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The experience of improving rapid response system performance in a Chinese Joint Commission International Hospital.

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Abstract

To describe the institutionalization of a regional Rapid Response System (RRS) to ensure timely treatment to patients with Serious Adverse Events (SAE). We report data on RRS utilization and describe the organizational aspects, policy framework and procedures in a Chinese Joint Commission International (JCI) hospital. Between May 2013 and December 2015, a total of 198 SAEs were reported at the two hospitals; of these 109 RRS calls concerned inpatients and 89 were activated for outpatients. A total of 192 events were called by medical personnel and 6 were called by auxiliary staff in 385 calling reasons (some patients were suffer from more than one activate reasons): unconsciousness 133 (34.5%), respiratory distress 34 (8.8%), airway obstruction 49 (12.7%), fall were 31 (8.1%), carotid pulse disappear were 49 (12.7%), others were 41 (10.6%); MET average activate time was 2.4 ± 0.1 s and within 5 min; no. of RRS calls between daytime working hours (8:00-17:00) were 123 (62.1%); CPR was performed in 86 (43.4%) cases; 12 (6.1%) RRS calls were deemed to be unwarranted (false alarm): none treatment were 13 (6.6%), disposition were 3 (1.5%) and DNR was 1 (0.5%). Outcomes of RRS activation: vital signs were stabilized in 82 (41.4%) patients; death occurred in 15 (7.6%) patients, 61 (30.8%) patients were evacuated to ICU, unwilling rescue 40 (20.2%). Our experience shows that regional RRS improved rescue speed of SAEs and patient outcomes. Better integrated multidisciplinary cooperation was instrumental for the success of RRS.

Keywords: Rapid response system, Medical emergency team, Early warning system, Serious adverse events, Cardio pulmonary resuscitation, Cardiac arrest.

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Introduction

Adverse events are an inseparable part of medical care, which are common to both inpatient and outpatient settings. A vast majority of adverse events culminate in acute respiratory and/or cardiovascular instability [1]. Up to 80% of in-hospital Serious Adverse Events (SAEs) are preceded by vital dysfunction which may last for several hours before the actual event [2,3]. Many of these vital dysfunctions are easily observable and typically include alterations in respiratory rate, oxygen saturation (SpO_2) levels, heart rate, blood pressure and level of consciousness [4-6].

A Rapid Response Systems (RRS) was designed to respond to seriously ill patients, at-risk patients and patients who show general signs of decompensation/deterioration and abnormal vital signs [7]. RRS is an institutional mechanism that provides health professionals with prompt access to support in the event of deterioration in a patient's condition, before they become critically ill [8]. In an RRS, adequate efferent limb activation criteria and the corresponding actions forward staff (monitoring of vital signs, early detection of patient deterioration and MET activation) are key factors for reduction in the incidence of SAEs [9]. Several countries have RRSs in place which are aligned to their medical system. Therefore we sought to develop the optimal RRS plan to cater to our health care system.

Our hospital, the Second Affiliated School Hospital Zhejiang University School of Medicine (SAHZU) which is a comprehensive network with 2200 beds across 2 metropolitan teaching hospitals in Hangzhou. We adopted a systems approach to improve the management and outcomes of SAEs patients in our hospital which included multidisciplinary collaboration, operational planning, training, competency criteria for different MET members, staff requirements, modified EMS criterion and related management functions. We developed a regional MET and RRS catering to all hospital staff both in inpatient areas and outpatient areas.