



Action plan for Catalonia against a possible influenza pandemic

**Protocol for the prevention of infection
in healthcare centres**

Revision May 2008

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1 INTRODUCTION

The aim of this protocol is to provide healthcare centres and social health centres in Catalonia with information and criteria in order to minimise the risk of transmission of the infection to healthcare workers and patients, visitors and family members during the different phases of a pandemic alert (the current phase 3 or the subsequent phases 4 and 5).

This protocol is applicable to every staff member working in healthcare or social health centres, not only to doctors and nursing staff.

The adaptation of the types of measures to be adopted in order to minimise the risk of infection during each phase of the pandemic is extremely important, as every precautionary measure taken to avoid infection must take into account the mechanisms for the transmission of the infection and the period of potential infectiousness.

In this respect, in phase 3, the phase we are currently in, the most important characteristic is that the influenza virus that could potentially develop into a pandemic is not transmitted from person to person, but only between an infected bird and a human in the case of intense exposure to the virus. The precautions to be taken are the standard precautions that must always be followed, alongside precautions against droplet transmission, which can be added empirically in order to minimise the risk of exposure through respiratory processes.

During phases 4 and 5, the most important characteristic is the fact that the avian virus has adapted to the human system and that inter-human transmission is now possible. Although we do not know what the strain of the pandemic would be, it should be anticipated that transmission would be through droplets and contact, as is usually the case with an epidemic of the flu virus, and therefore people exposed to the virus would be those who may have inhaled droplets or who may have been in contact with respiratory secretions of a patient with flu during the transmission period. This means that the precautions that must be taken would be contact and droplet precautions. In addition, given that the aim of the public health system during this phase is to contain the virus and that airborne transmission is not impossible, in order to minimise the risk it also makes sense to consider preventative measures to avoid airborne transmission. Annexes A-E provide the characteristics and the requirements of standard precautions, the common guidelines for all types of precautions and precautions against droplet, contact and airborne transmission.

In relation to seasonal or epidemic flu it must be remembered that:

- The incubation period (time when a person is infected but has not developed the symptoms of epidemic flu) is normally between 1 and 4 days. However, this can be longer with avian flu cases.
- Adults are potentially infectious (they can be contagious) 24-48 hours before they develop symptoms until 4-5 days after they start.
- Small children are potentially contagious for a longer period of time (7 days or more). The transmission period can be extended still further in the case of immunodepressed children or adults or if they have an underlying disease.
- The basic reproduction number (R_0) is normally between 1.8 and 2.0. This figure indicates the average number of people likely to be infected (if there is no prior immunity in the population) when they come into contact with a person ill with flu.
- The generation time is the average time between the beginning of the clinical picture of a case and the onset of the clinical presentation of a case secondary to it. It makes it possible to measure the explosiveness of the epidemic or the speed of propagation of an epidemic. In flu, this period is usually 3 days (shorter than the incubation time). So, flu epidemics spread very quickly.

The main flu transmission mechanisms

Droplet transmission

- Flu viruses are transmitted largely by large droplets ($> 5 \mu\text{m}$).
- Large droplets are expelled when coughing, talking and sneezing and do not travel more than a metre in the air.
- To be transmitted, these droplets require proximity between the source person and the possible recipient. They do not remain suspended in the air; they have to come into direct contact with the oral, nasal or conjunctival mucosa.

Direct transmission by contact

- The proportion of transmission of flu virus by direct contact is unknown, but this transmission route is clearly possible.
- Direct contact involves skin contact, such as with the hands, between an infected person and a susceptible one.

- The flu virus can survive 24-48 hours on non-porous surrounding surfaces, up to 8-12 hours on clothes or paper and up to 5 minutes on the hands. The most usual transmission depends on hand contact with these surfaces and subsequent contact between the contaminated hands and the nasal, oral or conjunctival mucosa.

Airborne transmission

- Some studies have suggested the airborne transmission of the flu virus (via droplet nuclei of less than 5 μm in diameter, which remain suspended in the air and which can travel several metres). This transmission route has been described in experiments carried out on animals, but in humans the evidence supporting airborne transmission is limited and concerns closed spaces with little ventilation in which there could also have been transmission by contact or droplets.
- There is no evidence that droplet nuclei with the flu virus move long distances in ventilation systems, as can happen in the case of other viruses or the tuberculosis bacillus.

When should precautionary measures be adopted?

- Given that it is difficult for the majority of centres to diagnose infection by the new flu virus subtype quickly or easily, precautions should be taken to avoid transmission in the case of reasonable suspicion that a case exists.
- The concept of a suspected flu patient will change as the phases progress. This means that while during phase 3, which we are currently in, the probable case of H5N1 requires a very accurate epidemiological analysis in order to identify exposure to infected birds, in phase 4 and probably phase 5, the factor that will help to identify suspected cases is the background detail of a trip to an area where there have been outbreaks of the virus, or contact with a person with the virus. In phase 6, any flu symptom might be a possible case of flu caused by the pandemic strain, although there may also be cases of the epidemic subtypes H3N2 and H1N1.

2 BASES FOR CONTAINING AND CONTROLLING THE NEW FLU VIRUS SUBTYPE IN HEALTHCARE CENTRES

- Containment measures refer to those actions taken to prevent the virus from spreading freely throughout an area, while control measures are those actions taken to ensure that the morbidity and the mortality of the illness are significantly reduced.
- While there is no inter-human transmission of the new subtype of flu virus, it is very important to ensure the early identification of human cases and the sources of infection for these in order to adopt animal containment measures. The precautions to be taken by healthcare workers are the standard precautions and the precautions for avoiding droplet transmission.
- As soon as there is inter-human transmission of the virus and small outbreaks occur (affecting fewer than 25 people and lasting for less than 2 weeks) it is very important that the necessary precautions be taken as quickly as possible with regard to each potential case, in order to avoid transmission through contact and through the air.
- During the first phase of the period of inter-human transmission (phase 4), the public health objective is containment. Maximum precautions must therefore be taken, as successful containment should theoretically make it possible to avoid escalation to the subsequent phases. This fact, together with the forecast that few cases are likely in Catalonia (there is most risk that the pandemic strain will develop in those places where there are most cases during phase 3), means that during this phase maximum precautionary measures are planned (precautions that may even be greater than those strictly required, given that it is anticipated that transmission would be essentially through droplets and contact) such as those usually adopted when there is a threat of airborne transmission.
- If the objective of containment is unsuccessful and larger outbreaks occur (affecting 25-50 people and lasting from 2 to 4 weeks) in different places, the WHO states that this is then phase 5, in which the precautionary measures to be adopted in each centre are the same as for phase 4. If no further negative pressure rooms are available, the other precautions must still be scrupulously observed.
- Ultimately, if sustained transmission of the new subtype to the human population emerges, the WHO classes the situation to have escalated to phase 6. During this phase, some experts consider that the specific precautions taken to prevent transmission through contact and through the air are no longer as effective for preventing new cases of the flu. In any case, flu patients must be separated from other patients and the

standard precautions and the precautions for avoiding droplet transmission must be observed at all times. The following additional measures are very important during this phase:

- a) Sick leave for employees with flu.
 - b) Restrictions on visits to patients with flu.
 - c) The use of anti-viral drugs for the treatment of hospitalised flu patients in order to reduce the seriousness and the length of the illness along with the transmission of the virus.
 - d) As soon as a vaccine is available for the strain of the pandemic, healthcare workers must be the priority group for vaccination.
- Each centre must ensure within a sufficient amount of time that the necessary material for following the standard precautionary procedures and for implementing the precautions to avoid transmission by contact, droplet transmission and airborne transmission (see Annexes) is available for use at all times in accordance with the epidemiological situation.

3 PROTECTING EMPLOYEE HEALTH AND SICK LEAVE

Given that the most effective measure for preventing flu is vaccination, during each flu season staff must be vaccinated in order to avoid them becoming ill themselves and to prevent the transmission of the infection to patients.

