Minutes of the NERVTAG COVID-19 Eighth Meeting: 06 March 2020

Date & Location:	14:00 – 15:30, 06 March 2020 Via telecon only
In attendance:	Peter Horby (Chair), Camille Tsang (Secretariat). NERVTAG Members: Peter Openshaw (PO), Ben Killingley (BK) Calum Semple (CSm), Wei Shen Lim (WSL), Andrew Hayward (AH), Neil Ferguson (NF), Robert Dingwall (RD), John Edmunds (JE), Cariad Evans (CE), James Rubin (JR), Jim McMenamin (JMM) PHE Observers: Gavin Dabrera (GD), Meera Chand (MC), Maria Zambon (MZ), Jake Dunning (JD), Colin Brown (CB), Carole Fry (CF). DHSC Observers: Luke Collet-Fenson (LCF), Rebecca Manaley (RM), Ursula Wells (UW) SAGE: Olivia Harris (OH), HPS: Lisa Ritchie (LR) HSE: Vin Poran (VP)
Apologies:	Jonathan Van-Tam (JVT), Cheryl Cavanagh (CC), Mary Ramsay (MR), Martyn Underdown (MU), David Connell (DC), Chloe Sellwood (CSw), Ian Brown (IB), Wendy Barclay (WB), Susan Hopkins (SH)

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NERVTAG COVID-19 EIGHTH MEETING: SUMMARY

NERVTAG RECOMMENDED THE FOLLOWING:

PPE (DRAFT NEW IPC GUIDANCE)

NERVTAG endorses the recommendation that the current PPE ensemble is sufficient for this incident and does not recommend a head covering at this time.

NERVTAG endorses the approach of the IPC guidance and is supportive of the autonomous approach to increasing PPE based on local risk assessments.

HOW LONG SHOULD PEOPLE STAY IN ISOLATION WHO ARE COVID-19 POSITIVE AND BEING MANAGED AT HOME.

a.) Advised that time point for self-isolation should be from day of illness onset not from day first symptom free. Rationale: onset day will be recognisable (even if inaccurate) in almost all patients whereas symptom end date may be very prolonged (e.g. post-viral cough can persist for weeks or months) and some people may have ongoing unrelated symptoms they attribute to COVID19.

b.) Duration of self-isolation should be chosen from within the range of 7-14 days after illness onset. The choice within this range will depend on desired balance between containment and social disruption at the particular stage of the epidemic.
In the containment or delay phase a longer duration may be recommended but as transmission becomes more widespread, this might be relaxed, on the understanding that an increased proportion of people may still be infectious when they end self-isolation but they will constitute a decreasing proportion of all infectious people. Caveat - special considerations for those with immunocompromised systems or on steroid medication who may have prolonged infectiousness.

NIV, HFNO AND OXYGEN PAPER

NERVTAG endorses the recommendations from the Non-Invasive Ventilation (NIV) and Nosocomial Transmission Subcommittee.

FULL MINUTES

1 Introductions

1.1 The Chair welcomed everyone to the meeting and apologies were received from those listed above.

2 PPE (IPC guidance for secondary care)

2.1 Introduced by CF, PHE were asked to update the secondary care guidance in light of the CMO stern earlier in the week. For suspected cases, healthcare workers will be wearing glove, apron, a surgical facemask and eye protection on risk assessment of splashing. Sections of the guidance were updated to included information on virus survival; lower level of PPE requirements for those cleaning a room after a confirmed COVID-19 case has been discharged; inclusion of guidance in operating theatres (which has been inserted from the MERS-CoV guidance); and a section on doffing instructions for gloves, apron and surgical facemask.

2.2 PH asked for clarification why it has changed from an FFP3 respirator to a facemask for suspected cases as it is not clear from the document.

2.3 JD responded to say that it is a phased change in that not all suspected cases will be positive and therefore it is reasonable to save the higher level of care to preserve stocks of FFP3 respirators for the confirmed cases or areas where aerosol generating procedures (AGP) are taking place.

