

Challenges in implementing the rapid response team: integrative review

Abstract

Introduction: The rapid response team is formed in hospitals with the aim of promoting the reduction in the occurrence of adverse events and reducing the risk and damage, disability or death of patients admitted to wards. These teams work to act quickly and early in situations of clinical deterioration in hospital wards, generally indicated by the use of early warning scales, an example being the MEWS score. The implementation of these teams, however, faces challenges and the extent of this problem in our country is not known for sure.

Method: This study sought to identify and analyze scientific evidence on the challenges of implementing the rapid response team, according to the available literature. An integrative review was carried out based on the guiding question ‘what is the evidence on the challenges of implementing the rapid response team, according to the scientific literature’ in the databases Medical Literature Analysis and Retrieval System Online (MEDLINE), Latin American Literature and Caribbean Health Sciences (LILACS) and Nursing Database (BDENF), in addition to Google Scholar, in order to detect articles not indexed in the English and Portuguese languages, published in the last 5 years and available in full.

Results: The sample included 6 articles published between 2018 and 2022, from Canada, Australia, Brazil and Korea. The main challenges encountered were the lack of exclusive human resources (doctors and nurses) and the lack of training of ward professionals. Furthermore, the challenge of establishing an assertive trigger to activate the team is discussed, in addition to the need and financing for software that generates automatic alerts based on the insertion of clinical data.

Conclusion: It is concluded that regardless of monitoring technologies, the relevance of checking vital signs in a safe, periodic manner, with immediate records, prevails. Furthermore, the need for a work process focused on the use of scores that direct team actions in an assertive manner was highlighted. This study reinforced the importance of periodic training of teams, and also of teams in general, about the purpose of the team, in order to promote communication and coordination between teams in favor of patients.

Keywords: hospital rapid response team, cardiopulmonary resuscitation, clinical injuries, patient safety

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Abbreviations: CRA, cardiorespiratory arrest; RRT, rapid response teams; IHI, institute for healthcare improvement; AHA, American heart association; MEDLINE, medical literature analysis and retrieval system online; LILACS, latin American and caribbean literature in health sciences

Introduction

Nowadays, excellent health care is necessary to advance in the search for security. In this scenario, technologies and protocols are used to reduce the rate of hospital deaths, caused by a lack of safety in in-hospital emergency care, especially in ward sectors for non-critical patients.¹ Since 1989, thirty-six years ago, in Australia, the difficulty of obtaining agile, targeted and assertive care in situations of Cardiorespiratory Arrest (CRA) in wards has been noted, resulting in the emergence of Rapid Response Teams (RRT).² The RRT was first proposed in Australia, aiming to reduce CRP in patients admitted to wards. Patients were hospitalized and often suffered as their clinical signs deteriorated leading to PCR, which in most cases could be avoided, considering that patients present clinical changes six to eight hours before having a PCR.³

The proposal of the RRT is to be composed of multidisciplinary teams containing an intensive care doctor, who in most cases is the team leader, nurses and physiotherapists. The work is done together, in a trained and synchronized way, and time means life for the patient,

making this training extremely important.⁴ The implementation of the RRT may result in a reduction in the death rate and the queue for ICU beds.¹

The RRT is generally formed in hospitals in order to promote the reduction of adverse events and the risk of damage, disability or death of patients admitted to wards. Its main objective is to detect and act on possible changes and signs of deterioration, generally indicated by the use of early warning scales, an example being the MEWS score.⁵ RRT is also known as “blue code”, or code blue, or yellow and, depending on the severity, it can be called code red. The concept of RRT is already known outside of Brazil, however, in our country, there are few reports of implementation, with the first team being at the clinical hospital in the city of Botucatu.⁶ In our clinical practice, there are rare experiences of effectively operating RRT, which contribute to the prevention of CRP-related data in wards.

