



“At least HALF of my stable ICU patients could benefit from closed-loop ventilation!”

“Having AVM, a closed-looped modality, automatically adjust changes in the patient’s condition is like adding a full-time assistant to sit, watch, and adjust 24/7.”

– **Yuh-Chin Tony Huang, MD**

*Professor of Medicine,
Researcher, 134 peer-reviewed studies
Duke University School of Medicine*

Interviewer: Why are you so enthusiastic about closed-looped adaptive ventilation mode (AVM)?

Dr. Huang: We studied outcomes between patients recovering from acute respiratory failure using closed-loop versus traditional ventilation. Closed loop identified one in four traditionally ventilated patients were ready for extubation trials – but the physician didn’t know it!



“We found 25% of patients recovering from respiratory failure could be extubated faster using closed-loop ventilation like AVM.”

– **Tony Huang, MD**

Interviewer: One in four?!

Dr. Huang: Absolutely – this was especially critical when we got hit with so many COVID patients. There were way more patients than available ventilators, so equipment turnover was vital.

Interviewer: You mentioned COVID. Did you have a huge strain on resources?

Dr. Huang: It was unprecedented. We had patients needing frequent ventilator management but we had so many COVID patients to manage. So it’s very helpful when the closed-loop mode lowers the frequency of manual vent setting changes.

Interviewer: How do you see AVM?

Dr. Huang: AVM is like an assistant tapping the physician’s shoulder saying the lung has recovered and it’s time to extubate. Do you realize how valuable that is for both overworked medical staff and patient?

“Imagine how, at COVID’s peak, a closed-loop ventilation like AVM could have helped patients come off the ventilator sooner – and – decrease exposure risk for the medical staff.”

Interviewer: When is AVM an option?

Dr. Huang: It depends on the patient population, of course. Many acutely ill patients in our understaffed ICUs could benefit from a closed-loop setting like AVM. In chronic ventilator units, it could probably be used in *almost all* the patients.



The bellavista™ 1000 ventilator uses both noninvasive and invasive ventilation for neonatal to adult populations.

Interviewer: The closed-loop modality isn't used nearly as often as that. Why?

Dr. Huang: Many respiratory therapists (RTs) and physicians don't know about this technology. They weren't taught it in medical school. They need to know about – and be open – to it.

Interviewer: You say, "and be open to it." Do some resist?

Dr. Huang: Those who don't know how it works are uncomfortable taking recommendations from a machine.

That's why I'm an educator. Closed-loop is important! When caregivers understand how it works and what the benefits are, I'm confident they'll consider – and use – it more often.

"AVM is like an assistant tapping the physician's shoulder saying the lung has recovered and it's time to extubate.

Do you realize how valuable that is for both overworked staff and patients?!

Interviewer: Is this modality easy to learn?



Dr. Huang: Yes! You don't prescribe respiratory rate and tidal volume. Simply enter the minimal minute ventilation you want, and the ventilator does it for you.

Closed-loop ventilation can tell you when a patient's lung mechanics change. It also adjusts the tidal volume and respiratory rate to automatically accommodate the changes.

ICUs with fewer RTs may benefit most. Sometimes, we hear about one RT needing to cover several ICUs – even when the ICUs are on different floors!

Simply put, AVM helps you manage more patients – and manage them more efficiently.

"In post-cardiac surgery, a closed-loop mode could decrease ventilator time by 4-8 hours! That can open a bed overnight for another patient. From a bed control standpoint, the impact can be huge.

Interviewer: Anything else to add?

Dr. Huang: Yes, about the economics. The benefit comes from turning beds faster: You can serve more patients and generate more revenue. It is not, in any way, meant to reduce the number of RTs at your facility. I just wanted to get that out there.

Interviewer: Yes, I understand. That makes absolute sense. Thanks again, Dr. Huang.

"Here's the bottom line: You'll likely get eligible patients off vent sooner.

I urge you: Learn how closed-loop works on the patient, and how it improves outcomes AND economics. Use it for your stable ICU patients."

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