

# Non-pharmaceutical interventions: their role in reducing transmission and spread

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At the start of a pandemic and for many months thereafter, all countries will face inadequate supplies of vaccines and antiviral drugs. WHO has therefore organized several expert consultations to explore the role of classic public health measures in reducing transmission and delaying spread. Evaluation of these measures has been based on limited experience during past pandemics and on what is known about the behaviour of normal influenza viruses.

The effectiveness of several measures will depend on the characteristics of the pandemic virus (attack rate, virulence, principal age groups affected, modes of spread within and between countries), and these cannot be known in advance. After a pandemic is declared, WHO will monitor its evolution in real time. Recommendations about the most effective measures will therefore become more precise as the epidemiological potential of the virus unfolds. For all these reasons, the recommendations below should be taken as general guidance, and not as formal WHO advice. Recommended measures are specific to the phase of alert in the WHO six-phase scale.

**Phase three (current phase).** The present situation is categorized as phase three: human infections with a novel virus subtype (H5) are occurring, but there is no evidence that the virus is spreading efficiently and sustainably among humans. Although the virus has demonstrated some ability to infect humans, H5N1 avian influenza remains principally a disease of birds, and not of humans. Human cases at present are isolated and rare, indicating a significant species barrier. To date, fewer than 130 human cases have been officially confirmed, despite the infection of tens of millions of birds over a wide geographical area for almost two years, in a situation with abundant opportunities for human exposure. At this phase, WHO recommends vigilance for human cases in areas experiencing outbreaks in birds. Unaffected areas should undertake measures to prevent entry of the virus via poultry or wild birds, especially as this virus, once established in birds, has proved to be especially tenacious. For humans, no travel restrictions or screening measures at borders are recommended, as the risk that the virus will be carried by international travellers is considered negligible.

**Phases four and five.** Phases four and five are characterized by evidence that the virus is progressively improving its transmissibility among humans, but is not yet spreading efficiently and sustainably. An increase in the number of clusters, closely related in time and place, is considered the likely epidemiological signal of improved transmissibility. During these phases, when instances of human-to-human transmission remain localized, WHO may recommend, depending on the circumstances, some of the measures below. These measures aim to reduce transmission and prevent, or at least delay,

further spread.

- Rapid detection and isolation of persons infected with H5N1.
- Tracing of close contacts during the patient's first two weeks of illness and voluntary quarantine of symptomatic persons for one week.
- Use of antiviral drugs for treatment of cases and prophylaxis of others in the initially affected area. The WHO rapid-response stockpile of antiviral drugs will be used for this purpose.
- Restriction on the movement of persons in and out of the initially affected area.
- Screening of travellers departing from areas where clusters of human cases are occurring.

**Phase six: pandemic declared (not all countries affected).** At the start of a pandemic, when not all countries or areas within a country are likely to have cases, WHO may recommend, depending on the circumstances, some of the measures below.

- Health care workers and first responders should be equipped with N95 respiratory masks; these should be fit-tested and training in their use should be provided. If respiratory masks are not available, standard well-fitted surgical masks should be used.
- Patients and persons seeking care in areas with cases should wear surgical masks.
- Persons with fever and respiratory symptoms and their contacts should be asked to undergo voluntary home confinement.
- Populations in countries with cases should be asked to defer non-essential domestic travel to affected parts of the country.
- Countries with cases should provide incoming travellers with health alert notices describing symptoms and where to report should these symptoms develop.
- Countries with cases may introduce exit screening measures for departing travellers. However, such measures are disruptive and costly and will not be fully efficient, as influenza viruses can be carried by asymptomatic persons, who will escape detection during screening.
- For persons known to have been exposed in an aircraft or aboard a large cruise ship, consideration can be given to recommended daily fever checks among passengers and crew and prophylactic treatment with antiviral drugs, when available.

**Phase six: pandemic spread (all countries affected).** Because influenza viruses are contagious and spread easily via coughing or sneezing, pandemics have historically encircled the globe quickly. After a new pandemic virus has spread widely within countries and internationally, WHO may recommend, depending on the circumstances, some of the measures below for all countries:

- Patient isolation and tracing and quarantine of contacts should cease, as such measures will no longer be feasible or useful.
- Health care workers and first responders should wear N95 respiratory masks or well-fitting surgical masks; patients should wear surgical masks.
- Should a large surge in cases occur, health care facilities should be arranged in ways that help reduce transmission (for example, by keeping a distance

between patient beds or placing adjacent beds face to foot).

- “Social distancing” measures, such as the closing of schools or cancellation of large gatherings, may be recommended if evidence indicates an association of certain settings or events with amplified transmission or dispersion into the wider community.
- Populations should be repeatedly informed of the need for frequent hand washing with soap and water.
- Populations should be repeatedly informed of the need for “respiratory hygiene” (covering mouth when coughing or sneezing, careful disposal of soiled tissues or other materials)
- Mask wearing by the general population is not expected to have an appreciable impact on transmission, but should be permitted, as this is likely to occur spontaneously.

**WHO does not recommend, at any phase, that individual countries be quarantined or that international borders be closed.**