper storage which prolongs the life of the goods.
**Business Process #6: Pick Order**

OBJECTIVE: Accurately pick and stage orders to be shipped to another location.

MEASURABLE OUTCOMES: Accurate orders are staged for shipment to locations and inventory records are updated. Security is maintained for orders. There is an ability to track the accuracy and quality check percentages for picked orders.

The pick order process is triggered by an approved request. The successful completion of the picking business process triggers the ship inventory process.

**Business Process #7: Ship Inventory/Order**

OBJECTIVE: Ensure timely delivery of assets regardless of barriers, in accordance to Federal, State and local requirements.

MEASURABLE OUTCOMES: Inventory is received within measurable timeframe and defined margin of error with appropriate paperwork and signatures. The goods are appropriately packaged and labeled, arrive undamaged and in accordance with good manufacturers’ practices. Notification of delivery is sent prior to the goods arriving.

The ship inventory process is triggered by an order that is completed, quality checked and staged ready for shipment. Orders are often grouped into trips in order to efficiently and effectively utilize transportation resources. Environmental considerations per type of goods and per receiving facility are critical when determining transportation mode and type.

**Business Process #8: Dispense Medical Counter Measures**

OBJECTIVE: Safely and accurately dispense appropriate medical counter measures (MCM) to target populations.

MEASURABLE OUTCOMES: Adequate supplies and medications are present at the dispensing sites. There is a reduction of morbidity for individuals receiving appropriate treatment with a high percentage of the target population reached based on the event type. There is a reduction of adverse events. Appropriate patient education is given with MCMs and 100% of individuals receive the correct MCM.
The dispense business process begins with a client encounter and a determination of which type(s) of treatment and/or goods are need by the individual based on event. If the treatment(s) are available and in the correct quantity and quality, they will be dispensed to the individual and the client record will be updated with appropriate information. An important aspect of the dispense process is the ability to track lot numbers of the medical counter measures; where the lot number is, but not necessarily who received which lot number.

**Business Process #9: Demobilize**

**OBJECTIVE:** Return to a normal state from a response activity and secure remaining medical counter measures.

**MEASURABLE OUTCOMES:** There is an increased situational awareness, an accurate inventory for non-consumable medical counter measures, accurate and timely documentation for financial reimbursement, and the generation of the After Action Report.

Demobilization is triggered by the Mobilize business process and often occurs simultaneously during the event.
**Business Process Requirements**

This section details business process requirements for the 9 identified business processes within SNS inventory tracking and management. Requirements are the statements that describe the needed functionality of an information system to support the business process. Requirements answer the question: “How would you see information systems supporting activity X?” Each identified business process is listed below with activity-based requirements. Not all listed activities within the business process have associated requirements. The specifications for each business process are not intended to suggest any physical implementation strategy.

Task flow diagrams of the business processes and their activities details are available in Appendix C.

**Business Process #1: Mobilize**

1.1 Event

   1.1.1 Create unique event type
   
   1.1.2 Suggest inventory needed based on event type
   
   1.1.3 Create/maintain duty log

1.2 Alert Key Staff/Personnel

   1.2.1 Notification to appropriate staff and personnel to respond to the event

1.3 Gather and Analyze Information

   1.3.1 Capture event data at appropriate levels
   
   1.3.2 Determine MCMs needed based on event

1.4 Activate

1.5 Activate Staff and Resources

   1.5.1 Deploy resources as “in use” or “not available”

1.6 Additional Resources

1.7 Available
1.8 Request Next Level

1.8.1 Create request
1.8.2 Route resource request to appropriate level
1.8.3 Capture approval

Business Process #2: Order/Request Resources

2.1 Identify Need

2.1.1 Estimate/forecast stock needs according to defined rules per scenario
2.1.2 Flag pre-identified reorder levels
2.1.3 Capture historical order data
2.1.4 Capture “other” (unknown) stock items other than items pre-identified

2.2 Determine Current Available

2.2.1 Display current available and usable on hand quantity of each stock item
2.2.2 Display open orders in transit inbound
2.2.3 Display open outbound orders
2.2.4 Display current stock levels at all relevant levels
2.2.5 Display expiry dates for on-hand stock
2.2.6 Determine outside resource availability (depending on event)

2.3 Additional Resources Required

2.4 Create Order/Request

2.4.1 Generate order based on need
2.4.2 Allow for validation of order by the originator
2.4.3 Display minimum quantity order increments
2.4.4 Create generic order form

