

## Evidence table – SICPs - literature identified January – March 2021

Titles and abstracts are reviewed for subject relevance. Additional exclusion criteria are also applied i.e. exclusion of laboratory focussed studies such as molecular typing etc.

Literature Review	Papers Identified	Summary of Findings	Impact on Recommendations
<p><b>Aprons and Gowns</b></p> <p><b>And</b></p> <p><b>Environment</b></p>	<p>Unintended consequences of long-sleeved gowns in a critical care setting during the COVID-19 pandemic</p> <p>Meda M, Gentry V, Reidy P, Garner D.</p> <p>Journal of Hospital Infection 106(3): 605-609, 2020</p>	<p><i>In situ</i> study to assess the environmental contamination with gram-negative bacteria (GNB) in a critical care unit during part of the COVID-19 pandemic.</p> <p>Environmental swabs were collected in the area of the critical care unit in which ventilated COVID-19 patients were cared for (area A), a general ward area with unventilated COVID-19 patients (area B), and an admissions area with patients not known to be infected with COVID-19 (area C).</p> <p>Sampling was undertaken on the 18<sup>th</sup> of May and the 8<sup>th</sup> of June 2020. Samples were collected from high touch areas, horizontal surfaces, PPE, and care equipment. 5cm<sup>2</sup> areas were sampled using pre-moistened swabs and then incubated in nutrient broth for 24h before inoculation onto CLED agar. Plates were assessed after 24h incubation and colonies were identified using MALDI-TOF.</p>	<p>None.</p> <p>Note: Short-sleeved gowns are not routinely recommended in NHS Scotland.</p>

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		<p>Between the two sampling times, enhanced cleaning with hypochlorite-based disinfectant took place at least 3 times a day, along with a change in PPE guidance replacing long-sleeved gowns with short-sleeved gowns.</p> <p>In the first sampling period, 8 areas were positive for bacterial contamination in area A (11.5%), and 1 area was positive for bacterial contamination in both areas B (2.6%) and C (2.7%). In the second sampling period, no samples from area A (0%) were positive for bacterial contamination, 3 samples were positive in area B (7.7%), and 4 samples were positive in area C (10.8%).</p> <p>The bundled approach of this study with changes to both cleaning and PPE protocols during the study period adds difficulty to forming conclusions on the impact of these changes. However, the lack of contamination after the changes in area A confirmed that, in tandem, these changes were effective.</p> <p>It was noted that long-sleeved gowns could impact on effective hand hygiene by staff, and so moving to short-sleeved gowns could be recommended in similar situations.</p>	

## Evidence table – TBPs - literature identified January – March 2021

Literature Review	Papers Identified	Summary of Findings	Impact on Recommendations
<p><b>Surgical Masks</b></p> <p><b>And</b></p> <p><b>Respiratory Protective Equipment (RPE)</b></p>	<p>Oxygen Therapy and Risk of Infection for Health Care Workers Caring for Patients with Viral Severe Acute Respiratory Infection: A Systematic Review and Meta-analysis. Cournoyer A. et al. Annals of Emergency Medicine. 77 (1) (pp 19-31), 2021</p>	<p>This study synthesised evidence relating to infection risk associated with different modalities of oxygen therapy used in the treatment of patients with severe acute respiratory infection. Medline, Embase and Cochrane Central Register of Controlled Trials were searched from 1 Jan 2000 to 1 April 2020 for relevant studies. Study selection, data extraction and quality assessment were carried out by independent reviewers, extracted data were synthesised using random-effect models. Total of 50 studies were included in quantitative analysis and 16 for meta-analysis. Overall, the quality of included studies provided very low certainty of evidence. Findings show that being exposed or performing an intubation (Odds ratio [OR] 6.48; 95%CI: 2.90-14.44), bag-valve-mask ventilation (OR 2.70; 95%CI: 1.31-5.36) and non-invasive ventilation (OR 3.96, 95%CI: 2.12-7.40) were associated with an increased risk of infection. There were no clinical studies that assessed risk associated with the use of high-flow nasal cannula. It was found that all modalities of oxygen therapy generate air dispersion however no significant increase were observed in most models measuring specifically the quantity of aerosol generated. The study concluded that most modalities of oxygen therapy are associated with an increased risk of infection however given that most studies identified in this review provided very low certainty evidence, further well designed studies are required to improve the certainty of observations.</p>	<p>Adds to evidence base.</p>
<p><b>Surgical Masks</b></p>	<p>Comparative efficacy of respiratory personal protective equipment against viral respiratory infectious diseases in healthcare workers: a network meta-analysis.</p>	<p>This study used a Bayesian network meta-analysis (register of systematic reviews: CRD42020179489) to analyse the protective efficacy of various respiratory personal protective equipment (rPPE)</p>	<p>None.</p>