It is known that 1 in 10 patients in Brazil suffer from care-related harm, which could be avoided. This issue is studied nationally and internationally, with the theme “patient safety” by the main health organizations. When properly implemented with appropriate training and materials, RRT can offer safe assistance with quick and efficient interventions.⁵ Thinking precisely about the prevention of adverse events in the healthcare sector, in 2004 a campaign was launched by the Institute for Healthcare Improvement (IHI), called 5 million lives. The campaign aimed to support the improvement of healthcare in

the United States by reducing deaths and injuries caused by medical error, drug reactions or surgical complications. IHI invited hospital institutions in a campaign to prevent 5 million incidents of medical harm over a two-year period.

The campaign's launch speech was emblematic and marked a worldwide mobilization around the minimization of preventable adverse events. The main focus was to reduce morbidity and mortality, with qualified assistance for such action.⁷ In addition to RRTs, there are many actions to prevent adverse events and PCRs around the world, all of which aim to ensure patient safety. Among them, the use of early warning scores of clinical deterioration to direct teams to reduce damage,⁸ the standardization of CRP care, the use of prevention bundles and many other actions.⁹ To provide care for a CRP, the American Heart Association (AHA) published an update on this care in 2020. It must be carried out in 6 stages in in-hospital care, namely: Early recognition and prevention; Activation of the Emergency Medical Service; High-quality cardiopulmonary resuscitation-CPR; Defibrillation; Post-PCR care; Recovery.¹⁰

In addition to understanding and executing CPR actions, it is even more necessary to understand how to identify signs of clinical decline in patients in non-critical wards, early, thus preventing the condition from progressing to possible cardiac arrests.⁷ It is known that the patient, before a PCR, presents altered vital signs up to 6 to 8 hours before, in 85% of cases, according to the literature. A 2016 study shows, through collection of data from medical records of patients who progressed to CRP, that around 18-20 hours before, blood pressure began to change; around 5-10 hours before it became more dramatic and around 4 hours before the heart rate was already showing changes.¹¹

Furthermore, a study in 2015 stated that the patient tends to demonstrate, hours before cardiorespiratory arrest, at least 1 altered vital sign, and the more altered vital signs, the greater the risk of mortality. Their results reinforce the importance of using scores to measure the clinical condition, in addition to knowing correctly how to evaluate altered data, thus being able to identify triggers for pre-cardiac arrest and activate the RRT, approximately 1-4 hours before.¹² In another study, from 2016, the change in vital signs was noted through the high-risk CRP risk score, it was on average 30 hours before the arrest that the change in vital signs began, until transfer to the ICU or PCR itself.¹³ These results strengthen evidence that it is possible to detect clinical changes, based on vital signs, which can alert to a potentially serious event, with the possibility of taking early action to avoid CA and save the lives of patients in these conditions.

It is known that, by checking vital signs, an act that occurs daily, it is possible to notice this clinical decline and, thus, activate the RRT with greater agility and assertiveness. Therefore, the literature establishes the need to have scores and records for this action to be effective and, in this sense, the MEWS score has been a highly relevant tool in our environment.^{14,15} Therefore, RRT is necessary within hospital units in order to take early action based on signs and symptoms of patient decline in non-critical wards and then direct individual treatment and avoid possible CA and death.¹⁶

Even avoiding many cardiorespiratory arrests as described in the literature, in our country, there is a scarcity of studies in Brazil on the implementation and action of RRT. Furthermore, many professionals involved in activating this team still have great difficulty identifying when it should be activated, or because they use specific scales and even using the MEWS.¹⁷

Like all implementation of changes, there is still a lot to improve, there are many difficulties in implementing the TRR. Professionals

have had great difficulty recognizing signs of deterioration in patients, sometimes due to insecurity or lack of adequate training, which do not trigger the RRT or even urgent medical evaluation, requiring effective training for all professionals involved in RRT care, in addition to investment in continuing education.⁵ By gathering scientific evidence about challenges in implementing RRT, it is expected to produce current knowledge for professionals who work daily in health services, in order to avoid CA. This review aims to identify and analyze scientific evidence on the challenges of implementing the rapid response team, according to the available literature.

