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Factors affecting attitudes and barriers to a medical emergency team among nurses and medical doctors: A multi-centre survey☆

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ABSTRACT

Aim: To identify factors underlying attitudes towards the medical emergency team (MET) and barriers to its utilisation among ward nurses and physicians.
Methods: Multicentre survey using an anonymous questionnaire in hospitals with a fully operational MET system in the Piedmont Region, Italy. Response to questions was scored on a 5-point Likert-type agreement scale. Dichotomised results were included in a logistic regression model.
Results: Among 2279 staff members who were contacted, 1812 (79.6%) completed the survey. The vast majority of respondents valued the MET. Working in a surgical vs. medical ward and having participated in either the MET educational programme (MET*al* course) or MET interventions were associated with better acceptance of the MET system. Reluctance by nurses to call the covering doctor first instead of the MET for deteriorating patients (62%) was significantly less likely in those working in surgical vs. medical wards or having a higher seniority or a MET*al* certification (OR 0.51 [0.4–0.65], 0.69 [0.47–0.99], and 0.6 [0.46–0.79], respectively). Reluctance to call the MET in a patient fulfilling calling criteria (21%), was less likely to occur in medical doctors vs. nurses and in surgical vs. medical ward staff, and it was unaffected by the MET*al* certification.
Conclusions: The MET was well accepted in participating hospitals. Nurse referral to the covering physician was the major barrier to MET activation. Medical status, working in surgical vs. medical wards, seniority and participation in the MET*al* educational programme were associated with lower likelihood of showing barriers to MET activation.

1. Introduction

Despite the immediate availability of qualified life support, the outcome of in-hospital cardiac arrest remains poor, with survival to discharge rarely exceeding 20%.[1,2] Rapid response systems (RRS) have been established to manage unstable patients in general wards with the aim of preventing further deterioration leading to cardiac arrest.[3] Implementation of an RRS includes education of the ward staff (the afferent limb of the system) to identify deteriorating patients needing urgent evaluation by a medical emergency team (MET).[4] The MET (the efferent limb of the system) is activated by the ward staff in patients fulfilling specific criteria of physiological instability, and its roles include stabilising the patient in the ward or transferring the patient to a higher level of care.

Although the theory underlying RRS is compelling, there is no definite evidence that RRS implementation decreases hospital mortality.[5] One of the main reasons advocated to explain this unsatisfactory result is an absent or delayed MET activation by the ward staff in patients fulfilling MET calling criteria (afferent limb failure).[6,7] A series of single-centre surveys[8–12] showed that, although METs are generally well accepted in hospitals, cultural barriers prevent their full implementation. Recognised barriers for nurses or junior doctors activating the MET include adherence to the traditional system of calling the covering medical staff or fear of criticism in case an inappropriate call is made. However, although

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a positive correlation between having attended a MET education seminar and the likelihood of MET activation has been found,[13] none of the existing studies had directly investigated whether ward staff education might change their attitudes towards the MET. Moreover, ward staff attitudes towards the MET have never been investigated in European hospitals.

We conducted a multicentre survey in a group of Italian hospitals to identify the attitudes and barriers to MET utilisation among both ward nurses and physicians and to investigate whether these attitudes and barriers are influenced by participation in a specific educational programme on the MET, by previous MET activation, or by the characteristics of the ward staff, such as professional roles, seniority, and type of ward.

2. Methods

2.1. MET implementation in the Piedmont Region

The survey was conducted in hospitals in the Piedmont Region (www.regione.piemonte.it), an area of 25,402 km^2 in Northwest Italy with a population of 4.6 million people. Since 2008, the Regional Health Service of the Piedmont Region has been implementing a programme for continuous quality improvement of in-hospital emergency systems, in accordance with the Recommendations from the Italian Society of Anaesthesia, Analgesia, Resuscitation and Intensive Care (SIAARTI) and the Italian Resuscitation Council (IRC).[14] This programme consisted of the implementation of a MET in regional hospitals, preceded by a hospital awareness and training campaign and followed by a monitoring and reporting phase, aimed at documenting the epidemiology of cardiac arrests in participating hospitals, according to the Utstein style.[15] Hospitals participating in the programme adopted uniform MET calling criteria (see ESM Appendix 1). Composition of the MET staff (one intensive care registrar and one intensive care nurse, both of whom are certified in advanced life support [ALS]) was consistent in all hospitals.

