CASE STUDY

Anesthesia | Automatic Gas Control

“AGC buys us time to care for the patient”

Anesthesia clinicians at Sahlgrenska University Hospital & Kungälv Hospital, Sweden, share their experiences with AGC.

User impressions from Sahlgrenska & Kungälv hospitals

Background and hospitals

Automatic Gas Control (AGC) adjusts the fresh gas flow and the anesthesia gas concentrations in order to reach the set target values for inspired O_2 (F_iO_2) and end-tidal anesthesia agent concentration (EtAA). The built-in speed and prediction tool supports the user with information on the expected course of anesthesia.

Getinge worked together with Sahlgrenska University Hospital in Gothenburg and Kungälv Hospital in the first market installation of AGC.

In late March 2014, a total of 60 Flow-i´s were upgraded with AGC. In this report anesthesiologists and nurse anesthetists share their experiences with this new tool after four weeks of clinical use.

Between March and June 2014 more than 3000 anesthesia procedures were performed with AGC and Flow-i in these hospitals and the response was overwhelmingly positive.

Sahlgrenska University Hospital. Photographer: Marie Ullnert.


One of the operating theaters at Sahlgrenska University Hospital.

Sahlgrenska University Hospital

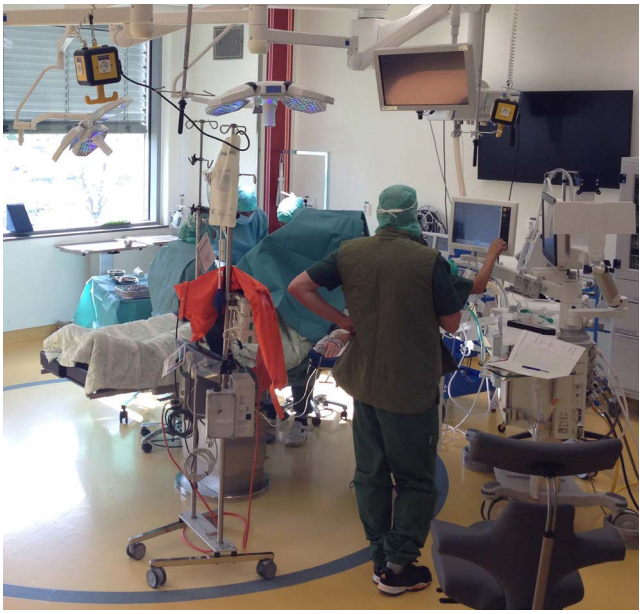
Sahlgrenska University Hospital is one of the biggest hospitals in Sweden and it aims to provide the highest level of medical care, research, development and training to enhance quality of life in the region of Västra Götaland.

This University Hospital has 2100 beds distributed between 140 departments. Patients from all over Sweden are treated at the hospital which employs experts within 25 specialist fields, including cardiothoracic, reconstructive, neuro-, and trauma surgery to name a few.

Kungälv Hospital

Kungälv Hospital, which is a part of the Västra Götaland region, hosts specialties like internal medicine, general and orthopedics surgery, and consists of 200 beds. Its operation rooms were completely rebuilt in 2012 to become very good examples of modern and efficient operating theaters.

Kungälv Hospital



One of Kungälv Hospital's operating theaters.

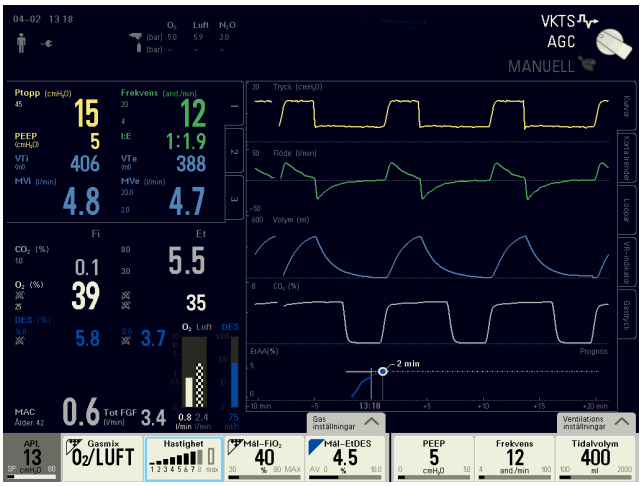
User impressions of AGC

In the initial stages of using AGC, the group found it to be a technology that is very safe, easy to introduce and understand. Dr. Jan Pålsson, MD, PhD, Senior Consultant in Dept. of Anesthesia and Intensive Care, Sahlgrenska University Hospital shared his own overall impression:

