



# Surgical smoke generated by electrocautery

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Dear Professor Nouri,

We welcome the timely and pragmatic British Medical Laser Association guidance regarding measures needed to resume laser services following COVID-19 lockdown and commend the author for his comprehensive work [1]. Many clinics using laser devices also commonly use electrocautery when undertaking dermatologic surgery which likewise can generate plumes (“surgical smoke”). These plumes are potentially infectious, toxic, and carcinogenic [2]. Surgical plume has been found to harbor particulate pathogens such as coagulase-negative staphylococci, *Corynebacterium* and *Neisseria* [3], as well as human papillomavirus [4]. Although there are no reported cases of COVID-19 transmission through the electrocautery plume, the minute size of the particles [5], their high transmissibility [6], and the fact that they have been found in a variety of bodily fluids (including blood, peritoneal fluid [7], and feces [8]) increase the plausibility of finding COVID-19 particles in plumes generated by electrocautery devices [9, 10]. The author suggested use of smoke evacuation devices with various filter devices available [1]. These include charcoal filters (capable of absorbing gas and vapor), high efficiency particulate air filters (filtering particles of greater than 0.3 µm with an efficiency of 99.97%), and ultralow particulate air filters (ULPA) (filtering particles of greater than 0.1 µm with an efficiency of 99.99%). A combination of ULPA and charcoal filters is the most effective filtration method [11]. In addition to adopting many of the measures suggested by the author for laser devices [1], including use of personal protective equipment and smoke evacuation

devices, practitioners using electrocautery in their clinics may also wish to consider the use of bipolar (rather than unipolar) devices and lower energy settings when using electrocautery devices, both of which are associated with reduced generation of plumes [1].

## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

**Consent for publication** All authors have approved this final submitted version of the manuscript and consent to its submission for consideration of publication.

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