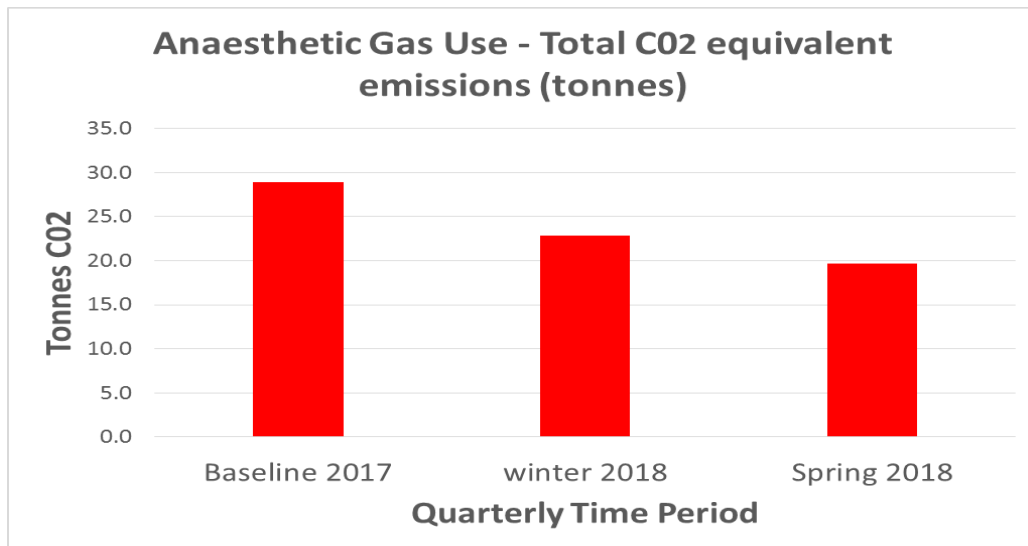


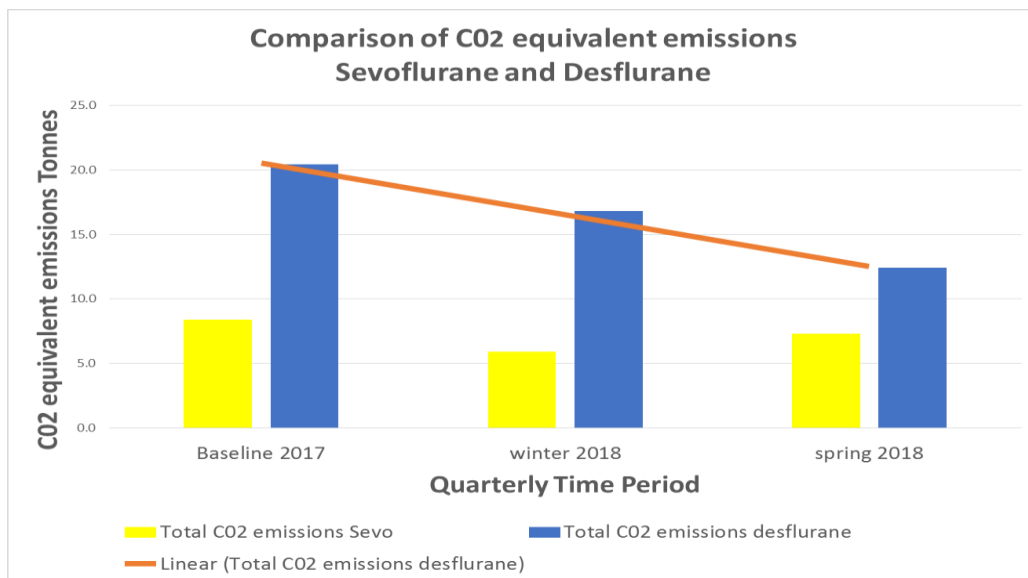
Climate Change Impact of Anaesthetic Agents Dunedin Hospital
Quarterly update – Spring 2018

!! CONGRATULATIONS !!

