

Aerosol Generating Procedures relating to COVID-19

COVID-19 – Clinical Guidelines

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Prepared by: Adam Brown	Date of Review:
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Distribution:

All Staff – NHS Highland, Argyll & Bute, Primary, Secondary & Social Care,
Highland Council Social Care Staff

Method

Intranet/TAM □

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General Principles:

- The highest risk of transmission of respiratory viruses is during AGPs of the respiratory tract.
- Use of enhanced respiratory protective equipment is indicated for health and social care workers performing or assisting in such procedures.
- Information on what PPE to use and when, is detailed in separate PPE Guideline Documentation available on the intranet / TAM.
- If you are in doubt as to whether you are about to perform an AGP and are unsure as to how to protect yourself, take the following advice:

- STOP
- Look at this guideline
- Contact the Infection Control Team for help

Not all AGPs produce a risk of infection with coronavirus.

COVID-19:

- The novel coronavirus is a respiratory virus.
- It spreads primarily via droplets.
 - These are larger particles under the influence of gravity
 - They can contaminate touch surfaces
 - They can be inhaled at close range (<2m)
 - Hand hygiene, contact precautions, and droplet precautions including a fluid resistant surgical mask (FRSM) will protect you.
- Aerosols are usually generated by human interventions
 - They are much smaller particles that can persist longer in the air before settling so may travel further.
 - Currently the UK and Scottish guidance is for airborne precautions including an FFP3 mask.
 - This guidance may change
- Good ventilation is desirable. It is OK to open a window.

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Aerosol Generating Procedures that carry a risk coronavirus infection:

Most AGPs are related to manipulation of the respiratory tract:

Intubation, Extubation and Related Procedures

- Manual ventilation
- Open suctioning of the respiratory tract (including upper respiratory tract) only in this context.
- This does NOT include general oropharyngeal suction unrelated to intubation or extubation.

- **Non-invasive Ventilation (NIV):**
 - BiPAP
 - CPAP

- **High-Frequency Oscillatory Ventilation (HFOV)**

- **High-flow Nasal Oxygen (HFNO)**

- **Mechanical Ventilation on a closed circuit**
 - Not an AGP in itself, but if there is accidental disconnection aerosol is generated, so treat as potential for AGP.

- **Induction of sputum using nebulised hypertonic saline**

- **Tracheotomy and Tracheostomy Procedures**
 - Insertion and Removal
 - Open Suctioning

- **Bronchoscopy**

- **Upper ENT airway procedures (includes paranasal sinuses)**
 - Including suction
 - High-speed intra-operative or post mortem procedures involving respiratory tract or paranasal sinuses.

- **Some dental procedures**
 - High-speed drilling
 - (NOT low-energy procedures e.g. scaling by hand)

Endoscopy

- Upper GI endoscopy is NOT an AGP, however failure of the biopsy channel bung when the scope is in the oropharynx may lead to aerosol generation, so treat as potential for AGP and wear appropriate PPE to preempt this.

Resuscitation: Chest Compressions & Defibrillation as part of resuscitation or Current approaches to managing any Resuscitation within NHS Highland is based on whether the casualty is on a respiratory pathway or a non-respiratory pathway.

The Personal Protective Equipment (PPE) that you are required to wear during a Resuscitation has been updated and relates to the specific pathway the casualty is on. On the 11th July 2022 COVID-19 guidance on these pathways returned to the National Infection Prevention and Control Manual (NIPCM).

- **NIPCM** (National Infection Prevention and Control Manual) can be accessed [here](#).

- **NHS Highland Resuscitation Department** contacts and video resources are also available on the intranet [here](#) (*NHS Highland intranet access required*)

- **Resuscitation Council UK** algorithms and Quality Standards are available [here](#)

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These are **NOT** AGPs, or are not AGPs carrying a risk of coronavirus infection:

Not all respiratory tract procedures cause aerosols:

