

Abstract category: Clinical Quality Improvement, Patient Safety and Innovations

Abstract title: Reducing environmental pollution due to desflurane usage

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Introduction

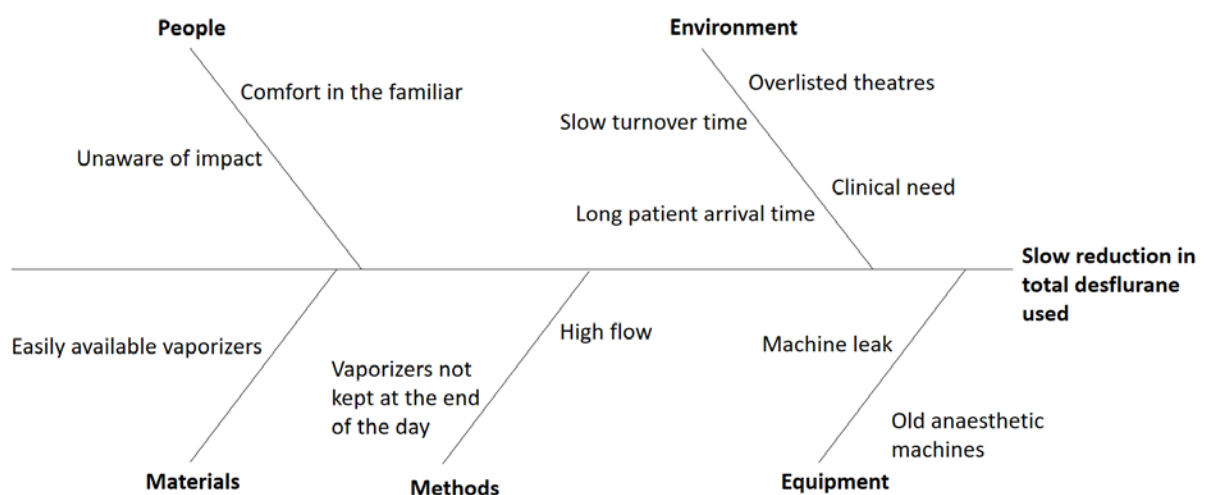
Healthcare plays a significant role (4.4% of global emissions) in contributing to global warming. Anaesthetic gases are estimated to make up 5% of greenhouse gas emissions, of which, desflurane has the most global warming potential.

Mission statement: To reduce anaesthetic carbon emissions by reducing monthly use of desflurane in SKH by 50% in 6 months.

Methodology

Main reasons why anaesthetists continue to use desflurane were identified. Posters were subsequently used to raise awareness about the greater global warming potential of desflurane.

Possible barriers to reducing desflurane use



PDSA Cycle (Dec '21):

Posters were placed on anaesthetic machines and prominent locations, highlighting the greater global warming potential of desflurane. The availability of desflurane refills was also changed from 'always available' to 'available on demand'.

The intervention's efficacy was assessed by comparing the change in global warming potential (equivalent CO₂, eCO₂) and cost per hour of general anaesthesia (GA) over a 3-month period prior to the intervention (Sep-Nov '21), and a 2-month period after the intervention (Jan-Feb '22).

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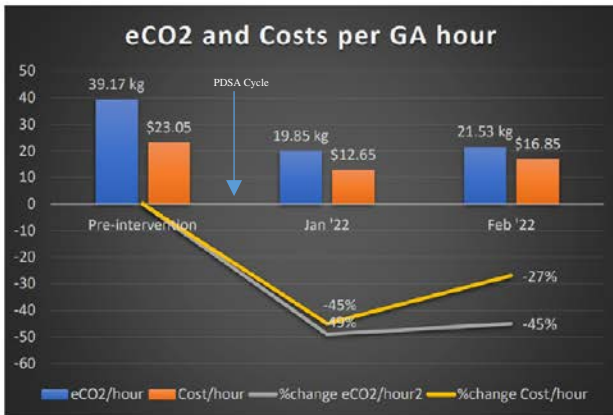
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Results

Monthly use of desflurane decreased from an average of 39 bottles in the pre-interventional baseline period (Sep-Nov '21) to 25 bottles in Feb '22 (35% reduction).

Mean global warming potential per hour of GA time (eCO₂/h) reduced by 45% from 39.17 kg CO₂ to 20.69 kg CO₂, while mean monthly global warming potential was reduced by 8415 kg CO₂ compared to pre-intervention baseline.

Mean cost of volatile agents per hour of GA time went down from \$23.04 to \$16.82 in Feb '22, resulting in mean monthly savings of 27%.



Conclusion

Clear reductions in SKH's contribution to global warming have been demonstrated, with the added benefit of cost savings. If the trend persists, annual reduction of 45% of eCO₂ and annual cost savings of 30% can be expected.