The climate change impact of our anaesthetic gas use continues to decline: -



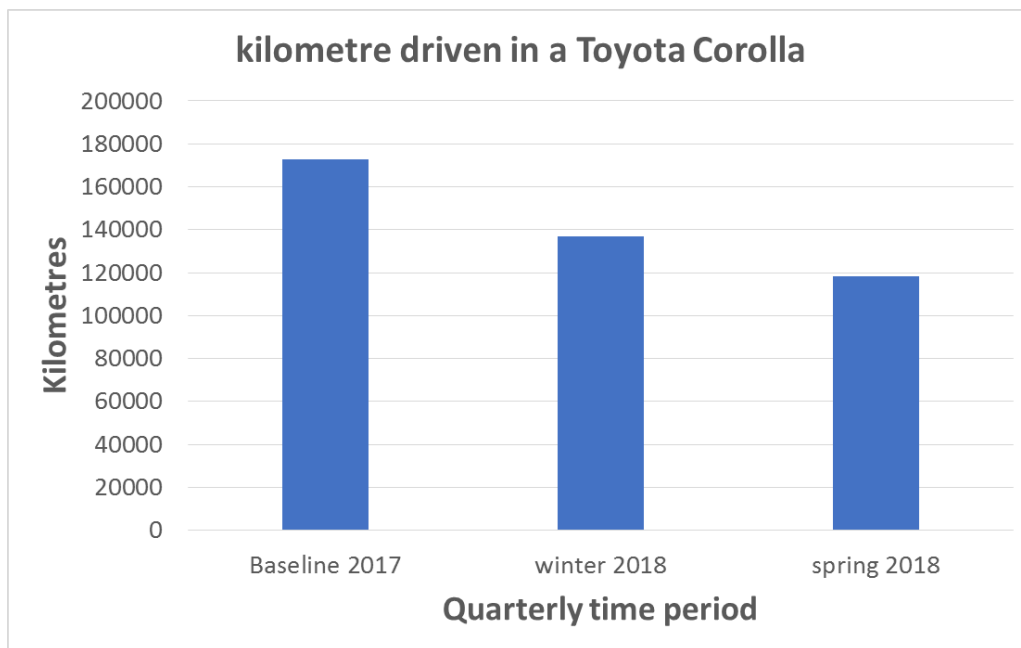
This Improvement is mainly due to an ongoing reduction in Desflurane use: -



This reduction in impact persists when adjusted for hours of anaesthesia use: -

- Baseline quarter (2017) anaesthetic gas use is equivalent to: - **6.87 kg of CO2/hour**
- Winter quarter (2018) anaesthetic gas use is equivalent to: - **4.14 kg of CO2/hour**
- Spring quarter (2018) anaesthetic gas use is equivalent to: - **3.49 kg of CO2/hour**

As can be seen Desflurane is the biggest contributor to our carbon footprint and ongoing reduction will reduce costs and the environmental impact of our practice. Equating this to kilometres driven in a Toyota corolla gives an idea of the impact of this reduction: -



- This analysis uses the most up to date figures for the global warming potential of anaesthetic agents over a 100-year time frame (GWP100) published by Sulbaeck Anderson (Anaesthesia and Analgesia 2012).
- GWP100 is the standard metric used to assess greenhouse gases and is used by the IPCC in their reports. The reference gas is CO₂ (GWP100 = 1).
- The value for sevoflurane is 130 and for desflurane is 2540. (desflurane is therefore 2540 times more potent than CO₂ as a greenhouse gas). This analysis excludes N₂O (also a greenhouse gas).
- A bottle of sevoflurane costs \$140 and desflurane \$225 (SDHB procurement). As desflurane is less potent more needs to be used for a similar level of anaesthesia. Therefore, it is a more expensive agent to use per minute of anaesthesia.
- Monthly figures are calculated from bottles of agents used (data from pharmacy). As theatre inventory fluctuates month to month the average for the quarter or total for the quarter is used.
- The emissions figure is benchmarked against theatre minutes to mitigate against changes in patient activity. The system of measuring theatre minutes includes all operative time (including local anaesthetic cases and regionals). This means that reduced volatile use by using TIVA, LA and increasing regional anaesthesia as well as reduced gas usage will be captured in the data.