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<p><b>And</b></p> <p><b>Respiratory Protective Equipment (RPE)</b></p>	<p>Yin X. et al. Public Health. 190 (pp 82-88), 2021.</p>	<p>against viral respiratory infections diseases (VRIDs). Pubmed, Cochrane Library, Web of Science and Embase were searched for cluster randomised control trials (RCTs) comparing effectiveness of rPPE (surgical masks, N95 respirators and cloth mask worn in areas with rPPE shortage) in preventing healthcare workers (HCWs) from VRID. Outcomes (odds ratio) were incidence of laboratory-confirmed viral respiratory infection and incidence of clinical respiratory illnesses (CRI). A total of 6 studies with 12, 265 HCWs were included. Findings using pooled network OR show that in terms of incidence of laboratory-confirmed viral respiratory infection, continuous wearing of N95 respirators (network OR 0.48; 95%CI 0.27 – 0.86; SUCRA score 85.4) showed more effective than the control group. However, no rPPE showed superior protective effectiveness in terms of reducing the incidence of CRI. Findings from this study suggest that continuous wearing of N95 respirators on the whole shift provide more consistent and reliable protection for HCWs against VRIDs whereas targeted wearing of surgical masks showed better efficacy than continuous wearing of it.</p>	
	<p>COVID-19: smoke testing of surgical mask and respirators. Douglas JDM et al. Occupational Medicine (Oxford). 70(8):556-563, 2020 12 12.</p>	<p>This UK study investigated the effectiveness and usage of fluid resistant surgical masks (FRSM), FFP2 and FFP3 masks (including each grade of masks and adaptations) by carrying tests using a novel smoke chamber (particle size 0.1 µm) to simulate exposure to SARS-CoV-2 particles (0.12 µm). A smoke chamber test of 5 min was used to model an 8-h working shift of exposure while subject wore UK guideline PPE using inspiratory breathing mouthpiece with sensor under the mask. The same test subject was used throughout and photographic data were used for comparison. Findings show that surgical masks (FRSM type 11R) give no protection to respirable particles, it</p>	<p>None.</p>

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		<p>showed heavy contamination with smoke deposits on the mouthpiece sensor after 5-min exposure. Modifications using tape and three mask layers gave slight improvement but were not considered practical. FFP3 gave complete protection to inhaled smoke with no contamination of the mouthpiece sensor compared to control but requires correct strap tension to prevent facial trauma. The authors concluded that surgical masks give no protection to respirable particles and recommends the implementation of a precautionary policy of FFP3 for all locations exposed to symptomatic or diagnosed COVID-19 patients. Evidence from this study is limited by the lack of quantitative measurements and reliance on visual evidence which may not provide an accurate representation of particle dynamics. Further studies are required to confirm findings.</p>	
<p><b>Surgical Masks</b></p> <p><b>And</b></p> <p><b>Respiratory Protective Equipment (RPE)</b></p>	<p>Aerosol Generation from the Respiratory Tract with Various Modes of Oxygen Delivery. Gaeckle NT et al. American Journal of Respiratory &amp; Critical Care Medicine. 202(8):1115-1124, 2020 10 15.</p>	<p>This study measured the size and number concentration of particles and droplets generated from human respiratory tracts exposed to various modalities of oxygen delivery which included non-humidified nasal cannula, face mask, heated and humidified high-flow nasal cannula and non-invasive positive-pressure ventilation. 10 health participants with no active pulmonary disease were enrolled. Aerosol generation was measured with each oxygen mode while participants performed tasks of normal breathing, talking, deep breathing and coughing carried out in a negative-pressure room. Particles 0.37 – 20 µm in diameter were measured using aerodynamic particle spectrometer. Results show median particle concentration ranged from 0.041 – 0.168 particles/cm<sup>3</sup> while median diameter ranged from 1.01 – 1.53 µm. Cough significantly increased the number of particles measured. Humidified high-flow nasal cannula (HFNC) or non-invasive positive-pressure ventilation (NIPPV) did not significantly increase</p>	<p>None.</p>