Methods

An integrative review was developed on the challenges in implementing the rapid response team. The method consists of six phases to be followed: Phase 1 – Preparation of the guiding question; Phase 2 – Search or sampling in the literature; Phase 3 – Data collection; Phase 4 – Critical analysis of included studies; Phase 5 – Discussion of results; Phase 6 – Presentation of the integrative review.¹⁸

1st phase: preparation of the guiding question

The designation of the guiding question is the part that directs the study, and that determines the methods that will be included, the resources used for identification and the knowledge that was collected through the chosen studies.¹⁹ To prepare the guiding question, the PICO strategy was used, which represents an acronym for P (Patient or Audience of the study), Intervention (implementation of the RRT), Comparison (not applicable in this work) and Outcome/“Outcomes” (prevention of PCR) (Santos; Pimenta; Nobre, 2007). Therefore, research was carried out on the subject to understand what the rapid response team – RRT is in the context of patient safety and where it emerged. After learning about the subject, we sought to find out what is known about the subject in Brazil. Therefore, the difficulty and challenges in implementing the TRR in the Brazilian context were noted Table 1.

Table 1 Description of the pico strategy in formulating the research question ribeirão preto, 2023

Acronym	Definition	Description
P	Patient or Problem	Identify challenges for implementing TRR
I	Intervention	Activation/implementation of the TRR
W	Control or Comparison	Not applicable
O	Outcomes	Reduction of PCR in wards

Source: Prepared by the authors.

Based on the adopted strategy, the guiding question of the present study was constructed: “What is the ideal time at which the rapid response team should be activated for the patient”, or even “what are the challenges for implementing RRT”?

2nd phase: search or sampling in the literature

The search and selection of articles must be broad and varied, basing the search on electronic resources, in addition to manual search in journals, detailed citations in selected research, and if necessary, dialogue with scientists and the use of unpublished materials.¹⁸ The research for articles took place in the following databases: Medical Literature Analysis and Retrieval System Online (MEDLINE), Latin American and Caribbean Literature in Health Sciences (LILACS) and the Nursing Database (BDENF). The articles included in the review met the following criteria: be published from 2018 to 2023

(the last 5 years); in Portuguese and English; address the topic of implementing the TRR and are available in full. It was decided to include gray literature and books given the scarcity of studies in Brazil. For the search, the descriptors “Hospital Rapid Response Team”, “Cardiopulmonary Resuscitation”, “Clinical Deterioration” and “Patient Safety” were used crossed in multiple combinations, using the Boolean operators “and” and “or”. Furthermore, the free Google Scholar tool was used to identify any studies that did not belong to a repository or database. To select the articles, the title and summary were evaluated following the above requirements, by independent evaluators, in order to approve whether they are included in the study question and whether it is suitable for the established inclusion parameters.

3rd phase: data collection

To extract data from the selected articles, it was necessary to use a mechanism prepared and capable of ensuring that the reproduction of important data is obtained, mitigating the risk of failures in reproduction, ensuring accuracy in the investigation of ideas and serving as a record.¹⁸ In this study, a form was chosen to extract specific data from the selected studies. The article analysis form contains the following data: article title, year of publication, place of publication, objective, method, sample size, main results and level of evidence.

4th phase: critical analysis of included studies

Moment at which the rigidity and attributes of each study are evaluated. The researcher’s clinical practice contributes to improving the validity of methods and results, in addition to contributing to their usefulness in evidence-based practice, which is used in the current study focused on dividing evidence in a hierarchical manner, depending on the methodological approach adopted.¹⁸ All studies were read in full, with discussion between peers, associated with

the analysis of their strength of evidence, which allowed them to be compared with each other, and each one analyzed in light of a theoretical framework based on available scientific evidence, and the results were categorized and discussed.

5th phase: discussion of results

At this stage, the findings must be summarized, and the main results obtained must be compared with theoretical references. To validate the integrative review, the researcher will need to present their reflections and a conclusion that permeates their point of view.¹⁸ Each article chosen for this review was analyzed in order to explore its content and main contributions, highlighting the available evidence. Data were extracted from the studies and synthesized after being analyzed.

