

## High Treatment Quality in the Emergency Room

Asklepios Clinic Hamburg-Altona Relies on Ultrasound Technology from ZONARE for its Central Emergency Ward

The interdisciplinary emergency ward at the Asklepios Clinic Hamburg-Altona, a full-service hospital, is open 24 hours a day to all emergency patients. Each year, around 47,000 cases receive immediate medical attention based on a customized treatment concept, due to the fact that the emergency ward has access to consistent, well-defined treatment paths. To ensure high quality treatment, an experienced physician is always present or at least available on extremely short notice.

The number of interdisciplinary emergency admissions in Germany has increased steadily in recent years and this trend continues due to the fact that, particularly during the initial phase of a medical emergency, it cannot always be assigned to a specific discipline. Discomforts are often unclear or even affect several organ systems. Besides, providing access to one single, clearly defined point of contact for all medical emergencies is of great benefit to patients, family members and rescue services.

### How the Interdisciplinary Emergency Ward Works

Special procedures apply for an interdisciplinary emergency ward. For instance, all of the doctors who work here treat every type of illness or injury; therefore general medical skills represent a key success factor. "In the age of the DRGs, a well-organized interdisciplinary emergency ward with a high level of skill in treating emergencies is of growing importance to every hospital, because interdisciplinary emergency wards influence the use of resources in a hospital positively. Rational and efficient diagnostics and treatment in the interdisciplinary emergency ward reduces the length of a patient's stay at the hospital. In the same manner, this helps to ensure that patients are not assigned to the wrong departments," reports Dr. med. Barbara Hogan, who has been serving as the chief physician at the emergency ward at the Asklepios Clinic Hamburg-Altona since 2006.

### Quick and Exact Diagnostics

Ultrasound in particular takes on immense importance because it allows for a quick and exact assessment to be made with numerous medical issues. "Patients come to us with a wide variety of different symptoms that need to be clarified quickly sonographically. As an emergency ward that needs to treat many of these cases in rooms that are often rather small, we were in need of an ultrasound system that was extremely compact and flexible, offered battery operation and yet still guaranteed high image quality," Hogan adds. In her opinion, professional, expert quality sonography is an absolute must for emergency wards in order to ensure high treatment quality, protect and satisfy patients, as well as the specialists from the various disciplines and family doctors, but also to conserve resources.

To begin with, Dr. Hogan took a much closer look at the systems available on the market that came into question. At the end, the Z.ONE system from ZONARE in Erlangen really convinced her. "We were positively surprised by the maneuverability and flexibility of this system with its workstation. In addition, there was the ease-of-use of the mobile unit, the so-called scan engine that you can actually hold in your left hand and simultaneously perform size measurements, for example, with your thumb. Being able to process images is also extremely important in my opinion and last, but not least, the incredibly high resolution of organs, most notably the intestines, of course," Dr. Hogan says.

### Zone Sonography Quite Convincing

This high image quality is achieved with a completely new imaging technology called Zone Sonography™. One major advantage is that images are formed very quickly by scanning entire zones and storing their raw data. This takes place much more quickly than with conventional ultrasound systems that only process echo data line-by-line. With the Z.ONE, the speed of signal processing is no longer limited by sound speed as in the past, but rather depends only on the speed of the processor. And due to the fact that the system is mainly software based, hardware no longer poses any limitations when it comes



Dr. med. Barbara Hogan, chief physician at the emergency ward at the Asklepios Clinic Hamburg-Altona, together with her Z.ONE system

to upgrades or further developments. Thanks to a newly-developed chip that is able to store raw data from an entire zone for the first time ever, unsatisfactory images can still be processed afterwards and the most important image parameters can be optimized.

## Self-explanatory Use

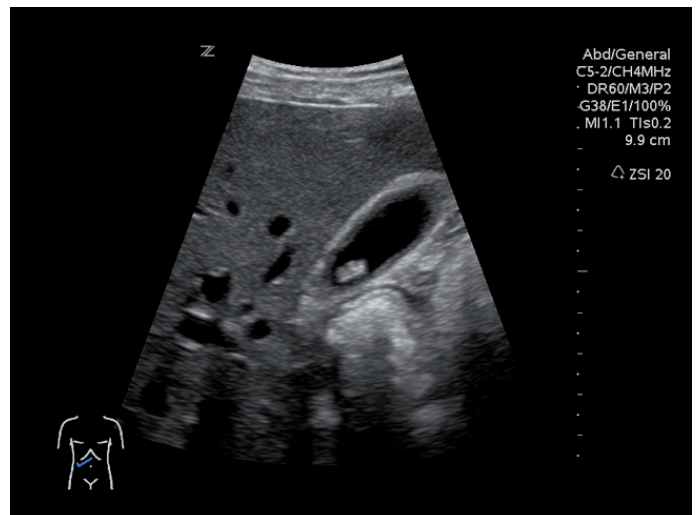
Due to the many doctors who work in the emergency ward, some of whom are only on short-term rotations, ease-of-use was an important prerequisite. "For this reason, it was very important for them to be able to become familiar with the system in only a short time and the user interface had to be self-explanatory. Unlike many other systems, this is the case with the Z.ONE," Dr. Hogan notes.

