FIELD USE OF COMPUTERS IN EMERGENCY MEDICAL SYSTEMS

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Background

The project "Information and Communication System for Emergency Medical Service" is a research and development project of the company Computel, the University Medical Centre Ljubljana (UMC) and the Jozef Stefan Institute (JSI). The project is being co-financed by the Ministry of Defence (MOD) of the Republic of Slovenia (RS) within the research programme "Knowledge for Peace". In the framework of the project over three hundred thousand Euros will be invested in research and development.

Aims

The goal "I02" of the project is to reduce the "bureaucratic" work of emergency doctors and medical technicians in the national emergency medical system (EMS) when they are involved in a terrain emergency situation, and to collect as much quality data as possible during the intervention itself. In Slovenia every emergency rescue operation on terrain has to be documented by three documents. By using a specially developed computer program on a mobile terrain computer the work required for filling the document forms can be much reduced. Many data can be collected from dispatch centres if proper data connection is available. Mobile communications technology is now making communications between the different institutions involved and the terrain rescue teams possible. We can completely reduce the multiple manual data insertion and make the data transfer between different information systems automatic.

Methods and Results

One of the biggest disadvantages of the existing semi-paper documenting practice in Slovenia is that all the inputs must be done twice. First the data is written to paper and later, when the intervention is finished, it is retyped into a computer to produce statistics for the Ministry of Health (MH) and accounting for the insurance companies. By abandoning the paper records and simply typing the data directly into the computer in the field, half of the inputs would be unnecessary, which means that 320 inputs could be reduced to only 160 inputs. Further unnecessary retyping is due to same data being retyped to three different paper forms required by the MH. A more exact theoretical analysis has shown that if we can ensure that the data is inserted only once over the entire information flow, the overall number of inputs can be reduced to only 89.

Conclusions

This reduction in time used for documenting enables the doctors and the medical technicians to dedicate more time to the patient, and in this way increase the overall national EMS quality, as well as internationally if the system is used in NATO operations.

Since many tiny problems must be solved before the theoretical concepts, technical analysis and the laboratory testing lead to an optimum program, we have to proceed with the program field testing followed by user interviews. A number of emergency doctors and medical technicians in Slovenia are currently using the prototype of the developed computer program on a mobile tablet personal computer (PC).