

## Less sedation, more spontaneous breathing

### Interview with Dr. Rolf Ensner, Cantonal Hospital, Aarau

*The surgical ICU of the Cantonal Hospital in Aarau is a modern ICU following the trend of reducing sedation and promoting spontaneous breathing. They found that ASV fits their strategy perfectly.*

Q: Dr. Ensner, why did you start evaluating new ventilators?

A: Our Evitas were getting old. We were also looking for a ventilator that would support our philosophy of minimizing sedation and promoting spontaneous breathing as early as possible.

#### "ASV really made the difference"

Q: How did you go about selecting a new ventilator fleet for your ICU?

A: We had been satisfied with the Evita ventilators we had previously used. So initially we thought – as many of our colleagues do – about staying with the same manufacturer. However, since 19 ventilators is a big investment, we decided to go through a proper evaluation project. We tested top-end and mid-range ventilators – the latter for transport – from Dräger, MAQUET, VIASYS, and HAMILTON MEDICAL. All ventilators were good products and had their strengths.

Q: Why did you choose HAMILTON MEDICAL ventilators, then?

A: For us physicians, ASV really made the difference. Every ventilator has a lot of modes, which don't really differ that much, but ASV is different. To be honest, I, too, used to think that ASV was just another mode.

#### "We came to see the vision behind ASV: mechanical ventilation that adapts to the patient automatically"

Q: Did you have concerns about ASV?

A: In the beginning, I thought ASV was a dubious algorithm that even makes decisions about tidal volumes. That's kind of hard to understand when you've been taught that tidal volume is something the clinician sets. However, by learning more about ASV, we came to see the vision behind ASV: it is mechanical ventilation that adapts to the patient automatically.

We saw a real benefit for us, because ASV promotes spontaneous breathing right from the start of ventilation. Our patients often begin to breathe spontaneously very early. Thanks to ASV, the clinician does not need to decide when to change to the spontane-



Dr. Rolf Ensner (right) and Christoph Schröder (left).

The Cantonal Hospital of Aarau, Switzerland, has 29 care centers and around 2000 clinical staff.

The surgical ICU of the hospital has 16 beds. Since 2005, 16 GALILEO ventilators have been installed to replace Evita ventilators. Three RAPHAEL ventilators are used for transport of patients within the hospital. The ICU cares for various types of patient with a focus on neuro-surgical patients. Yearly ventilation days are now at around 1800 days – 5 years ago they were at 2800.

Dr. Rolf Ensner (right) is Head Physician; Christoph Schröder (left), Unit Manager.

ous mode and whether SIMV or BIPAP frequencies must be reduced.

However, we probably wouldn't have bought the GALILEOs without the positive feedback we received from other users.

Q: What about the nursing staff?

A: In our ICU, 90% of the actual work on the ventilator is done by the nurses. So they were involved in the decision making process, too. At the beginning,

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the nurses were not in favor of ASV, since it was a completely different concept — a mode that makes some adjustments without interaction by the clinician.

## "After only a few weeks, we used ASV as our main mode of ventilation"

Q: How difficult was it to switch from your previous ventilators to the new fleet?

A: Actually, it went very smoothly. First, our instructors were trained by HAMILTON MEDICAL. Then our own instructors trained our clinical staff. This was very important for the successful start.

In the beginning, we left it open to our staff to use the conventional modes. However, after only a few weeks we were using ASV as our main mode of ventilation.

## "We use ASV on 90% of our patients"

Q: On what type of patients do you use ASV?

A: We use ASV on 90% of our patients with very good success. I found quite a few users of HAMILTON MEDICAL ventilators telling me that ASV only works in patients with normal lungs. We did not find this to be true. We use ASV on patients with normal lungs, COPD, or ARDS.

The prevention of autoPEEP in ASV is particularly useful for COPD patients, but also for neuro-intensive care patients, where high minute volumes (e.g., 10 to 14 l/min) are often necessary to maintain normal PaCO<sub>2</sub> levels. With conventional modes it is often difficult to find a combination of Vt and f that prevents autoPEEP and excessive Vt at the same time.

## "ASV matches the breathing pattern of spontaneously breathing patients."

Q: How helpful is ASV in promoting spontaneous breathing?

A: We often observe that the breathing pattern

chosen by ASV matches the pattern of a spontaneously breathing patient. Most likely due to the physiological breathing pattern of ASV, controlled ventilation is also tolerated very well with less sedation required. We hardly ever see patients anymore who fight the ventilator.

With our neuro-intensive care patients, it is critical to maintain normal PaCO<sub>2</sub> levels. Now more than ever before we can let these patients breathe partially spontaneously, because we never have to worry about hypoventilation. There are fewer alarms at night while patients are asleep because apnea episodes are avoided.

## "We spend less time discussing ventilator settings now"

A: Has ASV changed your style of work?

Q: Yes, we talk much less about ventilation and spend less time discussing ventilator settings now. Before, this often used up time during the ward round in the morning. We also find the ASV target graphics screen interesting, because it gives a visual representation of the patient's lung mechanics.

A: How do you rate the safety of ASV?

Q: In my view ASV is safer than the conventional modes, because there are far fewer controls that can be set incorrectly. Also, ASV continuously adapts to the patient.

Q: Do you use the P/V Tool to set PEEP?

A: We have developed an algorithm for setting PEEP based on a decelerating PEEP trial and it has proven to work very well. In difficult patients or when we are unsure, we cross-check our settings using the P/V Tool. It often gives us the PEEP we already had set according to our algorithm.

A: Where do you see the limitations of ASV?

Q: Patients sometimes tend to become "lazy" on ASV, so we switch to SPONT in such cases to force spontaneous breathing. ASV really works for almost all patients.

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