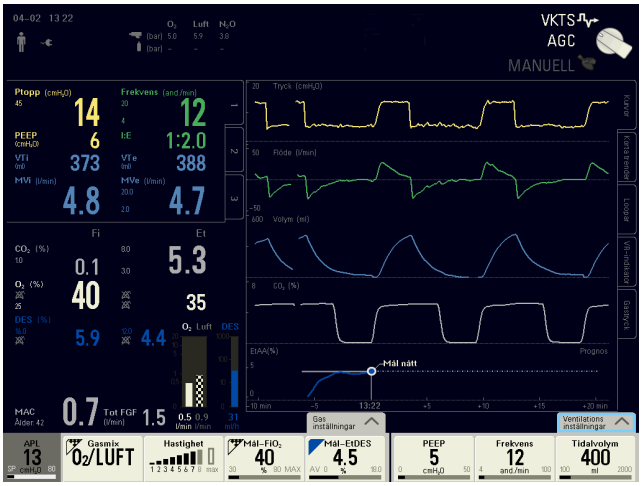
"AGC is an improvement of a good and user friendly machine."

Dr. Sören Söndergaard, MD, PhD, Assistant Professor in Anesthesia and Intensive Care, Sahlgrenska University Hospital, expressed his appreciation for the prediction tool with speed selection. This unique feature in AGC presents time to end-tidal target and allows staff to estimate, forecast and control gas delivery during induction and emergence. Dr. Söndergaard highlights:

"The opportunity to pre-set anesthetic depth and time to target knowing that Flow-i computes the most economic combination of fresh gas flow, F_iO_2 and EtAA, is in my opinion one of the most useful function-alities of AGC. It relieves the anesthetist of the constant challenge of understanding gas kinetics in terms of solubility, FRC, VA, VT and CO."



AGC during induction, showing 2 minutes time to target.



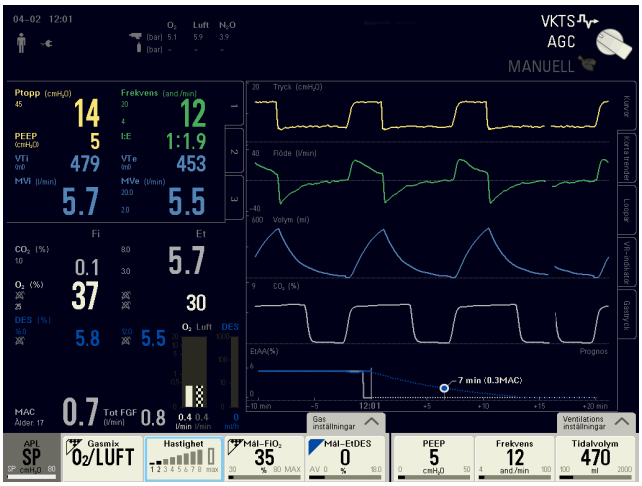
Once the target is reached, fresh gas flow and agent delivery are automatically reduced.

Staying focused on the patient can be a challenge during the busy induction period. The users at both hospitals found the speed setting function very useful since it helped saving time. As Dr. Pålsson puts it:

"After intravenous induction one can focus on other tasks, for instance establishing additional intravenous lines, arterial lines, nasogastric tubes, completing documentation whilst the Flow-i with AGC option smoothly reaches the target."

Mattias Magnusson, who is working as a nurse anesthetist at Kungälvs Hospital, agrees:

"It buys us time to care for the patient as well as time to document the patient recordings."