6th phase: presentation of the integrative review

The presentation of results and analysis of the review must be succinct, clear and complete to lead the reader to critically evaluate the component studies. It is important to have adequate and properly explored information, based on contextualized methodologies, without hiding other evidence from the same context.¹⁸ The summary of each study is presented descriptively in a table, based on the records made by the research team.

Results

This review aims to identify and analyze scientific evidence on the challenges of implementing the rapid response team, according to the available literature. From the proposed search, and application of the inclusion and exclusion criteria, the final sample of 6 articles was reached. The flowchart below shows the selection steps for articles included in this review, according to the Preferred Reported Items Systematic Review and Meta-Analyses- PRISMA- method adapted for this review Figure 1.

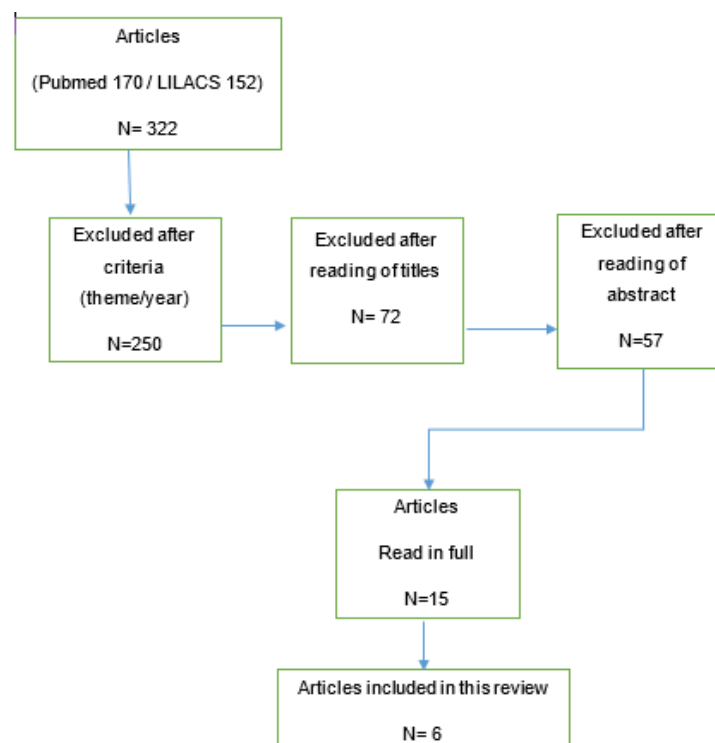


Figure 1 Flowchart of article selection on challenges in implementing rapid response teams.

This review has 6 articles after analyzing their full text. Regarding the year of publication, there is homogeneity between them, as 2 (33.3%) were published in 2018, 1 (16.6%) in 2020, 2 (33.3%) in 2021 and 1 (16.6%) in 2022. Regarding the place of publication,

similarly in proportions, 2 (33.3%) published in Canada, 1 (16.6%) published in Australia, 1 (16.6%) published in Brazil and 2 (33.3%) published in Korea Table 2.

