

EMERGENCY MEDICINE

**A ROLE FOR POINT-OF-CARE ULTRASOUND
IN EMERGENCY RESCUE**

A discussion with:

Dr. Torsten Müller

Medical head of rescue services for the city and borough of Kassel in Germany

Point-of-care ultrasound is increasingly becoming a key technique used by emergency services personnel around the world, including in Germany, where more and more ambulances and emergency doctor vehicles are now being equipped with point-of-care instruments. Torsten Müller, the medical head of rescue services for the city and borough of Kassel, explains why ultrasound systems are so important to emergency doctors in his organisation.

The emergency services organisation for the Hessen city and borough of Kassel serves a population of over 435,000, responding to and attending emergencies across an area covering over 1,300 square kilometres. Torsten Müller, the medical head of the service, is responsible for many aspects of pre-hospital care, from organising emergency calls and setting medical protocols, to equipping vehicles with kit and medication, handling complaints and quality control. He also spends 40 per cent of his time as a consultant anaesthetist at the Klinikum Kassel, the major hospital in the city.

The service currently runs 65 ambulances and a helicopter, as well as six emergency doctors' cars that have recently been equipped with FUJIFILM SonoSite iViz point-of-care ultrasound systems. Dr. Müller explained: "We follow national guidelines that recommend whether emergencies require the attendance of a doctor – such as heart attacks, resuscitations and severe road traffic accidents – or can be handled by the paramedic teams alone. At the start of 2017, we decided to equip the entire fleet of emergency doctor cars with point-of-care ultrasound systems after trialling one for a few months."



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Dr. Müller went on to describe the circumstances where ultrasound has been most helpful: "In principle, you can use ultrasound for almost every patient, to get a quick overview of their status. We frequently conduct FAST examinations at road traffic accidents, scanning the abdomen to check if there is free fluid or any internal bleeding. However, cardiac ultrasound is also a very important application for us; many patients have general medical complications, for example cardiovascular disease, and ultrasound is very helpful to get an overall picture. We can check basic cardiac function and valves – a detailed examination, as a cardiologist would perform, is not necessary in the emergency setting – as well as assess the lungs, and look specifically for pneumothorax, atelectasis, pulmonary oedema or pleural effusion."

The requirements of an ultrasound system in an emergency setting are very different from those of large, cart-based systems in hospital radiology departments, as Dr. Müller explained: “We cannot drag an examination trolley around; we need systems that are small, portable and fit into holdalls or backpacks. They must also start up quickly – we don’t have time to wait for five minutes like we do for the machines in the hospital – be simple and user friendly, and robust enough to survive being knocked or dropped occasionally without breaking. These are the basic requirements, and on top of that they must have transducers suitable for the scans that are important to us – heart, lung, abdomen, etc. The iViz fits these criteria exactly.”

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Most of the emergency doctors working for the Kassel rescue service are anaesthetists who also work in hospital departments and some, but not all, use ultrasound every day. Dr. Müller added: “Ultrasound is a technique that initially requires a bit of practice but, by scanning every patient you see, you can quickly build on your experience. Some of my colleagues are still learning, attending courses to get

familiar with the technique and its advantages but, because I am more familiar with ultrasound, I can already see other situations where it may help us in the future. For example, anaesthetists regularly use ultrasound to guide regional anaesthesia for upper limb blocks, and I can imagine how this technique could replace intravenous pain relief in an emergency setting, such as selectively numbing the nerve supply to reset a dislocated shoulder. It is very easy to see all the affected nerves and vessels with the iViz system.”



Dr. Müller concluded: “I am convinced that using point-of-care ultrasound will be a success in our service; in 10 years’ time, I truly expect all emergency medical cars to have systems like this on board because the information it gives is so significant – nobody will want to miss out.”



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