In addition to this, the emergence of a new subtype of the flu virus that can be transmitted to the human population poses an extra challenge to the health of all healthcare workers, as it is unlikely that a vaccine would be available against the strain of the pandemic in the early stages of phase 6, and because this is a collective that:

- Is exposed to infection in the workplace.
- Can contribute to limiting the extension of the infection to other people in their environment, if appropriate precautions are taken to avoid infection.
- Can serve as an example in order to encourage the adoption of measures that can limit the spread of the infection in the community.

The role of healthcare staff in limiting the spread of flu in phase 6 of the pandemic clearly depends on the following aspects being taken into account:

- a) Staff members who have flu must be identified quickly.
- b) Staff with symptoms that match those of flu (from the very first symptoms) and those who are recovering from flu must not work in

order to avoid infecting patients, work colleagues or others. There may however be some exceptions, which are listed below.

- c) Healthcare workers who are looking after patients with pandemic flu must not look after other types of patients.
- d) Healthcare workers with underlying conditions and pregnant workers, groups that have been identified as particularly vulnerable due to the risk of complications, must not be involved in the direct care of patients with flu.
- e) Substitute and back-up staff must follow the same recommendations as other staff members.

In accordance with RD 664/1997 on the protection of employees from risks due to exposure to biological agents in the workplace, during phase 3 the prevention service must produce a record of employees who are particularly vulnerable and who for health reasons (such as COPD, heart disease, renal failure, immunodeficiency, pregnancy and others) must not be exposed to the flu virus.

During phases 4-6, a record must be drawn up of those people who have symptoms of the illness, which will be used to start the procedure for industrial accidents with sick leave on the part of the industrial accidents and occupational illness insurance company (see Annex E).

Sick leave

Healthcare workers are at risk of contracting pandemic flu as a result of exposure in the workplace. As soon as the first flu-like symptoms appear they must inform their immediate superior and the prevention service, which must carry out a pharyngeal and nasal smear and record the details.

All healthcare workers who have recovered from pandemic flu must be examined on their return to work by the prevention service in order to assess the suitability of their place of work. The assessment must be made in accordance with the laboratory test results (see Annex F).

4 PRECAUTIONS FOR CONTROLLING INFECTION IN HOSPITALS

4.1 Hand hygiene

Hand hygiene is the most important measure for reducing the transmission of the infectious agents in everyday activities and for the prevention of hospital-acquired infections.

- Surfaces close to the patient should not be touched unnecessarily, in order to avoid contamination of the hands and the transmission of pathogenic microorganisms that may be on the hands.
- Hand hygiene must be carried out with soap and water or with alcohol-based products with emollients.
- Hands must be dried properly.
- Paper towels must be used.
- If alcohol-based products are used, the hands must be rubbed together until the solution evaporates.
- If the hands are visibly dirty (respiratory secretions) they must be washed using ordinary soap and water.
- The soap or alcohol solution must reach every part of the hands.
- Hands must be cleaned before and after any contact with the patient, with secretions or excretions or with material that has come into contact with secretions or excretions.
- Hands must be cleaned before putting on personal protective equipment and after taking it off.
- Hand hygiene facilities must be available to all those who come into contact with the patient (alcohol solution dispensers must be placed in waiting rooms, wards, consulting rooms, etc.).

4.2 Respiratory hygiene

The transmission that occurred in healthcare centres during the epidemic of severe acute respiratory syndrome (SARS) made clear the need to implement a series of protective measures against respiratory infections as soon as the patient arrives in the healthcare centre to request treatment. These protective measures against agents transmitted through respiratory secretions have been called respiratory hygiene measures (also known as “cough etiquette”) and were incorporated into the standard precautions in the latest revision of the US Centers for Disease Control and Prevention’s *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007*.

The aim of respiratory hygiene measures is to minimise the transmission of the flu virus and other pathogenic microorganisms that are eliminated through the respiratory tract. According to these measures, patients and

those accompanying them, as well as healthcare workers, must follow these hygiene rules:

1. Cover the mouth and nose with disposable handkerchiefs when coughing and sneezing.
2. Use disposable handkerchiefs to blow the nose.
3. Use receptacles that are near the individual for disposing of handkerchiefs.
4. After coughing or sneezing, wash the hands with soap and water or with an alcohol-based solution.
5. Do not touch the mucous membranes of the eyes and nose with dirty hands.
6. Place a surgical mask on patients with a cough during the transfer to the surgery or the hospital or during their wait for emergency services in order to avoid environmental contamination.

It is advisable to have information posters or other types of material with similar content in waiting rooms. The Ministry of Health has published and distributed material of this type to healthcare centres (see Annex G).

4.3 Personal protective equipment (PPE)

PPE must be worn to protect staff from contamination by bodily fluids, to reduce the risk of transmission of the pandemic virus between patients and staff and from one patient to another.

The use of PPE must be based on available evidence and must be proportional to the risk of contact with respiratory secretions. In addition, it must be adapted to the transmissibility characteristics of the virus in each phase.

Each centre must ensure that employees receive appropriate training in the use of such equipment.

4.3.1 Surgical masks

- These serve to prevent the transmission of the infectious agents in the nasal mucous and in the mouth. They must be fluid repellent.
- Surgical masks are recommended for those people who have flu-like symptoms and for cases where they can prevent the spreading of the infection and the contamination of the environment.
- These masks help to protect the health of those people who are required to be in close contact (at a distance of less than one metre) with patients with a cough, who are sneezing, etc. and who could transmit the flu virus or other infectious agents to others.
- Nursing staff and doctors must also wear surgical masks when dealing with suspected or confirmed cases of flu.
- The nose and mouth must be covered.
- Masks must be changed between rooms after having carried out activities in the area in which flu patients are hospitalised and whenever they are damp. They must be removed within the room or the area in question.

4.3.2 Particulate respirator masks types FFP2 or FFP3

- These serve to prevent the inhalation of infectious agents that come from the respiratory tract and are found in droplet nuclei or ambient aerosol particles.

- These masks are recommended when procedures are carried out that generate aerosols (resuscitation procedures, intubations, taking respiratory samples, manual ventilation, nasopharyngeal aspiration, bronchoscopy, nebulisation, sputum induction, thoracic physiotherapy, tracheotomy treatments, surgery and post mortem procedures using high-speed instruments). These procedures must always be carried out with the door closed and in the presence only of the staff involved in the procedure.
- Masks must be disposed of after each use.
- Masks must always be properly adjusted to the nose and mouth.

4.3.3 Gloves

- Gloves must be used whenever invasive procedures are carried out and where contact is required with areas that are usually sterile, with non-intact skin or with the mucous membranes and during activities that involve a risk of exposure to blood, bodily fluids, secretions (including respiratory secretions) and excretions.
- Gloves must be changed between patients.
- They must be removed after each use.
- Hands must always be cleaned after removing the gloves (with soap and water or with an alcohol solution).
- If insufficient gloves are available, priority must be given to their use in situations involving exposure to blood and bodily fluids, invasive procedures and contact with areas that are usually sterile.

4.3.4 Gowns

- These must be worn when there is a risk of contamination from respiratory secretions, splashes with bodily fluids or non-intact skin.
- Gowns must be waterproof; if they are not, a plastic apron must be used.
- Gowns must be single-use.
- Gowns must be changed between patients.

4.3.5 Aprons

- A single-use plastic apron must be worn whenever there is direct contact with the patient or contact with blood, bodily fluids, respiratory secretions or excretions.
- Aprons must be changed between patients.

4.3.6 Protective glasses

- These must be worn when there is a risk of splashing from blood, bodily fluids or respiratory secretions.
- They must be used during processes that generate aerosols.