2.4.5 Create appropriate order data, i.e. reference number, order id, logo, instructions, etc.

2.4.6 Capture approval

2.4.7 Capture point of contact information if the receiver is not the same as the requestor

2.4.8 Create new items based on need

2.5 Approve Request

2.6 Submit Request

2.6.1 Print the order/request

2.6.2 Submit order/request

2.6.3 Ability to monitor/inquire/maintain order status, approval status, and shipping status

2.6.4 Provide approval/rejection mechanism at appropriate levels

2.6.5 Ability to modify the order/request as appropriate

2.6.6 Record order approval date and time

Business Process #3: Approve Request

3.1 Receive Request

3.1.1 Capture date/time received order/request

3.1.2 Display order ID/number and order detail

3.1.3 Capture approval information for current and previous levels, i.e. date/time/approver

3.1.4 Filter requests by status

3.1.5 Capture and edit status of request

3.2 Approve
3.3 Inform Requestor

3.4 Fill

3.5 Inform Requestor

3.5.1 Display reason for fill/partial fill for both requestor and approver

3.5.2 Capture date/time of request disposition

3.5.3 Notify requestor of disposition

3.6 Backorder

3.7 Create Backorder

3.7.1 Create backorder based on user-defined rules

3.7.2 Link backorder to original resource request/order

3.7.3 Filter backorders by vendor, source, customer, product, etc.

3.8 Inform Requestor

3.9 Kill the Balance

3.9.1 Cancel remaining resources from request/order

3.9.2 Update request status

3.10 Inform Requestor

**Business Process #4: Receive Inventory**

4.1 Receive Shipping Notification

4.1.1 Accept notification of arrival of shipment

4.1.2 Record shipment information prior to arrival

4.1.3 Acknowledge notification back to sender

4.1.4 Display the storage requirements based on quantity shipped gross volume

4.1.5 Display amount of storage space available by type
4.1.6 Flag if insufficient storage space by type

4.1.7 Capture/display date and time of estimated arrival

4.2 Arrive

4.2.1 Provide detail of the shipment

4.2.2 Link shipment information to request for product and arrival notification

4.2.3 Reject shipment

4.3 Acknowledge Arrival

4.3.1 Capture arrival information

4.3.2 Capture delivery confirmation/signature

4.3.3 Notify appropriate individuals of delivery

4.4 Off Load

4.5 Inspect/Verify

4.5.1 Record shipment information

4.5.2 Record damage, discrepancy, batch mismatch, indicator, and variation information for individual line items

4.5.3 Record notes concerning discrepancies and variations in goods received

4.6 Damage/Discrepancy

4.7 Corrective Action/Reconcile

4.7.1 Report damages and discrepancies to appropriate individuals

4.7.2 Record disposition of damaged items

4.8 Record Receipt

4.8.1 Create receiving report

4.8.2 Record authorization of receipt

4.8.3 Received goods without a requisition/purchase order reference
4.9 Assign Location/Store
   4.9.1 Display storage requirements for items
   4.9.2 Propose space/positions for each stock item
   4.9.3 Assign/edit location of items

4.10 Update Records
   4.10.1 Edit inventory record/item detail
   4.10.2 Update order status to closed
   4.10.3 Update stock records with item details

Business Process #5: Store Inventory

5.1 Pre-identified

5.2 Identify Location
   5.2.1 Display storage requirements
   5.2.2 Maintain various warehouse configurations
   5.2.3 Assign location based on available space
   5.2.4 Generate location assignment order
   5.2.5 Ability to assign location based on product condition
   5.2.6 Ability define pending expiry
   5.2.7 Display and transmit alerts and notifications for pending expiries
   5.2.8 Display and transmit alerts and notifications for stock outs, overstock and understock
   5.2.9 Define multiple inventory storage locations (Aisle, Bin Slot, etc.)
   5.2.10 Record location transfers
5.2.11 Ability to flag items as hazardous

5.3 Move to Location

5.4 Update Inventory Record

5.4.1 Generate physical inventory count sheets

5.4.2 Record physical inventory counts

5.4.3 Capture item detail

5.4.4 Ability to update stock record

5.4.5 Record stock adjustments

5.5 Maintenance Required

5.6 Perform Maintenance

5.6.1 Record type of maintenance to be performed

5.6.2 Update maintenance log

5.6.3 Generate work order/take out of service

5.6.4 Return to inventory

**Business Process #6: Pick Order**

6.1 Produce Pick List

6.1.1 Display current locations(s) for ordered items

6.1.2 Create the pick list sorted by stock location

6.1.3 Display stock detail

6.1.4 Update inventory record as assigned, or no longer available

6.1.5 Ability to modify pick list

6.2 Assign Pick Teams

6.2.1 Assign pick teams to pick list
6.3 Pick Order
   6.3.1 Record stock adjustments if pick list includes damaged/lost/missing stocks

6.4 Conduct QA
   6.4.1 Record signature for QA

6.5 Pass

6.6 Corrective Action
   6.6.1 Correct pick list
   6.6.2 Cancel entire pick list or items
   6.6.3 Capture comments for cancelled pick list or items

6.7 Generate Bill of Lading
   6.7.1 Update inventory record
   6.7.2 Print bill of lading

6.8 Prepare for Shipping
   6.8.1 Display packing/shipping instructions
   6.8.2 Group orders by locations and trips to facilitate delivery
   6.8.3 Create shipping/transportation/chain of custody documents
   6.8.4 Record stock issues/update quantity on hand
   6.8.5 Create transportation order

Business Process #7: Ship Inventor/Order

7.1 Shipment Ready for Transport
   7.1.1 Print shipping documentation
   7.1.2 Receive transport order
7.1.3 Schedule transport resources
7.1.4 Display delivery instructions

7.2 Deliver

7.3 Notify of Requirements

7.3.1 Print shipping instructions and handling information

7.4 Get Appropriate Transportation

7.4.1 Estimate weight and dimensions of packaging
7.4.2 Modify dimensions and weight of packaging
7.4.3 Display available transport modes and type
7.4.4 Display truck type and capacity
7.4.5 Capture license plate and drive information

7.5 Load

7.5.1 Capture chain of custody signature

7.6 Notify of ETA

7.6.1 Notification to designated point-of-contact from initial order
7.6.2 Ability to include in notification order detail, tracking number, vehicle, driver

7.7 Transport Goods

7.7.1 Ability to track location and update ETA

7.8 Deliver

7.8.1 Capture delivery information - date, time, signature, etc.
7.8.2 Record transport history
7.8.3 Link delivery with order

