

ISOLATION AND QUARANTINE

Capability Definition

Isolation and Quarantine is the capability to protect the health of the population through the use of isolation and/or quarantine measures in order to contain the spread of disease. Isolation of ill individuals may occur in homes, hospitals, designated health care facilities, or alternate facilities. Quarantine refers to the separation and restriction of movement of persons who, while not yet ill, have been exposed to an infectious agent and may become infectious. Successful implementation will require that sufficient legal, logistical, and informational support exists to maintain these measures. Most experts feel that isolation and quarantine will not stop the outbreak and that if used, the focus will be on cases that might introduce the disease into the state or other geographic area.

Outcome

Individuals who are ill, exposed, or likely to be exposed are separated, movement is restricted, basic necessities of life are available, and their health is monitored in order to limit the spread of a newly introduced contagious disease (e.g., pandemic influenza). Legal authority for these measures is clearly defined and communicated to the public. Logistical support is provided to maintain measures until danger of contagion has elapsed.

Relationship to National Response Plan Emergency Support Function (ESF)/Annex

This capability supports the Emergency Support Function (ESF) #8: Public Health and Medical Services.

Preparedness Tasks and Measures/Metrics

Activity: Develop and Maintain Plans, Procedures, Programs and Systems	
Critical Tasks	
Res.B3b 1.1	Develop plans, policies, and procedures for implementing isolation and quarantine
Res.B3b 1.1.1	Introduce legislation authorizing isolation and quarantine (including quarantine of groups)
Res.B3b 1.3.1	Stand up isolation and quarantine units (including defining procedures/protocols) in all 83 of the target cities and as needed in foreign countries
Res.C1a 6.2.3	Improve monitoring of adverse treatment reactions among those people who have received medical countermeasures and have been isolated or quarantined
RecA2b 1.1	Create and implement policies to deal with the financial impact to individuals who are placed in isolation or quarantine and to the public health system
Preparedness Measures	Metrics
Legislation has been enacted authorizing appropriate isolation and quarantine measures (including quarantine of groups)	Yes/No

Plan is in place that addresses coordinating quarantine activation and enforcement with public safety and law enforcement	Yes/No
Plan is in place that addresses tracking details of individuals placed in Isolation or Quarantine using Personal Health Identification Number (PHIN)	Yes/No
Plan is in place that addresses implementation of infection control precautions	Yes/No
Legal authority to isolate and/or quarantine individuals, groups, facilities, animals and food products is defined	Yes/No
Plan addresses how to ensure adequate stockpiles of appropriate personal protective equipment	Yes/No
Plan addresses having or having access to information systems to support tracking adherence to isolation and quarantine measures that comply with the PHIN functional requirements for <i>Countermeasure and Response Administration</i> .	Yes/No

Performance Tasks and Measures/Metrics

Activity: Direct Isolation and Quarantine Tactical Operations

Definition: In response to a need for isolation and quarantine orders, direct, manage and coordinate isolation and quarantine operations.

Critical Tasks

Res.B3b 3.1.1	Identify decision-makers to oversee isolation and quarantine conduct
Res.B3b 3.1.3	Develop disease-specific isolation and quarantine plan
Res.B3b 3.1.2	Identify applicable isolation and quarantine laws, policies, and implementation procedures
Res.B3b 3.2	Provide isolation and quarantine information to emergency public information for release
Res.B3b 3.2.2	Coordinate with public information agencies to disseminate health and safety information to the public
Res.B3b 3.2.5	Coordinate public information releases about those people who have been isolated or quarantined
Res.B3b 3.2.1	Coordinate with public information agencies regarding notification of quarantine or isolation to ensure compliance of the general public (e.g. doors are locked and may be opened only by public health official or designated persons)
Res.B3b 3.2.3	Promote the public acceptance of isolation and quarantine as necessary control measures
Res.B3b 3.2.2	Coordinate with public information agencies to provide timely dissemination of health and safety information to the public regarding risk and protective actions
Res.B3b 3.3.1	Coordinate with Law Enforcement to monitor and enforce restrictions, if necessary
Res.B3b 3.1.4	Ensure appropriate judicial review of isolation and quarantine orders
Res.B3b 3.3.2	Coordinate with public health and medical services to ensure appropriate care for those individuals who have been isolated or quarantined
Res.B3b 3.3.2.1	Ensure critical medical care for any ill individuals (related to the epidemic or not)
Res.B3b 3.3.2.2	Coordinate comprehensive stress management strategies, programs, and crisis response teams for isolation and quarantine operations
Res.B3b 3.3.5	Assist public health in disease control, quarantine, containment, and eradication

