

## Excel<sup>®</sup> Version of CO<sub>2</sub>e and cost calculator of inhalational anaesthesia

### What it is?

This calculator allows comparison of both financial cost and carbon dioxide equivalence (CO<sub>2</sub>e) of inhalational anaesthesia. By completing the cells the calculator provides a graphical comparison of cost and CO<sub>2</sub>e as well as allowing inter-agent comparison. The calculator is a tool that permits financial and environmental comparison between inhalational techniques.

### What assumptions have been made?

The global warming potential (GWP) of the inhalational anaesthetic agents have been taken as

Nitrous oxide 310

Isoflurane 510

Sevoflurane 130

Desflurane 2540

The unit cost of each bottle of inhalational agent can be changed according to local pricing. The current cost of nitrous oxide is 0.23 p/ litre, but this is from a size E cylinder. Manifold price will be included shortly. The carbon intensity of oxygen production has been taken to be 400g CO<sub>2</sub> per litre of oxygen. The cost of oxygen is so small as to make no appreciable difference to the overall cost (£5.00 per 100 m<sup>3</sup>). The carbon intensity of compressed air production has been ignored.

### Instructions

1. Choose the tab according to the nature of the carrier gas
  - a. nitrous oxide/oxygen,
  - b. oxygen air with rotameters or
  - c. set FiO<sub>2</sub> and FGF as one might find on an anaesthesia work station.
2. Enter the unit cost of your institution's inhalational agent in cells D7 E7 and F7
3. Enter the carrier gas flow rate and the *vapouriser setting* (%)
4. The graphs adjust automatically
5. The cost graph is labelled £ sterling per hour at that particular FGF and vapour setting
6. The CO<sub>2</sub>e in kg CO<sub>2</sub> per hour at that particular FGF and vapour setting

### What the calculator is not

This calculator takes no account of the additional drugs and disposables required to deliver safe anaesthesia. Nor is it a substitute for carefully delivered safe and effective anaesthesia.

Dr JMT Pierce

September 2015