Guidance for inpatient infection control management of patients receiving Acute Non-Invasive Ventilation and Long-Term Ventilation during and beyond COVID-19

Please note this guidance is a consensus statement based on advice from NHS England, Public Health England and expertise within the relevant clinical community.

Non-Invasive Ventilation (NIV) has been designated as an Aerosol Generating Procedure (AGP) by Public Health England (PHE) during the COVID-19 pandemic. The care of patients treated with acute NIV or patients receiving Long Term Ventilation (LTV) who are admitted to hospital acutely has been subject to guidance which pertains to location of care and specifically level of isolation, NIV circuit configuration and the recommendation for staff Personal Protective Equipment (PPE) use.

Initial guidance during the peak of the pandemic was that patients requiring acute NIV or LTV admitted acutely were at high risk of being positive for COVID-19 and increasing transmission of COVID-19. In such circumstances, patients should therefore either be isolated or cohorted, should have a non-vented mask, exhalation port/valve and a viral filter and staff should be in full PPE including FFP3 masks.

During times of low background incidence of COVID-19, these recommendations may not be appropriate for the following reasons. During times of increased acute admissions, they will risk overwhelming the capacity of the acute service to isolate patients with COVID-19 or any other reason to isolate. They will also risk inappropriate overuse of PPE above that required to protect patients and staff. Use of respiratory PPE increases the difficulty in communicating with patients and prolonged use may cause staff discomfort (e.g. nasal bridge pressure areas). Therefore, excessive/inappropriate use of PPE for low risk patients is not without risk to patients and staff.

There is evidence from communication with the BTS that there is a lack of consistency in approach across the country with some trusts advocating full PPE, isolation and circuit modification for all hospital inpatients regardless of COVID-19 status or risk of having COVID-19 disease. Updated guidance is therefore required to inform the care of hospital inpatients receiving NIV.

The guidance below does not pertain to Standard Infection Prevention Control Precautions (SICPs), non-NIV AGPs or Tracheostomy Ventilation. The guidance does not pertain specifically to CPAP therapy but many of the principles will be equally applicable. Buildings need to follow HTM standards and PHE guidelines to ensure ventilation meets the requirement for the procedures that are going to be undertaken in that environment.[1]

Critical to issuing recommendations is the risk stratification of patients which has been detailed by Public Health England (PHE).[2]

Patients should be stratified as High, Medium and Low risk based on local risk assessments that consider local incidence and prevalence of COVID-19. Examples of patients in each risk group are given in the PHE document.[2]

• High risk: Patients who have, or are clinically likely to have, COVID-19

• Medium risk: Patients who have no symptoms of COVID-19 but do not have a COVID-19 SARS-CoV-2 PCR test result
• Low risk: Patients with no symptoms suggestive of COVID-19 and a negative COVID-19 SARS- CoV-2 PCR test within 72 hours of admission to hospital for elective admissions and on admission for acute

admissions. (Ongoing low risk status should be confirmed by repeat swab 5-7 days post-admission as per NHSE guidance).

Management of acute NIV patients and patients admitted on LTV according to risk stratification is detailed in the table.

Risk	Isolation	Circuit	PPE requirement
Low	Not required unless there is another clinical reason for isolation	Standard acute NIV circuit or if receiving LTV, can use the normal circuit for the patient without modification	Single use gloves and apron Surgical mask Type II Risk assess for splashes/spraying for use of visor
Medium/High	Isolate if possible. If this is not possible cohort patients with screens or curtains for physical separation if this does not compromise safety	NIV circuit for all patients as per NHSE guidelines (non-vented mask, exhalation port and a viral filter).[3] Patients receiving LTV should have their circuits changed to this configuration (if compatible with the ventilator)	Single use gloves and gown FFP3 mask or hood Single use or reusable visor

Patients in the high risk group should prioritised for isolation in a cubicle and further priority should be given to those patients with excessive cough and sputum production, diarrhoea or vomiting and to those with severe illness. Consideration may be given to cohorting high risk or known positive patients at times of increased COVID-19 incidence.

Where cubicles are in short supply, consideration should be given to testing medium risk patients with rapid COVID-19 PCR tests to avoid cohorting them in bays with high risk patients.

Patients' risk assessment may change rapidly, for example, following a negative COVID-19 PCR test in an asymptomatic patient without exposure to a patient positive for COVID-19, they may move from a medium to a low risk group. In contrast, if a hospital inpatient is exposed to a patient on the ward with COVID-19, they may move from low to high risk.

The guidance will be updated as the knowledge base and expert experience develops. Several centres have developed innovative solutions for the management of acute and long term NIV which can be shared via BTS. Recommendations may change in the event of a significant increase in the background incidence of COVID-19

References

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