Table 2 Summary of studies chosen for the integrative review

Article 1: Factors associated with delay in trauma team activation and impact on patient outcomes. 2018.	
Authors	Connolly Rory; et al.(Canada)
Method/Objective	Retrospective, observational cohort study of a database from a regional trauma center in Canada, from January 2008 to March 2014. Identify factors associated with delayed trauma team activation.
Sample	846 patients in the study (who had RRT activated after 30 min).
Results	Approximately 4% of activation occurred after 30 minutes of entering the service, associated with age, in terms of risk factors for delayed activation. There was no difference in terms of outcome data such as mortality, length of hospital stay. The two groups were similar in terms of injury severity. Elderly people tend to have higher mortality if they delay RRT in trauma care. The exact activation criteria for each case in the late group were unclear. Therefore, the reason for the delays remains unclear. This is likely multifactorial and, given the increased age in the delayed group, represents an unconscious bias toward undertriage or delay in trauma team activation in elderly patients. There was also incomplete data.
Conclusion	Late activation is associated with increasing age with no clear link to increased mortality. Analyzing and monitoring the severity of injuries that required the activation of the trauma team, it is more worrying in older people and it is necessary to intervene to recognize the vulnerable population.
Article 2: Factors associated with delayed rapid response team activation. Journal of critical care, 2018.	
Authors	Reardon et al. ²⁴
Method/Objective	Retrospective cohort study with patients who experienced rapid response team care in 2 hospitals in Ottawa, Canada. Analyze and describe the factors associated with late RRT activation.
Sample	5,550 adult patients
Results	Late RRT activation was significantly associated with mortality and ICU admission. The length of hospital stay was also increased for the group with late RRT activation. The survival curve demonstrates decreased survival among patients with delayed activation. The delay was greater in young people, with respiratory discomfort or hypotension, potentially masked by symptom treatment. Delays in communication (mainly in teaching hospitals, passing through several professionals) can be a deleterious factor in activating the RRT.
Conclusion	Late RRT activation among hospitalized patients is associated with increased mortality, ICU admission rates, and length of hospital stay. Delay is more common among clinical services and with deterioration secondary to respiratory complaints and hypotension. Early activation of the RRT should be encouraged in these situations to assist with diagnosis and management by the treating team.
Article 3: Re-designing a rapid response system: effect on staff experiences and perceptions of rapid response team calls. Re-designing a rapid response system: effect on staff experiences and perceptions of rapid response team calls. BMC Health Services Research, v. 20, p. 1-9, 2020.	
Authors	Chalwin Richard et al. ²⁰
Method/Objective	This is a study to survey the perceptions of employees and RRT members of a tertiary hospital in the pre and post reformulation of a RRT. (The actions were: 1) regular TRR meetings, 2) role badges for each TRR member, and 3) a structured process of "handing off" patient care responsibility from member to user. Evaluate the perceptions of employees and TRR members after reformulating this team.
Sample	297 TRS users were interviewed in phase 1 and 302 in phase 2 and members 79 were interviewed in phase 1 and 61 in phase 2.
Results	According to the participants, it was very difficult to recognize TRS members, they reported that there were many conflicts between employees, they also reported that most of the time calls were made because it had not been resolved in the initial call. Changing shifts was also a problem because the member who answered the call had not always participated in the most recent meetings, in the same way that the substitute could attend the call without having participated in any meeting. After the redesign, there were improvements in members' understanding of their roles and responsibilities and the responsibilities of presenting themselves to users. For users, after the redesign, there were improvements in identifying the RRT leader and developing clinical plans for patients who remain in the ward at the end of an RRT call. However, after the redesign, fewer users agreed that structured transfer was useful or that they should be involved in the process. Both members and users reported fewer experiences of conflict in TRR calls after the redesign.
Conclusion	The reformulation of the TRR produced improvements in interactions between ERR members and between ERR members and users. Improvements are possible, yes, but they require an interactive process supported by staff training, a point where many difficulties are encountered, especially due to insufficient financial resources. A cultural and organizational change is also necessary for these improvements to happen.

Table 2 Continued...

