Public Health Division
Emergency Support Function 8: Public Health and Medical Services

Non-Pharmaceutical Interventions (NPI) Implementation Guide

Version: March 18, 2020

Health Security, Preparedness and Response Program

Contents

Purpose of this Guide

Definition   Non-pharmaceutical interventions (NPIs) are mitigation strategies to limit and prevent exposure to disease. These include protective strategies on the individual level, community containment, and environmental measures to control viral disease outbreaks and pandemics.

Purpose   This guide helps communities decide what NPIs to consider implementing in an outbreak. It describes the nature, potential benefits, and potential costs of strategies to limit and prevent the spread of novel respiratory diseases of concern. Public health officials will need to determine the appropriate set of interventions to implement in response to a given incident, given the severity, infectivity and known extent of spread of the pathogen in question.

Audience   This guide is intended for an Incident Management Team, public health agencies, multi-agency coordination policy groups and local health officers.

Contents   It is part of the Oregon's public health and medical emergency response plans, and includes personal, community, and environmental methods of control.

This guide focuses on six interventions to contain or mitigate the spread of a contagious disease, such as a novel virus.

Oregon Isolation and Quarantine Manual

Implementation of the practices described in this guide require thorough understanding and application of the relevant statutes and administrative rules. The Manual provides a review of the isolation and quarantine processes that can be used during a public health emergency, or in more routine public health cases. In addition, it provides important information about public health law, communicable disease, and infection control.

Available online:
www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/EMERGINGINFECTIONS/Documents/QuarantineManual-2017.pdf

Transmissibility and Clinical Severity Matrix

This matrix shows the possible intersection of transmissibility and clinical severity, and where a community might implement different practices. The complexity of the interventions increases as transmissibility and clinical severity increase.

Transmissibility (vertical axis: Low to High)

Introduce elevated practices
These additional practices may be considered to confront emerging events.

Clinical Severity
(Number of cases, number of hospitalizations, fatality ratio, and other factors)

Reinforce standard practices.
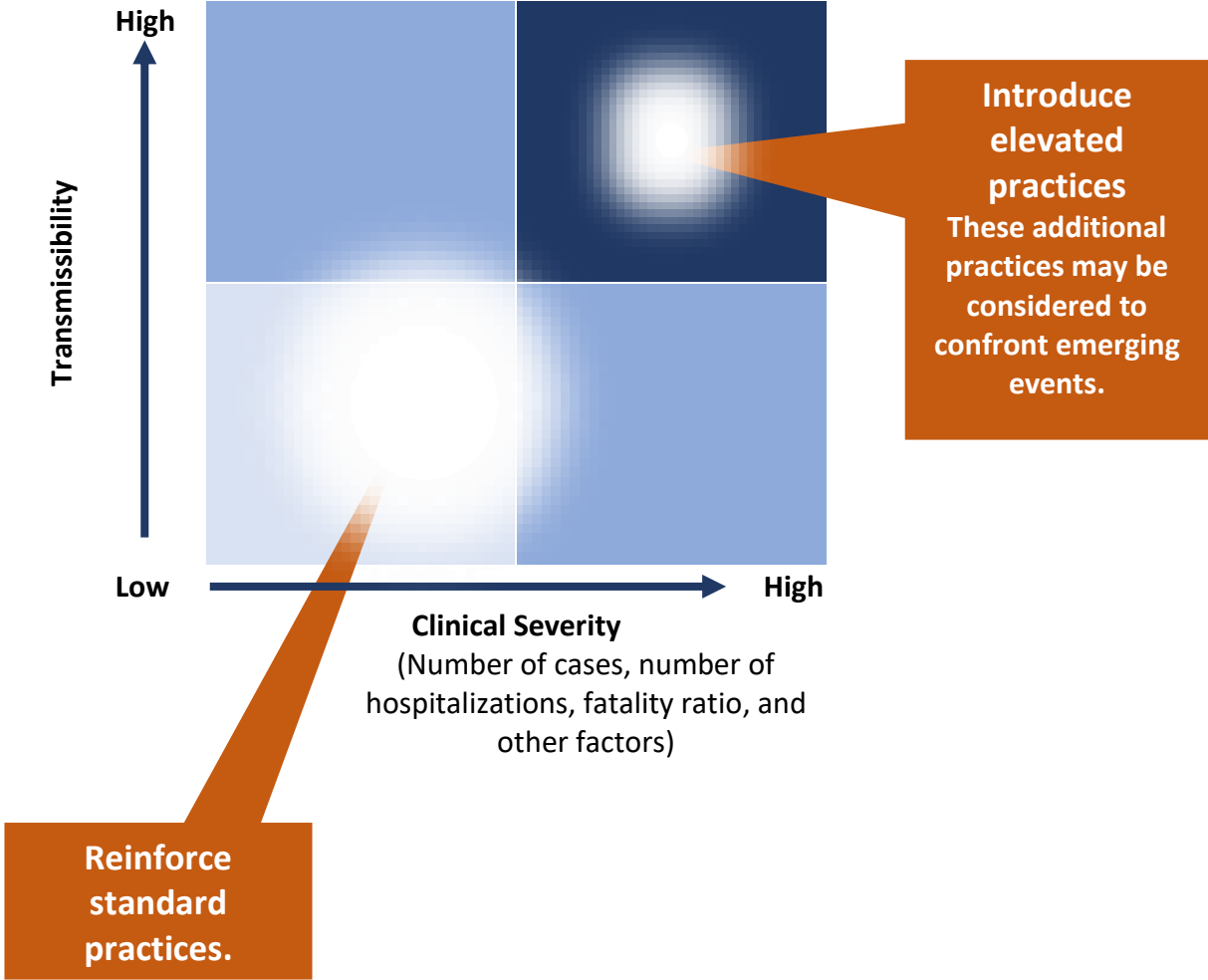
Overview of Non-Pharmaceutical Interventions (NPIs)

