The SAGE EMG paper (5) also suggests the potential application of air cleaners for the scenario of aerosol
generating procedures in dentistry and healthcare settings, with the following points noted:
“High flow rate portable enclosed devices positioned to remove aerosol generation close to the source.
Appropriate in poorly ventilated dental surgeries/treatment rooms, but not likely to be beneficial in spaces
with high ventilation rates such as operating theatres.”
Assessing the effectiveness of an air cleaning device in a given setting can be difficult, as indicated by the
SAGE EMG:
“Effectiveness of air cleaning devices depends on multiple parameters including the underlying technology,
the design of the device, the in-room location of the device, the environment that it is used in and the
maintenance of the device. The performance of most devices is based on data measured in idealised
controlled environments, and is likely to be different and often lower in a real-world setting. Caution should
be used when considering idealised performance data stated by a manufacturer” (5).
The NSS SBAR (4) provides a worked example for estimating the equivalent air change rate (ACH) provided
by an air cleaner, using the manufacturer’s reported clean air delivery rate for the device and the room
size. The SBAR advises assuming an efficiency of 50% to take into consideration the recirculation of clean
air directly back into the device rather than contributing efficiently to dilution throughout the room. The
estimated equivalent ACH provided by the air cleaner can be added to that provided by the natural or
mechanical ventilation to give an overall ACH rate for the room (4).
Annex 2 of the SAGE EMG report (5) includes principles for the safety and maintenance of air cleaning
devices that users might find useful.
Local exhaust ventilation (LEV) systems, such as extraoral suction devices, aim to remove airborne
contaminants at source. The effectiveness of these devices is unclear at present and neither NSS (4) nor
the SAGE EMG (5) make specific recommendations relating to them.
If considering air cleaners or LEVs, it is preferable to have performance ratings that have been determined
through independent testing by professional bodies or through published, high quality research rather
than manufacturer’s claims alone.