



# NON-PHARMACEUTICAL INTERVENTIONS (NPIs): ACTIONS TO LIMIT THE SPREAD OF THE PANDEMIC IN YOUR MUNICIPALITY



PREPAREDNESS



RESPONSE

## This tool will help you to:

- Understand non-pharmaceutical interventions (NPIs)
- Use these as strategies to limit the spread of a severe pandemic from person to person
- Learn when and how to implement NPIs in order to reduce deaths

## Who will implement this tool:

The health sector will be responsible for advising the mayor and the municipal team on how to limit the spread of the disease, and reduce the number of deaths. However, you the mayor and/or other governmental authorities will be responsible for providing the resources and legal basis to implement the actions that are recommended, and make the necessary declarations that enact and enforce them. The health sector and the mayor will need to work very closely together as the decisions to implement and then discontinue the actions will need to be monitored and communicated on a daily basis. If a national pandemic plan exists, the team should review it to identify the roles of each sector.

## WHAT ARE NON-PHARMACEUTICAL INTERVENTIONS?

During a severe pandemic, there are different approaches to limiting the spread of the illness. Pharmaceutical (drug) interventions, such as vaccines and anti-viral medications to prevent the disease or its complications *may not* be available in many areas of the world in sufficient quantities to make a significant contribution toward reducing deaths.

NPIs include both actions that individuals and households can take (e.g. frequent hand washing, covering coughs and sneezes, and keeping a distance from sick people) and *social distancing policies* that communities can enact (e.g. closing schools, working from home, restricting public gatherings) that are specifically geared to limiting the spread of a disease that is transmitted from person to person.

*NPIs are the most important tool that mayors and municipal leadership teams will have to reduce deaths.* Not only will they be available and accessible at the local level, but they are likely to be very effective in limiting the spread of the disease, and reducing the number of deaths. The *Crisis and Emergency Risk Communication* section, Tools 12–14, will give you ideas on how to communicate interventions to the public.

## WHY WILL THESE INTERVENTIONS BE NECESSARY?

*NPIs will be the best defense a municipality will have against the spread of the pandemic.*

In fact, the use of these interventions is important even when drugs and vaccines are available, because they can prevent individuals from even being exposed to the disease, decreasing the number of people who will become sick and those who will die. Vaccines take 4–6 months to develop once a new virus is identified, and the global manufacturing capability is limited. For these reasons, it is unlikely that most countries will have a pandemic vaccine available for their populations. Most countries will also not have enough anti-viral medicines to protect their entire population from the disease or treat them if they get sick. Non-pharmaceutical interventions are accessible, affordable, and effective.

## HOW DO NON-PHARMACEUTICAL INTERVENTIONS WORK?

These interventions help reduce the impact of a pandemic by achieving the following results:

1. Delaying the effects of the pandemic to provide more time for preparedness and response efforts
2. Reducing the number of people who are exposed and then infected
  - Decreasing the number of people who become infected means that fewer people will get sick or die, and that hospitals and doctors will be better able to take care of the sick
3. Fewer sick people means more people will be able to stay on the job, so NPIs also help to keep local businesses and public utilities (such as water, electricity, and transportation) in operation, reducing the number of deaths

## WHICH INTERVENTIONS MAY BE NECESSARY DURING A PANDEMIC?

### INTERVENTIONS FOR INDIVIDUALS

The pandemic virus will be similar in many ways to a usual, seasonal influenza virus, and the same prevention measures that work for seasonal influenza will also work for the pandemic influenza. This is very good news for municipalities, as it means that the most effective way of controlling the pandemic will be available to all municipalities, and all families within those municipalities.

#### FOUR IMPORTANT PREVENTION MEASURES ARE:

##### 1. Wash your hands frequently

**Why:** Good hand-washing practices decrease the amount of virus that may be transmitted when shaking hands or touching surfaces such as door handles and light switches.

**Instructions:** Individuals should wash their hands frequently with soap and water. If soap and water are unavailable, alcohol-based hand sanitizers are good substitutes.

**Requirements for success:**

- Broad public education to ensure that the public consistently and correctly washes hands
- Sufficient access to soap and water, or hand sanitizers

##### 2. Cover coughs and sneezes

**Why:** Covering a cough or sneeze with a sleeve, tissue or mask prevents the spread of the virus through the air and contamination of the hands.