Res.B3b 3.3.3	Coordinate with Mass Care to provide water, food, and bulk supplies to isolated and quarantined individuals
Res.B3b 3.3.3.1	Ensure that adequate food, water, and medication are provided to quarantined or isolated persons (through public health officials; oversight by case manager) (Note: Not only public health officials, all appropriate sectors are involved in this)
Res.B3b 3.3.4	Coordinate with Public Works for retrieval and disposal of contaminated articles from homes or other locations where individuals are isolated or quarantined
Res.B3b 3.3.5	Coordinate with the agriculture community regarding potential animal influence on need for isolation/quarantine
Res.B3b 3.4.2	Report health status data on isolated and quarantined populations
Res.B3b 6.3.1.1	Monitor for fever or evidence of infection (quarantine) or progression of illness requiring hospitalization (isolation) by epidemic agent
Res.B3b 6.3.1.2	Identify and respond to adverse events (epidemic treatment or prophylaxis)
Pro.B1e 3.2.1	Maintain communication channels (CDC Coordinating Office for LRN)
Res.B3b 6.6	Have or have access to information systems to support monitoring adherence to isolation and quarantine measures that comply with the PHIN functional requirements for Countermeasure and Response Administration.
Performance Measures	
Performance Measures	Metric
Public health official with legal authority to issue isolation and quarantine orders is identified	Yes/No
Time to issue isolation and quarantine order	Within 4 hours of notification of need to implement isolation and quarantine
Time to provide educational information for release	Within 1 hour of order being issued
Time to notify and assemble medical resource personnel at isolation and quarantine areas	Within 8 to 12 hours of need to implement isolation and quarantine
Time to establish communications with public health officials and CDC	Within 30 minutes of need to implement isolation and quarantine

Activity: *Activate Isolation and Quarantine*

Definition: Initiate plan and mobilize (healthcare and security) personnel and resources to contain a communicable disease outbreak.

Critical Tasks

Res.B3b 4.1	Identify community sites suitable for quarantine
Res.B3b 4.3	Issue isolation and quarantine order or an agreement for voluntary isolation
Res.B3b 4.3.1.1	Issue an order that closes public venues based on the recommendation of an epidemiologist.
Res.B3b 4.4	Disseminate guidelines for isolation and quarantine restrictions
Res.B3b 4.4.1	Disseminate protocols for isolation and care giver treatment of isolated individuals
Res.B3b 4.2	Stand up isolation and quarantine units
Res.B3b 4.4.2	Ensure mental health care and access to religious practices

Res.B3b 4.4.3	Ensure access to communication with family and friends to reduce unnecessary stress	
Res.B3b 4.4.4	Provide personal protective equipment (PPE) and culturally and linguistically appropriate instruction in its use for household members and caregivers.	
Performance Measures		Metric
Time to stand up isolation and quarantine units		Within 12 to 24 hours of notification of need to implement isolation and quarantine
Time to deploy personnel to traveler screening locations		Within 2 hours of identifying screening locations
Time to disseminate restriction guidelines and treatment protocols to medical care providers		Within 2 hours of order being issued

Activity: *Implement Travel Restrictions*

Definition: Screen travelers and implement travel restrictions consistent with disease specific precautions.

Critical Tasks		
Res.B3b 5.1	Establish traveler screening locations	
Res.B3b 5.2.1	Screen inbound/outbound travelers from outbreak or pandemic areas for illness or exposure	
Res.B3b 5.2.2	Prevent boarding of potentially infected passengers in foreign countries with endemic disease	
Res.B3b 5.2.3	Educate international travelers on health risks and symptoms	
Res.B3b 5.2.4	Screen and educate all staff of outbound flights to exclude potentially infected passengers	
Res.B3b 5.2.5	Isolate and quarantine potentially infected travelers	
Performance Measures		Metric
Time to establish screening locations		Within 30 minutes of screener arrival onsite
Percent of inbound/outbound travelers screened while isolation and quarantine order is in effect		100%
Percent of screened positive persons isolated and quarantined		100%

Activity: *Implement Voluntary Isolation and Quarantine*

Definition: Within an identified geographic area, implement separation and restriction of movement of potentially exposed asymptomatic individuals and isolate symptomatic individuals on a voluntary basis.