2.4 WSL was forwarded some emails from PHE on this topic that suggested the main thrust for this change was around FFP3 stock where a lot of the stock is being used up for fit-testing and there are concerns that there may not be enough FFP3 stock for use later on when it may be needed.

2.5 JD clarified changes mentioned have been driven by PHE's review of the levels of precaution and the risks and transmission routes that people are being exposed to in different settings. Due to the increase in cases that are now being managed outside of HCID centres, PHE would like to make the document live as soon as possible.

Action: Any comments to be sent directly to JD during or after the meeting by 4pm.

2.6 Members raised concerns around explaining why facemasks were acceptable for healthcare staff but not the general public.

2.7 LR clarified that this was discussed at a previous NERVTAG meeting and the difference is that healthcare staff are trained to use the masks and know when to change the masks when they become soggy or contaminated however with the general public, there is no control over how they would use the surgical facemasks so they may use the same one for a week which is inappropriate.

2.8 CS added that the surgical facemasks are used by healthcare staff as part of a PPE ensemble and used alongside goggles, gloves and an apron and it is the combination of all of this that prevents contamination.

2.9 RD raised a point about technology not being separated from the person who is trained and the context of the use of such technology.

Action: To send round the lines on facemask use and the advice to the general public around facemask use.

2.10 No major issues raised for Section 3. BK raised a local issue that they are no longer fit-testing at their hospital, just fit-checking and they do not have enough stocks of the masks for those who have been fit-tested. CE commented that the lack of masks does seem to be wider than a local issue as they were also having trouble procuring the masks that they were fit-tested for.

2.11 JD clarified that the PHE guidance is for staff to be still be fit-tested and it is still recommended that fit-testing is place and fit-checking for each time that you wear a respirator. VP also clarified that fit testing is still the HSE policy however this may well change if the situation changes but staff should still be fit-tested for respirators.

2.12 No major issues were raised with Section 4 main principles. WSL agreed that Section 5 is consistent with the NERVTAG subcommittee on Non-Invasive Ventilation (NIV) and nosocomial transmission. High Flow Nasal Oxygen (HFNO) has been added in as an Aerosol Generating Procedure (AGP). Members clarified that medication via nebulisation is not an AGP and this has already been covered in the updated Health Protection Scotland Infection Prevention and Control guidance document.

2.13 PO noted that as a respiratory physician he would like to see the inclusion of peak flow meters in the list of equipment. JD and LR agreed to add it in provided this is agreed with the Chair of the writing group and noted that there could be a number of re-usable items that could also be listed.

2.14 RD noted that it would be useful in Section 8 (visitors) for secondary care to consider alternatives to face to face visitors and that WIFI is lacking in hospitals.

2.15 Members noted that Section 8 visitors is a bit vague and that it is difficult to risk assess whether a visitor will be compliant with PPE and the part about documenting this in a clear manner is also vague. Members were asked to send in comments but noted that it may be that this will have to go out as it is and be refined at a later date.

2.16 Members noted that in children's hospitals, it is very useful is to have somewhere documented that visitors should be first degree relatives only which is somewhat covered by the text suggesting parents and carers only.

2.17 JD introduced section 9, PHE have been contacted by various intensive care groups and professional societies regarding more enhanced protection used in other countries than what is recommended here, in particular, the use of a hood or a separate cagoule or a head covering where more of the head and the skin is covered. That has been the principle for the High Consequence Infectious Disease (HCID) treatment centres because that is what they have been trained in for all of the diseases that they manage but there is a perception issue now that other hospitals are now being asked to care for patients but are being offered something that is sub-standard and puts them at greater risk. PHE asks NERVTAG whether they agree that the current full PPE recommendations for a confirmed case offers sufficient protection to those working in intensive care?

2.18 JD also highlighted that the definition of close patient contact is within 1m, and asked if NERVTAG will endorse this. Members noted that the IPC cell have defined close contact as 2m via social distancing but NERVTAG agrees and endorses that definition of 1m and that this is more of a pragmatic solution for healthcare settings.

