

Medical emergency team implementation: experiences from the Karolinska University Hospital

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Background

- The Karolinska University Hospital Solna is a teaching hospital in Stockholm (population of over 1 million)
- The hospital receives more than 74,000 acute admissions per year
- The hospital has more than 900 beds in total of which 40 are in four different intensive care units

Background

Working area for MET Karolinska University Hospital, Solna :

- All general wards excluding thoracic and pediatric units
- All together 45 wards (approximately 400 beds)

The Karolinska Experience

Development MET

- **Planning phase 2002-2005**
 - Critical care meeting in Stavanger 2002; METs were discussed
 - Our critical care department invited Dr Gillian Bishop - from Australia - to a staff meeting in 2002
 - A Swedish MET/RRT meeting was held in 2003
 - Representatives from the Karolinska ICU formed a group; planning the MET
- **The Karolinska University Hospital Prevalence study**

Bell M et al, *Prevalence and sensitivity of MET-criteria in a Scandinavian University Hospital Resuscitation* 2006;70:66-73

The Karolinska Experience - Prevalence Study

Aims of study:

- Make a preliminary estimation of the workload for a medical emergency team
- See if the patients fulfilling the study criteria (set of simplified MET-criteria) had an elevated mortality
- Test the sensitivity and specificity by altering the cut off levels of the calling criteria

The Karolinska Experience - Education

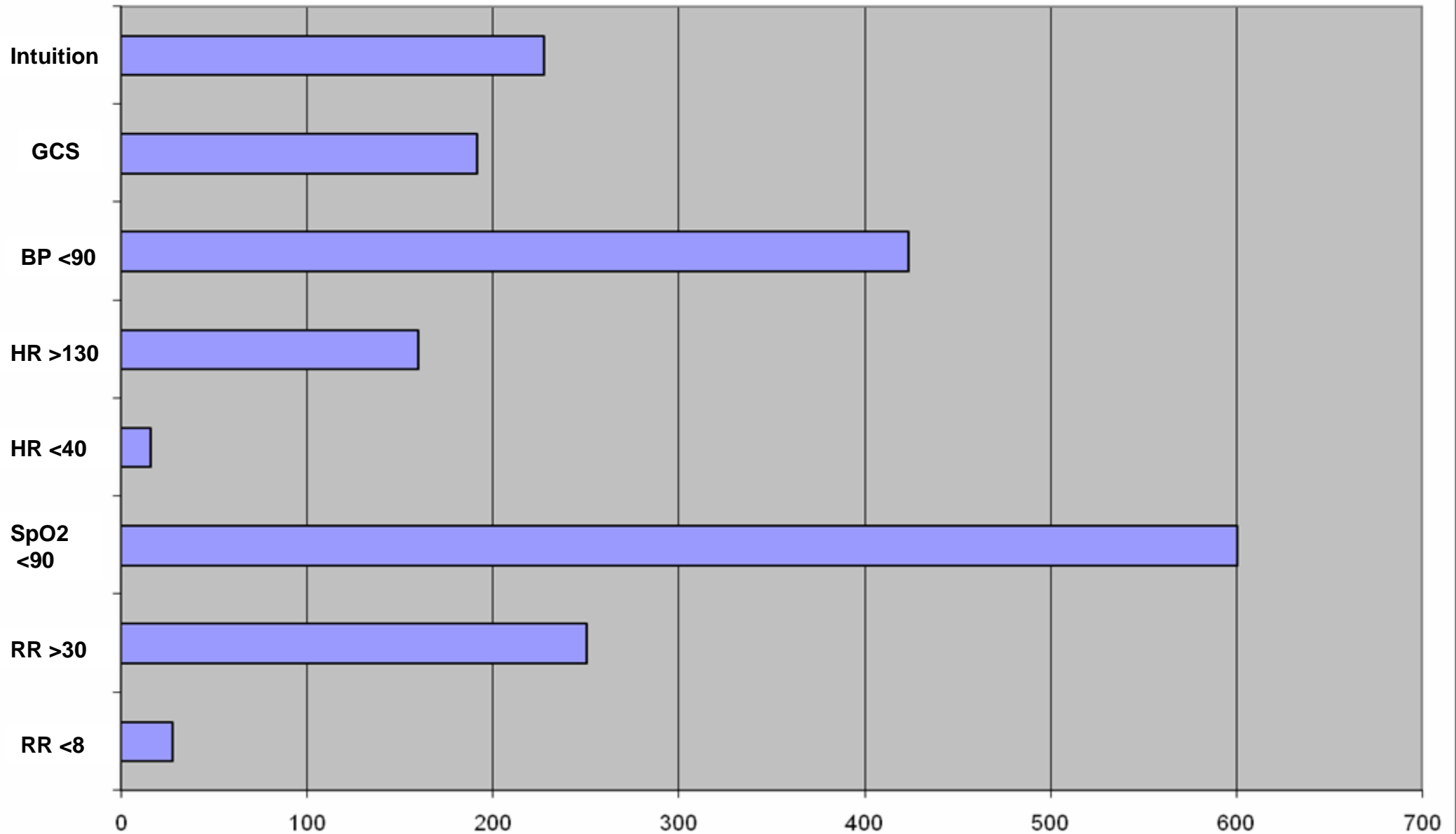
- Every single ward had at least two information/education sessions
 - Nursing staff
 - Doctors
- The education was focused on how the MET concept is supposed to function and a detailed lecture of the MET-criteria
- More than 75% of the relevant staff received education (mostly nurses)