Article 4: Clinical impact of implementing a rapid-response team based on the Modified Early Warning Score in wards that offer emergency department support. 2021.	
Authors	Alves Silva, Lorena Micheline; Moroço, Diego Marques; Pintya, José Paulo; Miranda, Carlos Henrique.(Brazil)
Method/Objective	Cross-sectional study before and after the implementation of RRT in an emergency unit. To compare hospital mortality rates before (control period) and after (intervention period) the implementation of an RRT triggered by MEWS \geq 4 in two tertiary wards that offer support in the ED.
Sample	6,863 patients admitted to one of these wards before the implementation of the RRT (control period) and 6,944 patients after the implementation of this system (intervention period) were included.
Results	There was a statistically significant decrease in the hospital mortality rate after the intervention compared to the control period. The analysis according to the type of ward (medical and surgical clinic) continued to show a statistically significant decrease in the hospital mortality rate after intervention compared to the control period.
Conclusion	The implementation of a TRS triggered by MEWS \geq 4 in high-risk wards offering emergency unit support and critical patients suggests an absolute risk reduction in the hospital mortality rate. Despite this, more randomized trials are needed to evaluate the real impact of this intervention in this scenario.
Article 5: Strategies for successful implementation and permanent maintenance of a rapid response system. 2021.	
Authors	SONG, Myung Jin; LEE, Yeon Joo. (Korea)
Method/Objective	Randomized Multicenter Study. Strategies for successfully implementing and maintaining TRR using these four components.
Sample	Hospitals that work with more than 300 beds, with a level of support divided into three levels, and according to opening hours.
Results	After initial implementation, quality improvement was achieved through self-assessment, which proved necessary to achieve better results, and better results lead to more investment in the system. Investment in the system will lead to further effective system development. These components must be closely interconnected for a TRR to be successfully maintained, eventually leading to a permanent system.
Conclusion	Investment in the system will lead to more effective system development. These four components must be closely interconnected for an RRS to be successfully maintained, eventually leading to a permanent system.
Article 6: Effect of implementing decision support to activate a rapid response system by automated screening of verified vital sign data: A retrospective database study. 2022.	
Authors	Jerng Jih-Shuin et al. ²⁷
Method/Objective	Descriptive, cross-sectional and retrospective study of cases of RRT activation in the general ward from 2013 to 2017 and the incidence of cardiopulmonary resuscitation (CPR) from 2013 to 2020. To evaluate the effect of systematically implementing automated triage and reminder processes on the management and hospital outcomes of general ward patients.
Sample	We analyzed 27,747 activations and 64,592 DS alerts.
Results	The incidence of CPR in the general ward has decreased. We analyzed 27,747 activations and 64,592 clinical decision support-SDC alerts. RRT activations increased from 3.5 to 30.3 per 1,000 patient-days after its implementation. The first DS activations occurred earlier than conventional ones, and cases of RRT activation presented a lower risk of CPR and hospital mortality. Cases with more alerts before RRT activation had a higher risk of CPR and in-hospital mortality. The incidence of CPR in the general ward has decreased.
Conclusion	Compared to conventional manual activations of physiological abnormalities for an RRT, activations through the automated screening, reminder and notification process based on electronic medical records resulted in a reduction in the number of preventable deaths after resuscitation in general wards.

Source: author. 2023.

Discussion

This review sought to analyze the scientific evidence on the challenges of implementing rapid response teams, in addition to reflecting on the challenges of implementing these teams, according to the reviewed literature. The results demonstrate some common challenges in different locations, regarding training, effective participation of doctors, and the need for parameters to trigger RRT activation, among other determining factors in the implementation of RRT.

Training and qualification of teams and TRR

According to Richard Chalwin et al.,²⁰ the importance of having a well-trained and prepared team has been proven, and that care decisions are full of potential risks, including the need to guarantee the continuity of clinical responsibilities. Such elements are essential

to avoid omissions or delays in decision-making. After several team trainings, patients had an 8% lower mortality rate compared to the national average, proving that there is a favorable difference when there is cultural change and organizational. Furthermore, there was a significant reduction in users' and members' perceptions of interpersonal conflicts, with maturity in patient care and improved communication. Therefore, many improvements are possible, with the implementation of RRT, designation badges and a structured process of transfer of care, and the authors recommend that such changes should be seen as an ongoing, interactive process and supported by a professional training program.

Such evidence reveals the importance of training in bringing improvements to care for patients undergoing cardiac arrest in wards, although it is known that one of the challenges is low adherence by medical teams. Training was carried out in two stages, pre- and post-

training, in which hospital employees received questionnaires and answered them. Afterwards, they received training and answered the same questionnaires again.⁵ In general, employees acquire good use and adherence after training, resulting in more trained professionals. They recognize the importance of training and there is a positive return after the project. Consequently, there are significant changes from participants stating the improvement in care from Doctors and Nurses. The importance of a continued training course is highlighted, allowing you to increase mastery of procedures and skills, aiming to provide care in a dynamic and organized way.⁵