2.19 PH wanted clarification firstly on whether there is any evidence to suggest that intensive care staff are at greater risk than general ward staff other than when they are doing an AGP?

2.20 JD responded to say that intensive care staff in particular, intensive care nurses are typically with the patient at the bedside for much longer periods and these are the sickest patients and even though there is not the data for it, there is an assumption that these patients are maybe shedding larger amounts of virus although many of them will be on close circuit ventilations which may reduce IPC risk. The basic principle and concern is that these nurses are spending more time at the bedside and therefore there is a greater chance that whilst contaminated they may inadvertently touch their head and face which is at greater risk of contamination without a head covering.

2.21 PO asked if there was any data on nosocomial transmission from Wuhan and what precautions have been taken that can reduce that transmission?

2.22 Members were not aware of anything detailed enough to answer PO's question and PHE has asked WHO for similar information about a week ago but WHO have responded to say that the investigations into nosocomial transmissions in China are ongoing.

2.23 Members commented that caution should be exercised when extrapolating data on nosocomial transmission from other countries with different levels of IPC and the background rates of transmission in the community.

2.24 BK gave some background to the head coverings which were discussed at an earlier NERVTAG meeting (the 3rd COVID-19 meeting held on 28 January 2020).

2.25 At the time of the meeting, *"there was not any clear evidence that would suggest that hoods may be needed now or in the future of this incident."* Members also noted that bringing in new recommendations "*may create more problems and risks… Members noted the value of familiarity of NHS staff with the current PPE standards and that roll out of a more complex system at a time of potentially intense NHS activity could be counterproductive."* It was also discussed that the head coverings were not currently stocked and would need to be procured.

2.26 JD clarified that there was a bespoke hood that was designed and custom made as part of the new HCID ensemble which is not in stock and HCID centres have been using samples of these bespoke hoods. There are alternative hoods made by a manufacturer but there are procurement issues that may not be sustainable throughout this outbreak. The evidence for the HCID hood recommendation came from studies conducted around whether splashes could contaminate the head and face without staff knowing. The evidence was based on fluorochrome studies[1, 2] only which does not necessarily take into account whether this leads to infection but having the hoods and total skin coverage is their optimal position.

2.27 WSL asked if the concern was from touching and fomite spread as there are some experiences documented from Hong Kong during SARs, a report by Cheung TM et al. 2004[3] where there were no SARS infections among the 105 health-care workers in ITU caring for patients with SARS receiving Non-Invasive Ventilation. Members noted that if healthcare workers are properly trained in the PPE that they were using, risk of the infection seems sufficient even without hoods. Cheung TM et al. 2004 did not use hoods but caps although it is unclear what is meant by caps alongside N95 respirators, eye protection, and full face shields.

[1] HSE Evaluation of existing PPE worn by NHS staff for assessment of a patient with a suspected high consequence infectious disease 2019

[2] Hall, S *et al.* 2018. *Use of ultraviolet-fluorescence-based simulation in evaluation of personal protective equipment worn for first assessment and care of a patient with suspected high-consequence infectious disease.* Journal of Hospital Infection 99 (2018) 218-228

[3] Cheung TM, Yam LY, So LK, et al. *Effectiveness of noninvasive positive pressure ventilation in the treatment of acute respiratory failure in severe acute respiratory syndrome.* Chest. 2004;126(3):845–850. https://doi.org/10.1378/chest.126.3.845

2.28 Members asked if scrub hats would be a sufficient replacement for the hood/ cagoule. JD responded that scrub hats were initially on the COVID-19 IPC guidance for about 24 hours and then were removed as they received reports that scrub hats were not available in all hospital departments and there was little supporting evidence for the use of scrub hats as an additional measure.

2.29 PH summarised that although having a head covering is considered optimal, these are not available and the evidence for supporting a head covering is limited to showing that you can get splashes on your hair. Therefore, it seems proportionate to not recommend a head covering.