**Instructions:** Individuals should cover their cough by coughing into their sleeves (not their hands) or using tissues. Tissues should be disposed of properly. See the note on mask use below.

**Requirements for success:**

- Broad public education

##### 3. Keep your distance

**Why:** The virus is spread through large droplets in the air that are breathed out through talking, shouting, coughing, sneezing, and singing. This means influenza spreads most easily when people are close together or in crowded places (like markets and buses). These droplets can travel 1–2 meters so keeping a distance of 1–2 meters from sick people can reduce the likelihood of infection.

**Instructions:** Individuals should avoid crowded settings and maintain a distance of 1–2 meters from sick persons. Sick persons should stay home as much as possible and keep a distance from others when out.

**Requirements for success:**

- Broad public education
- Ability to stay 1–2 meters from others at home, at work, and in the community
- Cooperation of the public

##### 4. Separate the sick

**Why:** Isolation of sick people prevents sick people from infecting those who are well.

**Instructions:** People with influenza-like symptoms should stay home for the infectious period, approximately 7–10 days after becoming sick. This will usually be in the sick person's home, but could be in the home of a friend or relative. They should not go to work or to markets, or attend public gatherings (such as church services, work meetings, or other events) unless they can stay at least one meter away from all other persons, wear a face mask if available, wash their hands well and often, and cover their coughs and sneezes all the time.

Special efforts should be made to provide support for people who live alone, and for families in which all the potential caretakers are ill. Isolation should be done on a voluntary basis. However, municipalities should have plans in place to enforce isolation if it becomes necessary.

**Requirements for success:**

- Quickly identifying the person who is sick
- Providing simple, clear information to those who are sick—and their family members—about when and where to go for medical care and how to safely take care of the sick at home
- The commitment of employers to allow workers to stay at home when they are sick (see “Social Distancing—Adults at the Workplace” on page 6)

#### ADDITIONAL RECOMMENDATIONS TO CONSIDER:

##### Consider a mask, if available

**Why:** Experts are not sure how helpful masks will be during a pandemic. Wearing a face mask may help lower the chance of catching influenza in certain situations. However, masks don't protect a person as well as the standard prevention measures recommended above. Once the pandemic begins, there will be more information on the use of masks.

**Isolation:** Keeping sick people away from others to prevent them from infecting others.



**Quarantine:** Keeping people who may have been exposed to the disease but are not yet sick away from others for a long enough period of time to determine if they are going to get the disease.

**Instructions:**

- WHO recommends that mask use should be based on risk, including frequency of exposure and closeness of contact with potentially infectious people.
- Practice all the prevention measures whether or not you wear a mask. The danger of masks is they might make people feel safer than they really are, because masks do not provide complete protection against catching influenza.
- If supplies are available, patients and caregivers should be trained to wear and dispose of masks during the infectious period of the patient.
- Where supplies are limited, *it is more important in the home that the patient wears the mask than the caregiver.* The mask need not be worn all day and only when close contact (within approximately 1 meter) with the caregiver or others is anticipated.
- Masks should be disposed of safely if wet with secretions. Tightly-fitting scarves or a reusable mask made of cloth covering the mouth and nose could be used if masks are unavailable. They should be changed if wet and washed with soap and water and dried in the sun.
- If enough masks are available, caregivers should also use them to cover their mouths and noses when in close contact with ill persons.
- Routine mask use in public places should be permitted but is not expected to have an impact on disease prevention.

**Requirements for success:**

- Broad public education to ensure consistent use of masks
- Sufficient access to masks or cloth

**Quarantine family members of those who are sick**

**Why:** Quarantine decreases community transmission by people with one or more family members sick with pandemic influenza. People who are infected with pandemic influenza may be at risk of infecting others even before they start to have symptoms like cough and fever, or before their symptoms become severe. Because quarantine is very difficult for people to comply with, and has many economic and social consequences, it is generally only used in severe pandemics.

**Instructions:**

- Family members (or others) living in the same home as those who are sick should stay home for 7 days (voluntary quarantine) from the day that the first sick person begins to have symptoms.
- If other family members become sick during this 7-day period, all family members who have not been sick should stay home (voluntary quarantine) for another 7 days from the time that the last family member becomes sick. If a family member who was sick has recovered and has stayed at home for at least 7 days since they became sick, they can leave the house if they feel well enough.
- Once the quarantine period passes, it is safe for individuals to resume their usual activities.
- If an individual develops signs of the disease during the quarantine period, the person should be isolated (see the section on separating those who are sick, on page 3).