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		<p>aerosol concentration. This was the case during normal breathing, talking, deep breathing and coughing. Findings from this study show that in healthy adults, there was no observed increase in aerosol generation with HFNC or NIPPV when measured in a negative-pressure room. Aerosol generation is influenced more by coughing and breathing pattern rather than the mode of oxygen therapy. Evidence is limited to healthy individuals.</p>	
<p><b>Surgical Masks</b></p> <p><b>And</b></p> <p><b>Respiratory Protective Equipment (RPE)</b></p>	<p>Comparative effectiveness of N95 respirators and surgical/face masks in preventing airborne infections in the era of SARS-CoV2 pandemic: A meta-analysis of randomized trials. Barycka K. et al. PLoS ONE [Electronic Resource]. 15(12): e0242901, 2020.</p>	<p>This study reviewed relevant and published RCTs to assess the effectiveness of medical masks and N95 respirators in reducing the risk of respiratory infections using PRISMA method. Pubmed, Web of Science, Embase and Cochrane databases were searched from inception through 1 April 2020 and 2 authors independently searched, extracted and tabulated data. RCT studies were quality assessed using Cochrane Collaboration tool. 6 articles met inclusion criteria. Pooled analysis showed that N95 respirators did not reduce risk of infection with respiratory viruses compared to medical/surgical masks (5.7% vs 7.9%; RR = 1.12; 95%CI: 0.88-1.41, p=0.36); however, there was no statistically significant difference in laboratory-confirmed influenza between N95 and medical masks (RR=0.91; 95%CI: 0.77-1.07; P=0.26). Medical masks provided similar protection against other viruses including coronavirus (RR = 0.74; 95%CI: 0.32 – 1.73; P=0.49). Respiratory illness including influenza-like illness were less frequently observed with N95 respirators than medical/surgical masks (3.5 vs 5.0%; RR = 1.06; 95%CI: 1.03-1.55; P=0.03). Findings from this meta-analysis suggest that there are insufficient data to determine whether N95 respirators are superior to medical masks in protecting HCWs against transmissible acute respiratory infections. Further RCTs are required to confirm findings.</p>	<p>None.</p>

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<b>Surgical Masks</b>	<p>Maximizing Fit for Cloth and Medical Procedure Masks to Improve Performance and Reduce SARS-CoV-2 Transmission and Exposure, 2021. Brooks JT. et al MMWR - Morbidity &amp; Mortality Weekly Report. 70(7):254-257, 2021 Feb 19.</p>	<p>This MMWR paper reports on experimental simulations conducted by the CDC in January 2021 to assess the extent to which modifications to procedure (surgical) masks could improve fit and reduce exposure of wearer and receiver to a simulated cough. Pliable elastomeric source and receiver headforms were used during the simulations. 2 modifications were assessed; 1) wearing cloth mask over medical procedure mask (double masking), and 2) knotting the ear loops of a medical procedure mask, where they attach to the mask edges, then tucking in and flattening the extra material close to the face (knotted and tucked masks). Findings show that double masking (cloth mask covering medical procedure mask) blocked 85.4% of cough particles (SD=2.4) while the knotted and tucked medical procedure mask blocked 77.0% (SD=3.1). Receiver's exposure was maximally reduced (&gt;95%) when source and receiver were fitted with both modifications. Further studies are required to investigate how mask fit can increase overall mask efficiency.</p>	None.
<b>Aerosol generating procedures (AGPs)</b>	<p>Bronchoscopy safety precautions for diagnosing COVID-19 associated pulmonary aspergillosis-A simulation study. Koehler P. et al. Mycoses. 64 (1) (pp 55-59), 2021.</p>	<p>This simulation study visualised aerosol and droplet spread and surface contamination during bronchoscopy and address which measures can avoid exposure of healthcare workers (HCWs). A simulation model was used to visualise aerosol and droplet generation including surface contamination by nebulising fluorescent solution detected by ultraviolet light and slow-motion capture. The model showed extensive aerosol generation, droplet spread and surface contamination. The study demonstrated that exposure of HCWs and contamination of surfaces can be reduced by repurposing covers for ultrasound transducers or endoscopic cameras to seal the tube opening during bronchoscopy in mechanically ventilated patients. Evidence limited by the study design of simulated bronchoscopy using a manikin model</p>	None.

