



Anesthesia | Automatic Gas Control



**"Our new Flow-i's
with AGC save us
€106,000 yearly."**

How Belgian hospital Maria Middelaers reduced its environmental footprint through dramatically reduced agent consumption.



About Maria Middelares hospital

- Ghent, Belgium
- Founded 1934
- 550 beds
- 22 high-tech ORs
- More than 500 surgical procedures weekly

Substantial agent savings with AGC

Maria Middelaers becomes a leader in “green” healthcare

Reducing the consumption of anesthetic agents can reduce the climate footprint of healthcare.^{1,2} By converting to modern anesthesia machines, one large Belgian hospital mitigated their greenhouse gas emissions with great cost savings – without sacrificing patient safety.

The challenge

Maria Middelaers, a private research and teaching hospital in Belgium, chose to upgrade and standardize its fleet of anesthesia machines for their new facility. They needed an effective, safe and environmentally friendly solution to reduce the impact of anesthetic agents on the environment without sacrificing clinical effectiveness or patient safety.

They chose to standardize on a single anesthesia machine believing that uniformity is safety; there is less risk of error when the same machine is used across all ORs. But could a change in equipment have a dramatic impact on their ecological footprint?

Why do anesthetic agents matter?

Modern anesthetic agents are greenhouse gases that contribute to climate change. While these gases are typically excluded from environmental agreements because of their medical necessity, it's important for medical facilities to understand the impact of their use. The emissions of volatile anesthetics of an average midsize hospital has an environmental impact comparable to that of up to 1,200 cars per year.³ This makes anesthesia machines a natural starting place for a hospital's environmental initiatives.



"As a hospital, we consider it our responsibility to ensure the health of our patients and the planet, and to observe financial responsibility."

Dr. Alain Kalmar

Choosing with care

A trusted healthcare partner

The selection process

Maria Middelaers evaluated three machines from different vendors. They ultimately chose the Getinge Flow-i Anesthesia Machine with Automatic Gas Control (AGC) because it effectively serves patients of all ages and sizes in every OR, without compromising on ventilation performance and patient safety.

AGC is an automated low-flow tool with target control of the inspired oxygen concentration (F_{iO_2}) and end-tidal agent concentration (EtAA).

AGC allows anesthesiologists to safely reduce the fresh gas flow (FGF) and minimize the use of anesthetic agent, reducing anesthetic waste and saving money.

The first of the 23 machines was successfully used for a challenging procedure with a 3-week-old baby. More than 80,000 procedures have been supported by Flow-i with AGC since.

"Our choice to go with the Flow-i was very much based on the excellent AGC tool, but also ergonomics and flexibility proved better than the competition. We also liked the possibility to preconfigure startup settings, knowing that when starting a new patient case, settings are safe", says Dr. Henk Vanoverschelde, Anesthetist at Maria Middleware Hospital.



"The relationship with Getinge was very important. We have always received very good service, and trust both the company and the people working in the local organization."

Dr. Henk Vanoverschelde

42 % agent reduction with AGC

"With the introduction of AGC most colleagues have switched over to use low-flow anesthesia", says Dr. Alain Kalmar, Anesthetist, Maria Middleware Hospital, Belgium.

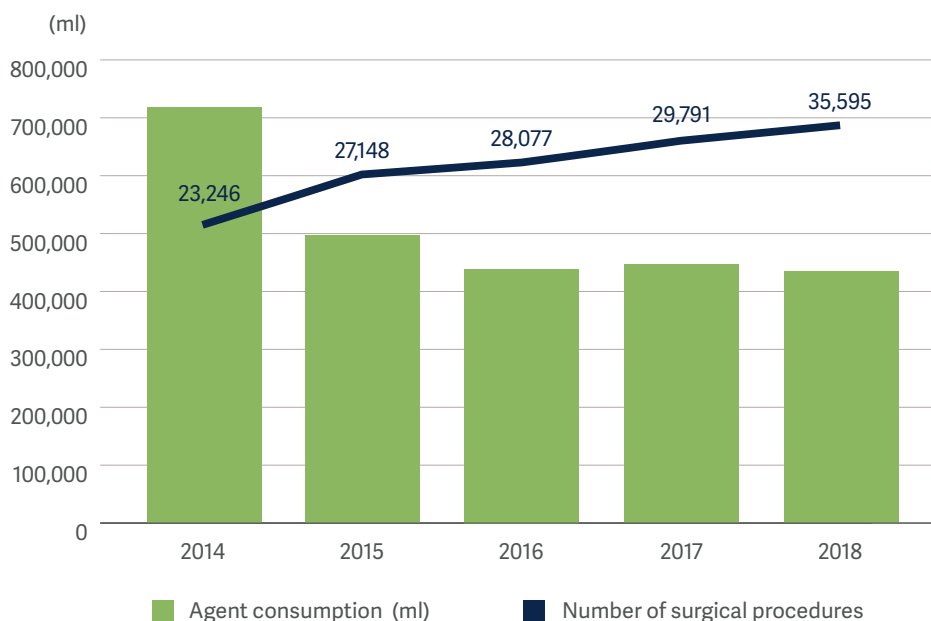
In the two-year period between 2014 and 2016, the hospital increased the number of surgical procedures by 24%, yet they saw an overall decrease in agent consumption of 28%. That's a net reduction of 42%.

"The biggest advantage of Flow-i is that you can dramatically decrease the consumption of volatiles while even improving the stability of high flows, maintaining a precise EtAA level," continues Dr. Kalmar.

