AMERICAN UNIVERSITY OF BEIRUT

ENHANCING INTERDISCIPLINARY TEAM DYNAMICS TO
ENSURE EFFECTIVE RAPID RESPONSE IN CRITICAL
SITUATIONS

by
IBRAHIM KHALIL TAKKOUSH

A project
submitted in partial fulfillment of the requirements
for the degree of Master of Science in Nursing
to the Rafic Hariri School of Nursing
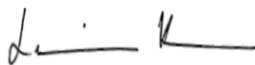at the American University of Beirut

Beirut, Lebanon
January 2024

AMERICAN UNIVERSITY OF BEIRUT

ENHANCING INTERDISCIPLINARY TEAM DYNAMICS TO ENSURE EFFECTIVE RAPID RESPONSE IN CRITICAL SITUATIONS
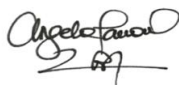
by
IBRAHIM KHALIL TAKKOUSH

Approved by:

_____

Dr. Lina Abi Fakher Kantar, Clinical Associate Professor   First Reader
Rafic Hariri School of Nursing

_____

Dr. Angala Massouh, Assistant Professor   Second Reader
Rafic Hariri School of Nursing

Date of project presentation: January 23, 2024

AMERICAN UNIVERSITY OF BEIRUT

PROJECT RELEASE FORM

Student Name: ____Takkoush_____Ibrahim_____Khalil_____
                        Last   First   Middle

I authorize the American University of Beirut, to: (a) reproduce hard or electronic copies of my thesis; (b) include such copies in the archives and digital repositories of the University; and (c) make freely available such copies to third parties for research or educational purposes:

☒ As of the date of submission

☐ One year from the date of submission of my project.

☐ Two years from the date of submission of my project.

☐ Three years from the date of submission of my project.

Ibrahim Takkoush
_____ February 6, 2024

Signature   Date

ACKNOWLEDGEMENTS

ABSTRACT
OF THE PROJECT OF

Ibrahim Khalil Takkoush   for   Master of Science in Nursing
                                                Major: Nursing Adult Gerontology Clinical Nurse
                                                 Specialist

Title: Enhancing Interdisciplinary Team Dynamics to Ensure Effective Rapid Response in Critical Situations

Rapid response teams are initiatives created to enhance the safety of hospitalized patients experiencing rapid deterioration in their condition. These initiatives involve the identification of at-risk patients, immediate notification of a pre-trained response team, quick intervention by the response team, and continuous assessment and monitoring of the patient's condition (DeVita et al., 2006). The initiation of rapid response is the responsibility of registered nurses, yet dependent on the utilization of a scoring system referred to as the Modified Early Warning Score (MEWS). MEWS serves as a straightforward bedside assessment tool, evaluating the patient's physiological condition through the assessment of six vital signs: heart rate, blood pressure, respiratory rate, core body temperature, cognitive status, and urine output (Gardner-Thorpe et al., 2006). Multiple research findings indicate that the implementation of rapid response systems leads to positive outcomes in terms of patient morbidity and mortality (Al-Omari et al., 2019; Gong et al., 2020). However, the process of rapid response, like any complex healthcare system, is not without flaws and challenges. Miscommunication between medical-surgical nurses, intensive care nurses, and physicians during rapid response events is challenged, where communication failure is a leading cause of adverse events within the healthcare system (Dayton & Henriksen, 2007). Addressing these communication challenges is essential for patient safety, to improve the effectiveness of rapid response teams. Pursuing the above, it is essential to develop this project to improve communication between healthcare providers during an event.

At the American University of Beirut Medical Center (AUBMC), the implementation of evidence-based practices to drive quality improvement and improve patient outcomes is fundamental for practicing health professionals and, more importantly, for nurses. Recognizing the importance of evidence-based practice in health care, this project aims to improve patient outcomes at AUBMC by addressing communication challenges and providing up-to-date knowledge and skills related to rapid response matters.
After gaining approval from the Clinical and Professional Development Center (CPDC) at the AUBMC, we will establish a multidisciplinary team comprising clinical nurse specialists, registered nurses, physicians, quality improvement personnel, and clinical educators. This team brings diverse perspectives and expertise to the educational initiative and will help disseminate the educational material.

The educational program will be designed to ensure that the rapid response team members have up-to-date knowledge, skills, and attitudes essential to enhance team dynamics and ensure effective communication between the designated members.

The timeline for the implementation of the project to enhance rapid response systems at AUBMC spans over 3 months. Beginning with project initiation and approval, the project progresses through phases such as team formation, revision of the available assessment tool, and development of an educational program. Implementation of the program, training, and evaluation follow, ensuring healthcare professionals acquire the knowledge and skills needed for effective rapid response.

Gagne's instructional model (1985) will be used to guide the instructional process of this educational program, as this model targets five essential learning domains: content, intellectual skills, cognitive strategies, and psychomotor skills, such as physical assessment techniques and attitudes. The simulation will be integrated into the program to train health professionals on how to respond and communicate effectively during a rapid response scenario. A comprehensive literature review will be conducted to identify best practices and evidence-based approaches, thereby enhancing our daily practice. Evidence and insights gained from the search will be incorporated into the education plan.

