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Review [Surg Today](#). 2015 Aug;45(8):957-65. doi: 10.1007/s00595-014-1085-z.

Epub 2014 Nov 25.

Health risks associated with exposure to surgical smoke for surgeons and operation room personnel

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PMID: 25421864 DOI: [10.1007/s00595-014-1085-z](https://doi.org/10.1007/s00595-014-1085-z)

Abstract

Although surgical smoke contains potentially hazardous substances, such as cellular material, blood fragments, microorganisms, toxic gases and vapors, many operating rooms (ORs) do not provide protection from exposure to it. This article reviews the hazards of surgical smoke and the means of protecting OR personnel. Our objectives are to promote surgeons' acceptance to adopt measures to minimize the hazards. Depending on its components, surgical smoke can increase the risk of acute and chronic pulmonary conditions, cause acute headaches; irritation and soreness of the eyes, nose and throat; dermatitis and colic. Transmission of infectious disease may occur if bacterial or viral fragments present in the smoke are inhaled. The presence of carcinogens in surgical smoke and their mutagenic effects are also of concern. This review summarizes previously published reports and data regarding the toxic components of surgical smoke, the possible adverse effects on the health of operating room personnel and measures that can be used to minimize exposure to prevent respiratory problems. To reduce the hazards, surgical smoke should be removed by an evacuation system. Surgeons should assess the potential dangers of surgical smoke and encourage the use of evacuation devices to minimize potential health hazards to both themselves and other OR personnel.

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