

Reply to: “Comment on ‘Surgical smoke: Risk assessment and mitigation strategies’ and chemical adsorption by activated carbon N95 masks”



To the Editor: We are pleased that Wambier et al¹ have provided additional commentary on recommendations for surgical smoke protection. This is certainly an important topic and one that deserves concerted and continued discussion in the dermatology community.

The direct inhalational and infectious hazards of surgical smoke have been detailed in our review,² and controlled trials have demonstrated these risks, primarily in animals. Although the chemical components of surgical smoke have been described,² the hazards of cumulative exposures to these chemicals by dermatologic surgeons have not been studied. Therefore, unless there is new data to suggest otherwise, it is prudent to protect dermatologists and staff from cumulative exposures to these mutagenic chemicals.

Smoke evacuators should be utilized to minimize these risks. Although most surgeons are aware of the potential risks, smoke evacuators (and filtration masks) are not commonly used.³ Furthermore, to effectively minimize mutagenic chemical exposures, smoke evacuators must be evaluated for performance (as outlined in our review article) and the capture device placed in close proximity to the surgical field.²

Wambier et al state “Although aspirators with chemical filters are available and removal of fumes can be assisted with ventilator exhausters, the surgeon is close to the site of smoke production, and masks with activated carbon are still needed as personal protective equipment.”¹ To our knowledge, these masks have not been investigated or demonstrated to protect surgeons in clinical practice, but this topic deserves further consideration in future studies.

We appreciate the suggestion by Wambier et al to consider a chemical filter such as activated carbon for protection.¹ A search for articles indexed in MEDLINE on PubMed with the suggested terminology “high efficiency gas adsorption filter” displayed 21 articles from the environmental science, water, and waste technology literature. A search with the terms “activated carbon filter” and “surgery” yielded 1 article that reported on the efficacy of this filter in reducing carcinogenic chemicals found in laparoscopic surgery smoke.⁴ It should be noted that the control was unfiltered smoke, and surgeons in this study did not use smoke evacuators.

Activated carbon masks probably provide the surgeon with additional protection; however, use of these masks require further investigation before a formal recommendation can be made to the dermatology community at large. Although Wambier et al suggest that the routine use of disposable activated carbon filtration masks is “a simple procedure that could be adopted by all medical personnel,”¹ they do not provide any data on the economics of their proposal. The cost of these disposable masks to be worn by the treating surgeon and staff during each surgical procedure needs to be considered if we are to recommend implementation into routine practice. We feel that more research on the efficacy of these masks compared with smoke evacuators (used with high-efficiency particulate air filtration) during surgery is warranted before such a recommendation can be adopted.

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