Program evaluation ensues to include knowledge acquisition, practical application, and participants' satisfaction with the program. Accordingly, the program will undergo assessments on several levels: initially, by measuring knowledge acquisition via simulated scenarios, followed by assessing the correct application by participants through mock codes, and finally evaluating participants' satisfaction with the course material and instruction. Evaluating the implementation process of the updated rapid response will be done by direct observation from clinical nurse specialists, nurse managers, and nursing shift administrators during an actual event.

In conclusion, this project aims to enhance the efficiency of rapid response systems in healthcare, which plays a crucial role in safeguarding patients experiencing rapid clinical deterioration. Challenges related to communication persist, emphasizing the need for improvement. The project's goal is to improve team dynamics during rapid response events.

TABLE OF CONTENTS

TABLES

Table

CHAPTER I

INTRODUCTION AND BACKGROUND

Rapid response systems are initiatives that enhance the safety of hospitalized patients experiencing rapid deterioration in their health condition. These initiatives include proactive identification of at-risk patients, immediate notification of a pre-trained response team, swift intervention by the response team, and continuous evaluation of the system's effectiveness (DeVita et al., 2006). The initiation of rapid response is the responsibility of registered nurses, yet it depends on using a scoring system referred to as the Modified Early Warning Score (MEWS). MEWS is a routine bedside assessment tool that evaluates the patient's condition by assessing six vital signs: heart rate, blood pressure, respiratory rate, temperature, cognitive status, and urine output (Gardner-Thorpe et al., 2006). Numerous research findings have revealed that implementing rapid response systems leads to positive outcomes in terms of patient morbidity and mortality (Al-Omari et al., 2019; Gong et al., 2020). However, the process of rapid response, like any complex healthcare system, has its challenges. Communication between medical-surgical nurses, intensive care nurses, and physicians during rapid response events is challenging, where communication failure is a leading cause of adverse events within the healthcare system (Dayton & Henriksen, 2007).

In the last 25 years, the Rapid Response Team's (RRT) work has evolved from handling in-hospital cardiac arrests to a widely adopted system for patient safety (Chan et al., 2010; Jones et al., 2011). Over this period, research, and evaluation of the Rapid Response System (RRS) has consistently shown increasing frequencies of RRT calls, reflecting the success of RRS and the increasing activity levels in the hospitals they serve.

To a certain degree, this indicates a positive recognition and application of a patient safety protocol. RRT utilization within healthcare organizations has increased patient survival rates (Herod et al., 2014; Hillman et al., 2014; Jones et al., 2009). However, increasing RRT activation poses a significant logistical and resourcing burden (Jones et al., 2012; Sethi & Chalwin, 2018a, 2018b).

A. Challenges Faced During Rapid Response

The increase in the activation of RRT within a hospital has been linked with improved patient survival rates (Chalwin et al., 2016). Lack of ability in non-technical skills, such as communication and collaboration, during RRT events, has been identified as a contributing factor for avoidable repeated calls (Chalwin et al., 2020). Using non-technical skills is essential because of time restrictions and clinical pressures when dealing with a deteriorating patient (Chalwin & Flabouris, 2013; Jones et al., 2006).

In healthcare, multidisciplinary communication is an active process involving the exchange and reception of information. In this process, at least one person needs to have practical listening skills, an ability to understand the message, and a willingness to answer questions that help in interpreting non-verbal cues. These qualities encourage the speaker and increase the overall quality of the conversation (Chichirez & Assistant, n.d.). Effective communication among healthcare members is vital for patient safety and high-quality care. For example, interdisciplinary teams in healthcare settings need to share information, coordinate care, and make critical decisions. When healthcare professionals have effective communication skills, they can collaborate more efficiently, reducing the risk of errors and ensuring a proper patient care experience (LT et al., 2000). During a rapid response,

8

patients receive care from multiple specialists. Miscommunication among these providers can result in fragmented care and conflicting treatment plans, potentially harming the patient.

One of the most common communication problems is the delay in activating the Rapid Response Team (RRT). Healthcare professionals on medical-surgical units may not always identify the signs of clinical deterioration, or they may hesitate to call for help. This hesitation can result from a lack of confidence in their assessment, fear of overburdening the RRT, or a hesitation to admit that a patient's condition is worsening. These delays can be harmful, as quick intervention is important in preventing adverse events (Chua et al., 2017). When a healthcare professional activates the RRT, they must deliver a comprehensive report on the patient's condition and the reasons for concern. However, important details may be missed or not adequately delivered, leading to misunderstanding and suboptimal decision-making by the RRT. Clear information sharing is essential to ensure the RRT can respond appropriately (Al-Qahtani & Al-Dorzi, 2010). Hierarchical structures within healthcare settings can hinder effective communication during rapid response events. Junior providers may feel reluctant to challenge or question the decisions and actions of senior healthcare professionals. This reluctance can affect the exchange of key information and lead to suboptimal care (O'Daniel & Rosenstein, 2008). The lack of standardized communication tools and protocols can lead to confusion and errors during rapid response events. Healthcare professionals may use terminologies, abbreviations, or methods of providing information, which can result in misunderstandings and misinterpretations (Dingley et al., 2008).

