



# Smoke plume evacuation

## Protecting the environment, protecting staff, protecting patients

**COVID-19 has placed huge pressure on our healthcare system, and more than ever, patient and staff safety is at the forefront of our minds.**

Recently there has been a rapid rise in interest concerning surgical plume, with studies indicating that it is placing surgical staff at risk of exposure to harmful chemicals (Collings et al 2022).

The human body is made up of a high percentage of water and when a medical device is used, the heat disrupts the tissue, producing a vaporous plume known as smoke plume. Smoke plume contains highly toxic substances that can pose a risk to a person's upper and lower respiratory tract and can cause side effects including headaches; eye, nose, and throat irritations; and acute and chronic pulmonary conditions (Bree et al 2017).

It is incumbent upon us all, including the industry, to help find solutions to minimise the harm from surgical plume, and support healthcare professionals (HCPs) to keep themselves and their patients safe. One way in which industry can best support HCPs to protect themselves in the operating theatre, is by providing solutions that reduce the risk of surgical staff and patients being exposed to such dangerous toxins.

### Why does surgical plume pose a risk to patient and staff safety?

It is hard to precisely quantify the impact that this hazardous substance can have on HCPs, especially over a lifetime of career exposure. However, studies suggest that only one gram of surgical plume is equivalent in toxicity terms to smoking between three to six cigarettes (Bree et al 2017). This could mean that healthcare professionals may be unwittingly exposed to the equivalent of up to 27-30 cigarettes per day (Hill et al 2012).

There is also evidence to suggest that patients can absorb the toxic chemical by-products of smoke plume (Dobrogowski et al 2014). Guidelines outline 12 considerations addressing surgical plume hazards, such as risking the surgeon's ability to visualise tissue, which poses a great risk to patient safety (AORN 2017).

With many countries adopting a mandatory policy on smoke plume, and some implementing a zero-tolerance approach, it is imperative that industry is highlighting the risks to our HCPs and their patients, as well as creating products that work to collect the plume such as a blade, spatula or pencil.

### How can Mölnlycke provide a solution to minimise risk while promoting sustainability and efficiency?

Mölnlycke's Plume Evacuation Pencil provides a solution that puts staff and patients first by removing the smoke-like substance from the body in a way that minimises HCP exposure. It also adapts to all types of surgical incisions, both deep and shallow, allowing staff to operate with ease and minimal disruption to surgical procedures.

As well as being offered as single packed, Mölnlycke's Plume Evacuation Pencil is available in Mölnlycke's customised surgical trays. Mölnlycke ProcedurePaks® increase efficiency in the operating room, and the inclusion of plume evacuation within a customised tray can help drive compliance while enabling customisation of the sterile packs by including components surgical teams need for specific interventions. Teams using the customised surgical trays have seen up to a 70% reduction in component waste (Mölnlycke, nd) supporting their sustainability and waste reduction targets.

Sustainability is a strategic priority at Mölnlycke, with the ambition to transform the business to become a global leader in sustainable healthcare. In recent years, Mölnlycke has introduced product innovations which are focused on ISCC certified biobased materials and other renewable materials or components, with Mölnlycke's Plume Evacuation Pencil designed DEHP and PVC free, offering a sustainable solution.

At Mölnlycke, we strive to act as a partner in protection to the healthcare system and recognise the crucial role that industry plays in developing solutions that ensure staff and patient safety. As part of

this, Mölnlycke sponsored the study day, Surgical Plume: Recognising & Preventing the Dangers, organised by AfPP, devised to educate, challenge, and inform.

As we reflect on the importance of patient and staff safety, we must do more to raise awareness of the dangers of surgical plume, both through research into its impact and by designing solutions, such as the Mölnlycke Plume Evacuation Pencil, that can help protect HCPs in the operating theatre. We are proud to provide the solutions that support HCPs to stay safe so they can continue to do what they do best: care for patients. ■

Article by **Tanya Woodbridge, Mölnlycke**

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