Most disease outbreaks call for implementation or reinforcement of standard non-pharmaceutical interventions, such as handwashing. This guide describes additional practices that may be necessary for outbreaks that have high transmissibility and high clinical severity.

Reinforce standard practices

These practices should be followed at all times during the year, regardless of a new disease emerging in the community, and should be re-emphasized.

- Increase handwashing and use of alcohol-based sanitizer
- Respiratory hygiene and cough etiquette
- Keep distance from others (> 3–6 feet)
- Frequently clean and disinfect surfaces
- Remain home during a respiratory illness
- Voluntary isolation of sick persons
- Voluntary quarantine of contacts of sick persons

Introduce elevated practices

These additional practices may be considered to confront emerging events.

- Involuntary isolation of sick persons
- Involuntary quarantine of contacts of sick persons
- Recommend or order cancellation of major public and large private gatherings
- Recommend or order closure of schools, childcare facilities, workplaces and public buildings
- Prevent non-emergency travel outside of the home
- Establish *cordon sanitaire*

Elevated Intervention 1: Involuntary Isolation of Sick Persons

Reduce probability of transmission by preventing contact between well and sick people.

Rationale for Use as Public Health Strategy

Isolation prevents sick people from infecting others outside of their isolation location. Historically, isolation measures have helped to prevent the spread of infectious diseases, such as influenza, by stopping the person-to-person spread of virus via contaminated droplets from coughs and sneezes.

Success Factors: Success depends on healthcare facility or public health system ability to implement. Clearly communicate with affected communities about the rationale for use of isolation, and the responsibility of public officials to protect the safety and health of a community from communicable illnesses of high severity and high transmissibility.

Intervention type

Environment

➤ **Community**

Personal

Goal

Limit spread

➤ **Prevent spread**

Possible Benefits: Isolation can be effective in reducing the spread of illness. Use of involuntary isolation is a method to force compliance with the measure.

Possible Drawbacks: Involuntary isolation is extremely restrictive and resource intensive. It limits personal liberties and can be controversial.

