Public Health England

Department of Health

Protecting and improving the nation's health

NERVTAG Sub-committee on the pandemic influenza Facemasks and Respirators stockpile:

Formal Recommendations to the Department of Health

Issue

The sub-committee was asked to provide the Department of Health with an expert view on the continued clinical appropriateness of the UK's approach to stockpiling personal protective equipment (PPE) for use in an influenza pandemic in order to help inform future stockpile and purchasing decisions. Specific questions about facemasks and respirators were raised.

Key points

PPE stockpile in general

1. The Committee noted that a major re-procurement of the current stockpile of PPE which form part of the Department of Health's influenza pandemic countermeasures is due to commence in Spring 2016.
2. The current stockpile was built on the basis of a worst case scenario and involved a number of assumptions. It contains respirators and surgical masks as well as eye protection, gloves and aprons. Other items such as clinical waste bags and alcohol hand gel are also included.

Infection control guidance: The Committee acknowledged that it was not within its remit to develop infection control guidance including use of PPE in the event of an influenza pandemic. However, in addressing the issue tasked by DH to the Committee with respect to use of PPE, the Committee felt that it needed to recommend PPE usage in line with the current evidence base and guidelines.

Discussion points:

To generate discussion the group considered the basis and assumptions that the current stockpile is built on and the evidence base for influenza transmission and the effectiveness of facial PPE. The following points emerged:

Stockpile:

- Fit testing in the face of an emerging pandemic is a major challenge but it is important. Adding 'call down' fit testing as part of the procurement (including the fit testing solution etc.) would be advantageous.

- Just in time fit testing was proposed – however, there may not be sufficient time to put this in place, between pandemic virus emergence and the first UK impact. It was agreed that there is no substitute for a rolling programme of fit-testing in NHS trusts during inter-pandemic periods. There should be a caveat about fit testing in any recommendations.
- Consider rotating UK stockpile coming to end of shelf life into the NHS for business as usual.

Evidence Base for transmission and facial respiratory protection

- It was agreed that respirator (FFP3 class) use for all HCWs both in hospital and the community (including social work, ambulance staff etc) is not fully supported by the current evidence base for either transmission or respirator effectiveness. Furthermore, the logistics of fit testing and training would be extremely challenging.
- It was agreed that intensive care units (ICU) and High Dependency Units (HDU) should be classed as aerosol generating procedure (AGP) 'hot spots' and therefore respirators should be recommended for all staff at all times when a patient with pandemic influenza is present (unless housed in a negative pressure side room; in this case, respirators when in the room only are needed).
- AGPs are rarely performed in ward areas (non-invasive ventilation and cardiopulmonary resuscitation being the most likely). It was therefore felt that fluid repellent surgical masks (FRSM) could be used for the majority of clinical care on normal wards during a pandemic, escalating to respirators for AGPs.
- Visitors – It was agreed that a small overage was needed to take into account visitors wearing FRSM (non ICU/HDU) and respirators (not fit tested, in ICU/HDU).

Conclusions of the Group:

1. The evidence to support the plausibility of aerosol transmission of influenza is stronger now than it was prior to the 2009 pandemic. However, considerations of the infectious dose needed for onward transmission and whether these are regularly achieved through aerosol inhalation have not yet been determined. The relative importance of aerosol transmission compared to other routes is still unknown.
2. All persons (staff and visitors) present on an ICU/HDU (including neonatal ICU) housing pandemic influenza patient(s) to be provided with single use FFP3 respirators at all times (unless all patients are isolated in negative pressure side rooms when only staff entering the room(s) need to wear a respirator).
3. All general ward, community, ambulance and social care staff to wear single use FRSM for close patient contact. The exception is the performance of AGPs (in isolated areas when practicable) when staff should wear respirators.
4. All staff using facial PPE will also use gloves and aprons.
5. Eye protection is considered to be necessary. Eye protection to be worn when in close contact. When recommendation is for FRSM, single use mask with integral visor is considered more desirable than glasses but either suffices.