The Z.ONE has been in operation together with three transducers since February of 2008. "Particularly with unclear abdominal pains, one of the most common symptoms that patients come to us with, we are able to clarify rather quickly whether there is an appendicitis, a kidney stone or simply a case of constipation," Dr. Hogan explains. "Patients also complain of shortness of breath quite often. Here, we need to find out whether this is a case of pleural effusion or perhaps pneumothorax. The function of the heart can even be examined under resuscitation conditions," Dr. Hogan explains. Other key emergency medical questions that can be cleared up with the help of sonography include possible detachment of the retina in emergencies related to the eye, the issue of pericardial effusion or pump function with respect to the heart, the detection of free fluid in the abdomen, the diameter of the aorta, cholelithiasis or filling of the bladder and, with soft parts, clarification of whether there is an abscess, bleeding or perhaps a foreign object.

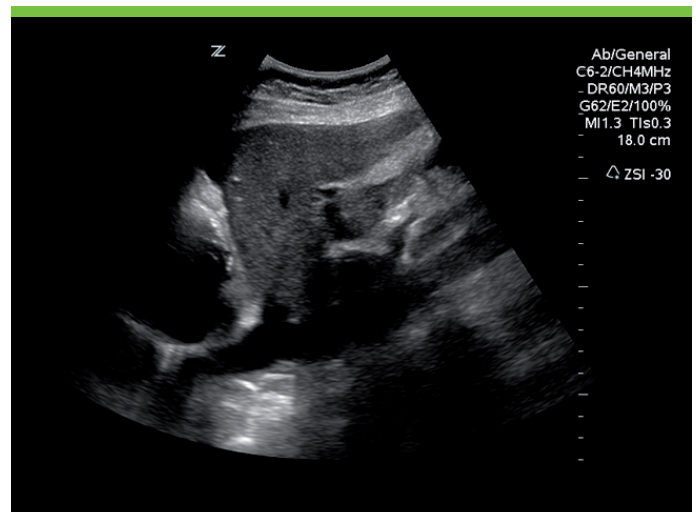
## More Efficient Organization of the Hospital

Dr. Hogan views the medical history of a patient who was referred by his physician to be a good example for the effective use of the Z.ONE. The patient's doctor suspected that he was suffering from a case of appendicitis although he did not exhibit the exact symptoms. A hidden perforated aortic aneurysm was then discovered during the ultrasound examination. The patient was immediately brought to the operating room, without any further diagnostic imaging. With patients who exhibit the typical symptoms of a renal colic, the system is also capable of detecting a stone quite quickly. "When you have a good system that is capable of delivering this level of resolution, you can provide the urologist who is treating this patient with exactly the right diagnosis and even share the exact findings with him, if necessary. There is no longer a need to perform additional radiological diagnostic procedures," Dr. Hogan is convinced.

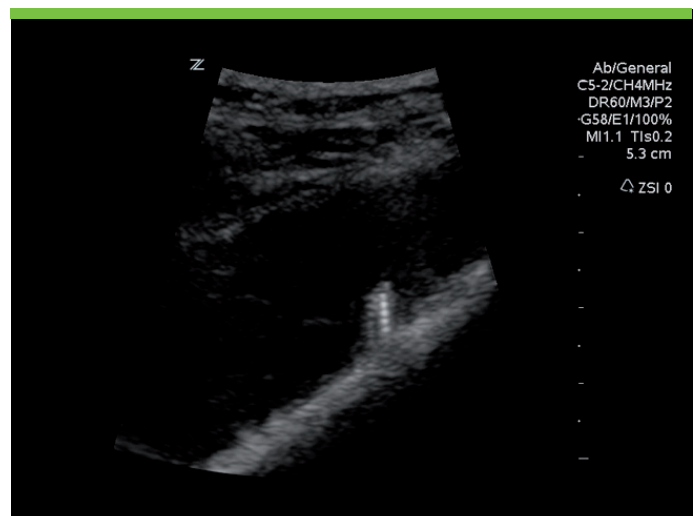
"The efficiency and the quality of diagnostics in the emergency room influences the entire treatment process of a patient during his stay at the hospital. In order to achieve this efficiency and quality, however, doctors require the appropriate know-how. A specialist in the emergency ward should be well-trained in sonography and have access to high-quality technology. Only then will it be possible to avoid unnecessary repeat examinations," Dr. Hogan concludes.



Gallstone\*



Ascites\*



Screw in the pelvis\*

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