NEW IT SYSTEMS MEAN BETTER EMERGENCY CARE

"Quality! There has been a quality improvement in so many aspects of the emergency care system as a result of this!"
This is the way Leif Gustafsson of the Centre for Teaching and Research in Disaster Medicine and Traumatology in Linköping sums up the advantages of the IT support system which the pre-hospital care services in Linköping, Sweden, have been using for the past four years.

Thomas Larsson and Niklas Jonasson with a handheld computer of the type they can use both on and away from the ambulance.

The Östergötland Ambulance Service is right at the forefront in Sweden through its use of smart IT systems to give emergency care personnel better control and response capabilities on emergency callouts.

"It all began four or five years ago, when we decided to invest in IT support systems for the ambulance service," says Leif Gustafsson.

There were numerous constraints and demands that had to be met.

- One was that the IT support system developed had to be completely in line with the methods used locally for pre-hospital command & control and their pre-hospital trauma life support system.
- Another was that the system would have to be web-based.

The result has been an ongoing and very successful collaboration between the company Saab Performit AB and the Disaster Medicine and Traumatology Centre in Linköping. The system has evolved into a complete tool with applications extending throughout the pre-hospital care process.

This is how it works:

Each ambulance carries both a fixed vehicle computer and a handheld one. When the vehicle receives a callout, this can be acknowledged via the touch screen in the ambulance, and the details of the callout are displayed in plain text on the screen. The computer provides navigation instructions for the driver through its digital mapping system. As soon as the ambulance reaches its callout destination, a status report is sent back to the command & control centre. This includes an update of the GPS coordinates, so the coordinates in the system can, if necessary, be revised to help any other emergency vehicles on their way to go straight to the precise location.

If the ambulance is at the scene of an accident, its personnel carry out an initial assessment of the situation with the aid of the computer; either via the touch screen aboard the vehicle or using a handheld computer. In circumstances where a pre-hospital command & control response is needed, this report could be of the type known in the Swedish system as "Through the Windscreen", followed by a "Verification Report".

If the ambulance has been called out to a patient who has fallen ill (non-accident situation), the first paramedic will take the handheld computer with him/her to use during the initial examination.

Personnel also find the system's hierarchical interface very useful during the secondary examination (when the patient's condition is classified), because only the relevant options are presented on the screen.

Paramedic Jonny Notklev points out that the interface had to be straightforward and very easy to use.

"The computer needs to give you support for your decisions. Plain text input fields have been avoided, but they are available if personnel find they need to add extra information," he says.

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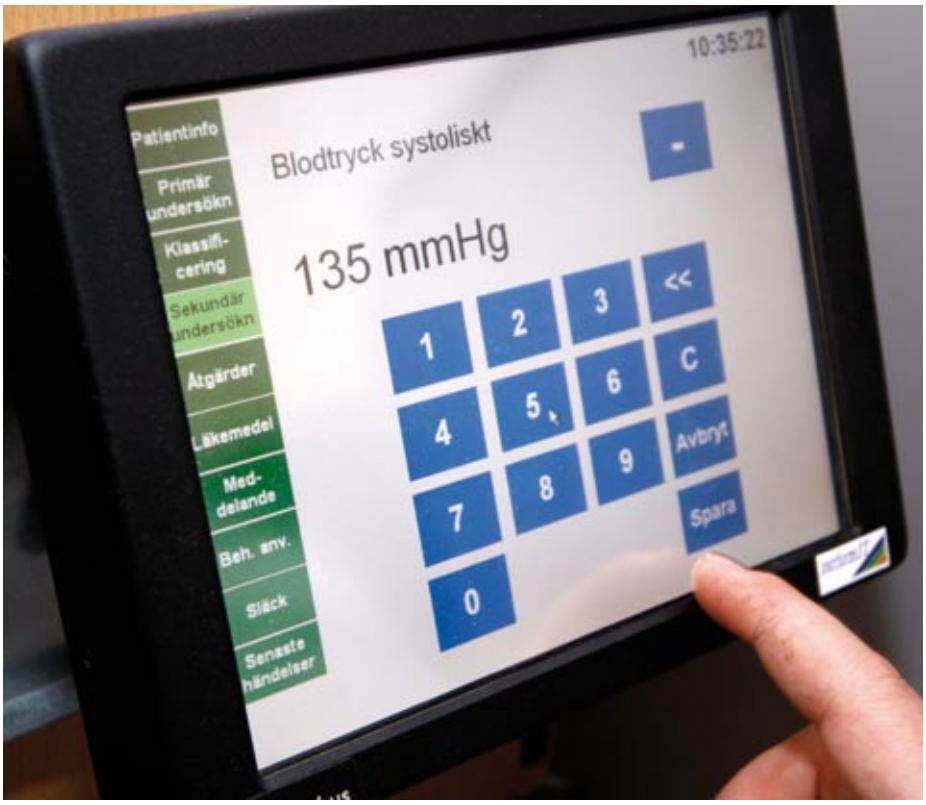
Paramedics Thomas Larsson and Niklas Jonasson in action.
Their ambulance has touch screens for both the driver and the paramedic who travels alongside the patient.



