



„EVERY PATIENT IS UNIQUE.“

Michael Wilkening, Head of the Customer Area Operating Room at Dräger, talks about how today's anaesthesia machines were developed, what they are, and about future trends.

Dräger is involved in a third of operations around the world. What does this mean exactly?

According to the WHO, there are 400,000 operating rooms worldwide. If you look at the sales figures over the past few years and consider the above-average service life of our products, we can assume that a Dräger anaesthesia machine is used for one in every three operations worldwide.

How did the Lübeck manufacturer of the historic Roth-Dräger anaesthesia machine develop into an expert for anaesthesia?

There are many reasons for this success: First of all, thanks to its proximity to its customers, Dräger has always understood what anaesthesia was all about. Patient safety is the main driver in this respect. Their development of anaesthesia machines was fairly evolutionary over the first few decades. But the introduction of electronics in the ,70s suddenly provided completely new opportunities. In addition to the anaesthesia machine, many other individual devices were introduced to monitor respiration, the anesthetic gas dose, and the patient's vital parameters. But all of this technology made the workstation confusing. This induced engineers to start developing a fully integrated anaesthesia system that combined all the monitoring functions. The introduction of Cicero at the World Congress in Washington was the second technical revolution in anaesthesia technology since the Dräger-Roth machine. The aim was to combine the operation and monitoring and ensure that the workstation was designed clearly and was easy to operate. This has since been the inspiration for all new developments.

What has changed over the years?

Until the ,90s, the technology determined the equipment and shape of the anaesthesia systems. Electronic and pneumatic components required a lot of space and the design of the products had to adjust to the technical requirements. We have abandoned this principle since the Dräger Julian in 1996. This was the first time that the technology had to fit the design. Easy to clean, compact, and a minimum number of control elements were the requirements that

led to the unique design. The focus on design was one of the keys to the success of the subsequent machine generations.

What do you believe is especially important for anaesthesia workstations?



New technical solutions for clinical applications are constantly being added to the anaesthesia workstation. These can't be allowed to overload the workstation. Integration and user-friendly design continue to be the main challenges when developing new workstation concepts. And ultimately, anesthesiologists also need to feel comfortable at work if they are spending a large part of their day in the operating room.

Why should people switch to Dräger?

First of all, Dräger stands for innovation. Our market leadership in anaesthesia is based on close cooperation between our engineers and the people who use our products, which has been the case since the company was founded. Technical innovations are only successful if they also address the challenges faced by the user. And secondly, our anaesthesia workstations, like all Dräger products, have always stood for the highest quality and will continue to do so in the future.

What does an anesthesiologist need to pay particular attention to?

The primary challenge lies in drawing the right conclusions from the vast amount of data and information. This is not always easy given the number of figures and charts available. These days, anaesthesia involves the combination of various drugs and the change in the vital parameters only allows conclusions to be drawn about the patient status when these are considered in combination. Every patient is unique and may respond completely differently to doses of different drugs or to the surgical procedure. So the risk assessment needs to take the overall treatment into account, from the medical history through to the patient discharge, in order to prevent post-operative complications.

What do you believe will be the most important issues in operating rooms in the next five years?

I can see three topics impacting the operating market: Firstly, surgery is currently a hospital's most important economic factor in developed markets. The constantly increasing cost and time pressure mean that the efficiency of operations is extremely important, without compromising quality and patient safety.

Secondly, the use of imaging procedures, such as magnetic resonance imaging, CT scans and angiography, in so-called hybrid operating rooms, have revolutionized surgery in the past 15 years. At the same time, minimally invasive surgery is becoming more sophisticated and effective. As a result, equipment costs for an operating room have tripled in the past ten years and these costs have to be made up for by increased effectiveness and efficiency.

However, the greatest global challenge today is the prevention of infections. Hygiene requirements will also become a key factor in defining hospital processes. As a manufacturer of medical devices, we have to adapt to the constantly changing national hygiene regulations. This has a direct impact on the design of the devices and the accessories and once again requires innovative solutions.

Do international differences exist?

Yes, of course. Access to acute medical care is not yet assured for the majority of the world's population. Even the most basic equipment, such as a pulse oximeter, can still only be found in less than half of all operating rooms in Africa. The differences are not in the requirements, but more in the financial opportunities.



Developing countries require completely different innovations, namely reliable basic functionality at low costs. And the development of these products also requires the kind of thinking displayed by Heinrich and Bernhard Dräger 125 years ago.