



## Anesthesia | Flow-i for cardiothoracics

The Cardiothoracic Department at Sahlgrenska University Hospital, Sweden, chose Flow-i for its outstanding ventilation performance.

**“There is no other  
anesthesia ventilator”**

Dr. Anne Westerlind

# Flow-i

– The only choice for high-risk patients

There are two Swedish hospitals (Lund University Hospital and Sahlgrenska University Hospital) with cardiothoracic centers where heart and lung transplants are carried out. Both of these centers have chosen the Flow-i

anesthesia machine to ventilate their high-risk patients. This is an account of how one of these centers made the decision to choose Flow-i and how they view that decision today.



Sahlgrenska University Hospital resides in Gothenburg. Photographer - Marie Ullnert



One of the operating rooms at Sahlgrenska University Hospital

## Background

Sahlgrenska University Hospital (SUS) aims to provide the highest level of medical care, research, development and training to enhance quality of life in the Västra Götaland region. The University Hospital has 2100 beds that are distributed between 140 departments. Patients from all over Sweden are treated at the hospital where there are experts within 25 specialist fields – one of which is cardiothoracic surgery.

SUS is one of two Swedish hospitals specializing in heart and lung transplants and approximately 40 lung transplants are performed each year. Most of these cases do not require a heart-lung machine.

The department of Cardiothoracic Anesthesia comprises of 8 ORs (Operating Rooms), including a Hybrid OR and a PCI lab (Percutaneous Coronary Intervention), as well as 18 beds in the ICU (Intensive Care Unit).

Instrumental in the choice of Flow-i for the department were the enthusiastic duo of Dr. Anne Westerlind, MD, PhD, associate professor and Jan-Olof Berglund, CRNA (Certified Registered Nurse Anesthetist).

### The hospital in numbers

140 departments  
2100 beds  
16000 employees  
3 hospital sites:  
Sahlgrenska, Östra  
and Mölndal

[www.sahlgrenskaic.com](http://www.sahlgrenskaic.com)



# Meeting the high demands made on medical equipment

During anesthesia, patients undergoing thoracic surgery are normally considered to belong to the high-risk category, especially those who need lung transplants.

Today, according to Dr. Anne Westerlind, lung transplants are often performed without using a heart-lung machine. Moreover, these patients suffer from severe pulmonary diseases. During surgery they are positioned laterally so that they lie on their remaining lung, which is often damaged as well. This means that a high performance ventilator is critical.

## Discovering Flow-i

The Cardiothoracic Anesthesiology Department had been using the Servo 900 for over 20 years, when in 2004 they were forced to replace their units. A general purchase order was issued aimed at meeting the regional requirements for low flow anesthesia. The new anesthesia machines did perform low flow anesthesia, but did not however measure up to the previously determined requirements regarding ventilation performance.

This meant that the anesthesiologist or nurse anaesthetist was forced either to ventilate the patient manually or to bring the Servo 900 out of storage!

When this situation was no longer maintainable, Dr. Anne Westerlind and CRNA Jan-Olov Berglund started searching for a high-performance anesthesia machine. They had heard about a new venture at the Servo-i factory which involved anesthesia, so the duo happily accepted the invitation to take part in one of the last user validations of Flow-i prior to its release for purchase.

CRNA Jan-Olov Berglund stated "the technical capacity is very similar to an ICU ventilator, and it is as powerful".

Dr. Anne Westerlind left the test site that day saying, "I want the first Flow-i". Once back in Gothenburg, the pair cited "medical reasons" and managed to obtain a new and separate purchase order and soon an approval to purchase two Flow-i's was in place. The decision to purchase two Flow-i's was so that their demands for high-quality anesthesia would be met, while the second system would help to build up the staff's confidence by providing them with more opportunities to use Flow-i. One system was placed in the cardiac OR and the other in the pulmonary OR, the two most demanding ORs at SUS.



# Flow-i today

“Easy to understand  
and powerful”

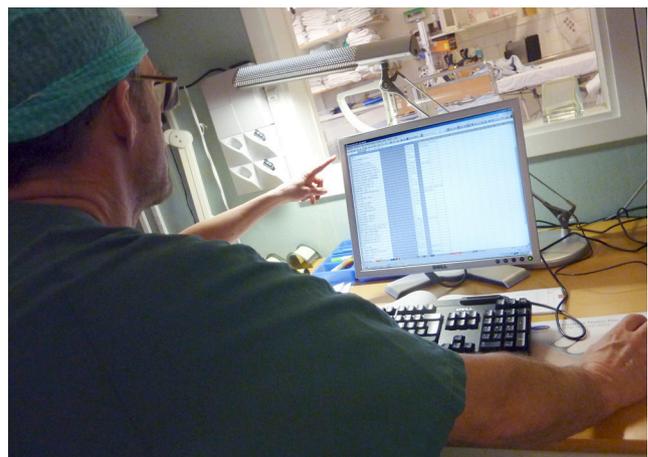
CRNA Jan-Olov Berglund

One year has passed since Dr. Anne Westerlind and CRNA Jan-Olov Berglund and staff started using Flow-i in their department and today they can confirm that all of their major demands have been met.

Dr. Anne Westerlind is very satisfied that Flow-i has lived up to her expectations in regards to its capacity to deliver high pressures when needed.

Another successful feature is that the Flow-i compensates for leakages without interrupting ventilation, a necessity when lung surgery patients can experience leaks of 5–6 liters and lung transplant patients have forced open pneumothorax.

The fact that the Volume reflector is oxygen driven is yet another advantage which reduces the risk of hypoxia for the patient, according to Dr. Anne Westerlind and CRNA Jan-Olov Berglund. CRNA Berglund also appreciates the ease and simplicity with which oxygen is manually adjusted to a level appropriate for the patient.





Dr. Anne Westerlind has represented SFTAI (Swedish Association of Cardiothoracic Anaesthesia and Intensive Care) and EACTA (European Association for Cardiothoracic Anesthesia) and was the head of the Cardiothoracic operation room at the Department of Cardiothoracic Anesthesia and Intensive Care at SUS when Flow-i was chosen and purchased.

Moreover, according to CRNA Jan-Olov Berglund, surgeons have commented on how satisfied they are that the Flow-i is able to accurately present leakage amounts. Dr. Anne Westerlind adds that the loop functionality is a very helpful and useful tool that is easily accessible via the user interface.

With 50 different types of medical equipment that the anesthetists and anesthesiologists are required to master, it is essential that equipment is intuitive. Both Dr. Anne Westerlind and CRNA Jan-Olov Berglund are very satisfied with this aspect of Flow-i.

As far as Flow-i goes, Dr. Anne Westerlind concludes:

“There is no other anesthesia ventilator”



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**Manufacturer** · Maquet Critical Care AB · Röntgenvägen 2 SE-171 54 Solna · Sweden · +46 (0)10 335 73 00

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