Features exclusive to TRR

In the context of the challenges of implementing the TRR, according to studies from the last 5 years, the difficulties are multifactorial. According to Song et al.,²¹ It doesn't matter if the doctor is an intensive care physician or a clinician, what matters is having a doctor exclusively for RRT. This is a challenge for all Hospitals, not just Korean Hospitals, considering that most team participants have double shifts. In Brazil, a study proved that the exclusive RRT team has a positive impact on reducing mortality and serious adverse events in general wards. In the studied sample, vital signs were collected manually and entered into the electronic medical record system, which in turn, generated an alert to a doctor scheduled to care for patients with MEWS equal to or greater than 4. In this activation model, with the dedicated doctor exclusively for the TRR, linked to software for automatic activation, demonstrated precision and speeded up care through the TRR, with an improvement in the occurrence of CA in adult wards.²²

Parameters for TRR activation trigger

The use of new technologies to activate the RRT is present in most studies since there is a need to define and standardize parameters in order to avoid false activations. These erroneous events cause a lack of sensitivity and stress on the team, as this is a possible occasion of cardiac arrest upon arrival of the RRT. In the study by Montenegro et al.,¹⁵ the cutoff point of the MEWS score suitable for triggering the RRT was investigated, making it difficult to have a specific parameter, as each institution defines which parameter to be used. Results showed the difficulty of comparing data with other institutions, therefore, the most appropriate option would be for each institution to use its own parameter based on local particularities, so that the RRT's performance could be adequate and reduce mortality rates or cardiorespiratory arrests of patients hospitalized in wards using the MEWS score.

In the study by Alves-Silva et al.,²² in a large hospital in the city of Ribeirão Preto, the MEWS 4 score was used as a specific parameter to trigger the RRT, based on a previous study in the same institution in the interior of São Paulo, Brazil Montenegro et al.,¹⁵ Vital signs such as heart rate, respiratory rate, blood pressure, temperature and level of consciousness were collected by trained nursing staff who manually collected these vital signs, fed them into the patients' electronic medical records, already generating the MEWS automatically, triggering activation through a touch on the screen when the result was MEWS 4. In this study, in addition to the exclusive doctor for the RRT, triggered by the use of big data (software) and, subsequently, the TRR team, it demonstrated to be more accurate and faster in responding to the patient's clinical deterioration, even more than the use of MEWS manually (telephone call after calculation by the operating system).

According to Fierce et al.,²³ the main triggers for activating the rapid response team in adults and children, demonstrate that although

technology is important, they still cannot check chest expansion, feel the pulse (being full, loud, rhythmic), nor listen for heart sounds and adventitious lung sounds. In this sense, it is still considered essential for the professional to be at the bedside, roles in which the doctor and nurse play a central role, as they can check the signs of the patient's clinical deterioration and define a course of action. For Reardon et al.,²⁴ the biggest challenges to having an implementation with great adherence is the inadequate recognition of the criteria and late activation of the RRT. In an analysis of 5,550 patients, 1,441 or 26% had a delay of approximately 1 hour between the time the call criteria were met and the activation of the RRT. The average age of patients who had a late activation was 66 years. There were more activations in patients with respiratory distress (29.3%), hypotension (17.4%) or if a care member was concerned (12.5%) and fewer activations in tachycardia, bradycardia or arrhythmias (15.9%), altered level of consciousness (13.5%), airway problems (2.6%), or seizures (0.3%). Therefore, late activation is associated with mortality and ICU admission.

In fact, given these results, it is clear that the activation of the RRT is related to symptoms and visual signs detectable during inspection (respiratory changes, for example), to the detriment of those that require palpation or more specific exams. In the same study, the length of hospital stay increased for the group with late RRT activation, being between 13 and 15 days. Another problem for late activation is normalized vital signs resulting from treatment medications that mask symptoms, potentially delaying the diagnosis of a dangerous condition resulting from deterioration. However, this study does not have data related to delays of less than 1 hour.