Information overload can also be an issue. During high-stress situations, team members may receive excessive information, making it challenging to focus on critical details. This can lead to "noise" in the communication process, potentially causing critical information to be overlooked. Effective communication during rapid response events requires concise prioritization and delivery of the most essential information (Sbaffi et al., 2020).

B. Project Significance

The optimization of rapid response team dynamics within healthcare carries great implications for the quality of patient care and the resilience of the healthcare workforce. In emergencies, where instant decisions can influence patient outcomes, the collaborative efficiency of a rapid response team is crucial. Improved team dynamics ensure the swift transmission of information and provide a sense of purpose among healthcare professionals, leading to more cohesive and efficient decision-making processes.

The nature of healthcare work demands consistent collaboration among professionals with diverse specialties. Enhanced team dynamics breaks down barriers and encourages open communication, allowing physicians, nurses, respiratory therapists, and other healthcare providers to work together during emergencies. This valuable collaboration ensures that the response is rapid and comprehensive, addressing the different aspects of patient needs holistically (Lancaster et al., 2015).

Reducing the incidence of adverse events and medical errors is essential in healthcare settings. By providing effective team dynamics, healthcare professionals can

avoid risks associated with emergencies. Clear communication and a culture of collaborative work contribute to a safer environment, promoting a standardized approach to care that minimizes the potential for errors, thus enhancing patient safety (Rosen et al., 2018a).

The impact of improved team dynamics extends beyond patient care to the well-being of healthcare professionals. Emergencies can be emotionally and physically devastating, often leading to burnout (Kumar Kar et al., 2021). A supportive and collaborative environment nurtured by enhanced team dynamics lessens the incidence of burnout, contributing to staff resilience and overall well-being. This, sequentially, has long-term benefits for both individual healthcare providers and the healthcare system (Rosen et al., 2018b).

Resource optimization is another noteworthy advantage of well-coordinated team dynamics. Efficient use of personnel, equipment, and facilities improves the quality of care and contributes to cost efficiency within healthcare institutions. This resource optimization allows for better allocation of assets, ensuring that limited resources are used wisely (Eddy et al., 2016).

Continuous professional development is essential in the cultivation of effective team dynamics. Regular training sessions, simulations, and debriefing exercises contribute to the continuous skill development of healthcare professionals, ensuring that the rapid response team stays well-prepared to manage the evolving area of emergency scenarios (Namatovu et al., 2023).

In addition, the positive reputation of healthcare institutions is indirectly linked to the efficacy of their rapid response teams. A well-coordinated and efficient response during emergencies introduces confidence in patients and their families and contributes to overall patient satisfaction. This trust is essential for the long-term success of healthcare organizations, emphasizing the lasting impact that improved team dynamics can have on the institutional standing within the community (Benin et al., n.d.).

Essentially, enhancing rapid response team dynamics in healthcare will create a transformative chain effect from immediate improvements in patient care and safety to fostering a resilient and satisfied healthcare workforce. The optimization of team dynamics is a key to building a healthcare system that is not only effective but also compassionate and sustainable in the face of emergent challenges.

This project aims to develop a program to improve the RRT operations and responsibilities and reduce the frequently encountered challenges. The proposed project will

include training modules designed to improve skills and knowledge base of the Rapid Response Team. This includes scenario-based simulations, updated protocols, and skill-improvement sessions to address the unique challenges during rapid response events. The course will be provided to all healthcare professionals who engage in rapid response events at the American University of Beirut Medical Center (AUBMC).

CHAPTER II
LITERATURE REVIEW

The importance of effective team dynamics for providing high-quality patient care cannot be over-emphasized within nursing. The cooperative nature of healthcare requires that nurses work in collaboration with other healthcare professionals to address the complex needs of patients. Strong team dynamics lead to a holistic approach to patient care, where nurses and other healthcare providers introduce their unique skills to address physical, emotional, and psychological aspects of a patient's well-being (Rosen et al., 2018a). This collaborative approach is linked to improved patient outcomes, as studies consistently show a positive correlation between strong team dynamics and decreased mortality rates, reduced complications, and improved patient outcomes (Blumenthal et al., 2018; Rosen et al., 2018b). As frontline healthcare professionals, nurses play an important role in encouraging open and effective communication among team members, preventing misunderstandings, reducing errors, and promoting a shared understanding of care plans (Wakefield et al., 2021a). Additionally, effective team dynamics allow for optimal resource utilization, reducing errors, and maximizing the efficiency of patient care (Buljac-Samardzic et al., n.d.).

A. Nurses' Role and Implications in Rapid Response Teams

Nurses play a vital role in the effectiveness of rapid response teams, contributing significantly to patient outcomes in critical situations. Their involvement is key at various stages of the rapid response process, and their involvement has direct implications for the timely and coordinated provision of care (Padilla et al., 2018). A

primary responsibility of nurses is the early identification of subtle changes in a patient's clinical condition that may suggest deterioration. Through continuous monitoring and assessment, nurses are the first to identify signs of deterioration, prompting the activation of the rapid response. This early identification is important in preventing further deterioration and improving patient outcomes (Massey et al., 2017).