4.3.7 Sequence to be followed for putting on and removing PPE

- PPE must be put on before entering the room.
- The gown and apron must be put on first, followed by the surgical mask or the particulate respirator mask, then the protective glasses, and lastly the gloves.
- Before leaving the room, firstly the gloves must be removed, then the apron and the gown and lastly the protective glasses; this equipment must be placed in a bag which must be sealed and removed from the room. Upon leaving the room, the surgical mask or the particulate respirator mask must be removed and deposited in the appropriate waste bin or, if the waste bin is a long way away, they must be placed in a bag that must be sealed before it is taken to the bin.
- Hands must always be cleaned before putting on and after removing PPE.

4.4 General recommendations for taking samples from patients with suspected cases of pandemic flu

When samples are to be taken from patients with flu, barrier protection must be used (gowns and gloves). Surgical masks and protective glasses must also be worn. When taking respiratory samples, particulate respirator masks type FFP2 or FFP3 must be used.

4.5 Environmental control

4.5.1 Management of clinical and non-clinical waste

Waste generated must be treated safely and efficiently, in line with the instructions laid down in Decree 27/1999 on the management of healthcare waste and according to the risk represented by each of the phases.

Bodily fluids such as urine and faeces can be disposed of as sewage during any phase.

Gloves must be worn when handling any type of waste and the hands must be cleaned after removal of the gloves.

During phase 3, in accordance with the standard precautions and the precautions against droplet transmission, waste that may contain respiratory secretions (handkerchiefs, masks) must be managed as waste belonging to group II.

During phases 4 and 5, waste that may contain the flu virus (handkerchiefs, masks, etc.) must be managed as group-III waste. This type of waste must be separated into a plastic bag that must be closed in the patient's room and deposited in rigid receptacles accredited for such a purpose located within the same unit, near the patient's room.

During phase 6, when the pandemic virus is already strongly present within the community, waste can be managed as group-II waste.

4.5.2 Linen and laundry

Linen used in the treatment of flu patients must be dealt with in line with standard precautions. No special measures are required for linen that has been in contact with suspected or confirmed cases of flu.

Bags of laundry must be handled and transported so as to prevent exposure of the skin or mucous membranes of the staff, as well as the contamination of their clothes and the environment, and of other patients.

- Laundry must be placed in the appropriate receptacles immediately after use and must be packaged at the place of use.
- Bags must be sealed before removal from the patient area.

- Gloves and aprons must be used when handling contaminated laundry.
- The hands must be washed after removing gloves that have been in contact with contaminated laundry.

All of the linen in the room must be changed when the patient is discharged, including the curtains.

For external consultation facilities, paper is a good alternative to sheets and must be changed after each patient.

Laundry staff must be kept appropriately informed and must be trained in all of the relevant operations, including hand hygiene and the use of protective clothing.

4.5.3 Staff work apparel

The appropriate use of protective equipment protects work clothes in the majority of circumstances. Healthcare workers must not leave work in their work clothes. Work clothes must be washed in the hospital laundry or by the company contracted for this service; in the latter case, clothing must be transported in sealed bags.

4.5.4 Dishes and kitchen utensils

No special precautions are recommended for the dishes and utensils used by the patient when eating and drinking. These must be washed in the dishwasher following the standard precautions (Annex A). There is no need to use disposable dishes or cutlery.

4.5.5 Environmental cleaning and disinfection of surfaces

- The flu virus is deactivated using the habitual cleaning and disinfection measures.
- The areas in which patients are accommodated must be cleaned with the frequency indicated in the precautions according to the risk of transmission, which must be followed during each phase (Annexes B-E).
- To avoid the generation of dust particles, floors must be mopped instead of swept.
- When areas are cleaned with water, this must be done in a way that will avoid the redistribution of microorganisms. This can be ensured by lightly cleaning highly contaminated areas first and by changing cleaning products and clothes often.

- Vacuum cleaners must not be used.
- Disposable cleaning materials must be used. Non-disposable material must be cleaned after use.
- Appliances that cause the air to recirculate (such as fans) must be avoided.
- Cleaning staff assigned to the areas in which flu patients are accommodated must not be transferred to areas with patients who do not have flu. These employees must be trained in the precautions to be taken when cleaning the affected areas. Cleaning staff must wear gloves and aprons and, when they are in the areas housing flu patients, they must wear surgical masks.

4.5.6 Patient treatment material

The standard procedures must be used when dealing with used or contaminated materials both in areas housing patients with flu and in other areas.

4.5.7 Furniture

Non-essential material must be removed from reception and waiting areas, diagnosis and treatment rooms and patient rooms, particularly in the case of soft and porous material, which is more difficult to clean and disinfect.

The remaining furniture must be easy to clean and must not retain dust or dirt. Magazines, toys, books and newspapers must be removed from waiting rooms.

4.6 Precautions to avoid transmission of the flu virus

Annexes A-E list the standard precautions, the common guidelines and the precautions for avoiding droplet transmission, contact transmission and airborne transmission.

4.6.1 Phase 3

- The standard precautions, the common guidelines for all types of precautions and the precautions for avoiding droplet transmission must be followed.

4.6.2 Phase 4

- The standard precautions, the common guidelines for all types of precautions and the precautions for avoiding transmission through contact must be followed. Particulate respirator masks types FFP2 or FFP3 must be used when there is direct contact with the patient.
- In line with the stipulations of the protocol for action to be taken when a possible case is detected during this phase, the patient must be transferred to the referral hospital.
- The patient must be alone in a negative pressure room and, where possible, there must be a basin and toilet in the room or the patient must share a room with another patient with suspected or confirmed pandemic flu.

4.6.3 Phase 5

- When patients go to their healthcare centre and are considered probable flu cases both by the clinic and in line with the epidemiological background, the standard precautions, the common guidelines for all types of precautions and the precautions for avoiding contact transmission must be followed. Particulate respirator masks types FFP2 or FFP3 must be used when there is direct contact with the patient. If there are negative pressure rooms available in the referral hospital or in another hospital, the patient must be transferred and must be accommodated in one of these rooms. If there is no negative pressure room available, the patient must be accommodated in an individual room.
- The patient must be alone in a negative pressure room and, where possible, there must be a basin and toilet in the room or the patient must share a room with another patient with suspected or confirmed pandemic flu.

4.6.4 Phase 6

- The standard precautions, the common guidelines for all types of precautions and the precautions for avoiding droplet transmission must be followed.
- From the start of the pandemic, patients with pandemic flu symptoms must be dealt with in an area that is separate from those patients who do not have flu.
- Patients with pandemic flu must be treated until they are discharged by specific staff teams which are not those teams dealing with patients without flu.
- The use of humidifiers should be avoided.

4.6.4.1 Selection of separate areas for accommodating patients

In order to treat patients with pandemic flu separately from patients who do not have flu, one or more areas, wards or floors of the hospital must be selected that are physically separate, that have several different rooms and that have the necessary infrastructure and complementary services (cohorting).

These areas must have a separate reception area from the rest of the hospital and a different entrance and exit to the rest of the hospital. They must not be areas that other patients, visitors or staff members are required to pass through. The doors and the windows between these areas and the rest of the hospital must always be kept closed.

There must be a notice at the entrance indicating that it is a separate or special area for patients with pandemic flu.

If possible, the area must have a different ventilation system to those for the areas for patients without flu. In any case the air from the area must not circulate in the neighbouring rooms or the other areas in the hospital.

4.6.4.2 Operation of the area

Within the designated area, patients must be in individual rooms. If there are not enough rooms available for this, more than one patient may be accommodated in the same room, according to the capacity of the rooms. In fact, a separate area may consist of a large ward with several beds (cohorting).

A zone of one or more rooms must be reserved in the designated area for patients requiring procedures that present a risk of producing aerosols.

The precautions in the separate area for patients with pandemic flu must be established immediately on arrival in the hospital of the first patient with the illness.

Patients must remain in the area until their discharge from the hospital. If there is an extreme shortage of beds for new patients, convalescent patients who do not have respiratory problems but who for varying reasons it has not yet been possible to discharge may be transferred to other areas of the hospital or to external inpatient centres. In this case, they must be accommodated at a location separate from the other patients.