7.9 Signoff/Chain of Custody
7.10 Update Order Status

7.10.1 Update order status

7.10.2 Notify receiving location of delivery

**Business Process #8: Dispense Medical Counter Measures**

8.1 Greet

8.1.1 Retrieve client record

8.1.2 Ability to enter registration and screening information

8.1.3 Ability to display vaccination history of the client

8.1.4 Ability to display dispensing/service received history of the client

8.2 Continue

8.3 Refer

8.3.1 Print pharmaceutical/medical consult/reference materials as necessary based on event type

8.3.2 Capture disposition of referral

8.4 Obtain Consent

8.4.1 Capture allergy information of client

8.4.2 Allow for entry of multiple individuals per consent

8.4.3 Consent form customizable per event by jurisdiction

8.5 Patient Screen and Education

8.5.1 Define clients into high-risk categories

8.5.2 Ability to record consultation comments of healthcare provider

8.5.3 Provide information on potential contraindications
8.5.4 Provide education information based on MCM and/or event

8.6 Dispense MCM

8.6.1 Show availability of current quantity of MCMs

8.6.2 Receive prescription/order

8.6.3 Record MCM dispensed to the client

8.6.4 Capture reason for non delivery of service, e.g. refusal, temporary/permanent contraindication, stock out, etc.

8.7 Monitor Client

8.7.1 Capture client adverse events

8.8 Collect Form/Update Record

8.8.1 Record Inventory/MCM used to decrement stock records

8.8.2 Update client record

8.8.3 Alert potential device/product shortages

8.8.4 Ability to record lot information on stock register and/or client record

8.8.5 Ability to record administered or dispensed device/product information

8.8.6 Ability to record MCMs used without link to client

**Business Process #9: Demobilize**

9.1 Mobilize

9.2 Current Resources Needed

9.3 Deployment Cycle Reached

9.4 Demobilize

9.4.1 Display current resource status, i.e. what resources are in use and inventory detail

9.5 Prioritize Resources
9.6 Recover Assets

9.7 Dispose

9.7.1 Capture cost of disposition - reconstitution, destroy, rehab/maintenance, clean, restock, repair, etc.

9.8 Recover

9.9 Long Term Storage

9.10 Update Records
General System Requirements
There are a number of general requirements that are not business process specific, but are important from the perspective of overall system functioning. This section includes general requirements that describe the overall system capabilities that should support an inventory tracking and management system.

General Characteristics

1.1 Provide a stable and highly available environment

1.2 Provide a user friendly interface that is consistent throughout the system

Data Capture

2.1 Accept data from multiple input methods including: paper, online web forms, PC asynchronously, PC synchronously, interactive voice response, bar code, RFID

2.2 Enter the value desired directly or from a drop down table of valid values through standard mouse selection procedure

2.3 Require mandatory fields to be filled before the user can exit the screen

2.4 Support real time data entry auditing quality control

2.5 Support real time data entry feedback preventing data entry errors from being recorded

2.6 Provide appropriate calculations at time of data entry

2.7 Log transactions at time of data entry

2.8 Maintain transaction log history

2.9 Provide asynchronous and synchronous data synchronization

Integration

3.1 Ability to exchange data with other approved systems
Reporting

4.1 Generate stock status for individual items at any and/or all levels for any time period
4.2 Generate stock consumption report at any and/or all levels for any time period
4.3 Generate coverage reports

Security

5.1 Support definitions of unlimited roles and assigned levels of access, viewing, entry, editing and auditing
5.2 Require each user to authenticate by role before gaining access to system
5.3 Provide flexible password control to align to national policy and standard operating procedure
5.4 Create and maintain individual user specific security tables containing user ID and password information that is accessed only by administrator level security
5.5 Restrict user passwords to compliant combinations of characters of a standard minimum length
5.6 Track user password revisions and force users to change their passwords at determined intervals
5.7 Terminate log-on screen after determined number of unsuccessful tries by a user to log in
5.8 Automatically log off idle workstations after a predetermined period of time
5.9 Prevent a user from being logged on to multiple workstations at the same time
5.10 Create an audit trail of who, when, where and what functions were accessed by a specified user
5.11 Create rights and privilege groups by type of user
5.12 Create unique user rights based on functions and screen displays
5.13 Control which users have the right to update specified data sets and track the data updated

5.14 Store data centrally in a physically secure location

**System Administration**

6.1 Allow administrator(s) to maintain item master

6.2 Allow system administration by local staff

**Technical Design**

7.1 Ability to choose data entry devices and form factors

7.2 Ability to access the system at all levels/stores

7.3 Software development life cycle should be well described and documented

7.4 Enable electronic data interchange (EDI)

**System Access and Navigation**

8.1 Access any allowed function from any workstation on the system

8.2 Access various screens through the use of menus and appropriate icons on various screens

8.3 Move easily from one screen to another utilizing screen appropriate icons or function keys

**Miscellaneous**

9.1 Display item master for each level

9.2 Allow for conversion of different currencies to a standard currency at the prevailing exchange rate

9.3 Generate unique record number(s)
9.4 Enable flexible search criteria for accessing transactions
Appendix A: Glossary of Business Process Terms

**ACTIVITY.** A generic term for the work that is performed in the business process. The types of activities are task and sub process.

**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 involve 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.** Organizational groupings or entities involved in the business process and how they relate to one another to achieve the goals and objectives of the 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 or a group of people who 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.

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. A tool that supports work.

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. The specific things the information system must do to make the process efficient and achieve its purpose.

REQUIREMENTS DEFINITION. The purpose of requirements definition is to refine our understanding of the workflow and then to define database outputs needed to support that work. Requirements definition serves to specifically define the functionality to be supported. In addition, the physical constraints are examined, and the specific project scope determined. 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 an interest in a particular activity or set of activities.