Nurses are essential in coordinating rapid responses, activating the team, ensuring swift arrival, and facilitating communication among providers. This coordination is essential for creating a coordinated response, ultimately increasing the efficiency of interventions (Razavi et al., 2022). As leaders in rapid response, nurses must implement evidence-based practices, drawing on their knowledge to contribute to decision-making and adherence to established protocols and best practices. This commitment significantly increases the quality and effectiveness of rapid response teams (Dagne & Beshah, 2021).

In addition to their leadership role, continuous monitoring and follow-up are imperative for nurses in rapid-response situations. Remaining actively involved in patient care, nurses monitor the response to interventions and make necessary adjustments. This ongoing monitoring contributes to the improvement of the team's approach, eventually leading to better patient care (Giuliano, 2017).

In addition, documentation and reporting are critical aspects of the nurse's role in the rapid response. Accurate documentation of the events leading up to the response, interventions done, and the patient's response to therapy provide essential information for future care and quality improvement initiatives (Wolf & Hughes, 2008).

Education and training are ongoing responsibilities for nurses in rapid response. Through continuous learning, they must stay up to date on the latest protocols, interventions, and best practices. In addition, nurses play a vital role in educating patients and other healthcare professionals about the role of rapid response, contributing to a culture of awareness and preparedness (Chaghari et al., 2017). In this comprehensive approach, nurses lead the initial response and contribute to the long-term effectiveness of rapid response teams.

B. Barriers to Effective Rapid Response of Nurses

The challenges nurses face in responding immediately and effectively in rapid-response situations necessitate the need for a more in-depth exploration of systemic flaws within the healthcare system. Looking past the immediate factors, such as inability to recognize patient deterioration, other problems contribute to the hesitancy and delays experienced by nurses (Iddrisu et al., 2018).

Lack of training and education can significantly delay nurses' preparedness and confidence when dealing with acute situations (Al Harthi et al., 2020). The dynamic nature of healthcare environments requires nurses to have knowledge and skills that extend beyond the scope of initial training. Identifying and responding to acute situations requires proficiency that comes with continuous learning and exposure to various scenarios (Papathanasiou et al., 2014).

To tackle this challenge, investing in ongoing education programs designed for nurses is crucial. Apart from routine training sessions, these programs should include advanced simulations and real-life experiences. Simulations can imitate high-stakes

situations, allowing nurses to apply theoretical knowledge in a controlled environment. Exposure to real-life scenarios through case studies or practical skills further enhances their ability to deal with diverse and complex scenarios (Koukourikos et al., 2021a).

The importance of ongoing education lies in its ability to bridge the gap between theoretical knowledge and practical application. It ensures that nurses understand the principles and protocols and develop the skills and confidence to implement them effectively in real-time situations. This continuous learning approach fosters a culture of endless learning and adaptability within nursing (Hashemiparast et al., 2019).

By investing in these comprehensive education programs, hospitals and other healthcare institutions can empower nurses to continually improve their skills. This, in turn, not only enhances individual nurses' confidence and preparedness but also contributes to the overall resilience and effectiveness of the healthcare system (Wakefield et al., 2021b).

Communication barriers present an additional layer of complexity within the rapid response system, expanding beyond individual communication skills. Addressing these challenges requires a holistic approach that recognizes systemic flaws. Changing organizational cultures to prioritize open communication becomes essential for creating an environment conducive to effective and efficient rapid responses (Norouzinia et al., 2016).

Hierarchy within healthcare organizations can stop the flow of information, reducing effective communication among team members (O'Daniel & Rosenstein, 2008). To overcome this, there is a need for a cultural change that values information from all levels of the healthcare hierarchy. Establishing an inclusive environment where

every team member feels empowered to communicate openly is necessary. This involves breaking down traditional hierarchies and fostering an atmosphere where ideas and concerns are valued regardless of one's position within the organization (Veli Korkmaz et al., 2022).

Fear of negative attitudes and responses from a team member is another significant barrier that can hinder communication within healthcare teams. As important members of rapid response teams, nurses need assurance that voicing concerns or suggesting alternative approaches will not result in negative consequences. Healthcare institutions should actively work towards creating a safe space for open speech, emphasizing a culture that views feedback as an opportunity for improvement rather than a form of criticism (O'Daniel & Rosenstein, 2008).

Additionally, creating places for regular team dialogues is crucial in improving communication dynamics. Scheduled team meetings, debrief sessions, and open forums allow nurses to express concerns, share opinions, and collaborate on improving response strategies. These platforms encourage teamwork and allow for the exchange of different perspectives, contributing to more comprehensive problem-solving during critical situations (Severson et al., 2014).

Moreover, the failure to escalate care highlights individual challenges and underscores systemic flaws in care coordination and decision-making processes within healthcare settings. This barrier focuses on the need for a proactive approach to care escalation, necessitating ongoing efforts in continuous quality improvement initiatives (Ede et al., 2020).

To address this matter, healthcare organizations should prioritize promoting a proactive culture around care escalation. This involves the creation of clear and well-defined protocols for identifying when and how to escalate care in different situations. These protocols should be regularly revised and updated based on feedback, evidence-based practices, and lessons learned from previous incidents (Linnander et al., 2021).

