



Medical rescuers received their new training centre

The training department of the Emergency Medical Services (ZZS) of South Moravia has been established in 2012 within the crisis preparedness section. At that time, the medical rescuers had one training room available only with no practical training facilities at all. Therefore, they had no choice but to occupy other rooms (like a laundry room or storage) provided by the Emergency Medical Services and try to practice dealing with emergencies to save lives. What is the situation today?

CUSTOMER



... o liděch a pro lidi ...

A car upside down off the road. A simulated accident that helps the rescuers to practice actual rescue actions in the field. Experience of the crew called to the accident is critical. Every rescuer is required to attend the periodical (annual) theoretical and practical training in the training centre of ZZS South Moravia.

"In early 2020 we have launched the new training centre of ZZS South Moravia in Brno - Bohunice. It is a unique project in terms of the scope, facilities as well as custom made sophisticated arrangement of the training facilities. We tried to adapt the design in order to be able to simulate everything that the rescuers and students may face in the field. Today, we can simulate any emergency situation from an injury in an industrial plant to transport to the hospital and many others," comments Jana Kubalova, Deputy Director for Crisis Preparedness and Training of the ZZS South Moravia.

The ground floor of the ZZS South Moravia training centre consists of a multi-purpose hall with a climbing wall where specific rescue actions of air rescuers can be simulated. During the training, the instructors have everything under control while supervising the team from a gallery providing them bird's-eye view. On the first floor, there are training classrooms for teams of about fifteen and the instructors have their offices on the second floor which accommodates also a fully equipped ambulance vehicle, a mock-up of a standard



There are about 300 call-outs daily, mostly for patients with internal disease, particularly cardiovascular diseases and brain disorders.



apartment as well as other realistic facilities.

Fire rescuers and police often assist as the so called "first responders" during resuscitation interventions. This is because they are present in distant towns and villages. They are capable of arriving to the site before the ambulance team. The fact that in many cases they are often the first to initiate resuscitation is only one of the reasons for providing them training in ZZS South Moravia.

The first responders are trained first aid providers called out by the medical operations centre of ZZS.

WHAT IS THE PROCEDURE OF THE TRAINING SIMULATION?

"Normally, two instructors assist the training simulation. They both observe the simulation from the control room. One of them is responsible for the technical set-up and support and the other drafts the scenario and the intervention procedure with all possible interactions and critical points that are assessed later. The assessment is based on two indicators. The first indicator is the subjective observation and behaviour of the intervention team. All steps of the entire team are recorded by the SimStation audio and video system. The second indicator is output from the simulators and other deployed technology. All outputs are immediately available for debriefing discussions for the team



retrospective and analysis of the procedure. They discuss what went well during the simulations, any areas for improvement and what should be done differently next time," Michal Jakubů, ZZS instructor, describes his experience.

- 1 Training classroom
- 2 Fully equipped ambulance vehicle
- 3 Instructor control room
- 4 Dummy data analysis
- 5 Instructor debriefing and assessment room
- 6 Student debriefing and retrospective room - simulation records



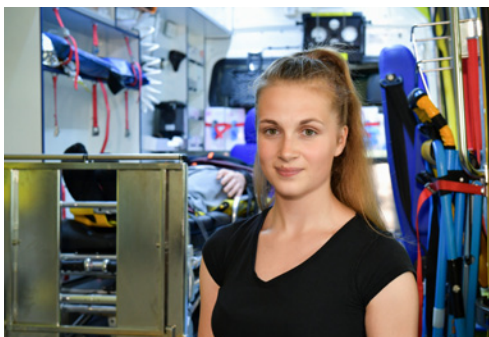
The more serious the scenario is, the bigger challenge it presents not only for the instructors but mainly for the rescuers and students. I am happy that we can get across other boundaries and manage serious health conditions of patients. Sometimes, only warm words and attention to the patient during the intervention make the difference.

Jana Kubalová
Deputy Director for the Crisis Preparedness and Training of ZZS South Moravia



The technologies deployed provide totally new opportunities. The fact that we create fully realistic environment is the best added value. When you bring people to a relatively natural environment, they will feel much more relaxed.

Michal Jakubů
Instructor, ZZS South Moravia



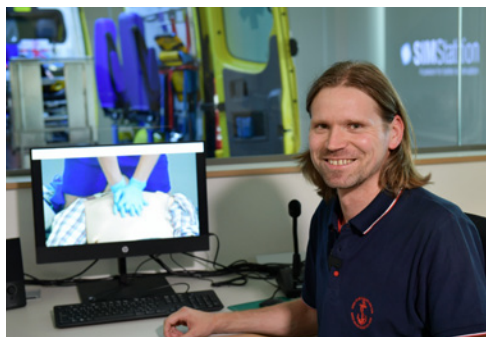
WHAT IS THE FIRST IMPRESSION OF A SIMULATION PARTICIPANT?

"For the first time ever, I had the opportunity to combine theory with practice and do things in real. In my point of view, this is a valuable experience, because I understand only now what the practice actually means. I learned lots of new information, but mainly I had an opportunity to apply everything in practice. My first impressions? It is not only about the experience already mentioned. The team work and interplay are also essential and we can assess this together. With the audio and video records available, we can watch all procedures and situations that we do not think about during the intervention," Martina Valentová (photo 1), student and future rescuer, concludes her thoughts.