SUBPROCESS. A process that is included within another business process.

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. Graphical description of tasks showing inputs, processes, and results for each step that makes up a task.

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.
Appendix B: Business Process Matrices

The Business Process Matrix is a text-based tool that describes all the interrelated components of a business process, starting with the overall goal(s), and ending with how the organization will measure whether the goal was achieved, and everything in between that contributes to achieving the goal. The components contained in a Business Process Matrix are:

GOAL – The major goal that the process supports. The goal is the end state to be achieved, and should be defined in terms of the benefits to the community.

OBJECTIVE(S) – A concrete statement describing what the business process seeks to achieve. A well-worded objective will be SMART: Specific, Measurable, Attainable/Achievable, Realistic, and Time bound.

BUSINESS RULES – A set of criteria that defines or constrains some aspect of the business process. Business rules are intended to assert business structure or to control or influence the behavior. Examples in healthcare and public health include laws, standards, and guidelines.

TRIGGER – An event, action or state that indicates the first course of action in a business process. In some case, a trigger is also an input.

TASK SET – The key set of activities that are carried out in a business process.

INPUT – Information received by the business process from external sources. Inputs are not generated within the process.

OUTPUT – 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.

MEASURABLE OUTCOMES – The resulting transaction of a business process that indicates the goal(s) and objectives have been met.
### SNS Inventory Tracking and Management
#### Business Process Matrix

**Mobilize**

**GOAL(S)** – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
<th>TRIGGER</th>
<th>TASK SET</th>
<th>INPUT</th>
<th>OUTPUTS</th>
<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Activate people and resources in response to an event when resources are exhausted or expected to be exhausted. Consider recommendation to decision makers for implementation of asset request process. | • State, local, territorial and tribal response plan  
• CDC/Federal response guidelines  
• Data collection and analysis | Possibility of incident identified and/or a resource shortage or need.  
1. Event  
2. Alert Key Staff/Personnel  
3. Gather and Analyze Information  
4. Activate?  
5. Activate Staff and Resources  
6. Additional Resources?  
7. Available?  
8. Request Next Level | 1. Request for assets  
2. Information sharing | • Status and availability of assets  
• Notification of asset delivery  
• Mobilized resources  
• Activated locations (RSS, RDS, PODs) | • Prepared to receive and distribute and/or dispense medical counter measures  
• Outside resources needed are requested  
• Fully operational response in accordance to state, tribal, regional, territorial, and local plans |
**SNS Inventory Tracking and Management**  
**Business Process Matrix**  

**Order/Request Resources**

**GOAL(S)** – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
<th>TRIGGER</th>
<th>TASK SET</th>
<th>INPUT</th>
<th>OUTPUTS</th>
<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Accurately and efficiently request resources needed based on justification criteria as identified by the respective jurisdiction | • State, local, territorial and tribal response plan  
• Grant guidelines (for grant specific items)  
• CDC/Federal response guidelines  
• State and local rules  
• Event specific guidelines | Actual or projected shortfall in resources based on a 72 hour or designated par level | 1. Identify Need  
2. Determine Current Available  
3. Additional Resources Required?  
4. Create Order Request  
5. Approve Request?  
6. Submit Request | • Situational information  
• Demographic and Population information  
• Product expiration dates  
• Expected inventory to be received  
• “Blocked” inventory | • Order/Request for resources  
• Order/Request justification | • Increased % of orders/requests that accurately reflect identified needs of requesting jurisdiction  
• High % jurisdictions maintain at or above par levels  
• Reports are generated and error free |
## Approve Request

**GOAL(S)** – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
<th>TRIGGER</th>
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<th>INPUT</th>
<th>OUTPUTS</th>
<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Verify and determine the disposition of requests for resources in a timely manner. | • Grant guidelines  
• Event specific considerations  
• Policy considerations  
• Allocation of scarce resources | Order/Request is received for verification and approval | 1. Receive Request  
2. Approve?  
3. Inform Requestor  
4. Fill?  
5. Inform Requestor  
6. Backorder?  
7. Create Backorder  
8. Inform Requestor  
9. Kill the Balance  
10. Inform Requestor | • Order/request for assets  
• Order/request justification  
• Availability of resources from alternate sources | • Acknowledgement of request is communicated  
• Disposition of request is communicated to the requestor | • Turnaround time for requests  
• Percentage of orders processed as fill, partially filled, backordered, and killed  
• Request status communicated to requestor |
**SNS Inventory Tracking and Management**

**Business Process Matrix**

### Receive Inventory

**GOAL(S)** – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
<th>TRIGGER</th>
<th>TASK SET</th>
<th>INPUT</th>
<th>OUTPUTS</th>
<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Physically receive, inspect and verify accurate inventory in a specific amount of time | • State, local, territorial and tribal response plan  
• Federal and state laws and regulations | Arrival of resources/supplies | 1. Receive shipping notification  
2. Receive ETA  
3. Arrive  
4. Acknowledge Arrival  
5. Off load  
6. Inspect/Verify  
7. Damage/Discrepancy?  
8. Corrective Action/Reconcile  
9. Record Receipt  
10. Assign Location/Store  
11. Update Records | • Bill of lading and/or other shipping documentation | • Physical inventory  
• Inventory in appropriate location  
• Updated inventory records | • Accurate counts of inventory  
• User-specified time measure  
• Available for distribution  
• Ready to be assigned a storage location  
• Reconciled discrepancies  
• Paper trail, i.e. chain of custody procedures are properly followed |
## SNS Inventory Management and Tracking
### Business Process Matrix

