

SMARTER ANESTHETIC GASES

2012-2015

MELBOURNE, AUSTRALIA

WESTERN HEALTH HOSPITALS



PROJECT GOALS

- Reduce CO₂ emissions
- Save money

In 2012, anesthesiologist Forbes McGain and his colleagues at Western Health Hospitals in Australia took initiative to educate their peers on the need to use anesthetic gases more efficiently and shift to gases with lower global warming impact. Desflurane has a global warming potential that is 2,500 times higher than that of CO₂, meaning a change away from desflurane and nitrous oxide gases to sevoflurane and propofol could considerably reduce anesthesia's environmental footprint. Desflurane is also a costly gas, and reducing its use saves money while protecting the climate. From 2012-2015, Western Health Hospitals were able to reduce the use of desflurane by over 50% and nitrous oxide by 15%, saving \$22,500 per year.

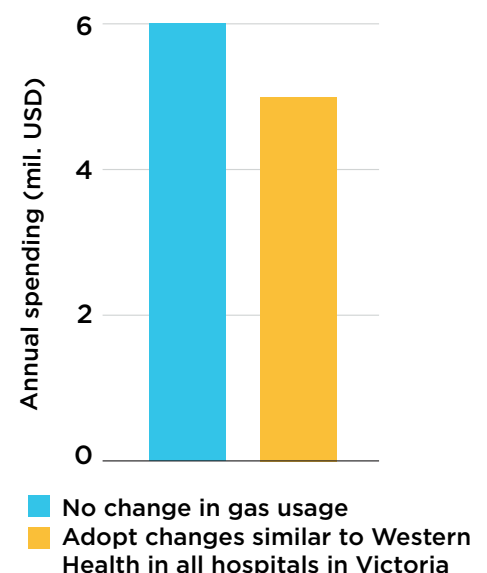
OVERCOMING OBSTACLES

Doctors prioritize patient care, so suggesting a change in procedures to reduce the environmental impact of anesthetic gases required a long-term engagement process. Rather than the whole department changing at once, only a few individuals initially adopted these changes. Through presentations to the department and visiting doctors on the effects of certain anesthetic gases on climate change and hospital expenses, the doctors championing the effort communicated the need to use these gases more efficiently and/or find replacements. Consistent dialogue was key to increasing the numbers of anesthesiologists adopting the changes.

SAVINGS FROM SWITCHING GASES^{1, 2}



POTENTIAL, SCALED TO ALL HOSPITALS IN STATE



“Be humble when wishing to change other people’s behavior; aware of your deficiencies; accept that our combined knowledge is far from complete; and learn from the process of change.”

—Dr. Forbes McGain



LEADERSHIP AND COLLABORATION

HEALTHCARE

Drs McGain & Horton
(A, C, I)
Western Health Hospitals
(A, D, I)

SOCIAL MISSION

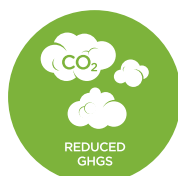
Doctors for the
Environment (A)

A: Advocacy, C: Champion,
D: Design, I: Implementation

The initiative was championed by Dr. Forbes McGain with support from Richard Horton, Director of Anesthesia, who modeled the change in his own practice. Western Health removed desflurane from the anesthetic machines, only providing it upon request, and trained new doctors and nurses to avoid the use of desflurane and nitrous oxide.

BENEFITS

CLIMATE BENEFITS



Reductions in the usage of desflurane and other gases saved 154 tons of CO₂ emissions per year.³

HEALTH BENEFITS



The quality of patient care was not compromised by the reduction in gas usage.

REPLICATION

As a member of Doctors for the Environment Australia, Dr. McGain has encouraged fellow doctors to emulate Western Health’s efforts in their own hospitals.

The health system of Western Health’s home state of Victoria spends \$6 million per year on anesthetic gases. Western Health doctors estimated that if all Victorian hospitals changed the anesthetic gases they use, they could save up to \$1 million per year, with a large reduction in emissions and no compromise to patient care.

OTHER BENEFITS



JOBS & ASSETS

**HEALTH, WELL-
BEING, & SAFETY**
CONNECTION

CONTACT INFORMATION

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Western Health

Multisolving at the Intersection of Health and Climate References

Smarter Anesthetic Gases

¹ Global Green and Healthy Hospitals. 2016. "Anaesthetic Gases – Greenhouse Gas Reductions: Western Health, Melbourne, Australia." <http://www.hospitalesporlasaludambiental.net/wp-content/uploads/2016/07/Waste-and-Chemicals-Anaesthetic-Gases-Greenhouse-Gas-Reductions-Western-Health-Australia.pdf>.

² McGain, Forbes. Personal communication. Anesthesiologist, Western Health Hospitals.

³ Van den Berg, Lucie. 5 December 2016. "Western Health Doctors Use Greener Gas for General Anaesthetics to Reduce Carbon Emissions." *Herald Sun*.
<http://www.heraldsun.com.au/news/victoria/western-health-doctors-use-greener-gas-for-general-anaesthetics-to-reduce-carbon-emissions/news-story/f120bf931fc19af3b537e5913b5298c0>.