Settings and Use

- Isolation separates sick persons with a contagious disease from people who are not sick.
- Involuntary isolation is only recommended when an individual is not reliable or compliant with voluntary isolation for a disease that is highly severe and highly transmissible. Involuntary isolation is usually considered only after all efforts have been made to gain voluntary compliance. Involuntary isolation must be by the least restrictive means necessary. ORS 433.121 et seq.
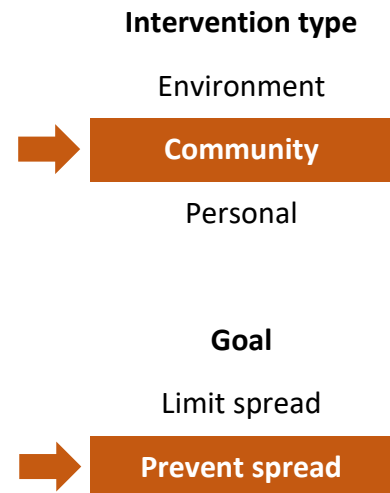
Elevated Intervention 2: Involuntary Quarantine of Contacts of Sick Persons

Reduce probability of transmission in the event that exposed person becomes symptomatic when in the company of others. Could also have value if a contact can become infectious before symptoms develop.

Rationale for Use as Public Health Strategy

Quarantine refers to the separation and restriction of movement of people who, while not yet ill, have been exposed to an infectious agent and therefore may become infectious. Quarantine of exposed people is a public health strategy intended to stop the spread of infectious disease and may have some value in protecting the public from disease.

Intervention type

Environment

➡️ **Community**

Personal

Certain infected but not yet symptomatic individuals may unknowingly infect friends, neighbors, and others in the community before becoming symptomatic, or could first develop illness in a crowded place, exposing others.

Goal

Limit spread

➡️ **Prevent spread**

In situations of highly transmissible and clinically severe infections where there are asymptomatic contacts who are not willing to quarantine, authorities may want to consider involuntary quarantine of contacts of sick persons to prevent possible disease spread, especially for novel pathogens of concern.

Success Factors: Success depends on health care facility and/or public health system ability to implement.

Possible Benefits: Quarantine may help reduce the spread of illness by preventing non-compliant people from exposing others.

Possible Drawbacks: Involuntary quarantine is extremely restrictive and resource intensive.

Settings and Use
- Consider using involuntary quarantine for contacts who are not reliable or compliant and who were exposed to a sick person but are asymptomatic to avoid potential spread of disease.
- Involuntary quarantine at a designated facility is only recommended when an individual is not reliable or compliant, and it is typically considered only after all efforts to secure voluntary compliance are unsuccessful. Involuntary quarantine must be by the least restrictive means necessary. ORS 433.121 et seq.
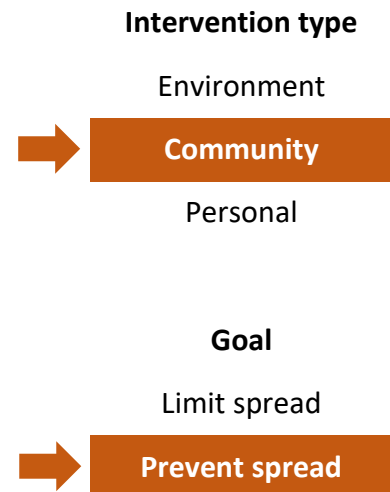
Elevated Intervention 3: Recommend or Order Cancellation of Major Public and Large Private Gatherings

Reduce probability of transmission by reducing the number of interpersonal contacts.

Rationale for Use as Public Health Strategy

Social distancing measures, such as cancellation or postponement of mass gatherings, reduce opportunities for person-to-person virus transmission and can help delay the spread and slow the tempo of disease spread. The optimal strategy is to implement these measures simultaneously in places where people gather.

Intervention type

Environment

➡ **Community**

Personal

Canceling mass gatherings, in combination with other social distancing measures (e.g., patient isolation, quarantine of exposed persons, and school closures), may help reduce virus transmission.