2.30 Members agreed and noted the Cheung TM et al 2004 paper. CE commented that one of the problems with the doffing of the non-bespoke designed hoods is that some staff will put their hands inside the hood to remove it and this could pose a higher risk of contamination through inappropriate doffing.

2.31 NERVTAG endorses the recommendation that the current PPE ensemble is sufficient for this incident and does not recommend a head covering at this time.

2.32 Clarification was made that the document is intended for suspected and positive confirmed cases in hospital.

2.33 Section 12.2 proposed approach to cleaning. CR clarified that this refers to cleaning the room after the patient has been discharged from the room; there are different opinions as to the level of PPE for staff cleaning in the room once the patient has left. JD adds that this approach has been agreed in the IPC group however PHE have continued to receive external concerns because there is a comparison with what PPE is being used in the HCID treatment centres and in the general hospitals; there is a perception that the PPE use in the general hospitals is something that is less than the required standard. PHE seeks endorsement from NERVTAG on this issue.

2.34 LR commented that the line about the “isolation rooms should be cleaned daily”, in Scotland these would also be cleaned after an AGP.

2.35 WSL asked if the high level of PPE in the HCID centre would continue.

2.36 JD works in a HCID centre and spoke to the matron who said that a terminal clean can take about 30mins with 2 people doing it minimal and sometimes requires two shifts with two people, therefore up to an hour to do a terminal clean. The matron's concern is that it is a hot and difficult job and there is a greater possibility of contamination if you are just wearing a gown and gloves. It's difficult not to touch your face and nose if you're not wearing a visor, mask or respirator to cover your mouth and nose. This is the HCID rationale for continuing to use full PPE for a terminal clean. Rather than gloves and apron, they will use gown, gloves, a FRSM or FFP3 respirator (depending on aerosol risk which should be negated if the room is left long enough), and the full-face visor to stop staff self-contaminating during a long cleaning procedure.

2.37 LR clarified that HPS have already included these proposals into the Scottish guidance and HPS have always maintained that in the HCID centres there are going to have procedures and practices that are different as these are well established in those environments and we would not alter or seek to change those as they are well performed and well understood by the staff working there. The high level of PPE in HCID is routine practice. Once there is no patient in the room and the room has been left then the risk is via fomite contact only and therefore glove and gowns are appropriate.

2.38 JD clarified that the IPC guidance has left it open to local hospitals being able to increase their PPE based on their own local risk assessments if required and the guidance will help them to know when they might want to increase their PPE.

2.39 Clinical members were supportive this approach that it was reasonable and proportionate. WSL added that it may be useful to have some additional training to ensure that staff wait for a period of time after the patient has left the room before starting a terminal clean.

2.40 NERVTAG endorses the approach of the IPC guidance and is supportive of the autonomous approach to increasing PPE based on local risk assessments.

2.41 Section 18 is new and relates to theatres, CR explained that it is not new as it is the same as the MERS-CoV guidance with minor comments. AH noted that there is nothing around being at the end of a theatre list. Members noted that it should be valved FFP3 respirators should not be used for patients in theatre but noted that FRSM is appropriate.

2.42 CE noted that there are two things that are not covered that is staff contact and bay contacts that staff often ask about in relation to flu. CB and JD responded to say that these will be covered in another document at the moment and will be incorporated later in to the IPC guidance.

2.43 BK talk about eye protection and this could be a visor or googles but really would we provide visors. JD noted that visors are preferred if available.

2.44 CE asked if there is going to be a change to the HCID status. JD provided an update that this has been discussed with the CMO and the PHE incident director as NHS-E asked for the HCID status to be reviewed and considered again. This will be reviewed at some point in the future.

3 How long should people stay in isolation who are COVID-19 positive and being managed at home?

3.1 The proposal in the paper is that those confirmed positive in the community, or discharged back from care at hospital to home, to self-isolate for 5 days once symptom free before going back to daily activities.