**Requirements for success:**

- The quick and accurate identification of the first person in the family to be sick
- Voluntary compliance with quarantine by family members or others living in the same home with the person who is sick
- The commitment of employers to allow workers to stay home when they are sick (see “Social Distancing—Adults at the Workplace” on page 6)
- Providing simple, clear information to those who are sick—and their family members— about when and where to go for medical care and how to safely take care of the sick at home
- A plan for providing support to families under voluntary quarantine, such as ensuring the delivery of food and medicine

**INTERVENTIONS AT THE COMMUNITY LEVEL:  
SOCIAL DISTANCING**

**CHILD SOCIAL DISTANCING**

**Close schools and childcare facilities**

**Why:** Influenza can easily travel through childcare facilities and schools because children tend to spread germs more rapidly than adults. Closing schools and childcare facilities protects children by decreasing the spread of the disease among them, and also dramatically decreases the risk of children bringing the disease home or infecting other members of the community.

**Instructions:** Depending on the severity of the pandemic, authorized government officials may need to close schools and childcare facilities to limit the spread of the disease.

**Requirements for success:**

- Depending on the situation in your country, the central government may make the decision about whether or not to close schools, or they may leave it up to the local areas. Refer to your national and district plans, if available, and develop your plans to include both possibilities.
- The consistent implementation of closings among all schools in the municipality
- Providing families with alternative options for their children’s education
- A plan to ensure that children who are usually fed at school still get enough food at home
- A plan to ensure that parents and other caretakers can stay home from work to care for their children
- Communication to parents that when schools close children must stay home and limit their contacts with others to the greatest degree possible. Allowing children to play together or congregate socially while the schools are closed will counteract the effect of closing the schools.
- If group care of young children is needed and available to allow parents to continue to work, the groups should be restricted to the number of children that the caregiver(s) can keep separated, or isolated if they get sick.

**Social distancing policies:** Actions that communities and workplaces can take to decrease the amount of contact among people in order to reduce the likelihood of person-to-person spread of an infectious disease like influenza.

### Decrease children's social contacts outside of school

**Why:** Limited social contact protects children by decreasing the spread of the disease among them, and decreases the risk of introducing the disease into homes and the community at large.

**Instructions:** Parents should decrease children's social contacts outside of school as much as possible.

**Requirements for success:**

- The commitment of parents and the municipality to keep children from gathering outside of school
- A commitment to keep childcare groups (at home) to a safe number

### SOCIAL DISTANCING—ADULTS AT THE WORKPLACE

#### Keep workers separated

**Why:** These measures reduce the spread of the disease within the workplace, provide a less contagious workplace, and give people confidence in the cleanliness of their workplace. They also limit the disruption of business and help maintain *essential services*.

**Instructions:** Employers should consider the following social distancing policies to keep healthy adults working while keeping them apart from each other as much as possible.

- Allow and encourage sick employees to stay home.
- Have employees work from home as much as possible.
- Hold conference calls instead of face-to-face meetings.
- Separate peoples' desks, leaving at least one meter between each desk, and discourage close contact.
- Modify work schedules to allow for day, evening, and night shifts.

**Requirements for success:**

- The commitment of employers
- The cooperation of employees

### SOCIAL DISTANCING—ADULTS IN THE COMMUNITY

#### Cancel or postpone large public gatherings

**Why:** Limiting the congregation of large groups reduces community transmission of the virus and thus slows or limits spread of the disease.

**Instructions:** Cancel or postpone large public gatherings (such as concerts, theater showings, and funerals). Depending on the religious beliefs of the community, rather than closing places of worship altogether, the community may want to limit the number of people attending services at any given time, or provide masks and soap and water to those who do attend, and encourage hand washing.

**Requirements for success:**

- The support of political leaders
- Public support
- A plan for the *public safety sector* (police, military, or civil defense) to assist, if necessary, in the enforcement of this intervention

### Arrange for home delivery of food, medications, and other goods

**Why:** Delivering necessities directly to homes helps prevent gatherings at markets and other public places and, therefore, reduces spread of the disease.

**Instructions:** Arrange for the delivery of food, medications, and other goods to homes. If that is not possible, use smaller distribution sites with staggered pick-up times to prevent crowds from gathering. (For more information, see Tool 11, *Distribution of Emergency Food during an Influenza Pandemic*.)