4.6.4.3 Control measures in the separate areas

Requirements at the entrance

An information poster must be displayed at the entrance indicating the list of precautions that must be taken before entering the area. A logbook must also be placed at the entrance so that healthcare workers, other types of staff and visitors can sign in and indicate the date and time of their entry, which when required will make it possible to monitor possible contact. The number of people working in the area must be kept to the necessary minimum.

Infection control measures

Every person entering the area must adopt the standard infection prevention measures and must as far as possible follow the common guidelines for all types of precautions and the precautions for avoiding droplet transmission. Before entering the area, there must be a space and the resources necessary to enable visitors to take the appropriate precautionary measures.

Patient positioning and equipment

Within cohorting spaces, patients must be positioned with a minimum distance of one metre between them. The patient must have a receptacle or bag within reach for waste, which must be managed as group-II waste. Furnishings must be kept to a minimum.

Each patient must be assigned the basic instruments (thermometer, stethoscope and others) or else disposable equipment must be used. Reusable material must be suitably cleaned and disinfected between patients.

4.6.4.4 Visits and special services

- Visits

Visits from individuals who have not had the flu or who have not been vaccinated with the pandemic vaccine must be restricted. Visitors to areas in which flu patients are accommodated must be specifically instructed in the correct washing and hygiene measures of their hands.

- Religious services

Individuals providing religious services for patients with flu must take the standard precautions and the precautions for avoiding droplet transmission.

- Post-mortem inspection

This should not be a routine measure. When circumstances require a post mortem, the staff involved must be protected with personal protective equipment including particulate respirator masks type FFP2 or FFP3.

- Handling deceased patients

The staff involved must follow the standard precautions. If it is anticipated that there may be a risk of splashes of blood, bodily fluid, secretions or excretions that might affect the facial mucous membranes, then staff must wear surgical masks and eye protection.

- Funeral services

Staff involved in the funeral services must follow standard precautions at all times. Droplet transmission does not occur from deceased patients, so precautions against this are not required.

- Ambulances

During phase 3, the standard precautions, the common guidelines for all types of precautions and precautions against droplet transmission must be followed in ambulances. The patient must be fitted with a surgical mask and this must be kept on throughout the transfer. The ambulance staff must use particulate respirator masks type FFP2 or FFP3 if the patient requires procedures that generate aerosols (intubation, nasopharyngeal aspiration or others as listed in Section 4.3.2).

During phases 4 and 5, the standard recommendations, the common guidelines for all types of precautions and the precautions for avoiding contact transmission and airborne transmission must be followed in ambulances. The patient must be fitted with a surgical mask and this must be kept on throughout the transfer. The ambulance staff must use particulate respirator masks type FFP2 or FFP3.

During phase 6, ambulances must follow the standard procedures, the common guidelines for all types of precautions and the precautions for avoiding droplet transmission. The patient must be fitted with a surgical

mask and this must be kept on throughout the transfer. The ambulance staff must use particulate respirator masks type FFP2 or FFP3 if the patient requires procedures that generate aerosols (intubation, nasopharyngeal aspiration, etc.).

5 PREVENTING INFECTION IN EXTERNAL CONSULTANCY PRACTICES, PRIMARY CARE FACILITIES AND PRIVATE CONSULTANCY PRACTICES

Outpatient treatment facilities (external consultancy practices, primary care facilities, private consultancy practices, etc.) must consider infection prevention and control measures as an essential preventative activity that is an integral part of their work.

In the case of pandemic flu, these measures also include the consideration and design of a specific plan to deal with this eventuality and to adapt it to the situation of every treatment facility.

During phase 3 (where there is no transmission to humans), the measures to be applied when treating a suspected case of flu are those listed in this protocol: the standard precautions, the common guidelines for all types of precautions and the precautions for avoiding droplet transmission.

During phases 4 and 5, and particularly during phase 6, which is when a greater demand for treatment can be anticipated, the measures indicated for minimising the risk of infection in healthcare centres must also be followed in external consultancy practices, in primary care facilities and in private consultancy practices, and particular attention must be paid to the following aspects:

- a) Hand hygiene, which is the cornerstone of the standard precautions, must be scrupulously observed. Hand hygiene must always be carried out when there is contact with a person who has influenza symptoms and after contact with the personal effects of this person or with their immediate surroundings.
- b) Staff, the person treated and their family members or visitors accompanying them must take the appropriate hygiene measures, such as using paper handkerchiefs, covering the mouth and nose when coughing or sneezing, washing the hands after coughing, sneezing or using a handkerchief, and avoiding touching the eyes and nose with the hands.
- c) Suspected flu patients should be grouped together in the same treatment area of the external consultancy practice, the primary healthcare centre or the private consultancy practice. During phase 6 of the pandemic, the following possibilities should be studied:

- c.1) Providing special zones or areas for waiting and visits to patients with flu symptoms (essentially cough and fever).
- c.2) Considering the reduction and/or cancelling of other, non-essential consultancy services.

5.1 Hand hygiene

Hand hygiene is the most important measure for reducing the transmission of the infectious agents in everyday activities and for the prevention of hospital-acquired infections.

- Do not touch surfaces close to the patient unnecessarily, in order to avoid contamination of the hands and the transmission of pathogenic microorganisms that may be on the hands.
- Hands must be cleaned with soap and water or with alcohol-based products with emollients.
- The hands must be dried properly.
- Paper towels must be used.
- If alcohol-based products are used, the hands must be rubbed together until the solution evaporates.
- If the hands are visibly dirty (respiratory secretions) they must be washed using ordinary soap and water.
- The soap or alcohol solution must reach every part of the hands.
- Hands must be cleaned before and after any contact with the patient, with secretions or excretions or with material that has come into contact with secretions or excretions.
- Hands must be cleaned before putting on personal protective equipment and after taking it off.
- Hand hygiene facilities must be available to all those who come into contact with the patient (alcohol solution dispensers must be placed in waiting rooms, wards, consulting rooms, etc.).

5.2 Respiratory hygiene

The aim of respiratory hygiene measures is to minimise the transmission of the flu virus and other pathogenic microorganisms that are eliminated through the respiratory tract. According to these measures, patients and those accompanying them, as well as healthcare workers, must follow these hygiene rules:

1. Cover the mouth and nose with disposable handkerchiefs when coughing and sneezing.
2. Use disposable handkerchiefs to blow the nose.

3. Use receptacles that are near the individual for disposing of handkerchiefs.
4. After coughing or sneezing, wash the hands with soap and water or with an alcohol-based solution.
5. Do not touch the mucous membranes of the eyes and nose with dirty hands.
6. Place a surgical mask on patients with a cough during the transfer to the surgery or the hospital or during their wait for emergency services in order to avoid environmental contamination.

5.3 Personal protective equipment (PPE)

PPE must be worn to protect staff from contamination by bodily fluids and to reduce the risk of transmission in the case of a flu pandemic between patients and staff and from one patient to another.

The use of PPE must be based on available evidence and must be proportional to the risk of contact with respiratory secretions. In addition, it must be adapted to the transmissibility characteristics of the virus in each phase.

Each centre must ensure that employees receive appropriate training in the use of such equipment.

It must be used according to the current state of alert.

5.3.1 Surgical masks

- These serve to prevent the transmission of the infectious agents in the nasal mucous and in the mouth. They must be fluid repellent.
- Surgical masks are recommended for those people who have flu-like symptoms and for cases where they can prevent the spreading of the infection and the contamination of the environment.
- These masks help to protect the health of those people who are required to be in close contact (at a distance of less than one metre) with patients with a cough, who are sneezing, etc. and who could transmit the flu virus or other infectious agents to others.
- Nursing staff and doctors must also wear surgical masks when dealing with suspected or confirmed cases of flu.
- The nose and mouth must be covered.

- Masks must be changed between rooms after having carried out activities in the area in which flu patients are hospitalised and whenever they are damp. They must be removed within the room or the area in question.