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		which differ from human anatomy and physiology of respiratory tract.	
<b>Aerosol generating procedures (AGPs)</b>	Aerosols Produced by Upper Gastrointestinal Endoscopy: A Quantitative Evaluation. Sagami R. et al. The American journal of gastroenterology. 116 (1) (pp 202-205), 2021.	This study investigated whether aerosols are generated during endoscopy. Between 12 May 2020 & 20 May 2020, 105 patients undergoing upper gastrointestinal endoscopy and 90 control (not undergoing endoscopy) were enrolled in the study. Patients had their heads covered by a plastic “endoscopic shield” enclosure during endoscopy where aerosols were measured using Handheld Optical Particle Counter that suctioned air at 2.83L/min. 0.3-10 µm aerosols were measured for 60 seconds before, during and after endoscopy. Whether aerosols increased in the situation with and without endoscopy was examined. Findings show that aerosols changed significantly in the endoscopy group compared to the control group during and after endoscopy compared with before endoscopy (P<0.001, P<0.001, respectively). Increased aerosol count was significantly higher during endoscopy compared to control patients (P=0.006). Body mass index (BMI) and burping were significant factors associated with increased aerosols during endoscopy on multivariate logistic regression analyses (P=0.033 and P=0.025 respectively). Findings from this small study show that upper gastrointestinal endoscopy is an aerosol-generating procedure by measuring 0.3-10 µm aerosols. Further studies with larger sample size is needed to confirm findings.	None.
<b>Aerosol generating procedures (AGPs)</b>	A quantitative evaluation of aerosol generation during tracheal intubation and extubation. Brown J. et al. Anaesthesia. 76 (2) (pp 174-181), 2021. Date of Publication: February 2021	This study quantified airborne particle emission in real-time during tracheal intubation and extubation using particle analysis instruments in an ultraclean ventilation working operating theatre environment and compared this with coughs as a reference. Aerosols generated within the zone between the patient and anaesthetist were continuously sampled and measured using an optical particle sizer.	None.



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		<p>Monitoring show low background particle count (0.4 particles.l<sup>-1</sup>) and volitional coughs in the same setting was used as reference control (average concentration, 732 (418) particles.l<sup>-1</sup>, n=38). Tracheal intubation including facemask ventilation produced very low quantities of aerosolised particles (average concentration [SD] 1.4 (1.4) particles.l<sup>-1</sup>, n=14, P&lt;0.0001 vs cough). Tracheal extubation, particularly when patient coughed, produced detectable aerosol (21 (18) particles.l<sup>-1</sup>, n=10), this was 15-fold greater than intubation (p=0.0004) but 35-fold less than volitional cough (P&lt;0.0001). Findings from this study does not support the designation of elective tracheal intubation as an aerosol-generating procedure. While extubation generates more detectable aerosols compared to intubation, this is still less compared to voluntary coughing. Evidence from this study is limited by the relatively small number of observations, pragmatic design without control over administered anaesthesia or grade of practitioner and sampling of aerosol from a limited arc captured by the sampling funnel.</p>	
<p><b>Aerosol generating procedures (AGPs)</b></p>	<p>A Systematic Review of Droplet and Aerosol Generation in Dentistry. Innes N. et al. Journal of dentistry. (pp 103556), 2020. Date of Publication: 21 Dec 2020.</p>	<p>This study identified which dental procedures generate droplets and aerosols (defined as particles ≤ 5 µm in diameter) leading to contamination and for these, characterise their pattern, spread and settle. Medline, Embase, Cochrane Central Register of Controlled Trials, Scopus, Web of Science and LILACS databases were searched for relevant studies from inception to May 2020; data extraction was carried out by 1 reviewer and verified by another; quality of papers/risk of bias was assessed. A total of 83 studies met inclusion criteria and covered: ultrasonic scaling (USS, n=44), highspeed air-rotor (HSAR, n=31); oral surgery (n=11), slow-speed handpiece (n=4), prophylaxis (n=2) and hand scaling (n=2). There were no studies that investigated respiratory viruses</p>	<p>Adds to evidence base.</p>

