



The use of personal protective equipments (PPE) by healthcare workers in close contact with possible, probable and confirmed cases of swine flu during the pre and pandemic phases

Background

Current advice on the personal protective equipment (PPE) to be worn by healthcare workers (HCWs) when in close contact with a case of probable or confirmed swine flu is based on the following:

- The swine influenza identified in the US in late April 2009, swine influenza A/H1N1 is a new swine influenza subtype and because of this current UK health and safety guidance requires the use of a higher level of bio-security than would be the case with seasonal influenza^a
- The clinical severity, infectiousness and transmission characteristics of this new subtype were unknown
- The identification of this new subtype in the United States coincided with reports of a severe unexplained respiratory illness and associated deaths affecting significant number of adults aged 25-40 years in neighbouring Mexico.

In light of the significant unknowns and current health and safety guidance it was recommended that:

- close contacts and HCWs caring for a possible (clinical signs and epidemiological link) case of swine influenza should wear a surgical mask, plastic apron and gloves based on the likelihood of a person being a true case;
- close contacts and HCWs caring for a probable (clinical signs and flu A +ve) or confirmed (laboratory confirmed swine influenza) cases of swine influenza should wear an FFP3 respirator, gown, gloves and eye protection.
- Any HCWs not wearing an FFP3 respirator, gown, gloves and eye protection when examining or caring for a case of influenza-like illness subsequently classified as a probable or confirmed case should be offered antiviral prophylaxis to minimise the risk of infection.

In light of the information emerging from a more detailed understanding of this virus it is proposed that the current approach is modified to one that is felt to be more commensurate to the clinical and infection control risks.

^a The Approved List of Biological Agents (published in 2004) classifies influenza types A, B and C as Hazard Group 2 agents. However, this was modified in 2005 to classify novel influenza subtypes as Hazard Group 3 agents.

Rationale for the revision of the current guidance

The initial case fatality rate associated with the cases in Mexico has been significantly adjusted downwards as the results of more tests become available; initial assessments were biased by analysis of the more severely ill, hospitalised patients.

The information coming from an analysis of reported UK cases and cases from every country, except Mexico, seems to point to a milder illness than first envisaged in the vast majority of cases.

The emerging epidemiological picture from the cases in the UK suggests that, for the current swine influenza, the basic reproduction number (R_0)^b in the UK is hovering around 1 and might be as high as 1.2 once more data can confirm this, the UK is therefore not very far off confirming sustained transmission in the community.

Proposal

In light of the emerging clinical and epidemiological data it is recommended that:

- all HCWs in contact with a patient with a flu-like illness or a probable/confirmed case would be advised to wear a facemask, plastic apron and gloves. If a risk assessment indicates that eye splashing is likely then eye protection^c should be considered, however, if the patient is wearing a mask then this would further reduce any perceived risk
- where HCWs are caring for a patient with a flu-like illness or a probable/confirmed case and where aerosol generating procedures are being undertaken they would be advised to use an FFP3 respirator, gown, gloves and eye protection.
- in addition, HCWs caring for a patient who was suffering from a serious respiratory illness and swine influenza is suspected, should wear the PPE described above as for aerosol generating procedures. This would be on the basis that these patients may have high viral load and be shedding large quantities of virus.

The proposed guidance is consistent with the WHO interim guidance 'Infection prevention and control in health care in providing care for confirmed or suspected A (H1N1) swine influenza patients' updated on the 29 April 2009.

^b The **basic reproduction number** is the mean number of secondary cases a typical single infected case will cause in a population with no immunity to the disease in the absence of interventions to control the infection. It is often denoted R_0 . When $R_0 < 1$ the infection will die out in the long run (provided infection rates are constant); but if $R_0 > 1$ the infection will be able to spread in a population.

^c Eye protection could be polycarbonate safety spectacles or equivalent, surgical masks with integrated visor, or full face visor. Disposable, single use eye protection is recommended (non-disposable eye protection must be decontaminated after each use).

Summary

This proposal has been shared with the current chairman of the Advisory Committee on Dangerous Pathogens (ACDP) who is supportive of the approach, subject to the following conditions:

- It is essential that any HCWs who will be using an FFP3 respirator are fit tested and training is undertaken
- In the unusual event that a FFP3 respirator is worn incorrectly or there are breaches of bio-security during aerosol generating procedures then these should be investigated and antiviral prophylaxis provided if a risk assessment suggests this is appropriate
- Monitoring arrangements are in place so that any early symptoms or illness in HCWs caring for patients with flu-like illness or probable/confirmed cases are identified and investigated at the earliest opportunity
- The situation is kept under review and any changes to our understanding of the virus and the disease are reflected in our advice to HCWs