A wetlab was set up using porcine eyes, an artificial anterior chamber maintainer, and an Alcon InfiniDuo phacoemulsification system (Fort Worth, TX; Fig. A). Colouring dye was placed in the irrigation fluid for easy identification of droplets on a white paper surface surrounding the eye. During simulated phacoemulsification, droplet/aerosol production occurred when the irrigation ports were in the incision, but not when they were entirely within the anterior chamber. A similar study, using cadaveric eyes and a 2.2 mm phacoemulsification sleeve, also found that no droplet/aerosol was produced when instruments were held entirely within the anterior chamber. Vertical torque on the wound and long incisions increased droplet production. Hydroxypropyl methylcellulose coating the cornea decreased droplet production. With phacoemulsification settings at maximum power and no hydroxypropyl methylcellulose on the cornea, the furthest documented droplet radius was 13.2 cm with a 2.75 mm keratome incision (Fig. B) versus 1.9 cm with a 2.2 mm keratome incision (Fig. C). These observations, along with evidence of low transmission risk for coronavirus disease 2019 from the tear film, suggest that phacoemulsification is low risk as an aerosol-generating procedure.

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References

Footnotes and Disclosure
The authors have no proprietary or commercial interest in any materials discussed in this article.