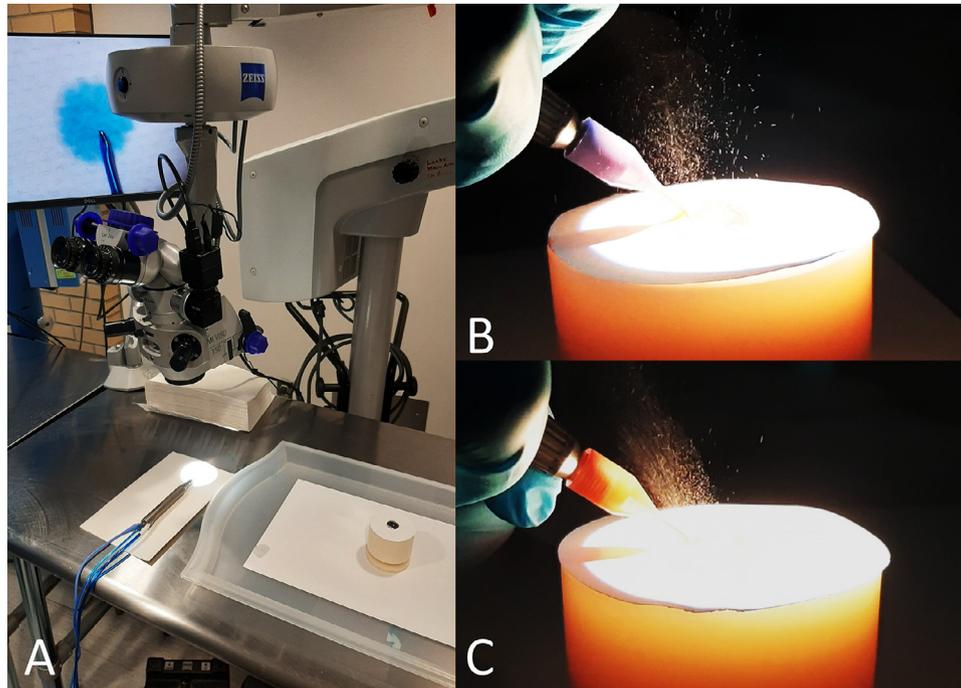


Creating aerosolized droplets in phacoemulsification



A wetlab was set up using porcine eyes, an artificial anterior chamber maintainer, and an Alcon Infiniti 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.¹ Vertical torque on the wound and long incisions increased droplet production. Hydroxypropyl methylcellulose coating the cornea decreased droplet production.² 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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Footnotes and Disclosure

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