The Karolinska Experience - Education

Calling criteria

<i>Acute changes in</i>	<i>Vital signs</i>
Breathing	Respiratory rate < 8/min Respiratory rate > 30/min Saturation < 90% with oxygen treatment
Circulation	Systolic BP < 90mmHg Heart rate < 40/min Heart rate > 130/min
Neurology	Sudden fall in level of consciousness GCS fall > 2
Other	Any patient who does not fit the criteria above, but whom you are seriously worried about (Intuition)

Calling criteria - wards



The Karolinska Experience - Implementation

March 2005

- Hospital-wide introduction, all 45 wards simultaneously
- 24/7 service
- Cardiac arrest team left unaffected

The Karolinska Experience - Implementation

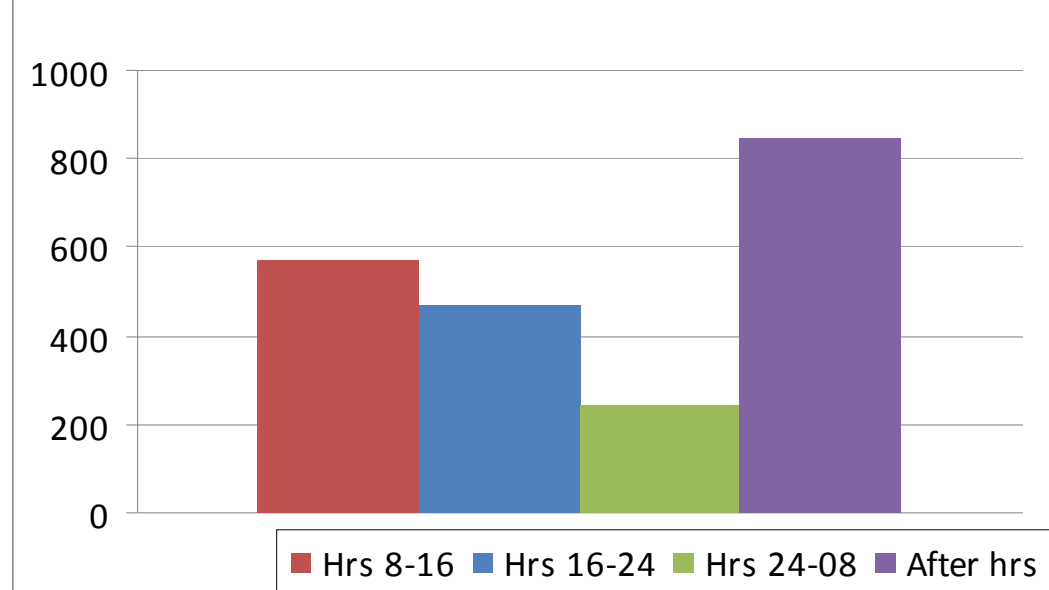
Hrs 8-16: 43,4%

Hrs 16-24: 35,6%

Hrs 24-08: 18,7%

After hours: 63,9%

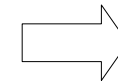
Timing of MET calls



The Karolinska Experience - Implementation

Personnel involved in MET assignment:

- Intensivist
- ICU nurse
- Primary nurse at the ward
- Physician responsible at the ward



MET

The Karolinska Experience - Implementation

MET responsible nurse in the wards:

- Responsible for overall coordination with the MET team
- Assist the MET organisation with follow-up data on MET calls
- Participation in the planning of education of new staff members in the ward

The Karolinska Experience - Implementation

Reporting of data

- MET call record form
- The ward as well as the MET team keeps a copy
- A member of the MET organisation enters data into a MET-database

The Karolinska Experience - Implementation

Follow up – general wards

- Meetings with MET responsible nurses, twice a year
- Follow up each wards' MET calls, 1-2 times a year
- Continuous feed back regarding problems in individual MET calls
- Staff questionnaires

Challenges

Still get to some of the patients too late!

Possible explanations:

- The ward staff need more knowledge concerning early identification and basic treatment of deteriorating vital signs
- Insufficient level of monitoring of vital signs, especially during nighttime
- Still need permission from the parent medical unit doctor before calling MET
- Fear of criticism

Challenges

- Difficult to reach out to all wards with the information
- Difficult to get a MET responsible nurse on each ward
- Difficult to reach all doctors with the information
- Lack of an assigned ICU nurse just for MET

Recommendations

- Have clearly stated goals and guidelines
- Continuous education for ward staff
- Coordinate with the ward to ensure that they have the necessary resources to manage the MET procedure that has been decided
- Give your own ICU staff feedback