

CLINIC AND SCIENCE

Care development

Emergency healthcare safer and more efficient with common methods

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At times, several different care providers are involved in the various stages of the care of the same patient within the emergency care chain. Emergency medical care is often administered by different clinics and sometimes even via subcontractors. Many ambulance services have clear procedures and allocation of responsibility via SLAS (Sweden's medical responsible ambulance head physicians in collaboration) regarding pre-hospital management of various different medical conditions and injury situations. When it comes to patients who have had treatment initiated at the pre-hospital stage, most have been initiated by SOS Alarm based on their guidelines. Let based on their guidelines. At emergency units and ER rooms there are in most cases well-developed medical guidelines and instructions. All of these procedures are however often localized, and can even vary between the ambulance services, emergency units and various medical care wards, even within the same clinic or hospital.

This flora of different procedures, routines, documentation and instructions within the same chain of care is often poorly evaluated and in many cases lacks scientific support being used without the care network having coordinated the various systems and routines with one another. The fact that patient medical record systems for patient documentation are different further complicates the situation. In addition, different procedures for management and documentation involve a high risk of duplication as well as difficulties and risks regarding the transfer of information between different healthcare providers within the emergency care chain.

At Örebro University Hospital a project started in 2005 involving the use of standardized pre-hospital vital signs. The aim of the study was to identify those individuals that were most severely ill at an early stage. Since 2006, the Sahlgrenska University Hospital emergency and accident unit uses the same protocol for trauma medical care (Medical Emergency Triage and Treatment System trauma, METTS-T), both at the pre-hospital stage and at the hospital and the results of this have been published previously [1].

METTS pre-hospital

During the first quarter of 2009, the Sahlgrenska Hospital and the county councils in the municipalities of Jämtland and Örebro introduced the same method of pre-hospital and hospital identification, evaluation and prioritization of medical conditions or symptoms. This was achieved through the introduction of METTS both at the emergency departments and within the ambulance service. The standard METTS protocol has been developed and now includes a pre-hospital module called METTS-pre. METTS-pre is based on the same fundamental algorithm as METTS and is based on vital signs, contact reasons and symptoms and signs at the time of contact [2-4]. METTS-pre contains the same five different levels linked to decision-support [5]. A common and standardized protocol for emergency medical care provides opportunities for safer assessment and the transfer of information. The same type of data is documented using a common acute medical journal according to the same criteria and based on the same entry variables. The fact that the ambulance service at the pre-hospital stage uses the same criteria for prioritization and processes means that when the patient arrives at the emergency unit, the primary triaging has already been performed on the spot where the patient was collected and the re-evaluation has already been completed prior to arrival. This results in a faster and safer delivery since the process which normally starts at the emergency unit has already been initiated. Using the same standards provides a smoother chain of care characterized by common routines regarding monitoring and measures. The different size of the hospitals, their geographical location and assignments mean that the benefit of pre-hospital triage varies considerably. In the case of sparsely populated areas, where intervention times for the ambulance service are long, a well-evaluated method for prioritization and decision making probably results in safer pre-hospital care [1-

4]. In urban areas, where the capacity of the ambulance service is clearly limited by the availability of vacant vehicles, the fact that ambulance services can be released faster for new assignments is very important.

METTS is currently used in 28 emergency units across Sweden. The system is based on different protocols that are integrated with one another to suit both large and small emergency units, pre-hospital emergency care, emergency units for children (metts-p) and psychiatric emergency units (METTS-psy). Emergency units that receive a mixture of different types of patients can operate using the same basic module (METTS-A) and add the protocols that best suit their specific activities. METTS is therefore structured in order to suit different environments and so as to be easily adapted to different emergency care activities and patient flows (Figure 1). All protocols are updated twice a year, which takes place at the same time at all emergency units. The management of different versions is performed by a national steering group that meets and revises the METTS protocols. The steering committee includes representatives from adult emergency care, ambulance services, pediatrics and psychiatry.

Safer care with standardized processes

New methods are continually being introduced in the healthcare sector with implementation often by different providers in various parts of the care chain. Standards are usually designed based on the specific needs of individual groups of patients that have specific diagnoses or conditions [6-9]. Within emergency care, patient populations are in most cases completely unselected, and the diagnosis is rarely known at the pre-hospital stage. This means that most care programs and instructions are not able to be used at an early stage since objective data is lacking [9].

By standardizing evaluations and methods of treatment based on vital signs, symptoms and pre-hospital and hospital signs this enables care networks to use the same emergency medical records throughout the entire emergency process. Using the same language and documentation also reduces the risk of information being lost during the transfer from pre-hospital care and hospital emergency care.

In addition to providing safer pre-hospital triage this work process frees up resources at the emergency unit, resources which can then be used to reduce the dangerous period of time between arrival and triaging of patients who do not arrive via the ambulance service. This type of protocol for triaging and starting the emergency process is a completely new work process model for the pre-hospital emergency medical care, and the need for training, careful supervision and a close form of cooperation with the emergency units should not be underestimated. Our experiences of coordinating the pre-hospital part of the care chain together with the hospital part have been good so far, but this work approach must as all new methods or organizational changes be evaluated both from an organizational point of view as well as scientifically as has been done previously [1-4]. The need to introduce more standardized processes, SOP's (Standard Operating Procedures), in care chains which contain several providers is considerable. SOP's can also contribute to resource optimization, quality improvements so that the patient is correctly assessed and receives the right care at the right time.

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Summary

Common methods for evaluation of medical conditions in the emergency care chain are an important part of the patient safety process.

METTS-pre has been developed to create a safe emergency care chain and to facilitate the transfer of information between healthcare providers.

METTS-pre has been introduced without problems in three local municipalities where both ambulance care and the emergency and accident unit work using the same algorithms.

There is huge potential when implementing more standardized processes in Swedish healthcare for bridging routines, cultural differences and traditions of different healthcare providers within the same care chain.

The METTS protocols METTS-A, METTS-T, METTS-pre, metts-p, METTS-psy
Pre-hospital tiering of trauma alarms
Fast Track

Organizational flow models,
for example easy orthopedics track or "Lean Healthcare"

Stroke care chain,

PCI care chain,

Hip fracture care chain

Direct entry via ambulance service

Geriatric care chain

Figure 1. METTS is designed to suit different environments and to be easily adapted to various emergency care activities and patient flows

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