amPHI™ - ambulance record-keeping system

John Gade [a], Michael Dahl [b], Per Thorgaard [b], Flemming Knudsen [b]
[a]: Judex A/S, Aalborg, Denmark, [b]: Sector of Anaesthesia, Northern Jutland, Aalborg, Denmark

Introduction

The increasing demands for documentation and quality assurance within the Danish health service have led to the development of amPHI™ - an on-line record-keeping system for the ambulance services.
The main objective of amPHI™ is to raise the quality of the treatment and thus increase the survival. The system is based on an on-line data connection between the hospital and the ambulance using a GSM-based secure telemedical network. Information regarding patient condition and treatment is registered in the field using handheld or vehicle computers. Data are sent to the hospital and made available on the local intranet.
When the patient is identified by civil registration number, the ambulance crew gets on-line access to some critical medical information registered in the patient's medical record. Which data the ambulance crew has access to are defined in advance and include previous hospitalization in the county, allergies, chronic diseases etc.

Methods

amPHI™ was installed in two ambulances as a pilot study during 2004 – one ambulance dedicated to emergencies and one to interhospital transfers. Since the hospitals in the county are not yet able to handle ambulance case records in electronic form, the case record is printed upon arrival to the hospital. Dedicated printers were therefore installed in three hospitals. The ambulance crew was given a short introduction and told to use the system in all patients admitted to one of the three hospitals. Also they were instructed to revert to the paper case records if any difficulties. Data from the emergency ambulance were analysed.

Results

During the pilot study we overall registered 486 turn-outs to the hospitals with printers and amPHI™ was used in 377 patients (77.6%). In the last six months of the study there were 255 turn-outs and amPHI™ was used in 210 patients (82.4%).
In 143 cases (37.9%) the patient was identified from civil registration number by the control centre giving the ambulance crew access to the critical medical information already on their way towards the patient. Patient identification for additional 210 patients (55.7%) was entered by the ambulance crew when talking to the patient or relatives. A total of 24 patients (6.4%) were not identified.
318 patients (82.2%) had previous hospitalizations in the county. Information about allergies or chronic diseases existed for 35 of these patients.

Conclusions

The ambulance crew are satisfied with the system. They find amPHI™ easy to use and do not want to revert to the paper case records. The access to a patient's medical record is very helpful in forming a general view before selecting the treatment.
The amount of patients where the system was not used decreased during the pilot study. Some reasons for not using amPHI™ were technical maintenance, inexperienced users and insufficient coverage for data communication on the GSM network in the countryside.