ARHAI Scotland

Antimicrobial Resistance and Healthcare Associated Infection

NHS National Services Scotland

Aerosol generating procedures (AGP) UK list review - SBAR

Date of Issue: September 2021

Category	Description
Situation	Throughout the course of the COVID-19 pandemic, the number of patients requiring the additional infection prevention controls (IPC) associated with aerosol generating procedures (AGPs) increased greatly which impacted significantly on throughput within elective care and greatly increased the volume of staff wearing AGP PPE ensemble for extended periods of time. This has generated much discussion and debate on the topic both UK wide and globally. A consultation process commenced in April 2021, which aimed to update the ARHAI Scotland National Infection Prevention and Control Manual (NIPCM) AGP systematic literature review. This yielded a wide range of responses and opinions and it is apparent that the clinical need and ask, from those responding from across the UK, is for a wider scope inclusive of: aerosol generating exposures, high transmission risk procedures (irrespective of aerosols), wider evidence inclusions, clinician engagement to ensure details of procedures, operational risks and UK oversight and governance. There is an urgent need to review the extant UK AGP list to support remobilisation and elective care needs within the NHS in support of wider health harms and outcomes which are not COVID related.
Background	The concept of an AGP arose following the study of Severe Acute Respiratory Syndrome (SARS) transmission events where it was observed that a pathogen, which was consistently associated with droplet or contact transmission, appeared to have the potential to infect healthcare workers via the airborne route during specific procedures. The World Health Organization (WHO) defines an AGP as those procedures which result in the production of airborne particles (aerosols). Particles which they describe as being <5 micrometres (μm) in size and as such can remain suspended in the air, travel over a distance and have the potential to cause infection if inhaled. These particles are created by air currents moving over the surface of a film of liquid, the faster the air, the smaller the particles produced.[1] Using this definition there are potentially many medical or patient care procedures which could be classed as ‘aerosol generating’.

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	The published literature and expert opinion support the concept that any procedure or activity which causes bodily liquids to be expelled into the environment will lead to a range of differently sized airborne droplets and aerosols. Coughing, sneezing and even breathing will generate aerosols. However, what must be determined is which procedures, demonstrated through evidence, generate a significantly high number of respirable aerosols/droplets; and are associated with a higher incidence of healthcare worker acute respiratory infection. ARHAI Scotland (formally Health Protection Scotland), first published a systematic literature review of AGPs in October 2019. The review considered the definition of an AGP as well as the healthcare procedures which were known to produce aerosols as outlined in the literature. The ARHAI Scotland review was based on the extant UK AGP list. The primary procedures in the UK AGP list had been derived from the World Health Organisation (WHO) guidance with some further procedures added to the list based on UK expert opinion, prior to the ARHAI Scotland review being undertaken. The scientific evidence necessary to establish which procedures are associated with transmission of respiratory pathogens is generally very limited. This resulted in an extensive volume of enquiries to ARHAI Scotland from NHS professionals and professional bodies seeking clarity on a wide variety of procedures and requests for these to be included on the extant AGP list. In May 2020, ARHAI Scotland produced an SBAR which sought to reflect the findings of an ARHAI Scotland led rapid review which aimed to assess the published scientific evidence and seek UK expert opinion to establish if the AGPs on the extant list continue to merit inclusion and whether additional procedures should be included.[2] The content and recommendations within the SBAR were agreed in conjunction with the New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) and Public Health England (PHE).
Assessment	ARHAI Scotland has no mandate for oversight of the UK AGP list at present, the evidence reviews to date are for the purposes of the Scottish National Infection Prevention and Control Manual (NIPCM) and guidance only. Further, ARHAI Scotland recognises that whilst the controls required for any pathogen transmitted via aerosols including AGPs is very much within the remit of Infection Prevention and Control, investment in research to enable a greater understanding of the dichotomy of aerosols and the production of aerosols by various different types of procedures is required. As a result, ARHAI Scotland will no longer be continuing with this systematic literature review and instead have recommended that a UK level independent group take forward this work for consideration with a range of experts relevant to this field of work. A living systematic literature review encompassing the topics identified above would also be the first step for further defining the clinical research gaps needing prioritisation.

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	There is a lack of evidence for some of the AGPs on the UK List. The WHO AGP list, based on a systematic literature review, has fewer procedures than the UK.[1] Other countries have a variety of procedures on their lists.[3] There is a need for research, as described by the Independent High Risk AGP Panel[4] and the National Institute for Health Research (NIHR)[5] to inform future systematic reviews for additions to the AGP list. However, there is a current and pressing need to consider the extant UK list and whether all procedures should remain as included. This needs to include agreement of criteria for removal of procedures on the list (as well as for any future additions). As part of winter planning, there will be a UK-wide review of IPC measures to enable remobilisation of NHS services. AGPs are an important consideration of these measures and there are specific needs in dentistry and other care pathways in this regard. The UK IPC Cell has representation from ARHAI Scotland in support of the development of the UK IPC guidance.
Recommendations	1. A wider systematic review including transmission routes and risk, aerosol generating behaviours and wider risks is warranted. This requires UK level oversight and funding. 2. Further primary research is needed before a wider systematic review including clinical studies can be considered.

References

1. World Health Organization. Infection prevention and control of epidemic-and pandemic prone acute respiratory infections in health care. WHO guidelines. 2014.
2. ARHAI Scotland. SBAR: Assessing the evidence base for medical procedures which create a higher risk of respiratory infection transmission from patient to healthcare worker. Version 1.2, 14 May 2021.
3. Independent High Risk AGP Panel. International scoping report on aerosol generating medical procedure listings. January 2021.
4. Independent High Risk AGP Panel. Summary of recommendations arising from evidence reviews to date. July 2021.
5. National Institute for Health Research. Aerosol Generating Procedures Research Prioritisation Report. June 2021.