INTERVIEW

IWAN VAN DER HORST AND BAS VAN BUSSEL

“We want to get every detail right”

With its creative and thorough approach, the Data & Monitoring group of the Intensive Care Unit (ICU) not only manages good papers to be published, but also attracts young research talents. And secretly, they feel the latter is more important than the former.
Iwan van der Horst and Bas van Bussel talk about this new CARIM group, which they jointly lead with great enthusiasm.

They both work at Maastricht UMC+ as intensivists, while Iwan is also a cardiologist and Bas is an internal medicine specialist. The initial impetus for this PI group, which is formally led by Iwan, but in practice by the two of them, was the COVID pandemic. It was during this hectic period at the ICU that they started an observational study. A key characteristic of this first study, as well as of their ongoing work, is that they do not like cutting corners to get quick results. “We were more like a diesel train”, says Bas. “We started by very thoroughly and neatly categorising four hundred ICU patients, based on daily monitoring. If you design that smartly, other researchers can then join in to address a wide range of questions. If the pie is big enough, there’s a piece for everyone. For example, we cooperated with a number of radiologists in writing a publication about the impact of atherosclerosis on COVID patients admitted to the ICU. Our study design enabled us to reveal such interrelationships by thinking: what is unique and how can I learn things? This one cohort alone yielded about fifty papers.”

Not one clinical picture

That became the start of the current research group. They do not focus on one clinical picture only, but use a study design that allows them to address many different research questions. Iwan: “Most patients do not have just one disease, but several, and we study this complexity as it develops over time in the ICU population. We unravel patients with a focus on the heart and blood vessels.” Bas confirms: “We have long since stopped dealing with ‘singular diseases’, as that’s not where the future lies. I think it lies in multimorbidity. While you can focus completely on your own little piece of the puzzle, which is very important for a particular disease, the question is whether that fits in with suitable care for everyone in the future. I’m not saying that everyone should work the way we do, but I do think we have some added value to offer to CARIM.” Iwan: “You can take an in-depth approach, but we’ve specialised in designing and conducting more generalist, broad-based research, yielding high-quality databases to which you can then link many research questions.”

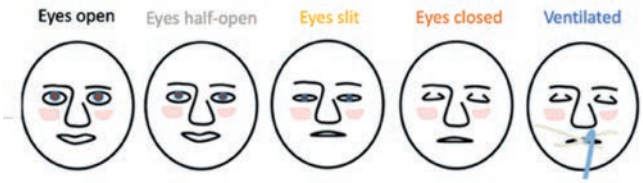
Using the same approach, the group compiled a database of patients admitted to the Maastricht ICU from 2023 onwards. Iwan: “You can use that to pose innumerable questions. For instance, it includes 37,000 ECGs of patients with inflammation. What are the coagulation factors like in this population? We ensure that the data are categorised really neatly and reliably, and we keep a close eye on the literature: what is really new? What questions have not yet been asked? That has helped us a lot in recent years.”

Expanding partnerships

At the same time, the group is carefully checking the different motivations of collaborative partners. Bas: “A young person who wants to earn a PhD benefits as the first author in a paper, while young specialists prefer to be listed last, so they can show they can supervise a scientific project which help them develop their career. Another collaborator may want to use a paper to achieve political ends, or to secure a grant. If you ask potential partners to explain their goals beforehand, you can often find a good basis for effective partnerships. Methodology is our business, while others are more interested in getting answers to their questions, so together we can engage in interesting research. That’s how we would like to expand collaboration within CARIM.”

What they are noticing is that young researchers and students are attracted by their research climate. Iwan: “They can do a lot of things with AI and other tricks, but they come to us because they’re interested in how we manage the

playing field and guard the limits of thorough scientific research. They like that and it yields nice results." For example, he designed a study that linked an ICU patient's facial expression with their degree of dysfunction of their inner organs. "I drew a series of pictures of eggs, showing eyes ranging from open to close in a number of steps, and with different intensities of the blushes on the cheeks. We then asked students to choose the image that they thought corresponded best with the ICU patient in the bed. When analysing this, it turns out that the face predicts the state of the organs." Bas: "So it's like a mother who looks at her child and says: 'You're not very well today.' This works exactly the same at the ICU. Many people have been saying this before, but we've now shown evidence."



Original question

Or take the study they undertook together with four medical students during COVID. They determined how many of the COVID publications in the PubMed database mentioned whether the authors had asked for informed consent, whether they had followed METC protocols, and suchlike. Bas: "We managed to get the article published in the *British Medical Journal Global Health*, with the four students as first authors. Because the research question was original and the study had been super-carefully designed."
Iwan: "We gather data with a lot of people, tidy it up, make it accessible and create a community. That appeals to young researchers, especially if you then also take the whole group along to a European conference of ICU physicians in Milan. Our group had the largest number of young people."
Each year, the group manages to get published a few times in one of the top five journals on epidemiology and ICU medicine, and the young researchers keep coming back. And this last aspect is what they think is really the most important. Bas: "Publications are important, but training new researchers will yield a larger critical mass. So we invest in people, preferably as diverse as possible. ICU nurses and laboratory staff also join in and are therefore listed in our papers as researchers, next to the PhD candidates and other researchers. This diversity strengthens your research."

Human ICU

In addition to the enjoyment of doing good research together, training young people and sharing results in publications, the group would also like to change the healthcare system. One example of such a project is the 'HumanIC'. Its aim: getting to know the person behind the ICU patient better. Who is this person, who is being subjected to so much technology and examinations in this bed? Bas: "What do they want in life? What is their profession, and what is important to them? What was their quality of life like before and what will it be like afterwards? Because we subject people to all kinds of procedures to make them better, but is that always desirable from the patient's perspective? We are carrying out this project together with the care providers, which also improves care. This way we try to create a circle of research that actually works for the care system. As a researcher, you are part of the system, you join in, your input matters; that's how you create synergy."