Critical Tasks	
Res.B3b 6.1	Acquire identification information of affected individuals under voluntary isolation and quarantine
Res.B3b 6.2	Provide medical and supportive care guidance to community under voluntary isolation and quarantine

Res.B3b 6.5	Provide infection control education materials to community under voluntary isolation and quarantine and hospitals	
Res.B3b 6.3.1	Monitor health status of voluntarily isolated and quarantined individuals and caregivers in the community and hospitals	
Res.B3b 6.4	Arrange for transportation to designated healthcare facilities of critically ill individuals under voluntary isolation and quarantine	
Res.B3b 6.3.2	Monitor compliance in whatever way is necessary (e.g., direct communication with the person under order via land line)	
Performance Measures		Metric
Percent of caregivers for isolated patients who become infected while under voluntary isolation and quarantine		0%
Frequency of updates to tracking system from voluntarily isolated or quarantined individuals while under voluntary isolation and quarantine		Daily
Percent of persons receiving care and prevention instruction while under voluntary isolation and quarantine		100%
Percent of caregivers using infection control precautions while under voluntary isolation and quarantine		100%

Activity: *Implement Mandatory Isolation and Quarantine*

Definition: Ensure compliance with orders for separation and restriction of movement of potentially exposed asymptomatic individuals and isolation of symptomatic individuals within an identified geographic area.

Critical Tasks		
Res.B3b 7.1	Acquire identification information of affected individuals under mandatory isolation and quarantine	
Res.B3b 7.2	Provide medical and supportive care guidance to affected population under mandatory isolation and quarantine	
Res.B3b 7.3	Monitor compliance with infection control and mandatory restrictions of movement	
Res.B3b 7.4	Monitor health status of individuals and caregivers under mandatory isolation and quarantine and hospital staff	
Res.B3b 7.5	Arrange for transportation to designated healthcare facilities of critically ill individuals under mandatory isolation and quarantine	
Performance Measures		Metric
Percentage of caregivers for isolated patients who become infected while under mandatory isolation and quarantine		0%
Frequency of updates to tracking system from isolated or quarantined individuals while under mandatory isolation and quarantine		Daily
Percent of persons receiving care and prevention instruction while under mandatory isolation and quarantine		100%
Percent of caregivers using infection control precautions while under mandatory isolation and quarantine		100%
Percent of isolated or quarantined persons receiving daily monitoring and compliance contact		100%

Activity: *Demobilize Isolation and Quarantine*

Definition: Upon isolation and quarantine order being lifted, decontaminate equipment, supplies and personnel if appropriate and demobilize.

Critical Tasks

Res.B3b 8.2	Participate in incident debriefing on isolation and quarantine implementation
Res.B3b 8.3	Release personnel supporting isolation and quarantine operations
Res.B3b 8.4	Reconstitute resources and facilities supporting isolation and quarantine operations