#### Store Inventory

**GOAL(S)** – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
<th>TRIGGER</th>
<th>TASK SET</th>
<th>INPUT</th>
<th>OUTPUTS</th>
<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Ability to identify appropriate locations and accurate inventory of all items to ensure stock is readily available | • State, local, territorial and tribal response plan  
• Federal and state laws and regulations  
• Manufacturer’s specifications | Resources are placed into inventory | 1. Pre-identified?  
2. Identify location  
3. Move to Location  
4. Update Inventory Record  
5. Maintenance Required?  
6. Perform Maintenance | • Storage locations identified for resources | • Inventory accurately stored  
• Updated inventory records | • Accurate counts and location  
• Low discrepancy % during physical inventory  
• 100% inventory placement in accordance with jurisdictional plan  
• 100% accountability, availability and usability at all times |
GOAL(S) – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
<th>TRIGGER</th>
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<th>OUTPUTS</th>
<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Accurately pick and stage orders to be shipped to another location | • Federal and state laws and regulations  
• Environmental conditions, i.e. cold chain requirements  
• Controlled substances regulations  
• Expiration policies  
• Warehouse standard operating procedures | Order is approved | 1. Produce Pick List  
2. Assign Pick Teams  
3. Pick Order  
4. Conduct QA  
5. Pass?  
6. Corrective Action  
7. Generate of Bill Lading  
8. Prepare for Shipping | • Inventory maintenance records  
• Inventory count and location records  
• Quality control records  
• Human resources, i.e. pick team  
• On hand inventory | • Bill of lading  
• Pick list  
• Quality control verification  
• Updated inventory records | • Accurate orders staged for shipment to locations  
• Updated inventory records  
• % accuracy in picked orders  
• % of orders quality checked  
• Security maintained |
GOAL(S) – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
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<th>INPUT</th>
<th>OUTPUTS</th>
<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Ensure timely delivery of assets regardless of barriers, in accordance to Federal, State and local requirements | • State, local, territorial and tribal response plan  
• Federal and state laws and regulations | Order completed, quality checked and staged | 1. Shipment Ready for Transport  
2. Deliver?  
3. Notify of Requirements  
4. Get Appropriate Transportation  
5. Load  
6. Notify ETA  
7. Transport Goods  
8. Deliver  
9. Signoff/Chain of Custody  
10. Update Order Status | • Delivery information  
• Bill of lading  
• Road, weather, and travel information (security, routes, etc.) | • Chain of custody information/documentation  
• Completed order | • Inventory received within measurable timeframe and defined margin of error  
• Appropriate paperwork and signatures  
• Did assets arrive meet or exceed ETA (e.g. 90% within ETA, 10% weather traffic, unforeseen events)  
• Send notification of delivery |
SNS Inventory Tracking and Management
Business Process Matrix

Ship Inventory/Order, cont.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
<th>TRIGGER</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Ability to track shipments in accordance with jurisdictional plan (can track certain % of delivery)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Cell phones/two-way radios required to call when arrive – is it called in within a certain timeframe</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Shipping arrives undamaged</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Appropriately packaged and labeled</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Arrives in accordance with good manufacturers’ practices</td>
</tr>
</tbody>
</table>
SNS Inventory Tracking and Management
Business Process Matrix

Dispense Medical Counter Measures

**GOAL(S)** – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
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<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Safely and accurately dispense appropriate medical counter measures (MCM) to target populations | • State, local, territorial and tribal response plan  
• Federal and state laws and regulations | Assets arrive and there is a need to dispense MCMs | 1. Greet  
2. Continue?  
3. Refer  
4. Obtain Consent  
5. Patient Screen and Education  
6. Dispense MCM  
7. Monitor Client  
8. Collect Form/Update Record | • Clinical guidance for specific MCM  
• Incident specific guidelines  
• Public messaging | • MCM educational materials  
• Operational POD  
• Dispensing records/reports  
• Medical referrals | • Adequate supplies and medication to dispensing sites  
• Reduce morbidity and mortality  
• % target population based on scenario  
• Reduced adverse events  
• Appropriate patient education given with MCMs  
• Account for 100% MCM provided to population  
• 100% of individuals receive correct MCM |
SNS Inventory Tracking and Management
Business Process Matrix

**Demobilize**

**GOAL(S)** – Supplies, equipment and consumables are available where they are needed, in the amount needed, and in good condition.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>BUSINESS RULES</th>
<th>TRIGGER</th>
<th>TASK SET</th>
<th>INPUT</th>
<th>OUTPUTS</th>
<th>MEASURABLE OUTCOMES</th>
</tr>
</thead>
</table>
| Return to a normal state from a response activity and secure remaining medical counter measures | • State, local, territorial and tribal response plan  
• Federal and state laws and regulations | • The need for a diminished response  
• Decision made by authorities to scale down  
• Fixed deployment schedule | 1. Mobilize  
2. Current Resources Needed?  
3. Deployment Cycle Reached  
4. Mobilize  
5. Prioritize Resources  
6. Recover Assets?  
7. Dispose  
8. Recover  
9. Long Term Storage  
10. Update Records | • Executive decision to demobilize  
• Deployment schedule  
• Disposition instructions | • Recovery or disposition of mobilized resources | • Increased situational awareness  
• An accurate inventory for non-consumable medical counter measures  
• Accurate and timely documentation for financial reimbursement  
• Generation of the After Action Report |
Appendix C: Task Flow Diagrams

A task flow diagram is a graphical model that illustrates the activities of a business process, as well as who performs those activities, known as functional groups. The task flow provides a “story” for the business process being diagramed. The components of the task flow diagram are defined as listed below:

1. **Pools** – a group, department, organization or unit that contains multiple functional swim lanes (functional groups).
2. **Swim Lanes** – a functional individual or group. These are entities that perform or are accountable for designated activities in the process.
3. **Start Event** – a process mapping shape used to define the “start” of the process.
4. **Activity** – an action performed by the functional individual or group.
5. **Decision** – a required conclusion needed in the process. These are typically approvals or resolutions.
6. **Sub-Process** – a shape used as a call out to another process.
7. **End Event** – a process mapping shape used to define the “end” of the process.
8. **Activity Details / Narrative** – the supporting information for each process.