The Committee agreed the following responses to the questions posed on the basis of the conclusions drawn above:

Q1. Consider the evidence and provide scientific advice to inform advice on when it would be clinically effective to use FRSM in order to protect health and social care workers and prevent spread of influenza pandemic;

- The evidence base to inform decisions is thin
- There is a clear need to give staff confidence in infection control advice so that they are happy to come to work
- Sub-committee view is that FRSM with eye protection should be used for routine close patient contact in instances when respirators are not specifically recommended (see Q2).

Q2. Consider the evidence and provide scientific advice to inform advice on when it would be clinically effective to use FFP3 respirators in order to protect health and social care workers and prevent spread of influenza pandemic;

- The evidence base to inform decisions is again thin
- AGPs are considered to present a specific risk of aerosol transmission
- Sub-committee view is that entire ICU/HDU areas should be classed as AGP 'hot spots' and that all staff should wear respirators all of the time when patients with pandemic influenza are being cared for in that area. If the patient is in a negative pressure side room then only staff entering the room need wear a respirator.
- In non-ICU/HDU areas, when AGPs are performed (ideally in isolated areas) staff should wear respirators during the performance of the procedure

Q3. What types of health and social care worker exposures and/or activities would require the use of (1) FRSM face masks and (2) FFP3 respirators as part of their daily interactions with patients who have been diagnosed or are suspected of harbouring pandemic influenza?

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- All general ward, community, ambulance and social care staff to wear single use FRSM for close patient contact. The exception is the performance of AGPs (in isolated areas when practicable) when staff should wear respirators.

Q4. Are the assumptions underlying current masks/ respirator usage (eg frequency of changing mask, duration of usage etc) still appropriate? Are there any scientific and/or clinical criteria which might need to be applied to inform occupational risk assessment with respect to contact with infected patients and rationale for this?

- Most assumptions remain valid but some have been questioned, i.e. frequency of staff contacts with patients and length of time patients spend in an IC area. Operational research could provide increased clarity.

Q5. Whether the advice in Q1-4 above which relates specifically to pandemic influenza be applicable to MERS Coronavirus? If not, in what ways would it differ?

- The subcommittee felt that respirators would be needed for all clinical interactions with MERS CoV patients given the high fatality rates and occurrences of HCW transmissions. This virus does not have pandemic potential and therefore stockpiling specifically for this purpose is not necessary. Should there be an outbreak, respirators could be drawn from the influenza stockpile in the unlikely event that usual business supplies prove inadequate.

Q6. What other items of PPE must be worn with FRSM face masks and FFP3 respirators in order to protect the user (the UK stockpile also holds, gloves, aprons and eye protection)

- There is evidence to suggest that the eye could be a portal for droplet and aerosol transmission.
- The subcommittee recommends providing eye protection to all hospital, community, ambulance and social care staff who have close contact with patients. This protection could take the form of a visor (integral with a FRSM) or safety glasses.
- Aprons and glove use are required for all close patient contact

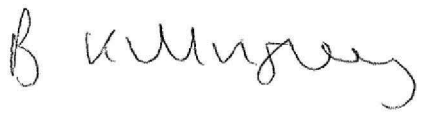
Recommendations

1. The subcommittee recommends that the Department of Health commission an update to the 2009 Pandemic Flu infection control guidance to take into account the latest available evidence.
2. In the meantime, the subcommittee recommends that the composition of the PPE stockpile should be re-considered in the light of suggested changes as detailed above
3. In offering an expert view to the Department of Health on the issue raised, the subcommittee advised that the recommendations are offered in the absence of an updated Pandemic Flu infection control guidance and recommends that its advice should be reviewed once an update is completed.
4. The subcommittee recommends a piece of time-and-motion operational research to better understand staff, movements, break periods and likely respirator usage rate on ICU/HDU.

NB - Updated September 2016 in the light of discussions at the 30 June NERVTAG meeting

The above recommendations are approved by:

Dr Ben Killingley
Chair of the NERVTAG sub-committee on the pandemic influenza facemask and respirator stockpile



Professor Jonathan Van-Tam
Chair of NERVTAG and vice-chair of the NERVTAG sub-committee on the pandemic influenza facemask and respirator stockpile