»A skilled anaesthesiologist might be able to "beat" the AGC in consumption, but the safety of AGC is outstanding!«

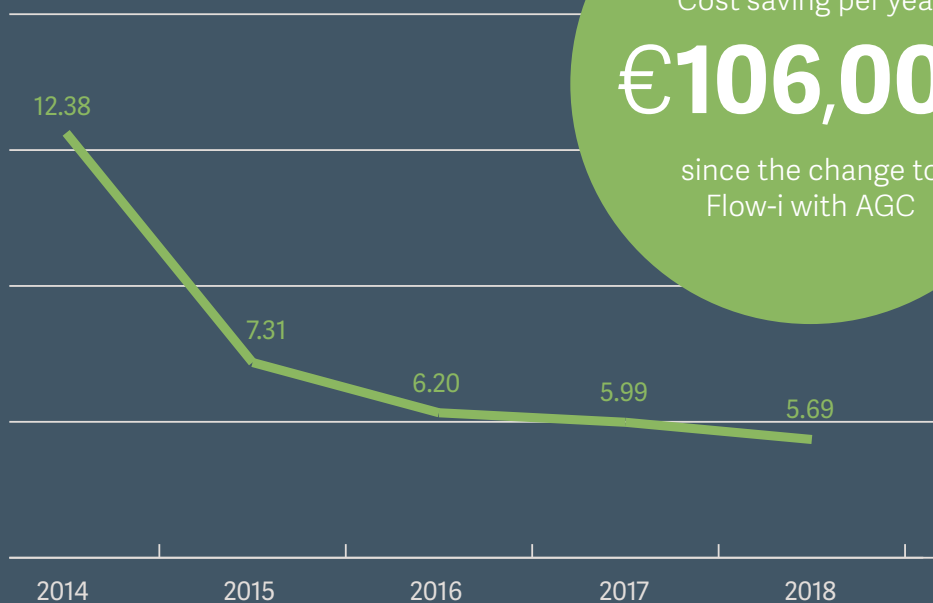
Dr. Henk Vanoverschelde

Evolution of agent consumption and number of surgical procedures at Maria Middelares hospital



Dramatic cost savings with AGC

Anesthetic agent cost per surgical procedure (€)



Since the introduction of AGC in 2015 the agent cost per surgical procedure has dropped from €12.38 in 2014 to €5.69 in 2018 – a cost reduction of over 54%

»In only a few years, our cost savings in anesthetic agents will have financed the initial investment for our new Flow-i machines.«

Dr. Henk Vanoverschelde

Commitment to safety

– and gaining workflow efficiency

AGC not only reduces the environmental and economic costs of anesthetic agent consumption, it also helps to keep patients safer, even in low-flow conditions.

Flow-i with AGC is engineered to improve forecasting and control of anesthetic agents. It facilitates the control of oxygen delivery in all anesthesia situations by a single F_{iO_2} target setting, reducing the risk of hypoxia and minimizing the risk of under- or overdosing.

Easy to implement, easy to use

Flow-i with AGC is easy to set up and use. The hospital installed the machines at the newly built hospital on a Friday, and were up and running with a normal patient load on the following Monday.

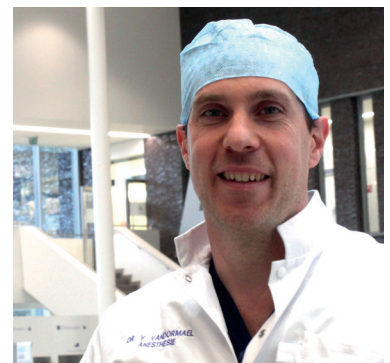
The Flow-i anesthesia machine improves workflows as well. The hospital continuously measures efficiency, turnover, and post-op times. Flow-i supports more efficient transitions between procedures; settings can be pre-configured before the patient arrives.

Let Getinge help your hospital reduce agent use

For more information about the Flow family of anesthesia machines and their role in reducing anesthetic agent consumption, please contact your Getinge representative, or send us a message on www.getinge.com/contact.

"With AGC we no longer need to manually change fraction of inspired gases and fresh gas flow, and this saves us a lot of time."

Dr. Yann Vandormael
Anesthetist, Maria Middle-
ware Hospital, Belgium



References

1. Healthy Hospitals – Healthy Planet – Healthy People, A discussion draft paper published by the WHO and Health Care Without Harm, http://www.who.int/globalchange/publications/climatefootprint_report.pdf?ua=1
2. Gadani H, Vyas A. Anesthetic gases and global warming: Potentials, prevention and future of Anesthesia. *Anesth Essays Res.* 2011;Jan-Jun; 5(1): 5–10.
3. Ryan SM, Nielsen CJ. Global warming potential of inhaled anesthetics: application to clinical use. *Anesth Analg.* 2010;111(1):92-98.



Getinge is a global provider of innovative solutions for operating rooms, intensive care units, sterilization departments and for life science companies and institutions. Based on our firsthand experience and close partnerships with clinical experts, healthcare professionals and medtech specialists, we are improving the everyday life for people – today and tomorrow.

The views, opinions and assertions stated by the physicians are strictly those of the physicians and their practice and do not necessarily reflect the views of Getinge or its subsidiaries. The Flow-i may be pending regulatory approvals to be marketed in your country. Contact your Getinge representative for more information.

This document is intended to provide information to an international audience outside of the US.

Manufacturer · Maquet Critical Care AB · 171 54 Solna, Sweden · Phone: +46 (0)10-335 00 00 · info@getinge.com

www.getinge.com