Figure 1. Task Flow Diagram Legend
**General Process Notes**

Objective: Activate people and resources in response to an event, resources are exhausted or expected to be exhausted. Consider recommendation to decision makers for implementation of asset request process.

Measurable Outcomes:
- Prepared to receive and distribute and dispense medical counter measures
- Outside resources needed are requested
- Fully operational response in accordance to state, tribal, regional, territorial, and local plans

General Notes:
- This business process is a cyclical process that is active until the event has ended
- At local level resources should be requested to anticipate resource requirements for a specific time period

**Activity Description:**

1. **Event**
   - Determine the type and scope of the event
   - Determine the inventory needed for the event type
   - Create and maintain the event log (duty log)
   - The information will be used to create the situational report

2. **Alert Key Staff/Personnel**
   - Determine which staff will be notified and what the minimum requirements are then expand to meet needs of higher levels
   - At local level resources should be requested when resources are low

3. **Gather and Analyze Information**
   - Information concerning the event: what the levels have, what they don’t have, what is known and unknown.
   - Situational awareness

4. **Activate**
   - A decision point to determine if additional assistance/resources are needed to handle the event
   - Higher level approval is needed, information must be provided to decision makers

5. **Activate Staff and Resources**
   - Staff and resources need to be activated based on need
   - These assignments need to be captured on the duty log

6. **Additional Resources**
   - This decision point determines if additional resources are needed

7. **Available**
   - This decision point determines if resources are available internally

8. **Request Next Level**
   - The resource request is submitted to the appropriate level
**Activity Description:**

1. **Identify Need**
   - Consult order history and current outstanding orders to estimate need
   - Determine average consumption of goods
   - Calculate required quantities based on guidelines and rules

2. **Determine Current Available**
   - Determine quantity of goods currently available in warehouse(s) inventory

3. **Additional Resources Required**
   - Are additional resources required to meet estimated need

4. **Create Order/Request**
   - Compute quantity to order based on estimated need and current available stock
   - Consider minimum safety levels

5. **Approve Request**
   - This step in the process allows for an approval mechanism at higher levels (typically state level) and the ability to edit the quantities requested and/or approve the requisition as is before submitting to a higher level
   - Request approved by authorized person of requesting organization

6. **Submit Request**
   - The order/resource request is submitted to the appropriate contact
Requirements for SNS Inventory Tracking and Management
<table>
<thead>
<tr>
<th>General Process Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective: Verify and determine the disposition of requests for resources in a timely manner.</td>
</tr>
<tr>
<td>Measurable Outcomes:</td>
</tr>
<tr>
<td>- Turnaround time for requests</td>
</tr>
<tr>
<td>- Percentage of orders processed as fill, partially fill, backordered, and killed</td>
</tr>
<tr>
<td>- Request status communicated to requestor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Receive Request</strong></td>
</tr>
<tr>
<td>- A request is received from lower or adjacent levels</td>
</tr>
<tr>
<td>- The request should note who approved it prior to reaching the current level of approval if applicable</td>
</tr>
</tbody>
</table>

| **2. Approve** |
| - Approve or deny the request based on jurisdictional rules |
| - Request approved by authorized person or position of supplier |

| **3. Inform Requestor** |
| - The requestor is informed of denial of request based on reasons such as, incomplete or inadequate information, funding, inadequate justification, etc. |

| **4. Fill** |
| - A decision point to determine if the resources are available to fill the request fully or partially |

| **5. Inform Requestor** |
| - The requestor is informed of the disposition of the request |

| **6. Backorder** |
| - This decision point determines if a backorder will be created to acquire additional resources to complete the order |

| **7. Create Backorder** |
| - A backorder is created and then routed to the appropriate party for fill |
| - The backorder should be linked to the original request for tracking purposes |
| - The backorder should be a separate order created in order to prevent delay of original order |

| **8. Inform Requestor** |
| - The requestor is informed of the disposition of the request and backorder status |

| **9. Kill the Balance** |
| - The remaining balances not filled are cancelled |

| **10. Inform Requestor** |
| - The requestor is informed of the disposition of the request and cancelled balances |
**General Process Notes**

Objective: Physically receive, inspect and verify accurate inventory in a specific amount of time.

Measurable Outcomes:
- Accurate counts of inventory
- User-specified time measure
- Available for distribution
- Ready to be assigned a storage location
- Reconciled discrepancies
- Paper trail, i.e. chain of custody procedures are properly followed

**Activity Narrative**

1. **Receive Shipping Notification**
   - Notification of a shipment’s pending arrival is received. This notification should happen prior to the physical arrival.
   - The notification could be in several forms: telephone, fax, email, etc.
   - An accurate estimated time of arrival of the shipment should be received by the receiving point of contact prior to the shipment’s arrival.
   - The warehouse is physically prepared to receive the goods.
   - This activity can become a trigger to the store business process.

2. **Arrive**
   - The goods should arrive with documentation from shipper. These documents are on the pallet.