Jonny Notklev (top picture) comments that demand has grown rapidly since digital logging systems were first introduced for ambulance personnel in Östergötland. Leif Gustafsson of the Centre for Teaching and Research in Disaster Medicine and Traumatology in Linköping (lower picture) confirms that there has been a quality improvement across the board in emergency care provision here as a result of the Paratus system.

>>> Logging patient notes via a touch screen is quick and easy. The key advantages are precision and the fact that the notes are complete by the time the patient arrives at the emergency department. Then all that remains to be done is to check them for accuracy and sign them off.

"The fact that the ambulance notes are now asked for by the doctors much more than before (when they were handwritten) is further evidence of the quality improvement achieved," he says

Another advantage of the system is that it has an interface with the Swedish population register. This makes patient identification easier, and at some stage in the future it will be possible to download digital patient records from a national database.

A further benefit is greater certainty for the emergency personnel in general. This extends all the way from the vehicle navigation system through to decision support on the job, which means staff have greater peace of mind in the midst of all the stress so often associated with pre-hospital care provision.

Expanding on his earlier comments on all the quality improvements achieved through the system, Leif Gustafsson highlights the way in which the system has tied in the paramedics' work out in the ambulances with what happens as soon as they arrive back at the emergency department.

The staff back at the emergency department have access to the paramedics' information in real time. They can see how the patient's condition has been classified, which drugs have been administered, and exactly where the ambulances are.

On top of this, both the ambulance service and the emergency department are able to build a substantial database of care response statistics for future use in analysis, planning and organisational decision-making.

The analysis tools are right there in this accumulated database, which has immense potential for both the ambulance service and society in general.

"We can use this material as a basis for decision-making on staffing and preparedness levels, and it also allows us to present statistics for use by politicians and social planners when they scrutinise care provision and injury mitigation.

"The Paratus system has brought higher quality to many different areas of both the pre-hospital and the emergency care systems," Leif Gustafsson concludes.

MORE FACTS:

The ambulance service in Östergötland, Sweden, uses the Paratus system from Saab Performit AB.
The system has been developed using evidence-based methods and in line with carefully defined requirements, to include the following functions:

- Able to relay emergency callouts with details in text, and receive answer (e.g. "Responding to call") back from the ambulance.
- GPS navigation supplemented by GIS data down to local urban level and off road.
- Interactive support for initial assessment of situation at accident scene.
- Interactive support for initial and secondary patient examinations and drugs indicated.
- Ambulance log.
- Treatment instructions.
- Patient information, link to population register.
- Automatic uploads of all information from paramedics to emergency department and other key functions.
- Stores times, personnel responses and sign-offs.
- Reporting and analysis tools.

Permissions are tied to the individual user. Each user logging in will have access only to the functions and data he/she needs or has been granted access to.
The Centre for Teaching and Research in Disaster Medicine and Traumatology in Linköping, Sweden, is an international leader in its field.

Saab Performit AB
Vårstigen 112
SE – 663 91 Hammarö
Sweden
Tel. +46-54-515650
Email: info@performit.se