The use of supraglottic airway (SGA) devices during the COVID-19 pandemic

An update: November 2021

The use of transmission-based precautions during the COVID-19 pandemic aims to minimise the risk of transmission of SARS-CoV-2 from infected patients to staff or other patients. Airborne level precautions are currently recommended for aerosol-generating procedures (AGPs) when treating patients outside low-risk or ‘green’ pathways. These measures include increased use of airborne personal protective equipment (PPE), additional environmental cleaning and ‘fallow’ times after AGPs to allow for virus clearance. These measures are thought to be effective but inevitably slow down operating theatre turnover and substantially decrease surgical activity. Reduced theatre efficiency is an important factor affecting the significant NHS backlog for surgical procedures, and transmission-based precautions should therefore be reserved for those clinical situations in which evidence indicates that they are necessary. One situation in which guidance has indicated that this is necessary is airway management during the administration of general anaesthesia.

SGA use in low-risk pathways

Airway management need not differ from normal practice within low-risk pathways, as recommended by Public Health England (PHE) and discussed elsewhere. The use of SGAs need not therefore differ from their use before the pandemic, and SGA insertion, use and removal does not require transmission-based precautions or fallow time. SGA removal can take place in recovery units without transmission-based precautions.

SGA use outside low-risk pathways

Whether the use of SGAs is associated with aerosol generation and whether SGAs should be used outside low-risk pathways have been subjects of debate for some time. SGA insertion, use and removal are not listed by the World Health Organization (WHO) or PHE and its devolved nation equivalent bodies as being AGPs. Indeed, they are not mentioned at all. Most clinicians have assumed that, in the same way that tracheal intubation and extubation are designated as AGPs, so should the use of SGAs.

A Scottish review of AGPs, which has been used by the UK’s public health organisations to update their AGP lists, concluded that there was no evidence that SGA insertion is an AGP. It provided no evidence that it is not an AGP. A document published on the ICM Anaesthesia hub website in May 2020 stated that:

“The act of inserting or carefully removing an SGA is unlikely to create aerosols. However, other necessary procedures (mask ventilation, airway suction, reverting to intubation) or patient actions (coughing) may generate AGPs (sic), and these occur unpredictably during SGA insertion and removal. Therefore, SGA insertion and removal should be planned for as if it were an AGP. Coughing during removal of an SGA is less common than for a tracheal tube.

If none of the above associated events occurs, SGA insertion and removal may be treated as not being an AGP (but only after the event). This may improve theatre efficiency by reducing delays dependent on others’ use of PPE and waiting for ACT5 (fallow time) to elapse before others enter the theatre.”
Recently, the AERATOR group published the results of studies during which aerosol production during a variety of airway procedures was measured. These studies strongly suggest that tracheal intubation and extubation, face mask ventilation and airway suction do not produce respiratory aerosols. The same group has also shown that SGA insertion and removal (using an i-gel™) does not produce significant respiratory aerosols. In contrast, the AERATOR group and others have convincingly shown that coughing and exertional respiratory activities such as shouting, deep breathing and forced expiration generate orders of magnitude greater levels of aerosol. This and other evidence has made it increasingly apparent that, when assessing the risks of SARS-CoV-2 transmission, an emphasis on procedures is misplaced. Rather, factors such as patient risk (risk of being infectious and having symptoms), proximity and duration of contact should be emphasised.

The use of an SGA for maintenance of general anaesthesia in the presence of a good airway seal is no more likely to be associated with aerosol generation than would the use of a tracheal tube. However, if there is a leak, there may be the potential to generate aerosols, but this has not been tested. Of note, when a leak is intentionally created during facemask ventilation, the aerosol produced is less than that associated with talking. Whether a good airway seal has been achieved should usually be evident at or soon after SGA insertion. Capnography and anaesthetic machine spirometry loops can be particularly useful in identifying leaks.

Summary
The current evidence points towards SGA use per se not being associated with generation of biological aerosols in sufficient quantity to pose a threat of SARS-CoV-2 transmission. However, PHE and its equivalent organisations in the devolved nations have not changed their guidance. Please note that the guidance does not in fact list SGA use as an AGP, or indeed refer to SGA use at all.

The Association of Anaesthetists, the Royal College of Anaesthetists or other professional anaesthetic organisations cannot issue definitive guidance on infection prevention and control (IPC) matters. However, in the absence of clear guidance on SGA use from organisations such as PHE that are competent to issue IPC guidance, the College and the Association take the view that decisions on infection control procedures related to SGA use should currently be determined locally by Trusts, Boards and hospitals. The Association and the College encourage their members to work with those charged with IPC responsibilities in their hospitals to clarify local policies having taken into account the currently available evidence on SGAs in the context of aerosol generation.

This area of practice is the subject of active research and regular review of the evidence by advisory organisations. This guidance will be updated when necessary.

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