**Requirements for success:**

- The support of political leaders
- Public support
- A plan for the public safety sector to assist, if necessary, in the enforcement of this intervention

## WHEN SHOULD YOU START NON-PHARMACEUTICAL INTERVENTIONS?

To effectively reduce deaths, the timing of NPIs is essential. As a general rule, it is best to wait to start them until there is a "cluster of cases" of severe disease in the municipality.

While individual interventions are always recommended, the use of community-level social distancing policies may result in more people out of work and economic losses to the community and should only be used when needed. Closing of businesses, such as restaurants, as part of a policy to prevent public gatherings, will cause some people to lose their income and may also result in other economic costs, such as decreased tourism. Therefore, it is very important to use these measures when they are needed, but, at the same time, to avoid using them if they are not indicated.

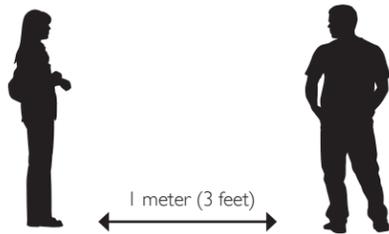
There may be the need to make a decision about closing schools and some businesses before the world has a lot of specific information on the pandemic virus. While it is better to take preventive measures than not, local authorities should be ready to change a policy and re-open schools and businesses if the virus does not appear to be very serious. *Every day in a severe pandemic will be a balancing act between taking actions to limit spread, and paying the price for having done so.* It is, therefore, recommended that municipal policy makers and those with the authority to make these decisions develop local plans for use of social distancing policies that can adapt to a changing situation.

*Example: Soon after the H1N1 virus emerged in the spring of 2009, it was recommended that schools in the United States close if they had a single suspect case of the influenza. This was recommended because of the early report of many deaths in Mexico and a fear that the virus was severe. However, once it became clear over time that the virus was a mild one, the recommendation to close schools was reversed. Those schools that closed in the early days of the H1N1 pandemic reported economic, social, and educational consequences.*

While each situation will vary, leaders will need to adapt the plan to the characteristics of each municipality and the local situation. The plan should also consider the severity of the virus. The section, "Which Interventions Should Be Used" (on page 9), provides guidance on this.

If the decision is made to use social distancing measures, *start implementing interventions immediately.* Listen and watch for national and international recommendations. However, be prepared to act based on information from the local municipality.

**Cluster of cases:** Several cases of disease from the same virus in more than one home.

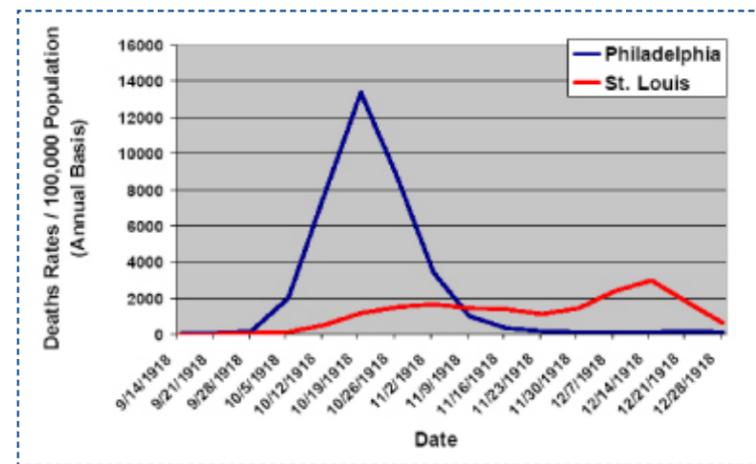


**Implementing social distancing policies too early—before the pandemic has reached the area—or using them when the severity of the virus does not warrant their use, may result in unnecessary economic and social hardship without benefit to the public’s health.**

Please note that it will be *too early* to start the community-level interventions if there are no cases in the local area. The plan should use a trigger based on the presence of local cases, not when a pandemic is present elsewhere in the world but has not yet impacted the local area.

On the other hand, policies that are started too late may not prove to be effective in reducing deaths. The chart below shows data from the 1918 pandemic from two cities in the United States. The number of deaths in these two cities differed significantly, with Philadelphia having more deaths and a large peak early on and St. Louis having many fewer deaths. The data suggest that the difference may be due to St. Louis initiating community measures early, when only 2.2% of the people in the city were sick. In contrast, Philadelphia didn’t institute them until 10.8% of the people were sick with the pandemic influenza, and also chose to hold a large public parade, bringing many people together.