Furthermore, according to Connolly et al.,²⁵ late activation is more frequent in patients over 55 years of age, generating a longer hospital stay. In trauma, RRT was activated in 4.1% of patients after 30 minutes, with an average time of 5 minutes to 41 minutes. However, in this study, there was no decrease in mortality, length of stay or operative management time, as only patients with blunt trauma and penetrating injuries were evaluated. Furthermore, these patients over 55 years of age do not have the same physiological response as a young person, causing their vital signs to be confused, reassuring even with altered vital signs. However, there was a small percentage of delayed activations (37% of patients) that did not lead to a reduction in mortality. After analyzing the cases, the reason for the delays was considered multifactorial.

Financing of rapid response teams

Considering that a MEWS 4 is an acceptable trigger for the RRT, as long as there is a "just in time" alert generation system, that is, generated automatically after insertion of data into the medical record, the trigger challenge would be resolved, not was another aspect: the challenge was to obtain financing to implement these systems, in addition to training the teams. However, both when using MEWS 4 and using manual multiparametric EWS, the final results were significant rates of reduction in deaths.²² Furthermore, the literature analyzed makes clear the issue of the difficulty in maintaining exclusive doctors and nurses for the RRT, which represents a real challenge for the successful implementation of these team.^{20,22} In the scoping review Gondim et al.,²⁶ the nurse's role in assessment, physical examination, fall risk scales, pressure injuries, measurement of vital signs and nursing reports are present in most technologies used to predict clinical deterioration. However, there is a lack of infrastructure, inadequate human resources, incorrect sizing of nursing professionals according to the complexity of patient care, lack of continuous monitoring of vital signs and lack of equipment.

All these elements delay the detection of the first changes in real time, which allows the question to be raised about whether the nursing team is exclusively responsible for feeding all these technologies with data collection, and whether other professionals could also access this for two systems. The multidisciplinary team could have access to these records in a complementary way, at other times in addition to the nursing records themselves, because, even with so many technologies, nursing is indispensable in providing a comprehensive look at the patient and in assessing the level of consciousness, when considering in MEWS parameters.^{27,28}

Conclusion

This study aimed to identify in the literature what were the biggest challenges in implementing a Rapid Response Team. The main challenges were the lack of human resources and the lack of training of ward professionals. Another challenge was knowing the importance of collecting data on vital signs, hence the lack of adherence. Importantly, the challenge of defining the ideal trigger for activating the RRT recurs in several studies. In fact, there is evidence of difficulties in identifying the main triggers for activation along with the lack of funding for soft technology tools, such as MEWS and EWS scores, in addition to soft-hard technologies, to assist in early and agile verification of deterioration. inpatient clinic in wards. Also noteworthy are the lack of funding and the lack of professionals dedicated exclusively to TRR.

In our daily practice in health services, the manual measurement of vital signs, associated with the lack of knowledge or unpreparedness of professionals who often do not give due importance to the real-time recording of vital signs, can directly affect the effectiveness of the RRT. It must also be considered that, in less developed places, electronic medical records are not even used to feed the data collected in the wards. In this condition, the clinical assessment is completely linked to a good physical examination of the patient by the health professional, who is often overwhelmed with many tasks and a lack of human resources, a fact brought out by other studies that show the Brazilian reality.

The RRT is not unanimous in most Brazilian hospitals, and little is known about its role. Brazil is a country with a vast territory and numerous local peculiarities, which makes it difficult to use scores to obtain precision in the patient's clinical decline and thus obtain safety in patient care, providing greater security for professionals. in assistance. The lack of studies and research is present in Brazilian literature, as when researching the topic of the challenges of implementing the rapid response team, it was noted the scarcity of field research and development of tools for this purpose. In this sense, we suggest further studies and training of health professionals with more training in this area, as, in most of the final results obtained with the use of RRT, when activated in a shorter time, a real improvement was obtained in terms of reducing PCR and death events. Furthermore, the effective performance of the RRT promotes a reduction in hospitalization time, a reduction in patient transfers to intensive bed spaces and a reduction in the mortality rate.

Therefore, it is urgent to invest in the implementation of RRT in our environment, in addition to systematically publicizing their functionality and importance for safety in patient care, in Brazilian hospital institutions, with a view to improving quality and patient safety.

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None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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