3.2 MZ introduced the topic that it was to seek a practical and implementable solution for those in self-isolation in the community and what the de-escalation process should be for those in self-isolation. The current discharge criteria for HCID centres is that they need at least 2 consecutive negative samples from the respiratory tract before they are discharged. The mean time of the first 16 patients that PHE have reviewed for virus shedding as detected by PCR is 11.6 days. The limited literature suggests that shedding will occur for at least 12 days as detected by PCR however PCR positive results do not equal to infectivity.

3.3 CB introduced the paper and which looks at the available scientific literature and on average up to day 14 or 15 from date of onset of symptoms is when their PCR test becomes negative, there are one or two patients who go up to 24 days.

3.4 CB explained that there are now people who have been discharged from hospital and are self-isolating at home but also people who are not ill enough to be in hospital who are self-isolating at home and urgent guidance is needed as to when PHE can tell them to stop self-isolating.

3.5 CB goes on to say that the anticipation is that PHE will not have the ability to test in the community as numbers increase. The CDC are looking to implement a 15-day approach from symptom onset and Australia are looking to implement a 15 day approach and a 5 day approach after symptom resolution. CB explained that data from the first 9 patients showed from symptom onset to first negative PCR was that the range was 7-14 days with an average of 11.4 days although this was only on 9 patients.

3.6 NF clarified that the aim is to limit transmission, accepting that there will be some people that do go outside of self-isolation whilst still shedding. What would be optimal is to look at the quantitative PCR data to look at shedding rather than just positives to really see how much would likely delay and reduce transmission. NF asked MZ is PHE have this data.

3.7 MZ highlighted key points that PHE do have some information on viral load and as a person becomes negative, it is possible to see reduction in viral load and an increase in ct values; other key points include that detection of PCR positives do not equal infectiousness and from the analysis of sera from patients does show the arrival of an antibody response from around day 10 onwards.

3.8 MZ suggests that at around 12 to 15 days after the date of onset; there is a reduction in viral load likely driven by the innate, and then later, the adaptive immune response. MZ does not rule out that there are some reports of cases who are shedding for much longer but rather like NF, these people should not necessarily be kept in strict isolation. The committee discussed that as the immune response develops, people are likely to become less contagious because the viral load drops, and there may be antibodies within respiratory secretions the limit virus infectivity.

3.9 NF refers to Ben Cowling's studies that have suggested that infectiousness is proportional to viral load but needs to be informed by when the bulk of viral shedding occurs rather than by test positivity. NF commented that it will be difficult to maintain self-isolating, the longer the period of self-isolation.

3.10 RD commented that there was too much emphasis on symptom onset which can only be done in retrospect and may introduce some recall bias. RD commented that there may be more weight on symptom resolution than date of onset.

3.11 PH commented that this may be true but the day of symptom resolution can be different for different symptoms such as cough which may persist for a much longer period. The data is also mostly from patients who are moderately or severely unwell.

3.12 JR commented that there could be instances of psychogenic cough and confinement may exacerbate anxiety and distress; and also fatigue as a result of the confinement.

3.13 PO asked if there were any studies or data to support infective virus versus PCR positives. Members commented that there is not a lot of definitive data however there are some small studies and was of finding out that information.

3.14 NF commented on some pre-publication work done in Hong Kong. NF noted that COVID-19 looks to be considerably shorter infective period than SARS which was about 8.6 days from one infective person infecting another person. COVID-19 is looking to be between 5.5 to 7 days including the incubation period. NF noted that the WHO report highlighted that infectiousness seems to be just before and just after symptom onset and this is consistent with the Chinese data and other respiratory infections.

3.15 PO had seen a study where there was no infectious virus was obtained from any samples after day 8 of onset of symptoms despite being PCR positive which seems consistent with what others have said.