- **Talking; breathing; coughing; taking nasopharyngeal swabs for COVID-19 testing**
 - Droplets may be produced, but not aerosol.
- **Oropharyngeal / Nasopharyngeal Suction**
 - Other than when related to intubation / extubation.
 - Open, closed, Yankauer.
 - This is not the same as bronchial or sinus suction.
- **Nebulisers**
 - Any aerosol generated is from the fluid in the nebuliser chamber. This is a non-patient source. If a particle in the aerosol touches a contaminated mucous membrane, it will stop being airborne and is therefore no longer part of the aerosol.
- **Pressurised humidified oxygen (not high flow)**
- **Inhalation sedation including entonox**
- **Needle decompression of a tension pneumothorax**
- **Percutaneous lung biopsy**
- **Swallowing assessments (SALT)**
- **Supraglottic airway insertion**
- **Chest physiotherapy** (if not involving specific AGPs listed above)
- **Laryngectomy care**
 - Including surgical voice restoration
 - Stoma inspection
 - Voice prosthesis change
 - Suctioning of laryngectomy or above (not tracheal or bronchial)
- **Lung Function Tests**
 - Including spirometry

These are **NOT** AGPs, or are not AGPs carrying a risk of coronavirus infection:

Most non-respiratory procedures carry no risk of infection from aerosols:

- **Labour (at any stage) and Caesarian Section**
- **Any operative procedure not mentioned in the list of AGPs, including...**

This list is not exhaustive, but most procedures not involving the respiratory tract / oropharynx or paranasal sinuses are not relevant AGPs. If in doubt, ask.

 - Bone drilling, manual sawing
 - Diathermy (however it should be noted that risks from other infectious agents remain, e.g. HPV diathermy)
 - Hydrosurgical debridement / Pulsed Lavage / Irrigation
 - Abdominal suctioning
 - Laparoscopy / Laparotomy
 - Harvesting split thickness skin grafts
 - Phacoemulsification, vitrectomy
 - Head & Neck procedures not involving the respiratory tract / paranasal sinuses / oral cavity
 - NB: Operative procedures involving the respiratory tract or mediastinum e.g. lobectomy, oesophagectomy, tracheal repair, etc should be risk assessed with the Infection Control Team.
- **Drainage / Aspiration of abscesses or collections**
 - Drainage of empyema or other respiratory collection such as lung abscess should be risk assessed with the Infection Control Team.
- **Most imaging procedures**
 - Including Colonography, CT Colon, Trans-Oesophageal Echo (TOE)
- **Lower GI Endoscopy; Sigmoidoscopy; Proctoscopy**
- **Upper GI endoscopy** (See caveats regarding risk of AGP in the event of bung failure.)
- **Nasendoscopy**
- **Insertion of a Nasogastric Tube (NGT)**
- **Wound care, including VAC dressing application**

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Rationale regarding inclusion or exclusion of procedures:

- This guideline has tried to be pragmatic and inclusive.
- It is based on the Nationally agreed AGP list published by the HPS and PHE which is in turn based on expert opinion and interpretation of WHO guidelines. This list has been augmented and clarified in an SBAR from NSS/HPS.
- Additional clarifications sought by NHS Highland from NSS/HPS regarding suctioning have been included in this guideline.
- This expert opinion is provided by NERVTAG, a UK-wide multi-disciplinary expert advisory group.
- We are aware of over 40 publications from Royal Colleges, Professional Associations and Specialist Groups.
- It is important to note that this AGP guideline is continually evolving based on best evidence.

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References:

For further information please consider the following publications and websites. The second reference gives greater detail and a more exhaustive description of what constitutes an AGP relating to COVID-19.

- **Rapid Review of the literature: Assessing the infection prevention and control measures for the prevention and management of COVID-19 in healthcare settings**
- [Rapid+review+of+the+literature +Assessing+the+infection+prevention+and+control+measures+for+the+prevention+and+management+of+COVID-19+in+healthcare+settings+%289+April+2020%29.pdf \(www.gov.scot\)](#)
- **Assessing the evidence base for medical procedures which create a higher risk of respiratory infection transmission from patient to healthcare worker**
- [Assessing the evidence base for medical procedures which create a higher than usual risk of respiratory infection transmission from patient to healthcare worker \(scot.nhs.uk\)](#)
- **Transmission Based Precautions Literature Review: Aerosol Generating Procedures**
- [Appendix 17 AGPs and Fallow Time \(scot.nhs.uk\)](#)
- **Review of national and international guidance on infection prevention and control measures for Personal Protective Equipment (PPE) and Aerosol Generating Procedures (AGPs) for COVID-19**
- [NSS Aerosol Generating Procedures Sept 2021 V 1.6 - TBPs AGPs Final \(scot.nhs.uk\)](#)
- **WHO Coronavirus Pandemic portal**
- <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

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