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		<p>however those studies on bacteria, blood-splatter and aerosol showed activities using powered devices and water (HSAR and USS) produced greatest contamination. Devices that used air and water together also generated splatter and aerosol and highest nearest the patient. Contamination was found for all activities and at the furthest points studied. Most affected areas were the operator's torso, arm and patient's body. It was not possible to compare inter-study due to heterogeneity but intra-study comparisons allowed construction of a proposed hierarchy of contamination risk according to procedure: higher (USS, HSAR, air-water syringe, air polishing, extractions using motorised handpieces); moderate (slow-speed handpieces, prophylaxis, extractions) and lower (air-water syringe [water only] and hand scaling). Findings from this study addresses uncertainty around aerosol generating procedures in dentistry however evidence is limited due to several factors including gaps in evidence, low sensitivity of measures and variable quality limit.</p>	
	<p>Are Smoke and Aerosols Generated During Laparoscopic Surgery a Biohazard? A Systematic Evidence-Based Review. Pasquier J; Vilallonga, R Surgical Innovation. (no pagination), 2021.</p>	<p>This qualitative systematic review analysed existing evidence to assess the risk of airborne transmission of viruses and potential risk of surgical smoke and aerosols generated during laparoscopic surgery. A literature searched was performed from March 2020 to May 2020 using PubMed, Cochrane and Google Scholar and yielded 44 relevant articles. Findings show that genetic material from certain viruses, or the virus itself, has been detected in surgical smoke and aerosols however, there is a lack of studies that analysed the presence of airborne transmission of viruses in surgical smoke. There is a lack of clear evidence regarding the risk of acquiring diseases from surgical smoke and AGPs during laparoscopic surgery; further research is required.</p>	<p>None.</p>

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<b>Aerosol generating procedures (AGPs)</b>	Assessment of dispersion of airborne particles of oral/nasal fluid by high flow nasal cannula therapy. Jermy M.C. et al PLoS ONE. 16 (2 February) (no pagination), 2021. Article Number: e0246123.	<p>This experimental study compared the release of particles of oral/nasal fluids during quiet breathing (resting) and vigorous breathing (nasal snorting, voluntary coughing and voluntary sneezing) when receiving nasal high flow (NHF) therapy at 30 and 60 LPM (litres per minute). The liquid particles within the exhaled breath of healthy participants were (method 1) measured (high-speed camera), counted under high magnification (n=6 participants). Additionally, (method 2) the deposition of a chemical marker at distance of 100 and 500 mm on filter papers through which air was drawn (n=10 participants) was measured; filter papers were assayed with high-performance liquid chromatography (HPLC) analysis.</p> <p>1. Findings show that during quiet breathing, no particles were recorded during unsupported natural breathing or 30 LPM NHF (detection limit 33 <math>\mu\text{m}</math>). Particles were detected from 2 of 6 participants at 60 LPM quiet breathing at approximately 10% of the rate caused by unsupported vigorous breathing. Vigorous breathing with NHF at 60 LPM released less particles (about half) compared to vigorous breathing without NHF.</p> <p>2. Oral/nasal fluid was not detected in quiet breathing without NHF (detection limit 0.28 <math>\mu\text{L}/\text{m}^3</math>). Particles were detected in 4/29 quiet breathing tests with NHF at 60 LPM (small quantities not exceeding 17 <math>\mu\text{L}/\text{m}^3</math>). 200-1000 times more fluid were released during vigorous breathing compared to quiet breathing with NHF. Similar quantities were detected in vigorous breathing with or without NHF.</p> <p>Findings from this study did not find evidence for large numbers of particles dispersed by NHF compared to cough or sneeze suggesting that use of NHF does not increase risk of generation of</p>	None.

Literature Review	Papers Identified	Summary of Findings	Impact on Recommendations
		airborne aerosols above the risk of patient-generated aerosols.	
<b>TBP Definitions</b>	<p>Insights into the evaporation characteristics of saliva droplets and aerosols: Levitation experiments and numerical modelling. Lieber C. et al. Journal of Aerosol Science. 154 (no pagination), 2021. Article Number: 105760. Date of Publication: May 2021.</p>	<p>This study utilised an acoustic levitator in conjunction with microscopic imaging to record the temporal evolution of the evaporation of single saliva droplets under well-defined ambient conditions to investigate evaporation characteristics of saliva droplets. Findings show that after evaporation of the water content, saliva droplet (from 2 healthy male adults) reaches a final size which remain stable in the time frame of hours. Investigating droplets of different size, the authors found that the final droplet diameter correlates to 20% of the initial diameter and is independent of ambient conditions for a temperature range from 20°C – 29°C and relative humidity from 6% up to 65%. These experimentally derived characteristics were then applied into a numerical model taking into account the evaporation-falling curve as presented by Wells, the lifetime of saliva droplets and aerosols can then be predicted. Evidence from this study and numerical model is dependent on the controlled conditions of the experiment and inclusion of certain assumptions which may be simplistic and may not reflect real-life scenarios. Further studies which includes participants with respiratory infections are required to validate findings.</p>	None.
<b>Safe management of the Care Environment</b>	<p>Environmental contamination by carbapenem-resistant <i>Acinetobacter baumannii</i>: The effects of room type and cleaning methods. Lerner AO et al. Infection Control &amp; Hospital Epidemiology. 41(2):166-171, 2020 02. VI 1</p>	<p>This study evaluated environmental contamination by carbapenem-resistant <i>Acinetobacter baumannii</i> (CRAB), the effectiveness of cleaning practices and performance of aerosolised hydrogen peroxide (aHP) technology. Serial testing of environmental contamination, using sponge sampling, assessed the association between cleaning measures and environmental contamination. Sampling occurred in single-patient rooms in intensive care units (ICUs) and multi-patient step-up and regular rooms in internal medicine wards in a tertiary-care hospital</p>	Adds to evidence base.