5.3.2 Particulate respirator masks types FFP2 or FFP3

- These serve to prevent the inhalation of infectious agents that come from the respiratory tract and are found in droplet nuclei or ambient aerosol particles.
- These masks are recommended when procedures are carried out that generate aerosols (resuscitation procedures, intubations, taking respiratory samples, manual ventilation, nasopharyngeal aspiration, bronchoscopy, nebulisation, sputum induction, thoracic physiotherapy, tracheotomy treatments, surgery and post-mortem procedures using high-speed instruments). These procedures must always be carried out with the door closed and in the presence only of the staff involved in the procedure.
- Masks must be disposed of after each use.
- Masks must always be properly adjusted to the nose and mouth.

5.3.3 Gloves

- Gloves must be used whenever invasive procedures are carried out and where contact is required with areas that are usually sterile, with non-intact skin or with the mucous membranes and during activities that involve a risk of exposure to blood, bodily fluids, secretions (including respiratory secretions) and excretions.
- Gloves must be changed between patients.
- They must be disposed of after each use.
- Hands must always be cleaned after removing the gloves (with soap and water or with an alcohol solution).
- If insufficient gloves are available, priority must be given to their use in situations involving exposure to blood and bodily fluids, invasive procedures and contact with areas that are usually sterile.

5.3.4 Gowns

- These must be worn when there is a risk of contamination from respiratory secretions, splashes with bodily fluids or non-intact skin.
- Gowns must be waterproof; if they are not, a plastic apron must be used.
- Gowns must be single-use.
- Gowns must be changed between patients.

5.3.5 Aprons

- A single-use plastic apron must be worn whenever there is direct contact with the patient or contact with blood, bodily fluids, respiratory secretions or excretions.
- Aprons must be changed between patients.

5.3.6 Protective glasses

- These must be worn when there is a risk of splashing from blood, bodily fluids or respiratory secretions.
- They must be used during processes that generate aerosols.

5.3.7 Sequence to be followed for putting on and removing PPE

- PPE must be put on before entering the room.
- The gown and apron must be put on first, followed by the surgical mask or the particulate respirator mask, then the protective glasses, and lastly the gloves.
- Before leaving the room, firstly the gloves must be removed, then the apron and the gown and lastly the protective glasses; this equipment must be placed in a bag which must be sealed and removed from the room. Upon leaving the room, the surgical mask or the particulate respirator mask must be removed and deposited in the appropriate waste bin or, if the waste bin is a long way away, they must be placed in a bag that must be sealed before it is taken to the bin.
- Hands must always be cleaned before putting on and after removing PPE.

5.4 General recommendations for taking samples from patients with suspected cases of pandemic flu

When samples are to be taken from patients with influenza, barrier protection must be used (gowns and gloves). Surgical masks and protective glasses must also be worn. When taking samples using nasopharyngeal aspiration, particulate respirator masks type FFP2 or FFP3 must be used.

5.5 Environmental control

5.5.1 Management of clinical and non-clinical waste

Waste generated must be treated safely and efficiently, in line with the instructions laid down in Decree 27/1999 on the management of healthcare waste and according to the risk represented by each of the phases.

Bodily fluids such as urine and faeces can be disposed of as sewage during any phase.

Gloves must be worn when handling any type of waste and the hands must be cleaned after removal of the gloves.

During phase 3, in accordance with the standard precautions and the precautions against droplet transmission, waste that may contain respiratory secretions must be managed as waste belonging to group II.

During phases 4 and 5, waste that may contain the flu virus (handkerchiefs, masks, etc.) must be managed as group-III waste. This type of waste must be separated into a plastic bag that must be closed in the patient's room and deposited in a rigid solid receptacle accredited for this purpose located within the same unit, near the patient's room.

During phase 6, when the pandemic virus is already strongly present within the community, waste can be managed as group-II waste.

5.5.2 Linen and laundry

Linen used during the treatment of flu patients must be dealt with in line with standard precautions. No special measures are required

for linen that has been in contact with suspected or confirmed cases of flu.

Bags of laundry must be handled and transported so as to prevent exposure of the skin or mucous membranes of the staff, as well as the contamination of their clothes and the environment, and of other patients.

- Laundry must be placed in the appropriate receptacles immediately after use and must be packaged at the place of use.
- Bags must be sealed before removal from the patient area.
- Gloves and aprons must be used when handling contaminated laundry.
- The hands must be washed after removing gloves that have been in contact with contaminated laundry.

For external consultations, paper is a good alternative to sheets and must be changed after each patient.

Laundry staff must be kept appropriately informed and must be trained in all of the relevant operations, including hand hygiene and the use of protective clothing.

5.5.3 Staff work apparel

The appropriate use of protective equipment protects work clothes in the majority of circumstances. Healthcare workers must not leave work in their work clothes. Work clothes must be washed in the hospital laundry or by the company contracted for this service; in the latter case, clothing must be transported in sealed bags.

5.5.4 Environmental cleaning and disinfection of surfaces

- The flu virus is deactivated using the habitual cleaning and disinfection measures.
- The areas in which patients are accommodated must be cleaned with the frequency indicated in the isolation precautions that must be followed for each phase.
- To avoid the generation of dust particles, floors must be mopped instead of swept.
- When areas are cleaned with water, this must be done in a way that will avoid the redistribution of microorganisms. This can be ensured by first lightly cleaning highly contaminated areas and by changing cleaning products and clothes often.
- Vacuum cleaners must not be used.

- Disposable cleaning materials must be used. Non-disposable material must be cleaned after use.
- Appliances that cause the air to recirculate (such as fans) must be avoided.
- Cleaning staff assigned to the areas in which flu patients are accommodated must not be transferred to areas with patients who do not have flu. These employees must be trained in the precautions to be taken when cleaning the affected areas. Cleaning staff must wear gloves and aprons and, when they are in the areas housing flu patients, they must wear surgical masks.

5.5.5 Patient treatment material

The appropriate procedures must be followed according to the phase of the pandemic when dealing with used or contaminated materials, both in the areas reserved for flu patients and in other areas.

5.5.6 Furniture

Non-essential material must be removed from reception and waiting areas, diagnosis and treatment rooms, particularly in the case of soft and porous material, which is more difficult to clean and disinfect.

The remaining furniture must be easy to clean and must not retain dust or dirt.

Magazines, toys, books and newspapers must be removed from waiting rooms.

5.6 Precautions for avoiding transmission of the flu virus

Annexes A-E list the standard precautions, the common guidelines and the precautions for avoiding droplet transmission, contact transmission and airborne transmission.

5.6.1 Phase 3

- The suspected flu case must be transferred to a hospital (that has an intensive care unit) as quickly as possible.
- The standard precautions must be followed and the patient must be fitted with a surgical mask.

5.6.2 Phases 4 and 5

- The suspected patient must be transferred to the referral hospital as quickly as possible.
- While the patient is still in the centre, they must be kept in an individual space with the door closed.
- The standard precautions must be followed and the patient must be fitted with a surgical mask.

5.6.3 Phase 6

- In external consultancy practices, primary healthcare centres and private consultancy practices, patients with symptoms of pandemic flu should be treated in an area that is separate from the area in which non-flu patients are treated from the start of the pandemic.
- Patients with pandemic flu must be treated by specific staff teams which are not those teams dealing with patients without flu.
- The standard infection prevention precautions must be followed at all times and as far as possible the common guidelines for all types of precautions and the precautions for avoiding droplet transmission must also be followed.

5.6.3.1 Selection of separate areas for accommodating patients

In order to treat patients with pandemic flu separately from patients who do not have flu, one or more areas must be selected that are physically separate, that have several different rooms and that have the necessary infrastructure and complementary services.

These areas must have a separate reception area from the other external consulting rooms or the primary care facilities and a different entrance and exit to the rest of the facility. They must not be areas that other patients, visitors or staff members are required to pass through. The doors and the windows between these areas and the rest of the surgery must always be kept closed.