3.16 NF noted there is a practical element in implementing this policy and that they have modelled a 6.5 day average of infectiousness and a 7 day period of case isolation and this gives similar effects of isolating for 14 days. NF commented that they should not just have fever as a symptom, there must be other symptoms on the list and perhaps look at resolution of the clearer cut symptoms.

3.17 Members strongly support the approach of using date of onset as it is easier to implement and for clinical members, they have seen patients who have developed cough for months or years following an infection; and noted that those with chronic symptoms may be difficult to assess when symptoms of COVID-19 stop.

3.18 Members discussed that there does not seem to be any consistent patterns for length of symptoms noting the prolonged cough. AH noted that for seasonal coronavirus, the data from FluWatch (a community based surveillance system) supports this as well.

3.19 The NERVTAG recommendation is that date of onset is a better estimate than symptom resolution with a greater evidence base for date of onset. Although there may be some inaccuracy for date of onset, patients will know they have a start date but for some patients, the end of symptoms may be very prolonged or very difficult to define as an end point.

3.20 NERVTAG discussed the recommendation for the length of time to isolate and asked for clarification as to where this recommendation was going.

3.21 CB explained that operationally, there are currently around 35 people who have been told to self-isolate who are asymptomatic who this recommendation would apply to directly as to when they can come out of isolation.

3.22 LCF asked whether the advice could be applied wider and whether this would apply to those who are symptomatic but not yet tested positive. NF commented that the same advice would apply especially when there will be more cases and testing is not feasible but may ask those to stay at home.

3.23 Members supported the idea that 15 days is a more precautionary and progressive approach during the delay phase. Members noted that 14 days was more appropriate and consistent with current guidelines.

3.24 Members noted that it may be better to give a range to reflect the uncertainty of the data provided there was no clinical reason not to have a range. WSL noted that the committee may want a different range for those in immunocompromised groups and those on steroids as the data suggests that those on steroids have more viral shedding.

3.25 NERVTAG's recommendation for the length of time in self-isolation should be between 7 and 14 days and this could come down as transmission reduces. In the current situation NERVTAG would prefer this period to be towards the longer end of the range. The caveat accompanying this recommendation is that those in immunocompromised groups and those on steroids (including those with lung disease) to be considered for longer periods of self-isolation due to the reports of increased shedding and vulnerability. NERVTAG would revisit this when more data is available.

4 Key principles and recommendations from the NIV/HFNO subcommittee for endorsement

4.1 Introduced by WSL and outlined the summary from the Non-Invasive Ventilation (NIV) and Nosocomial Transmission Subcommittee. WSL commented that the fears around NIV during SARS were put at ease as the technology and design of the masks has moved on since SARS.

4.2 The subcommittee discussed whether NIV (including HFNO) was an aerosol generating procedure (AGP) and agreed that it is more of a droplet procedure than an aerosol however there is a greater risk of leaking if used for prolonged periods.

4.3 They also discussed the specific use of high flow nasal oxygen (HFNO) which uses 20-60L/min flow rates and goes through the nose and is not an inherently closed system. HFNO is not a very high AGP however for practical and safety reasons is considered an AGP.

4.4 WSL highlighted a potential controversial discussion around the situation of what happens when the NHS runs out of isolation rooms. WSL explained that they agreed that should the NHS run out of isolation rooms; the subcommittee were content to move patients into side rooms (with or within an ante room) with the door closed; and then should it be required, cohorted open bays for confirmed patients. Cohorted open bays will be difficult and needs to match other IPC in other areas.

4.5 Members were content with the recommendations and commented that the graded approach to isolation rooms was reasonable.

4.6 NERVTAG endorses the recommendations from the Non-Invasive Ventilation (NIV) and Nosocomial Transmission Subcommittee.

5 AOB

5.1 Ian Brown send in the following by email to inform NERVTAG that DEFRA are keeping risk of infection of animals (including pets) under continuous review and capability available to test if required.

5.2 Members noted the point, AH asked if anyone had heard anything related to pets as during SARS there were some incidents of cats being infected. No comments were received.