Regular training on escalation of care is essential for ensuring that healthcare professionals, including nurses, are well-equipped to make informed and timely decisions in critical situations. Training programs should not only focus on the theoretical elements of escalation but also introduce practical scenarios and simulations to enhance the application of knowledge in real-life scenarios. This hands-on approach contributes to developing a skilled and confident healthcare professional capable of handling the complexities of care escalation (Cotter et al., 2019).

Empowering nurses to make decisions is crucial in avoiding delays and improving the overall effectiveness of healthcare teams. This empowerment involves creating a culture where nurses feel confident in recognizing signs of deterioration and initiating appropriate escalation measures. Creating an environment that values and supports timely decision-making is crucial for ensuring a fast and effective response in critical situations (Gottlieb et al., 2021).

C. Role of Training in Rapid Response Systems

Despite initiatives made to enhance patient safety in acute care settings, incidents of patient injuries, unexpected deaths, and unplanned admissions to intensive care units persist. The status quo has been related to failure of healthcare providers in

identifying patients' clinical deterioration, and thus responding swiftly to rescue the situation (Sittner et al., 2009). Using human patient simulation as an instructional method allows the training of nurses and other healthcare professionals on how to identify clinical instability and prioritize patient care.

Nurses can apply their knowledge, enhance clinical judgment, and improve psychomotor skills through simulated scenarios. These simulation exercises also allow healthcare providers to become more competent in handling uncommon or unexpected situations (Gaba, 2004). Simulation-based training programs have evolved to become a key component in enhancing nurses' preparedness and effectiveness in rapid-response situations. These programs play a crucial role in closing the gap between theoretical knowledge and practical application by exposing nurses to a realistic and dynamic learning environment. High-fidelity simulation effectively reflects the complexity and difficulty of critical care situations, offering nurses a priceless chance to handle the complex problems that arise in rapid-response situations (Bienstock & Heuer, 2022). The nature of simulations goes beyond just replicating the physical environment; it actively engages nurses in decision-making processes under time limits. This experiential learning approach enhances nurses' critical thinking skills. It improves the ability to make swift and accurate decisions, a necessary requirement in the high-pressure context of rapid response scenarios (Koukourikos et al., 2021).

A study done by Wheeler et al. 2013, showed that in situ simulation training can help detect hidden safety risks, identify areas of knowledge deficiency, and strengthen collaboration when integrated into a comprehensive safety initiative across an organization. Another study on the use of simulation to improve cardiopulmonary resuscitation performance and code team communication for pediatric residents showed

that participants have reported that their engagement enhanced their assurance and ease in handling cardiorespiratory events. In addition, practicing communication techniques has contributed to the enhancement of their teamwork and sign-out skills. Notably, there was an improvement in rhythm recognition and CPR performance scores in simulation scenarios, and participants subjectively reported improvement during real cardiorespiratory events (Couloures & Allen, 2017).

A notable feature of simulation-based training is its ability to facilitate interprofessional collaboration. These programs foster effective communication, teamwork, and coordination by bringing together healthcare providers from different disciplines in a simulated clinical setting. This collaborative approach ensures that nurses are well-versed in working with different team members, a critical aspect of managing complex and rapidly evolving healthcare scenarios (Reevess, 2018).

D. Role of Interprofessional Education Programs in Improving Rapid Response

Interprofessional education (IPE) is a collaborative approach that involves healthcare professionals from different disciplines learning together to enhance their understanding, communication, and teamwork (Campeanu, 2022). IPE programs are essential in preparing nurses for rapid response situations by improving collaborative skills and enhancing communication within interdisciplinary teams. These programs expose nurses to professionals from multiple healthcare disciplines, creating a collaborative mindset essential for effective teamwork in urgent scenarios (Mohammed et al., 2021). Through comprehensive communication skills development, nurses learn to provide critical information clearly and concisely, which is crucial for fast and accurate decision-making during rapid response (Kourkouta & Papathanasiou, 2014).

IPE programs clarify roles and responsibilities within a team, enabling nurses to understand the unique skill set of each colleague and facilitate an efficient response in emergencies (Zenani et al., 2023). The involvement of simulation training in many IPE programs offers hands-on experience, allowing nurses to practice coordination, communication, and decision-making in a controlled setting, effectively preparing them for real-life rapid response scenarios. Additionally, these programs highlight crisis resource management skills, ensuring nurses efficiently use available resources during emergencies. By facilitating a culture of shared decision-making and promoting cultural competence, IPE programs contribute to creating a collaborative and cohesive healthcare environment, which is essential for successful outcomes in rapid-response scenarios (Yu et al., n.d.).

CHAPTER III

THE PROGRAM

This chapter provides information about our program which aims to train healthcare professionals on how to improve team dynamics during a rapid response event. Information regarding the program description, program learning outcomes, delivery approach, target audience, content, assessment strategies, and structure is elaborated within this chapter. Program content encompasses early identification of patients' deteriorating health, determining the appropriate time to initiate rapid response, promoting teamwork in addressing rapid response events, and handling post-event patient management. Content will be delivered in a simulated classroom using discussion, hands-on simulations, and case studies. Further details regarding inviting potential candidates and program implementation and evaluation will be discussed in Chapter 4.