Goal

➡ Limit spread

Prevent spread

Success Factors: Success depends upon event sponsor compliance and authorities' ability to enforce effectively.

Possible Benefits: Reduces opportunities for widespread disease transmission by decreasing interpersonal contacts and increasing social distance.

Possible Drawbacks: May result in revenue loss, public displeasure or political backlash; and it may disproportionately affect those who have limited income, and certain cultural and community groups.

Settings and Use
- Social distancing measures can be implemented in a range of community settings, including public places where people gather (e.g., parks, houses of worship, theaters, sports arenas and others).
- Modifying, canceling or postponing events is an approach that might reduce face-to-face contact in community settings.
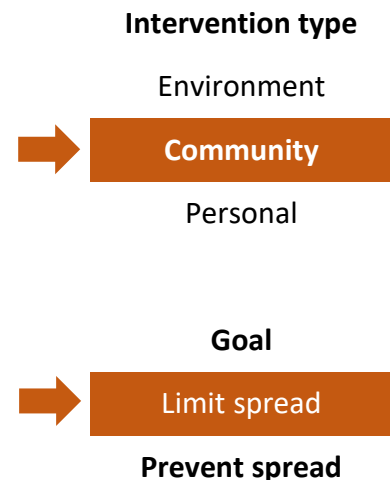
Elevated Intervention 4: Recommend or Order Closure of Public or Private Sites within Affected Communities

Viruses quickly and easily spread in places where people gather in close contact, such as schools, childcare facilities, workplaces and public buildings. Dismissing or closing such facilities may be considered to limit disease spread by reducing the number of interpersonal contacts.

Rationale for Use as Public Health Strategy

Social distancing measures, including closure of buildings, reduce opportunities for person-to-person transmission and may slow the tempo of disease spread. If disease transmission is occurring in a school, childcare facility or public building, dismissing students, staff, or the public from these locations or closing the locations early may limit further spread. The optimal strategy may be to implement several social distancing steps simultaneously where large groups of people gather.

Intervention type

Environment

→ **Community**

Personal

Goal

→ Limit spread

Prevent spread

Success Factors: Early implementation before transmission in a community is widespread. Facility compliance and authorities' ability to enforce effectively.

Possible Benefits: Reduces opportunities for widespread disease transmission by reducing interpersonal contacts and increasing social distance.

Possible Drawbacks: May result in missed school days, revenue loss, public dissatisfaction or political backlash. It may disproportionately affect those with low incomes, and certain cultural and community groups. Low income and other vulnerable communities may lose access to key support services. It may cause disruption for families and communities. Adults may experience missed work and loss of income from their workplace closure or because they must stay home to care for children.

Settings and Use

Specific priority settings include schools, childcare, workplaces, meetings and other places where people gather (e.g., parks, religious institutions, theaters, sports arenas and others).

Early dismissal or closing facilities may reduce face-to-face contact in community settings and, in this way, reduce the spread of diseases transmitted by contact, droplets, or air. Choose social distancing measures depending on the severity of the disease.
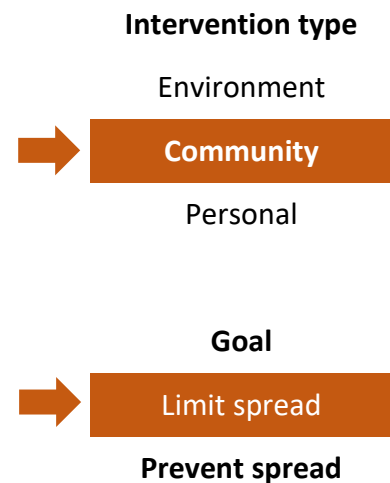
School or childcare: Examples of social distancing, closures and dismissals could include:
- Dismissal or cancelation of classes and use of web-based distance learning instead.
- Pre-emptive, coordinated school closures or dismissals at childcare facilities, K–12 schools, and institutions of higher education.
- Cancelation of school concerts, after-school programs or sporting events.