There must be a notice at the entrance indicating that it is a separate or special area for patients with pandemic flu.

If possible, the area must have a different ventilation system to those for the areas for patients without flu. In any case, the air from the area must not circulate in the neighbouring rooms or the other areas.

5.6.3.2 Operation of the area

Patients must remain in the area until their visit is complete and they leave the healthcare centre.

5.6.3.3 Control measures in the separate areas

Requirements at the entrance

An information poster must be displayed at the entrance indicating the list of precautions that must be taken before entering the area. The number of people working in the area must be kept to the necessary minimum.

Infection control measures

Every person entering the area must adopt the standard infection prevention measures and the common guidelines for all types of precautions, as well as the precautions for avoiding droplet transmission.

Patients must adopt the precautions for avoiding droplet transmission.

Patient positioning and equipment

In spaces reserved for flu patients (cohorting), patients must be positioned with a minimum distance of one metre between them. The patient must have a receptacle or bag within reach for waste. Furnishings must be kept to the necessary minimum.

Each patient must be assigned the basic instruments (thermometer, stethoscope and others) or else disposable equipment must be used. Reusable material must be suitably cleaned and disinfected between patients.

Cleaning and disinfection

The area must be cleaned very thoroughly at least once per day. The cleaning equipment used must be disinfected according to the guidelines for all types of precautions.

5.6.3.4 Limitation of specific outpatient services

In order to reduce the risk of transmission during the pandemic phase, it would be prudent to limit visits to non-essential healthcare services such as dental services. Given the risk of exposure to aerosols and splashes, staff must be protected by the appropriate personal protective equipment that includes eye protection and particulate respirator masks type FFP2 and FFP3.

6 PREVENTION OF INFECTION IN SOCIAL HEALTH CENTRES

The measures indicated to minimise the risk of infection in hospitals must also be followed in social health centres. In particular during phase 6 of the pandemic, particular emphasis should be placed on the following aspects in these centres:

- a) Hand hygiene, which is the cornerstone of the standard precautions, must be scrupulously observed. Hand hygiene must always be carried out when there is contact with a resident who has influenza symptoms and after contact with the personal effects of this person or with their immediate surroundings.
- b) Staff, the resident and their visitors must take the appropriate hygiene measures, such as using paper handkerchiefs, covering the mouth and nose when coughing or sneezing, washing the hands after coughing, sneezing or using a handkerchief, and avoiding touching the eyes and nose with the hands.
- c) Residents with flu that required further treatment as acute patients should not be transferred to acute hospitals, but instead must be treated in the centre itself.
- d) Patients from acute hospitals who have recovered from the flu or who have been vaccinated can be admitted to social health centres without restrictions.
- e) Social health centres in which there have been cases of flu can admit individuals from the community or acute hospitals without restrictions.
- f) Social health centres in which there have been no cases of flu can admit individuals from the community or acute hospitals who have not had flu or who are not vaccinated provided that precautions are taken during the first four days (minimum separation of one metre, use of surgical masks and strict observance of hand hygiene). If flu develops, these measures must be maintained for five days after the start of symptoms.
- g) It is not usually feasible to group flu patients together in a social health centre. This means that:
 - All internal and external events must be cancelled where possible.
 - Patients with a cough should be advised to stay in their rooms.
- h) There is no need to restrict visits by people who have had flu or who have been vaccinated with the pandemic vaccination.

- i) If the centre is free of flu, then visits should not be allowed from people with flu. If the patient is a terminal patient then visits may be permitted, but a surgical mask must be worn.
- j) If there are flu cases in the centre, visits must be noted and those who have not been vaccinated and those who have not had the illness should be advised not to enter. If the patient is a terminal patient then visits may be permitted, but visitors must wear a surgical mask and must wash their hands upon leaving the room.

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ANNEX A. STANDARD PRECAUTIONS

Standard precautions are applied wherever there may be or will be contact with:

- Blood.
- Any bodily fluid, secretion or excretion (except sweat).
- Mucous membranes.
- Non-intact skin.

These precautions are based on appropriate compliance with a group of measures concerning hand hygiene, the use of gloves, gown, mask and eye protection, prevention of accidental exposure to blood and organic fluids and the handling of the patient's equipment, linen and eating utensils.

A.1. Hand hygiene

In 1985, the Center for Disease Control (CDC) guidelines recommended washing the hands with normal soap and water in the majority of cases of patient contact, reserving antibacterial soap for prior to carrying out invasive procedures or treating high-risk patients; alcoholic solutions were recommended where no sinks, soap and water were available. In 1995, the APIC (Association for Professionals in Infection Control) guidelines introduced alcoholic solutions during routine patient care. In the most recent CDC guidelines of 2002, based on extensive scientific evidence, alcohol solutions are recommended as the first choice for hand hygiene, provided that the hands are not visibly dirty, due to their effectiveness, high tolerance level and ease of use.

Recommendations

If the hands are **not** visibly dirty, an alcohol-based product should be used in the following situations:

- Before any direct contact with the patient.
- Before insertion of a urethral catheter, peripheral venous catheter or other invasive procedures that do not require surgical procedures.
- After contact with the intact skin of the patient, for example after taking the patient's pulse, blood pressure, lifting the patient, etc.
- When changing procedure with the same patient.
- After contact with inanimate objects in the patient's immediate surroundings.
- After the removal of gloves.
- Before putting on gloves to insert a central catheter.
- Before putting on personal protective equipment (surgical or respirator mask, gloves, surgical gown, apron and protective glasses) and after removal of the same.

If the hands are visibly dirty or contaminated by blood or other bodily fluids, they must be washed with water and normal or antiseptic soap.

Hands must be washed with normal soap and water before eating and after using the lavatory.

Techniques

1. Friction with an alcohol solution

Between 3 ml and 5 ml of the product must be applied to the palm of the hand and rubbed over the entire surface of the hands and fingers until the solution dries.

2. With normal or antiseptic soap and water

- a) The hands must be moistened with water. Apply the soap and rub over the entire surface of the hands and fingers for a minimum of 15 seconds.
- b) The soap must be rinsed off with water.
- c) Dry the hands with a paper towel.
- d) Use the towel to turn off the tap.
- e) Avoid hot water as repeated exposure to hot water increases the risk of dermatitis.
- f) Bars of soap are not recommended, as they can easily be contaminated by microorganisms.
- g) Multi-use or roll-up towels must not be used for drying the hands in patient treatment areas.

A.2. Gloves

Gloves serve to:

- Reduce the risk of healthcare workers acquiring infections.
- Prevent transmission of the bacteria on the hands of healthcare workers to patients.
- Reduce contamination of the hands of healthcare staff in order to avoid transmission of infections from one patient to another.

Gloves provide a protective barrier, but are not a substitute for hand hygiene. Hand hygiene (cleaning or disinfection) must be carried out before and after using gloves.

Gloves do not provide complete protection against contamination of the hands, whether due to small flaws in the gloves themselves or due to the process of their removal.

Gloves must be used in the case of any contact with blood and bodily fluids, mucous membranes or non-intact skin.

Gloves must be changed between patients and when treating the same patient but changing procedure.

They must be put on immediately prior to beginning the procedure and must be removed as soon as the procedure is finished; gloves must not be worn when answering the telephone, writing in the medical records or opening doors. Staff must not walk through the corridors or the nursing units with gloves on.

Gloves must be taken directly from the original packaging and must not be stored in drawers or anywhere else.

Hands must not be cleaned with the gloves on and gloves must not be reused.

For cleaning contaminated surfaces and materials, domestic rubber gloves are recommended as they protect better against accidents.

Sterile gloves must be used in the following cases:

- Surgical procedures.
- The insertion of central venous catheters and arterial catheters.
- The insertion of peripheral catheters in immunodepressed patients.
- Bladder catheterisation.
- Pleural puncture, peritoneal puncture, lumbar puncture, etc.
- Vaginal obstetric examinations when the waters have broken.