AGC during emergence at speed 2, showing 7 minutes time to target.

User impressions of AGC

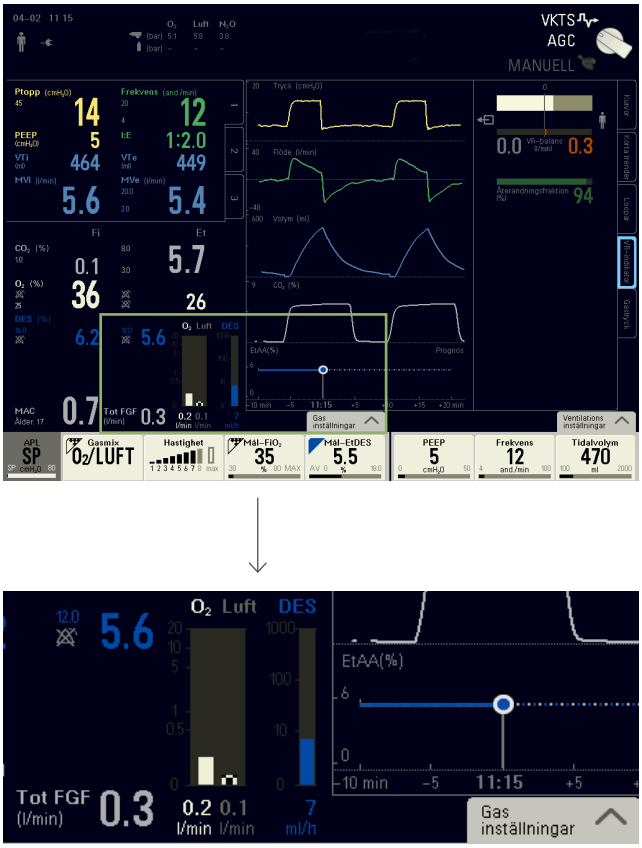
Ann-Sophie Jern Oresjö, nurse anesthetist at Sahlgrenska University Hospital, makes a point on safety as she remarks:

"The patient is now more stable, especially during induction. It minimizes the risk of the patient dropping in blood pressure and the risk for awareness. I can now set my desired target for the patient and then calmly work with other practicalities related to induction and beginning of surgery."

Dr. Pålsson agrees:

"AGC efficiently reaches the target with desired speed which is crucial for patients with cardiac comorbidities. All in all, we have seen that AGC gives smoother anesthesia and reduces the risk for accidentally low or high MAC values."

According to Dr. Pålsson, AGC can also be used to secure and maintain the patient's oxygen levels, with a single target F_iO_2, when performing Total Intravenous Anesthesia (TIVA).



AGC automatically reduces the fresh gas flow down to 0.3 liter per minute once your target is reached.

Convenience and safety at low and minimal flow anesthesia

Another interest area within the group is minimal flow anesthesia. "AGC helps with the possibility to reach really low fresh gas flows, which contribute to a reduction in gas consumption," says Dr. Pålsson.

Once activated, the AGC feature automatically adjusts the fresh gas flow and anesthetic agent supply to a minimum while maintaining the anesthetic target level. "I don't need to set and re-set inspired oxygen. I don't need to adjust and re-adjust fresh gas flow. The system always strives to go as low in flow as possible", reflects Lena M. Hammar, nurse anesthetist at Sahlgrenska University Hospital, who focuses on the safety during low and minimal flow anesthesia during her work. She concludes:

"All in all, AGC is a fantastic function!"

Summary of AGC

Mattias Magnusson summarizes the benefits of AGC as follows:

- Low flow with economical gain
- Fast adjustment of different anesthetic depths
- Smoother anesthesia
- Stable patient F_iO_2

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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.

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

Flow-i may be pending regulatory approvals to be marketed in your country. Contact your Getinge representative for more information.

The AGC screenshots in this report originate from actual patient cases at the Sahlgrenska and Kungälv hospitals hence the Swedish language. The views, opinions and assertions expressed in the brochure are strictly those of the interviewed and do not necessarily reflect or represent the views of Maquet Critical Care AB.

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