Workplaces and public buildings: Many work settings involve shared workspace and equipment, and face-to-face contact. Public buildings can bring many people into close contact. Examples of social distancing for these settings include telecommuting and holding meetings remotely.

Elevated Intervention 5: Prevent Non-Emergency Travel Outside the Home

Limiting travel outside of the home will reduce probability of the transmission by decreasing the numbers of interpersonal contacts. Travel could be restricted to emergencies only.

Rationale for Use as Public Health Strategy

This intervention is a more extreme measure of social distancing, which reduces occasions for person- to-person virus transmission to help delay the spread and slow the tempo of transmission.
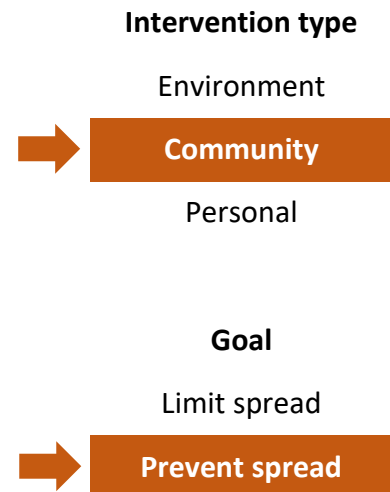
Intervention type

Environment

➡️ **Community**

Personal

Success Factors: Success depends upon compliance and authorities' ability to enforce effectively.

Possible Benefits: Reduces opportunities for direct or indirect disease spread, and may prevent a disease from entering new geographic regions.

Goal

Limit spread

➡️ **Prevent spread**

Possible Drawbacks: Will prevent the operation of public entities and private businesses; the effect will be felt economically by employees as loss of income, and the public as lack of commodity availability. Revenue loss, public discontent and political backlash are possible. Travel restrictions may disproportionately affect certain cultural and community groups, those of lower income, and those who are homeless.

Settings and Use

- Travel restrictions may conditionally be recommended during an early stage of a localized, severe epidemic for a limited period to contain spread. Before implementing, consider cost, acceptability and feasibility, as well as ethical and legal considerations, in relation to this measure.
- This intervention should be considered when less-restrictive interventions have failed or to prevent disease introduction into new geographic areas.

Elevated Intervention 6: Establish a *Cordon Sanitaire*

Contains a communicable disease within specific geographic boundaries. This involves a legally enforceable order that restricts movement into or out of an area of quarantine to reduce spread to those outside affected area.

Rationale for Use as Public Health Strategy

A *cordon sanitaire* involves restriction of movement of people in or out of a defined geographic area in order to contain disease within specific geographic boundaries. It is created around an area experiencing an outbreak to prevent spread. This is a form of isolation and quarantine when applied to all inhabitants of an area as a sanitary barrier.

Intervention type

Environment

➡️ **Community**

Personal

Success Factors: Success depends upon compliance and authorities' ability to enforce effectively. It also depends on engaging affected people to communicate the reason for the measure and gain their support for complying.

Goal

Limit spread

➡️ **Prevent spread**

Possible Benefits: May contain a disease within the boundaries of the cordon. Reduces need for urgent evaluation of large numbers of potential contacts to determine indications for activity restrictions. If effectively implemented, may stop transmission to unaffected regions. Only useful of outbreak is localized.

Possible Drawbacks: Controversial because it infringes on personal freedom of movement. May lead to severe hardship and increased risk of infection for an entire community. People could be stranded without support. Commerce will be heavily compromised. Revenue loss, public outrage and political backlash are possible. It may disproportionately affect certain cultural and community groups, low-income families, rural and under-resourced communities, and individuals with un-related acute, chronic, or severe medical needs. May be difficult to secure compliance.

Settings and Use

This strategy might be considered when extensive transmission is occurring in a localized area, widespread community transmission in that area is established at the time of evaluation, and other available measures are felt to be insufficient to prevent further spread.
Consider this intervention with highly transmissible and clinically severe disease that is localized and requires geographic containment..