A. Program Description

The program will cover various key aspects related to rapid response events in healthcare. The curriculum includes discussions on early identification of deteriorating patients, the activation process for rapid response teams, effective teamwork during emergency situations, intervention strategies, prioritization of patient care, post-event patient management, and debriefing practices. However, emphasis will be placed on regulatory compliance, documentation requirements, and continuous improvement through post-event analysis. The program will also allow for exploring communication challenges during rapid response events and ensuring the effectiveness of team efforts.

Topics addressing the psychological aspects of debriefing and ensuring compliance with standards will also be included. Participants will engage in hands-on simulations, communication exercises, and case studies to effectively enhance their skills in managing rapid response events.

B. Purpose

The program aims to advance the knowledge and skills of healthcare professionals on rapid response events by providing a blend of theoretical knowledge and hands-on simulations. Participants will refine their skills in early identification of patient deterioration, team collaboration during emergencies, and effective management of rapid response situations. The goal is to boost confidence, communication, and decision-making abilities by enabling healthcare professionals to deliver optimal care in high-pressure scenarios and contribute to improved patient outcomes.

C. Target Audience

The program will target all healthcare providers involved in rapid response. Eventually, this includes medical-surgical and critical care nurses, intern and resident physicians, and respiratory therapists at the American University of Beirut Medical Center. It is estimated that around 250 providers will attend the program. With this substantial number of providers, the program will be offered several times with a cohort of 30 participants per offering.

D. Program Learning Outcomes

At the end of this program, participants will be enabled to:

1. Assess early signs of patient deterioration using the Modified Early Warning Score (MEWS).

2. Demonstrate effective communication and teamwork skills during rapid response events.

3. Apply elements of the nursing process during each event (Assessment, diagnosis, planning, implementation, and evaluation).

4. Demonstrate proper documentation and reporting practices by nurses and physicians before, during, and after patient deterioration and rapid response team activation.

5. Communicate clearly and efficiently with patients and family members during high-pressure situations.

6. Make informed and timely decisions in the context of rapid response events.

E. Delivery Approaches

The program on rapid response will be provided didactically and in a simulated setting; dividing a session into two parts allows participants to maintain a higher level of focus during each session. Shorter durations help prevent cognitive fatigue, leading to better retention of information (Blasche et al., 2018). Healthcare professionals often have demanding schedules. Shorter sessions allow more flexibility in scheduling, making it easier for participants to manage their time and balance professional responsibilities (Kaplan et al., 2015). Utilizing an interactive learning methodology, the program aims to enhance comprehension, acquisition, and implementation of principles and mechanisms during rapid response events.

Organized across a three-week period, the program delivers six hours of content, featuring two sessions per week for each group, each spanning one hour. As for simulation, the sessions will provide healthcare professionals with hands-on, subject-specific learning activities tailored to rapid response scenarios. In this regard, participants will join simulated sessions in a designated area, immersing themselves in a secure and controlled learning environment. These sessions allow real-time interaction and engagement, creating an interactive and rich educational experience.

F. Assessment Approaches

At the end of the course program, knowledge acquisition will be assessed using a simulated scenario. Participants will randomly pick the scenario; each simulation will include a group team consisting of an intern, a resident, a medical-surgical nurse, a critical care nurse, and a respiratory therapist. Participants will be required to collaborate to solve the provided case situation. The evaluation will be done for the group, not individually.

G. Evaluation Scheme

60% will be assigned to attendance (10% assigned for each hour attended) and 40% to the final simulated scenario.

H. Program Outline

An extensive literature review on rapid response knowledge and management was conducted in preparation for this program. This thorough research was the

foundation for session planning, content identification based on the latest evidence, developing a comprehensive PowerPoint presentation that includes audiovisual content, formulating relevant case studies, and creating engaging practice simulations.

The course structure consists of two weekly sessions for each team, each lasting for one hour. These sessions will cover topics from the literature review, incorporating insights from the latest evidence. The final session will be a graded simulated scenario, allowing participants to apply their knowledge in a realistic and challenging environment.

Importantly, the program content will encompass theoretical aspects and address and navigate challenges identified during the literature review. This ensures that participants are well-equipped to handle real-world complexities and challenges encountered in the field of rapid response in healthcare.

Unit 1: Introduction to Rapid Response Situations

Unit 2: Fundamentals of Rapid Response

Unit 3: Communication Challenges and Team Coordination

Unit 4: Simulation Training Basics

Unit 5: Simulated Scenarios - Essential Healthcare Skills

Unit 6: Simulated Scenarios - Effective Healthcare Communication and Documentation

Unit 7: Simulated Scenarios - Comprehensive Training in Critical Care

Table 1 Unit 1 Introduction to Rapid Response Situations

Unit 1	Introduction to Rapid Response Situations
Outline	• Overview of the course structure

	• Definition and significance of rapid response
	• Importance of training sessions in improving patient outcomes
	• Case study
Duration	60mins
Teaching Method	• Independent readings on Moodle
Learning Outcomes	• Define what rapid response situations are.
	• Identify potential risks associated with rapid response
Content	Appendix A

Unit 1 Description

The first chapter will be an introduction to rapid response; emphasis will be on the risks associated with rapid response and the importance of training sessions to mitigate these risks. Examples will include case studies that allow participants to share their experiences and knowledge during discussions.