3. **Acknowledge Arrival**
   - The sender is notified that the shipment has arrived at the warehouse.

4. **Off Load**
   - Goods can either be quarantined or stored in the proper storage location at this point in the process prior to inspection.
   - Containers are checked against shipping documents for any apparent damage and/or missing shipping cases.
   - Some goods may not be offloaded if visibly damaged.

5. **Inspect Verify**
   - Quality Check: The shipment is inspected based on predefined criteria including goods specifications, correct quantities received, usable or damaged goods.
   - Administrative Check: Is what was ordered what was received.

6. **Damage Discrepancy**
   - Damaged items or discrepancies are noted.

7. **Corrective Action**
   - The shipment can be flagged for rejection and stored for disposition upon arrival at the warehouse.
   - The order can be accepted as is.
   - The shipper is notified of the incorrect shipment and additional corrective action can be taken.
Receive Inventory

2 of 2

Activity Description, cont:

8. Record Receipt
   - Items are received and noted on shipping/receiving documents

9. Assign Location/Store
   - After goods are checked and approved, they are formally released to stock and moved into storage in the appropriate area
   - This activity is a trigger for the Storage business process

10. Update Records
    - Inventory records are updated with appropriate quantities
Requirements for SNS Inventory Tracking and Management

**General Process Notes**
- Objective: Ability to identify appropriate locations and accurate inventory of all items to ensure stock is readily available
- Measurable Outcomes:
  - Accurate counts and locations
  - Low discrepancy % during physical inventory
  - 100% inventory placement in accordance with jurisdictional plan
  - 100% accountability, availability and usability of inventory at all times
- General Notes:
  - Chain of custody implies the monitoring of the flow of stock items within the logistics system
  - Record all stock movement in and out of storage areas

**Activity Details / Narrative**

<table>
<thead>
<tr>
<th>Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Pre-Identified</strong></td>
</tr>
<tr>
<td>- A decision point to determine if inventory items have a pre-identified location assigned</td>
</tr>
<tr>
<td><strong>2. Identify Location</strong></td>
</tr>
<tr>
<td>- Location may be assigned based on predefined rules or physical characteristics such as size or volume</td>
</tr>
<tr>
<td><strong>3. Move to Location</strong></td>
</tr>
<tr>
<td>- Move items to defined location</td>
</tr>
<tr>
<td>- Stock should be stored according to manufacturer’s directions, i.e., uncontrolled or controlled temperature and humidity</td>
</tr>
<tr>
<td>- Controlled substances must be stored in a secure location</td>
</tr>
<tr>
<td>- Like stock should be stored at the same location if applicable</td>
</tr>
<tr>
<td>- Incoming stock should be stored according to stock control method, i.e., first expiry first out (FEFO) or first in first out (FIFO)</td>
</tr>
<tr>
<td><strong>4. Update Inventory Record</strong></td>
</tr>
<tr>
<td>- Update stock record with stock information, i.e., quantity on hand, exact location of stock, expiry date, lot number, etc.</td>
</tr>
<tr>
<td><strong>5. Maintenance Required</strong></td>
</tr>
<tr>
<td>- This activity determines if maintenance is required according to schedule or if not working properly</td>
</tr>
<tr>
<td><strong>6. Perform Maintenance</strong></td>
</tr>
<tr>
<td>- If maintenance cannot be completed internally then send out</td>
</tr>
<tr>
<td>- When item is taken out of service for maintenance it will also taken out of inventory so it will not be assigned</td>
</tr>
</tbody>
</table>
**Pick Order**

1. Produce Pick List
   - The pick list should contain items to be allocated and the warehouse location of the stock

2. Assign Pick Teams
   - Pick teams are assigned to pick lists

3. Pick Order
   - Stock is picked based on the inventory control method, i.e., FIFO and/or location

4. Conduct QA
   - The assembled order is checked against the pick list for accurate quantities and condition of stock

5. Pass
   - A decision point to determine if the quality checks passed during picking

6. Corrective Action
   - If there are errors the correct items are picked or a new pick list is generated

7. Generate Bill of Lading
   - Update inventory record with new quantity on hand after stock is picked for order
   - The receiving location is identified for the order
   - This activity will trigger the Shipping business process

8. Prepare for Shipping
   - Stock issued is recorded on the inventory record and/or bin or location record
   - Order is packed with appropriate measures taken for cold storage if necessary

**General Process Notes**

Objective: Accurately pick and stage orders to be shipped to another location

Measurable Outcomes:
- Accurate orders staged for shipment to locations
- Updated inventory records
- % accuracy in picked orders
- % of orders quality checked
- Security maintained

General Notes:
**Ship Inventory/Order**

**1. Ship Inventory/Order**

**SNS Inventory Tracking and Management**

**Requirements for SNS Inventory Tracking and Management**

---

**Activity Description:**

1. **Ship Inventory/Order**
   - The shipment is ready for transport.
   - The bill of lading lists the number and type of packages to be delivered.
   - The transport document may include several documents including shipping/ordering information, routing documentation, maps, etc.
   - Verify shipping labels match load paperwork.
   - Establish communication method with driver (i.e., cell phone, two-way radio, etc.).

2. **Deliver**
   - This decision point determines if the shipment will be delivered or picked up.

3. **Notify of Requirements**
   - Special handling instructions, i.e., security, cold storage, etc., for goods to be picked up.

4. **Get Appropriate Transportation**
   - Determine available transport modes/types based on goods to be delivered.
   - Assign appropriate transport resource.

5. **Load**
   - Load the vehicle/consign.
   - Instructions for security (inside/outside check-in at security gate).
   - Last out first in process.