**1918 DEATH RATES: PHILADELPHIA VS. ST. LOUIS**



Collins SD, Frost WH, Gover M, Sydenstricker: *Mortality from influenza and pneumonia in the 50 largest cities in the United States*. First Edition Washington: U.S. Government Printing Office.1930.

**WHICH INTERVENTIONS SHOULD BE USED?**

No single NPI is sufficient on its own to limit the spread of a pandemic. It is most effective to use individual-level and community-level interventions together. Non-pharmaceutical interventions can also be used together with vaccines and anti-viral drugs, if these are available.

As discussed in the previous section, selecting which social distancing measures to use will depend on the severity of the pandemic. Again, H1N1 has taught us that it can be very difficult to know the severity of a virus when it is just emerging. Therefore, there is likely to be confusion and uncertainty about the severity of the disease and whether or not some of the measures should be used.

The individual-level NPIs should always be used. In fact, these are important for a number of communicable diseases that occur every day, such as diarrheal illnesses and other respiratory illnesses. It is good pandemic preparedness, and good disease prevention policy in general, to educate the public about the importance of:

- Frequent hand washing
- Covering coughs and sneezes
- Keeping distance from others
- Separating sick people

However, the use of the social distancing policies in the community and workplace can result in public fear, inconvenience, and loss of income. These are the ones that should be used only when needed, but used as early as possible when they are needed.

We will not know the severity of the pandemic until sometime after a pandemic virus emerges. For example, the period of time that schools may need to be closed will vary with the severity category of the pandemic. If the pandemic is mild, no schools should be closed. If the pandemic is of moderate severity, schools may need to be closed for up to 4 weeks. For a severe pandemic, schools may need to be closed for up to 12 weeks.

**Note:** For planning purposes, the recommendation is to be prepared for the worst (that is, for a severe pandemic).

The table on page 10 presents three possible scenarios—mild, moderate, and severe pandemics—and makes recommendations for the use of some NPIs as examples in a variety of settings.



**RECOMMENDATIONS FOR USE OF NPIS BY PANDEMIC SEVERITY**

Setting: Intervention	Pandemic Severity		
	Mild	Moderate	Severe
<b>Home:</b>			
Isolation of sick people	Recommended	Recommended	Recommended
Quarantine of family members of sick people	Generally not recommended	Consider	Recommended
<b>School:</b>			
Close schools and childcare facilities	Generally not recommended	Consider (for a duration of up to 4 weeks)	Recommended (for a duration of up to 12 weeks)
Decrease children's social contacts outside of school	Generally not recommended	Consider (for a duration of up to 4 weeks)	Recommended (for a duration of up to 12 weeks)
<b>Workplace:</b>			
Hold conference calls instead of face-to-face meetings	Generally not recommended	Consider	Recommended
Modify work schedules Have employees work from home	Generally not recommended	Consider	Recommended
<b>Community:</b>			
Cancel or postpone large public gatherings	Generally not recommended	Consider	Recommended
Increase distance between persons	Generally not recommended	Consider	Recommended

**WHAT ARE THE POTENTIALLY NEGATIVE CONSEQUENCES OF NON-PHARMACEUTICAL INTERVENTIONS?**

As noted previously, the effective use of NPIS may result in a dramatic reduction in the number of cases of influenza, the number of deaths from it, and the overall burden on the health sector and the entire municipality. But there are negative as well as positive consequences to be considered when implementing these interventions.

Following are some of the negative consequences of these interventions which should be taken into consideration before planning to carry them out:

1. **Economic hardship.** Persons who have been quarantined, for example, may not be able to work from home and may therefore lose pay. Parents may need to stay home from work or pay for childcare when schools are closed.
2. **Social hardship.** People may not have access to their normal social support systems (such as church services and social events) and may therefore experience the effects of social isolation.
3. **Inadequate public compliance.** It may be difficult for people to comply with prolonged interventions due to the hardships noted above as well as other hardships. Enforcing community interventions may require the services of the police or other officials.
4. **Limited public health benefits.** If interventions are not started early enough, are ended too soon, or are not properly enforced, they may not have the desired public health benefits.

## SOURCES

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