Performance Measures

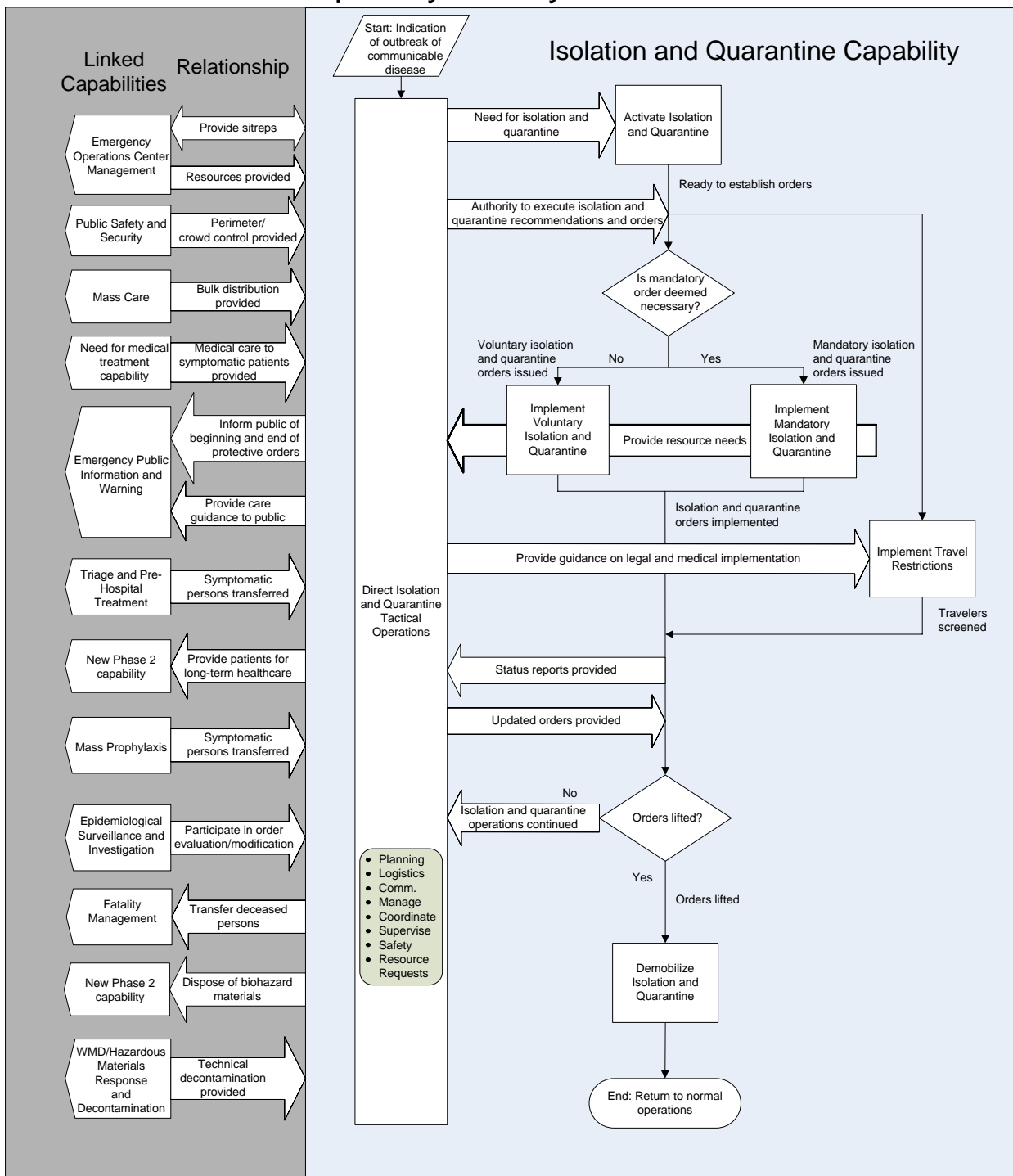
Metric

Time to restore isolation and quarantine facilities to pre-incident operations	Within 7 days from isolation and quarantine order being lifted
Isolation and quarantine personnel debriefed	Yes/No

Linked Capabilities

Linked Capability	Relationship
Emergency Operations Center Management	Emergency Operations Center Management provides resources to Isolation and Quarantine. Emergency Operations Center Management and Isolation and Quarantine provide each other with situation reports.
Public Safety and Security Response	Public Safety and Security Response provides perimeter and crowd control to Isolation and Quarantine.
Mass Care	Mass Care provides bulk distribution items to Isolation and Quarantine.
Emergency Public Information and Warning	Isolation and Quarantine provides care guidance to public and protective order information to Emergency Public Information and Warning for release to the public.
Triage and Pre-Hospital Treatment	Triage and Pre-Hospital Treatment transfers symptomatic persons to Isolation and Quarantine.
Long-Term Healthcare (under development)	Isolation and Quarantine transfers patients to new proposed Long-Term Healthcare capability.
Mass Prophylaxis	Mass Prophylaxis transfers symptomatic persons to Isolation and Quarantine.
Epidemiological Surveillance and Investigation	Epidemiological Surveillance and Investigation participates in order modification/evaluation with Isolation and Quarantine.
Fatality Management	Isolation and Quarantine transfers deceased persons to Fatality Management.
Debris and Hazardous Waste Management (under development)	Isolation and Quarantine disposes of biohazard waste material to a new proposed Debris and Hazardous Waste Management capability.
WMD/Hazardous Materials Response and Decontamination	WMD/Hazardous Materials Response and Decontamination provides technical decontamination to Isolation and Quarantine.

Capability Activity Process Flow



Capability Element Description Details

Capability Elements	Components and Description
Community Isolation/and Quarantine Teams	Teams located in district, county, and municipal office that comprise 6 officers per district or county team and 4 officers per municipal team
Federal Quarantine Stations	CDC Quarantine Stations provide advanced emergency response capabilities, including isolation and communications facilities; they include regional health officers to provide clinical, epidemiologic, and programmatic support, and quarantine public health officers to conduct surveillance and response and communicable disease prevention activities.