Table 2 Unit 2 Fundamentals of Rapid Response

Chapter 2	Fundamentals of Rapid Response
Outline	• Identifying triggers and warning Signs
	• Activation of rapid response teams
	• Understanding the time-critical nature
Duration	60 minutes
Teaching Method	• Independent reading on Moodle
Learning Outcomes	• Identify early warning signs of patient deterioration.
	• Use of MEWS to identify deteriorating patients.
Content	Appendix B

Unit 2 Description

This unit will address the clinical aspects of healthcare, covering identifying early triggers and warning signs of patient deterioration, means to assess patients, and when to activate a rapid response, with emphasis on understanding the importance of time efficiency.

Table 3 Unit 3 Communication and Team Coordination

Chapter 3	Communication and Team Coordination
Outline	- Roles and responsibilities of each team member - Barriers to Effective Communication - Effective vs. Ineffective Communication - Use of SBAR tool for communication
Duration	60 min
Teaching Method	Lecture format
Learning Outcomes	- Recognize the importance of each team member. - Identify potential communication challenges and risks. - Develop skills in coordinating tasks within a team. - Demonstrate active listening techniques.
Content	Appendix C

Unit 3 Description

This unit will focus on team building by defining the role of each provider in the RR team, identifying the barriers to communication, and providing strategies to improve communication between various members of the RRTs. Video clips will be included in the lecture portraying different scenarios and comparing the impact of effective communication to ineffective communication in terms of patient safety.

Table 4 Unit 4 Simulation Training Basics

Unit 4	Simulation Training Basics
Outline	- Introduction to simulation in healthcare - Simulated environment setup and equipment - Overview of scenario design principles
Duration	60 minutes

Teaching Method	• Lecture format • Simulation
Learning Outcomes	• Understand the fundamental principles of simulation training. • Acquire hands-on experience with simulation equipment. • Learn the different scenarios of a simulated environment
Content	Appendix D

Unit 4 Description

Unit four involves hands-on simulated scenarios. Participants will have the opportunity to learn about the different practical scenarios relevant to healthcare practice. Participants will collaborate by solving different timed scenarios provided for them (Appendix E). This collaborative approach will improve communication; time constraints in training scenarios aim to mirror the pressures of real-life situations, providing participants with a genuine experience that closely resembles the challenges they may face in the actual professional environment.

Table 5 Unit 5 Simulated Scenarios - Essential Healthcare Skills

Unit 5	Simulated Scenarios - Essential Healthcare Skills
Outline	• Initial assessment and triage • Team coordination and delegation • Medication administration and procedures
Duration	45 min
Teaching Method	• Simulation
Learning Outcomes	• Implement and adhere to patient safety protocols within simulated scenarios. • Develop and apply effective patient-centered communication skills. • Explore and incorporate healthcare technologies within simulated scenarios. • Develop proficiency in emergency response and critical decision-making within simulated scenarios.

Content	Appendix E

Table 6 Unit 6 Simulated Scenarios - Effective Healthcare Communication and Documentation

Unit 6	Simulated Scenarios - Effective Healthcare Communication and Documentation
Outline	• Communication with family members • Post-Event debriefing • Documentation
Duration	60 min
Teaching Method	• Simulation
Learning Outcomes	• Implement and adhere to patient safety protocols within simulated scenarios. • Develop and apply effective patient-centered communication skills. • Explore and incorporate healthcare technologies within simulated scenarios. • Develop proficiency in emergency response and critical decision-making within simulated scenarios.
Content	Appendix E

Table 7 Unit 7 Simulated Scenarios - Comprehensive Training in Critical Care

Unit 7	Simulated Scenarios - Comprehensive Training in Critical Care
Outline	• Cardiovascular emergencies • Respiratory distress • Neurological events • Sepsis and septic shock
Duration	60 min
Teaching Method	• Simulation
Learning Outcomes	• Implement and adhere to patient safety protocols within simulated scenarios. • Develop and apply effective patient-centered communication skills. • Explore and incorporate healthcare technologies within simulated scenarios. • Develop proficiency in emergency response and critical decision-making within simulated scenarios.

Content	Appendix E

Units 5-6-7 Description

      This unit provides hands-on training on different scenarios that the rapid response team might face in their daily practice. At the end of this unit, each team will be provided with a final scenario that will evaluate the team's understanding and application of the concepts covered in the previous chapters. The assessment criteria (see Appendix F) will be provided to guide the evaluation process. This practical exercise aims to reinforce the key concepts discussed throughout the chapters and provide an opportunity for groups to demonstrate their mastery of the material.

CHAPTER IV

PROGRAM IMPLEMENTATION AND EVALUATION

The Clinical and Professional Development Center and medical departments at the American University of Beirut (AUBMC) are dedicated to evaluating the educational needs of nurses and providing high-quality education rooted in evidence-based practice. The goal is to provide expert and safe nursing care to patients. Chapter four revolves around implementation means and evaluation strategies to ensure program effectiveness.