6. **Notify of ETA**
   - Provide advanced notification to receiving warehouse/dispensing location of delivery.

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**General Process Notes**

Objective: Ensure timely delivery of assets regardless of barriers, in accordance to Federal, State and local requirements.

**Measureable Outcomes:**

- Inventory received within measurable timeframe and defined margin of error.
- Appropriate paperwork and signatures.
- Did assets arrive meet or exceed ETA (e.g., 90% within ETA, 10% weather traffic, unforeseen events).
- Send notification of delivery.
- Ability to track shipments in accordance with jurisdictional plan (can track certain % of delivery).
- Cell phones/two-way radios required to call when arrive – is it called in within a certain timeframe.
- Shipping arrives undamaged.
- Appropriately packaged and labeled.
- Arrives in accordance with good manufacturers’ practices.

**General Notes:**

- This process is triggered from the Pick/Stage business process.
Ship Inventory/Order

Requirements for SNS Inventory Tracking and Management

Activity Description, cont:

7. Transport Goods
   - The order is transported to the receiving warehouse/point of dispensing location in accordance with route plan
   - Ensure appropriate routing if applicable, i.e. maps, routes, GPS, etc.
   - If transport handles security sensitive goods, police escort
   - Maintain communication with transport

8. Deliver
   - The order arrives at the receiving facility and this activity is the trigger for the Receive business process
   - Capture delivery information including date, time, chain of custody

9. Signoff/Chain of Custody
   - The delivery documents are signed by the receiving facility
   - A copy of the documentation is retained by the receiving facility,
   - A copy of the documentation is returned to the sending facility

10. Update Order Status
    - Update the order to status to complete
Dispense Medical Counter Measures

1. Greet
2. Continue
   - Yes: 4. Obtain Consent → 5. Patient Screen and Education
   - No: 3. Refer
3. Refer
4. Obtain Consent
5. Patient Screen and Education
6. Dispense MCM
7. Monitor Client
8. Collect Form/Update Record

Start
End

Yes
No
Reorder Point Reached
Yes
No
Order

SNS Inventory Tracking
and Management

Requirements for SNS Inventory Tracking and Management
Dispense Medical Counter Measures

Objective: Safely and accurately dispense appropriate medical counter measures (MCM) to target populations

Measureable Outcomes:
- Adequate supplies and medications at dispensing sites
- Reduced morbidity and mortality
- % target population reached based on scenario
- Reduced adverse events
- Appropriate patient education given with MCMs
- Account for 100% MCM provided to population
- 100% of individuals receive the correct MCM

Activity Description:

1. Greet
   - The client arrives at the point of dispensing site
   - The client is greeted and assessed for signs by sight

2. Continue
   - The health worker determines if the client should continue and receive the MCMs
   - If the client is symptomatic, refer

3. Refer
   - Refer the client to a health provider, i.e., PCP, treatment center, etc., if he/she should not continue in the process
   - Electronic pharmaceutical/medical consult/reference materials should be available to give the client

4. Obtain Consent
   - A consent form may/will be given to a client who presents and is asymptomatic
   - Patient demographics and allergy information is captured
   - The consent is event and MCM specific
   - Consent form should allow for family-level consent (not just individual)

5. Patient Screen and Education
   - Determine which MCM each client will receive
   - Patient education materials provided based on MCM and/or the event to the client
   - Educate the client about the disease, medication, possible reactions, etc.
   - Use most current fact sheets available

6. Dispense MCM
   - Dispense the appropriate medical counter measure to the client
   - This activity may be a trigger for the order business process if inventory is depleted

7. Monitor Client
   - The client should be monitored for adverse events following dispensing of MCMs
   - Report to VAERS/AERS, MedWatch or other designated entity

8. Collect Form/Update Record
   - Update client’s record
   - Update stock records and client register/log

General Process Notes
- An important aspect of the Dispense process is the ability to track lot numbers of MCMs - where the lot number is not specifically who received which lot number
**Demobilize**

**Objective:** Return to a normal state from a response activity and secure remaining medical counter measures.

**Measurable Outcomes:**
- Increased situational awareness
- An accurate inventory for non-consumable medical counter measures
- Accurate and timely documentation for financial reimbursement
- Generation of the After Action Report

**General Process Notes**
- Demobilization is triggered by the Mobilize business process and often occurs simultaneously during the event

**Activity Description:**

1. **Mobilize**
   - This sub process represents the Mobilize business process that is often the trigger to begin demobilization activities
   - Data captured during mobilization specific to resource usage requirements support demobilization prioritization

2. **Current Resources Needed**
   - A decision point to determine if the current resources are still needed to support operations during the event
   - Situational awareness

3. **Deployment Cycle Reached**
   - Continue operations supporting the event
   - Data capture of resources in use will ultimately support demobilization

4. **Demobilize**
   - Begin the process of recovering non-consumable supplies
   - Release resources
   - Event reporting

5. **Prioritize Resources**
   - Staff and resources that need to be demobilized based on type and need
   - Update duty log

6. **Recover Assets**
   - This decision point determine if the supply will be returned to inventory
   - The disposition of the asset is determined and recorded

7. **Dispose**
   - Return the asset to appropriate place

8. **Recover**
   - Return items to inventory and the warehouse for storage

9. **Long Term Storage**
   - Return items to inventory and the warehouse for storage

10. **Update Records**
   - Re-enter item into inventory
   - Capture assignment details from event (i.e., length of event time, items utilized, last deployment, issues, etc.)
Appendix D: Business Process Flow/Interdependencies