

# St George's COVID shield for use by ENT surgeons performing tracheostomies

Sabrina Brar<sup>1</sup>, Jahan Daya<sup>2</sup>, James Schuster-Bruce<sup>1</sup>, Sanjeev Krishna<sup>1</sup>, Darren Lui<sup>1</sup>, and Hamid Daya<sup>3</sup>

<sup>1</sup>St George's University Hospitals NHS Foundation Trust

<sup>2</sup>University of Bath Department of Mechanical Engineering

<sup>3</sup>St. George's University Hospital NHS Foundation Trust

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## Abstract

**Objectives** To investigate the ability of a physical barrier to reduce aerosol particle spread during a simulated aerosol generating procedure. **Design** A simulated aerosol generating procedure. **Setting** Standard hospital ward, St George's Hospital, London. **Participant** One volunteer participant - they were healthy, asymptomatic, and a non-smoker. **Main Outcome Measures** 1. To compare the effect of the shield on particle frequency (according to particle size) at different locations. 2. To evaluate the length of time that particles remained within the shield, both with and without an aspiration unit. **Results** Clinical investigations using the shield demonstrated a twelve-fold decrease in the number of particles detected at the position of the operating surgeon when the shield was used (particle size 0.3µm; with shield 8662 versus 103800 without shield). Over a 7-minute period, there was a reduction in the number of particles. At 7 minutes, the total number of particles (size 0.3µm) measured within the shield was comparable to the particle frequency at ambient levels (8752 within the shield compared with 8592 within the ambient environment). The aspiration unit reduced the number of particles detected within the shield over time. An average of 9649 particles (similar to ambient level) sized 0.3µm were measured under the shield after 2 minutes when the aspiration unit was used. **Conclusion** The clinical simulation illustrates a significant decrease in the number of particles detected at varying locations when the shield is used. The shield, used with appropriate PPE, could help to minimise exposure to aerosol-generated particles such as during tracheostomies on patients with COVID-19.

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