Planning Assumptions

- Although applicable to several of the 15 National Planning Scenarios, the capability planning factors were developed from an in-depth analysis of the pandemic influenza and plague scenarios. Other scenarios were reviewed to identify required adjustments or additions to the planning factors and national targets.
- Isolation and quarantine deals specifically with infectious diseases.
- Isolation and quarantine deals specifically with separation of individuals rather than prohibition on structures.
- This capability refinement addresses community separation and not hospitalized patients.
- Recognition and assessment of exposure to an illness is an epidemiological function.
- 50 percent of infected persons are asymptomatic shedders of the influenza virus
- Shedding of the virus occurs 24 hours before the development of symptoms.
- Cases are occurring in a single wave over 8 weeks. The response is an evolving process – it has a phased approach.
- Number of days in quarantine are 10 to 14 days (epidemiological evidence may allow for a reduction in this time).
- Number of days in isolation varies by age (7 days for adults; 14 days for children).
- World Health Organization (WHO) pandemic influenza phase: Phases 1 and 2 are inter-pandemic; 3, 4, and 5 are pandemic alert; 6 is pandemic period. General preparedness activities have occurred in WHO Phases 1 – 3.
- WHO Phase 1 – 3: General Preparedness activities.
- In WHO Phase 4, cases are occurring outside of the USA.
- WHO Phase 4, if there is extensive trade or travel links with the affected country, and WHO Phase 5 are the most important when considering isolation and quarantine.
- WHO Phase 5 is larger clusters, more transmission, suggesting that the virus is becoming more adoptive to human transmission.
- WHO Phase 5 is most important when considering Isolation and Quarantine.
- Setup isolation/quarantine stations in each foreign country that is a source of the infection.
- Under the Department of Health and Human Services (HHS), there are 83 tier 1 cities in the United States (i.e. airports with more than 1 million travelers, seaports with more than 100k travelers, or land borders with more than 5 million crossings); currently there are stations at 18 of these cities.
- Screening for inbound/outbound flights will be needed.

- WHO Phase 6 try and isolate 10 cases per million population. Sustained community transmission is assumed to be occurring when cases exceed 10 per million population.
- Attempt to quarantine 30 contacts per case (300 contacts per 1 million population).
- This will be community based rather than hospitalized patients.
- Closing of public venues may be retained here.
- There is a high percentage of absenteeism related to medical, traditional first responder, and public health personnel.
- Isolation orders will be based on a case definition, not strictly on laboratory test results.
- At least eight other countries are affected.
- Resources for provision of mental health services are not defined in this capability.
- Resources for provision of law enforcement are not defined in this capability.
- Resources for public information are not defined in this capability.

Planning Factors from an In-Depth Analysis of a Scenario with Significant Demand for the Capability (Pandemic Influenza and Plague)

Resource Organization	Estimated Capacity	Scenario Requirement Values	Quantity of Resources Needed
Community Isolation/and Quarantine Team	One per 20 persons isolated or quarantined.	Isolate 10 per million population; quarantine 300 per million population. Current population of the USA is 297 million. Need to isolate 2970 persons and quarantine 89,100 persons. Total 92,070, divided by 20 =4,604. Could be reduced by number of hospital isolations — need to cross-reference with HRSA.	
Federal Quarantine Station	Two per 83 Tier One Cities, plus one per affected overseas country.	Provide isolation and quarantine services to inbound and outbound passengers in Tier One cities.	

Approaches for Large-Scale Events

- Community Isolation/Quarantine Teams need to be situated locally.
- Federal Quarantine Stations need to be located in tier 1 cities (those that have airports with more than 1 million travelers, seaports with more than 100,000 travelers, or land borders with more than 5 million crossings). Note that 18 Federal Quarantine Stations currently exist in tier 1 cities.

National Targets and Assigned Levels

Responsible	Element Resource Unit	Type of Element	Number of Units	Unit Measure (number per x)	Capability Activity supported by Element
Cities/Municipal	Community Isolation & Quarantine Team	Resource Organization	1	Per jurisdiction affected	All Activities
District/County	Community Isolation & Quarantine Team	Resource Organization	1	Per district/county affected	All Activities
Centers for Disease Control	Federal quarantine station	Resource Organization	1	Per Tier 1 City	Implement Travel Restrictions
World Health Organization (WHO)	Quarantine Station	Resource Organization	1	Per pandemic agent source country	Implement Travel Restrictions

References

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4. Fact Sheet on Isolation and Quarantine. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. January 2004.
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