2.2. The METal course

The Piedmont Region adopted the MET*al* (medical emergency team *al*ert) course[16] to educate the ward staff. The MET*al* is a one-day course, endorsed by IRC and specifically developed to teach the medical and nursing staff of hospital non-critical care areas how to properly accomplish the tasks of afferent arm members (see ESM Appendix 2 for a full description of the MET*al* course). MET*al* topics include:

1. Characteristics of patients at risk.
2. Patient assessment using the ABCDE approach.
3. Criteria for MET activation.
4. How to perform a MET call using basic communication skills.
5. Early actions to perform before MET arrival, such as, how to avoid further deterioration.
6. Teamwork with the MET and handover.

The course is deployed over 8 h and it includes lectures, skill stations and simulated scenarios. The MET*al* course faculty includes both medical doctors and nurses. All faculty members are board-certified ALS and basic life support and defibrillation (BLSD) instructors.

2.3. Target population and recruitment criteria

The hospitals for this study were selected among those participating in the regional quality improvement programme using the following inclusion criteria:

1. General hospital including both medical and surgical wards.
2. At least two years of established RRS.
3. 24/7 MET availability.

The target population of the survey were all medical and nursing staff in medical and surgical wards caring for adult inpatients. Personnel in emergency departments, intensive care units, operating rooms and outpatient areas were excluded.

2.4. Study questionnaire

The survey instrument was a modified version of a previously published questionnaire developed by Jones et al.[10] and also adopted by other authors[8,9] in similar surveys. We added to the original questionnaire two questions (2 and 19) aimed to assess the perceived usefulness of the MET*al* educational programme, one question (17) aimed to assess whether the ward staff perceived their participation in MET interventions as an opportunity to have their work appraised, and two final questions (21 and 22) to assess whether the respondents felt safer because of the availability of the MET in their hospitals. The questionnaire also recorded the characteristics of the study population (physician/nurse, seniority, clinical/surgical area, previous participation in the MET*al* course, number of activated MET interventions in the last year; see ESM Appendix 3).

The questions covered the following subjects:

a) Perceived usefulness of the MET for managing critical patients (questions 1, 8 and 9); benefits of the MET for improving both patient safety (questions 3, 4, 5, 12, 13) and ward staff confidence (questions 21 and 22); MET interventions as an opportunity for the ward staff to learn new skills and have their work appraised (questions 14 and 17).
b) Perceived unfavourable effects of the MET: interference with the work of the ward staff (questions 15 and 18), increased workload (question 16) and costs (question 20) associated with MET implementation.
c) Issues in MET utilisation: barriers which prevent ward staff from calling the MET (questions 6, 7 and 10); difficulties in applying the MET calling criteria (question 11).
d) Perceived usefulness of the MET*al* educational programme (questions 2 and 19).

Question 6 asked the respondents who they would choose to call first between the covering doctor and the MET for deteriorating patients. Since the ward staff of the participating hospitals did not include junior doctors or residents, this question was only directed to nurses.

Response to questions was scored on a Likert-type agreement scale (1 = strongly disagree; 2 = disagree; 3 = uncertain; 4 = agree; 5 = strongly agree).

Before being distributed, the draft version of the questionnaire was reviewed by an independent panel including three physicians, two senior nurses, and a nurse educator. The physicians are experts in the management of hospital emergencies, one senior nurse is skilled in hospital management, and the other is a nurse-lecturer of nursing science at Turin University. The nurse educator is a graduate in pedagogy. The panel reviewed the survey questions for appropriateness and clarity. As a result, eight questions were reworded. Rewording consisted mainly of removing some ambiguous terms and double-negative statements. The modified version of the questionnaire was pilot tested on a sample of 45 medical doctors and 45 nurses from five hospitals. The results of the pilot sample suggested no further changes, and the questionnaire was approved in its definitive format.