"I personally learned a lot. In the future, I would prefer even more such practical simulations. In the school we focus on the theory a lot and we can transfer the theory to practice in the training centre," Martina Valentová adds.

UNIQUE SIMSTATION TECHNOLOGY

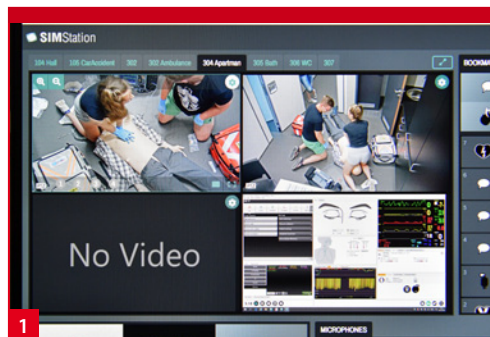
"The training centre of SZZ South Moravia uses specific sophisticated audio and video technology by SimStation designed for simulations. The training rooms are fitted with two or three HD camcorders that make records from different angles. There are ceiling-fitted microphones installed in the simulation areas to record the voice during the training session. Furthermore, each team member wears a headset microphone which is key for the debrief. The instructors also use speakers installed in the suspended ceiling and projectors to create the most realistic environment



in the rooms," describes Jan Krákora (photo 2), technical consultant and expert in SimStation solutions, AV MEDIA a.s.

COVID-19 AND FUTURE OF ZZS SOUTH MORAVIA

The training centre is busy during the Coronavirus crisis and emergency state. They established on-line courses and use videoconferences. At the end of May, an on-line conference was held as a replacement for the Brno Days of Emergency Medicine. All distant participants and representatives from across the Czech Republic had the opportunity to get involved. "The new simulation facilities in the University Hospital of Masaryk University will be completed at the end of 2020. This will result in close linking of ZZS South Moravia and the University Hospital and the simulations will be extended by new scenarios for medical disciplines. Both projects have been implemented by AV MEDIA and the solution has been designed in cooperation with SimStation that meet the highest user requirements," concludes Viktor Gyönyör, sales consultant, AV MEDIA a.s.

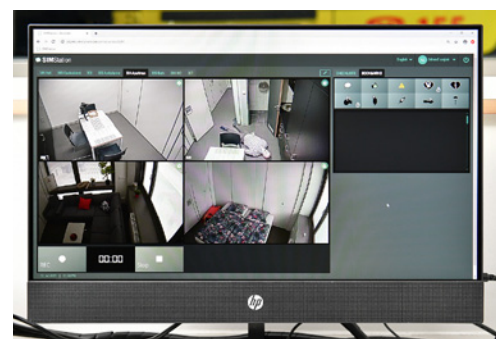


HOW IT WORKS

Top quality simulations are based on a detail description of the intervention, setup of the technology and role assignment in the team. Modern technologies are essential for successful simulation.

- 1 On-line audio and video with recording capabilities
- 2 Control panel - set-up of the simulation room
- 3 Headset microphones for each participant
- 4 Projector and simulation of natural environment

Overview of audio visual technologies:



The system for simulations was created on the basis of installed AV technology and the SimStation simulation system. The whole system can be used in 13 teaching spaces, in which simulated teaching takes place. The server background is located in the fourteenth room in the so-called technology room.

Individual teaching rooms are equipped with AV technology. From the point of view of simulations, these are primarily image capture systems (fixed or rotating AXIS cameras), sound (microphone systems, represented by surround microphones and digital wireless microphone sets AKG Harman Pro) and sound processing systems (digital sound matrices Biamp). The rooms are equipped with computer technology, which ensures the operation of simulation software. These technological units are complemented by imaging, sound, distribution and control technology.

The central license of the SimStation Enterprise simulation software runs on two powerful DELL servers, the PowerEdge R440 and the PowerEdge R540 (with 16TB of storage). Two SimStation Enterprise licenses for controlling and recording simulations for up to 10 cameras run on the supplied high-performance AIO PCs. Other parts of the simulation software are 3 SimStation Enterprise software licenses for playing content from the simulation system on one PC and two SimStation Debriefing licenses.

The equipment includes 2 Epiphan encoders for adding third-party video channels to the simulation system. In this way, for example, SIMStation and XVR simulation systems can be integrated, and are most commonly used to integrate patient simulators and patient monitors. monitor).

Overall, it is a comprehensive on-premise solution with local storage. It works as a "subsystem" independent of the world around you (no online connectivity required).

The individual elements communicate using encrypted protocols - SSL and HTTPS, which guarantees maximum security in LAN and WLAN.

The entire simulation and debriefing process is controlled from the user's point of view by the "high UX" web base user interface SIMStation Enterprise. Including automatic routing and mixing of all audio and video channels during simulation, live streaming and debriefing. It put emphasis on User Xperience.



Installation time: April 2020

Location: Brno, Czech Republic

Customer: Medical Rescue Service of the South Moravian

Integrator:

AV MEDIA, a.s.

Consultant/ Project Manager:

– Viktor Gyönyör, sales consultants

– Jan Krákora, project manager

Price of the AV integration: 7 mil. CZK

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