Non-sterile gloves must be used in the following procedures:

- Taking blood.
- Insertion of peripheral catheters.
- Handling contaminated material.
- Aspiration of the respiratory tract.
- Endoscopies.
- Examination of non-sterile cavities.
- In isolation cases where indicated.

A.3. Gowns

- A clean gown (this need not be sterile) should be put on to protect the skin and avoid dirtying the work uniform when procedures are carried out that are likely to generate splashes of blood, bodily fluids, secretions or excretions.
- The dirty gown should be removed as soon as possible and the hands should be washed to avoid the transmission of microorganisms to other patients or to the environment.

A.4. Masks and eye protection

- The use of masks and protective glasses reduces the risk of exposure to pathogens transmitted in the blood.
- Masks with eye protection must be used to protect the mucous membranes of the eyes, the nose and the mouth during procedures that could generate splashes of blood, bodily fluids, secretions or excretions.

A.5. Respiratory hygiene

Respiratory hygiene strategies are aimed at patients with respiratory illnesses that may be transmitted to other patients and to healthcare staff. They should be applied to every person entering a healthcare centre who has signs of a respiratory illness such as a cough, congestion, rhinorrhea or an increase in respiratory secretions.

It is recommended that the elements of this strategy are printed in information leaflets and posters and are as follows:

- Cover the mouth and nose with disposable handkerchiefs when coughing and sneezing.
- Use disposable handkerchiefs to blow the nose.
- Use receptacles that are near the individual for disposing of handkerchiefs.
- After coughing or sneezing, wash the hands with soap and water or with an alcohol-based solution.
- Do not touch the mucous membranes of the eyes and nose with dirty hands.
- Place a surgical mask on patients with a cough during the transfer to the surgery or the hospital or during their wait for emergency services in order to avoid environmental contamination.

A.6. Prevention of accidental exposure to blood and organic fluids

- It is very important to avoid wounds when using needles, scalpels or other sharp or cutting implements and when handling such implements for their cleaning or when throwing them away.
- The metallic part of the needle must never be touched with the hands.
- Used needles must never be put back into the syringe.
- Pricks, minor cuts and other accidents are common when handling needles, scalpels and other cutting implements. These must be avoided as they are a mechanism for the transmission of infections contained in the blood and the bodily fluids.

Systems must be introduced that minimise the risk of accidental exposure to needles, such as:

- Devices without needles should be used.
- Blunt-tipped suture needles should be used.
- Safety lancets should be used.

Rigid receptacles for group-III waste must be used to collect cutting or sharp materials that are to be thrown out. These receptacles must be placed in accessible positions.

A.7. Handling patient equipment, linen and eating utensils

Patient equipment

Equipment used for the patient's personal hygiene, such as bedpans, bottles and basins must be for the exclusive use of each patient. Reusable equipment must not be used by other patients until it has been suitably cleaned and disinfected or sterilised.

Linen

Used bed linen and patient clothing must be handled, transported and processed carefully and using common sense (with the minimum movement) in order to avoid spreading pathogenic microorganisms to patients, staff or the environment. The industrial cleaning process used for linen will ensure that it is decontaminated.

Eating utensils

The combination of hot water and the detergent used in hospital dishwashers is sufficient for decontaminating plates, glasses, cups and other eating utensils.

A.8. Safe practices for administering injections

- A single-use, sterile needle and syringe must be used for each injection.
- The contamination of the injection and medication equipment must be prevented.
- Single-dose vials must be used wherever possible, especially when medication is to be administered to several patients.

A.9. Safe practices for lumbar punctures and central venous catheters

Staff carrying out lumbar punctures, myelograms or epidural anaesthesia or inserting central venous catheters must use surgical masks to prevent transmission to the patient of infectious agents from their oropharynx.

ANNEX B. COMMON GUIDELINES FOR ALL TYPES OF PRECAUTIONS

These guidelines concern general hygiene of the hands, the room, clinical material, linen, visitors and transfers.

B.1. Hand hygiene

- Hand hygiene must always be carried out after attending a patient and upon leaving the room, even when working with gloves. As indicated above, this measure is the most important of all of the isolation precautions.

B.2. Room

- The patient should be in an individual room with a sink and lavatory. If it is not possible to provide an individual room, patients infected with the same microorganism may share the same room.
- The door of the room must be kept closed and must display an information poster on the types of precautions and the main measures to be taken.
- The room may only be entered by the staff required to provide suitable patient care.
- Clean linen and the necessary protective equipment must be placed on a trolley outside the room. Once used, they should be placed in a bag inside the room.

B.3. Cleaning and disinfecting the room

- All of the surfaces in the room must be cleaned and disinfected daily. Bleach with 0.1% of free chlorine must be used. This concentration is obtained by diluting 200 ml of bleach with 40 g of free chlorine in a bucket with 8 litres of water.
- Cloths, shammies and scourers must be used exclusively for the isolation room. If this is not possible, the room must be cleaned last, and afterwards all of the materials used to clean it must be cleaned and disinfected.
- The following points should be remembered for the final cleaning of the room:
 - All of the disposable objects must be placed in a bag.
 - Cushions can be sent to the laundry with the other linen.
 - It is not necessary to close the room before cleaning.

B.4. Clinical equipment

- Reusable clinical equipment—sphygmomanometer, phonendoscope, thermometer or other items—must be used exclusively for each patient.
- After the patient has been discharged, this equipment must be suitably cleaned and disinfected.

B.5. Linen

- The patient's clothing and bed linen must be placed in an airtight plastic bag with a gauge (thickness) of not less than 180 mg/cm².
- Items must be bagged inside the room.

B.6. Visitors

- Visitor numbers must be kept as low as possible.
- Nursing staff must inform visitors of what they must do to respect the isolation measures.

B.7. Transferring the patient

- As far as possible, the patient must stay in their room, and must only be transferred where this is absolutely unavoidable.
- The reception service must be informed of the arrival of a patient requiring isolation.

ANNEX C. PRECAUTIONS FOR AVOIDING DROPLET TRANSMISSION

The specific measures to be followed for this type of precaution refer to the use of surgical masks and to transferring the patient.

C.1. Surgical masks

For this type of isolation, the following guidelines must be followed:

- Surgical masks must be used.
- They must be put on before entering the room.
- They must be used by all staff members dealing with the patient and by all visitors.

C.2. Patient transfers

- During transfers and in waiting rooms, the patient must wear a surgical mask.

ANNEX D. PRECAUTIONS FOR AVOIDING CONTACT TRANSMISSION

The specific measures to be adopted for this type of precautions refer to the use of gloves, the use of a gown, patient hygiene, cleaning the room, precautions during patient transfers and the cleaning and disinfection of diagnostic imaging services, stretchers, chairs, hoists and ambulances.

D.1. Gloves

In addition to the use indicated in the standard precautions, the following points must be followed:

- Gloves (which do not need to be sterile) must be put on upon entering the room and removed before leaving it.
- After removal of the gloves, do not touch surfaces or objects that may be contaminated.
- While attending the patient, gloves must be changed whenever they come in contact with highly contaminated material (with a high concentration of microorganisms).

D.2. Gowns

A clean gown must be put on whenever direct contact with a patient or with potentially contaminated surfaces or objects in the room is anticipated. Gowns must be removed before leaving the room.

D.3. Cleaning and disinfecting the room

- When this type of precaution is in place, rooms must be cleaned twice per day.
- All surfaces must be cleaned and disinfected with bleach containing 0.5% free chlorine in the case of patients infected with microorganisms that are particularly resistant to the environment, such as *Clostridium difficile* or norovirus.
- Cleaning material must only be used in the room in questions.

D.4. Patient transfers

- If the patient has to leave the room, they must first be covered with clean linen and the necessary measures must be taken to ensure the minimisation of the risk of transmission of microorganisms to other patients.
- The stretcher-bearers and the reception service must be advised of the precautions that are to be taken with the patient.