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		<p>with endemic CRAB, during a 7-month study period. Findings show that in step-up rooms, 91% of patient units (56% of objects) were contaminated and half of them were heavily contaminated. In regular rooms, only 21% of patient units (3% of objects) were contaminated. In ICUs, 76% of single rooms (24% of objects) were contaminated. In step-up rooms, cleaning did not reduce the number of contaminated objects or patient units however after refresher training, cleaning significantly reduced the proportion of contaminated objects by 2-fold (P=0.001) but almost all patient units remained contaminated. aHP disinfection after discharge of a known CRAB-carrier decreased room contamination by 78% similar to reduction achieved by manual sodium hypochlorite cleaning at 1,000 ppm (85% reduction). Findings from this study show that the role of aHP is still unclear and its use in multipatient rooms is limited because it can only be used in unoccupied rooms.</p>	
<p><b>Eye and Face Protection</b></p>	<p>Investigation of the protection efficacy of face shields against aerosol cough droplets. Ronen A. et al Journal of Occupational &amp; Environmental Hygiene. 18(2):72-83, 2021 02.</p>	<p>This experimental study assessed the efficacy of plastic face shield as a protective equipment using a cough simulator with a jet speed of ~5m/sec and released mass in each of the cough simulation of 100µL. The face shield was placed on a manikin head that simulated human breathing. The concentration and size distribution of particles that reached the manikin during the few seconds following the simulated cough event were monitored using a laser diffraction system (Spraytec). Findings show that during frontal exposure, the shield efficacy in blocking simulated cough droplets larger than 3 µm in diameter was comparable to that of regular surgical masks. For finer particles (down to 0.3 µm diameter), a shield blocked approximately 10 times more fine particles than the surgical mask. When considering exposure from the side, a narrow shield allowed more droplets and aerosol to penetrate compared to surgical mask under the</p>	<p>None.</p>

Literature Review	Papers Identified	Summary of Findings	Impact on Recommendations
		same set up however a slightly wider shield improved performance.	
<b>Respiratory Protective Equipment (RPE)</b>	Does a surgical helmet provide protection against aerosol transmitted disease? Temmesfeld MJ, Jakobsen RB, Grant P. <i>Acta Orthopaedica</i> 91(5): 538-542, 2020	<p>In situ study regarding the filtration efficacy of a Stryker Flyte helmet, with the standard hood. The Stryker Flyte helmet was placed on a dummy within an orthopaedic operating theatre at the Sahlgrenska University Hospital, Gothenburg, Sweden. An artificial particle generator was placed in front of the dummy (distance unknown) and active for approx. 15s at the start of each test. Particle counters were placed within the hood and behind the dummy, approx. 20cm from the hood fan intake. The concentration of particles 0.5, 0.5, and 5µm were recorded throughout the tests (lasting between 15 and 30 minutes). The total inward leakage (TIL) was calculated by dividing the particle concentration inside the helmet by that recorded outside the helmet. Filtration efficiency (FE) was calculated by subtracting the TIL from 1. The FE for particles of all sizes was found to be 19% (95% CI 7.2-31). For particles 0.3µm in size the FE was 3.3% (95% CI -7.6-14), for particles 0.5µm in size the FE was 44% (95% CI 31-57), and for those 5µm the FE was 84% (95% CI 80-89). The TIL decreased in line with reduction of total ambient particles outside of the helmet.</p> <p>It was concluded by the authors that Stryker Flyte helmets should not be recommended as respiratory protection against aerosol transmitted infections.</p>	None.

## Evidence table – Healthcare Infection Incidents, Outbreaks and Data Exceedance - literature identified January – March 2021

Literature Review	Papers Identified	Summary of Findings	Impact on Recommendations