- If the patient is being transferred to another healthcare centre, either for tests to be carried out or for a full transfer, it must be noted on the medical records that contact precautions must be observed for the patient. The ambulance company carrying out the transfer of the patient must also be informed, and the reception service should be telephoned ahead, in order to avoid the transmission of microorganisms to other patients.

D.5. Diagnostic imaging service

- All linen used for the patient (sheets, cushions etc.) must be changed.
- Surfaces that have been in contact with the patient must be cleaned and disinfected.
- When the plate-holder has to come into direct contact with the patient, it must be protected with linen in order to avoid the contamination of the material. Afterwards it must be disinfected.

D.6. Stretchers, chairs and hoists

- All of the linen used in the patient transfer (sheets, etc.) must be changed.
- The surfaces of stretchers, wheelchairs and hoists that have come into contact with the patient (rails, etc.) must be cleaned and disinfected.

D.7. Ambulances

- All linen that has come into contact with the patient must be changed.
- All surfaces that have come into contact with the patient must be cleaned and disinfected.
- All equipment that has been used for the patient must be cleaned and disinfected.

ANNEX E. PRECAUTIONS FOR AVOIDING AIRBORNE TRANSMISSION

The specific measures to be respected for this type of precautions refer to the use of particulate respirator masks, the characteristics of the room, patient education, the appropriate management of healthcare waste and precautions to be taken for patient transfers.

E.1. Particulate respirator mask

Before entering the room, healthcare staff must don a mask of type FFP2 or FFP3.

The mask must be well adjusted and must be removed upon leaving the room.

E.2. Rooms

For this type of precautions, the room must have a negative pressure system of 6 to 12 air changes per hour.

The air must be pumped directly outside. For recirculation, an appropriate filtering system is required.

E.3. Patient education

The patient must be instructed to use paper handkerchiefs and to cover their nose and mouth when coughing and sneezing.

E.4. Healthcare waste

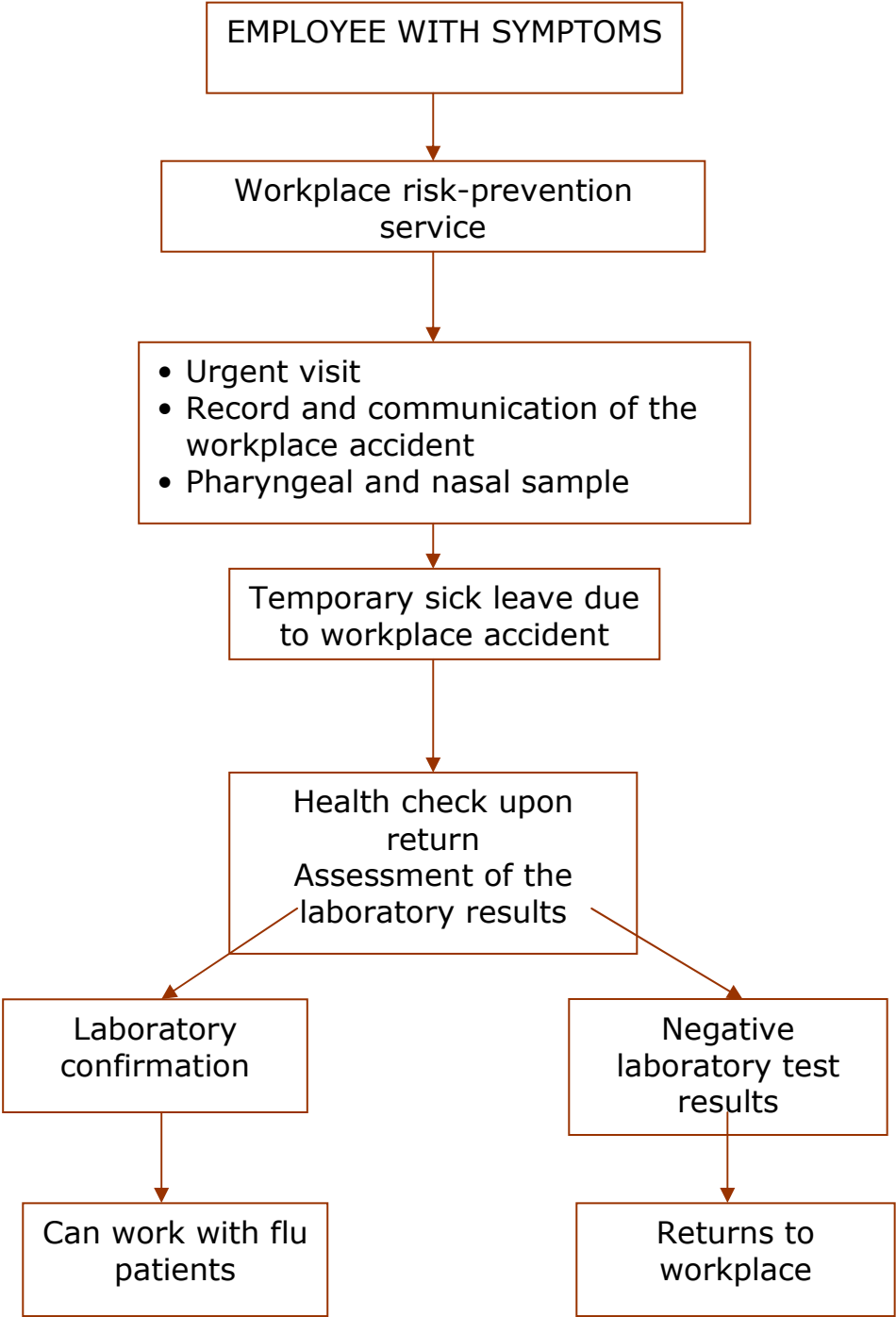
All waste containing respiratory secretions (paper handkerchiefs) must be disposed of separately in a plastic bag that must be closed within the patient's room and managed as group-III waste, in rigid receptacles accredited for this purpose located somewhere in the same unit, close to the room.

E.5. Patient transfers

Moving the patient should be avoided whenever possible.

During those transfers that are imperative, and in waiting areas, the patient must be fitted with a surgical mask, which means that the staff members transferring the patient are not required to wear one.

ANNEX F. DIAGRAMS OF THE PROTECTION OF THE HEALTH OF EMPLOYEES WITH FLU SYMPTOMS. PHASES 4-6



ANNEX G. POSTER ON RESPIRATORY HYGIENE

Quèu tossis o esternuds cobreix-te la boca i el nas amb un mocador de paper.
/ Cuando tozas o estornudas, tápate la boca y la nariz con un pañuelo de papel.

Fes servir mocadors de paper per netejar-te el nas. Llengalla al cubell de les escombraries o a la paperera. / Utiliza pañuelos de papel para limpiarte la nariz. Tírelas al cubo de la basura o a la paperera.

Atenció a la teva

Atención a tu **TOS**

Moltes malalties que afecten les vies respiratòries es contagien per la tos i els esternuds.

Muchas enfermedades que afectan a las vías respiratorias se contagian por la tos y los estornudos.

Neteja't les mans després de tossir o esternudar amb aigua i sabó o amb un preparat a base d'alcohol. No et toquis els ulls ni el nas amb les mans brutes. / Limpíate las manos después de tozar o estornudar con agua y jabón o con un preparado a base de alcohol. No te toques los ojos ni la nariz con las manos sucias.

Si et faciliten una mascareta, posar-te-la. Evitaràs que altres persones es contagin. / Si te faciliten una mascarilla, pónetela. Evitarás que otras personas se contagien.

Recorda: la teva col·laboració ens ajuda a tots a controlar les malalties que es transmeten per la tos i l'esternut.
Recuerda: tu colaboración nos ayuda a todos a controlar las enfermedades que se transmiten por la tos y el estornudo.

Generalitat de Catalunya
Departament de Salut

www.gencat.cat/salut

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