Initially, the developed and designed program will be presented to the nursing and medical department officials to ensure alignment with the department's mission and vision to meet the outcomes of the program. After gaining approval from the designated education departments, we will share the program with nurse managers, chief of surgery, and chief of internal medicine before scheduling the offering dates. The designated parties to which the program will be offered must review the content and collaborate with us regarding the logistics of program implementation. Once approval of content and approach is secured, CPDC will be contacted to advise us on the proper time frame for conducting the sessions. The announcement of the program will guide the scheduling process, ensuring that sessions are conducted at times most convenient to widespread audiences. A poster detailing the course (see Appendix G) will be displayed at the nurses' station and physicians' conference rooms to distribute information effectively.

To accommodate the varied schedules of our nurses and physicians, each session will be offered twice a week, providing flexibility for attendance across all units. The

program spans over three weeks, with a-two-weekly sessions, each lasting one hour. Various learning activities will be used to deliver the information. These activities include case studies, group discussions, dynamic PowerPoint presentations with audiovisual media, and practical applications. The content delivered during these sessions will be evidence-based, drawn from peer-reviewed articles that align closely with the focus of each session.

To conduct the program, clearance from the nursing department and chief residents is required. Eventually, nurses and physicians are required to temporarily assign their pending tasks to other colleagues, who will cover these responsibilities until participants complete the program. For flexibility, all sessions will be provided three times during the day, allowing for more convenience.

A. Evaluating Program Effectiveness

Program evaluation comprises of assessing knowledge acquisition and program effectiveness. Knowledge acquisition focuses on assessing participants' attainment of learning outcomes, emphasizing the possession of knowledge and skills necessary for optimal performance and communication during a rapid response event.

As for evaluating program effectiveness, the focus is identifying strengths and weaknesses in the delivery approach, achievement of learning outcomes, and overall implementation. This comprehensive assessment lays the foundation for future improvement purposes.

B. Evaluating Knowledge Acquisition

One week after the last session, participants will undergo a final simulated scenario chosen randomly. Each scenario group will include a resident and intern physician, a medical-surgical nurse, an intensive care nurse, and a respiratory therapist. The group will be presented with a patient who is rapidly deteriorating. A brief medical history will be given, and team members will be tasked with stabilizing the patient within a limited time frame. Members are expected to coordinate their efforts to reach their goals. Performance in the simulated scenario will be evaluated using a grading rubric (see Appendix F). A total of 40% will be allotted for the final scenario. To complete the course and receive a participation certificate, learners are required to achieve a cumulative grade of at least 80%.

C. Program Evaluation

Program evaluation will be done directly after the final session, during which participants will provide feedback through a questionnaire. This questionnaire is adopted from the National League of Nurses (see Appendix H).

An additional method to measure the program's effectiveness involves seeking feedback from stakeholders such as nursing supervisors, nurse leaders, clinical nurse specialists, and CPDC team members through direct observation of providers' performance during an event.

At a later stage, there is a possibility for the course to be shared with the Order of Nurses for consideration and possible adoption in various hospitals across Lebanon. This reflects our commitment to contributing to enhancing nursing education and practices beyond our immediate institution.

CHAPTER V

CONCLUSION

In conclusion, this project represents a collaborative effort to enhance the efficiency of rapid response teams in healthcare, recognizing their important role in helping patients facing rapid clinical deterioration. While rapid response systems are essential in preventing adverse events, challenges persist, particularly in communication and team collaboration. This project's goal is to present an educational program addressing these challenges by providing tailored training modules, scenario-based simulations, and updated protocols. By focusing on continuous professional development and fostering a culture of effective communication and collaboration, the project will transform rapid response team dynamics at the American University of Beirut Medical Center, ultimately creating a more compassionate, efficient, and sustainable healthcare system.

Introduction to Rapid Response Situations

Presented by: Ibrahim Takkoush, RN

Overview of the course structure

Evidence-Based Practices at AUBMC:
- Implementing evidence-based practices is fundamental at the American University of Beirut Medical Center (AUBMC).
- Focus on driving quality improvement and enhancing patient outcomes, especially for nurses.

Project Aim:
- The project aims to improve patient outcomes at AUBMC through:
- Refining assessment criteria.
- Addressing communication challenges.
- Providing up-to-date knowledge and skills related to rapid response matters.

Course Structure:
- Two weekly sessions for each team, each lasting one hour.
- Topics drawn from the literature review, incorporating insights from the latest evidence.
- Final session includes a graded simulated scenario for practical application of knowledge.

Program Content:
- Encompasses theoretical aspects.
- Addresses and navigates challenges identified during the literature review.

Definition and significance of rapid response

- Many hospitals are now acquainted with the concept of rapid response teams (RRTs), an initiative led by the Institute for Healthcare Improvement's (IHI's) "100,000 Lives Campaign". The main concept is straightforward: any healthcare professional can bypass the usual hierarchy and call in a medical equivalent of a "SWAT team" to promptly evaluate a patient and act when urgent medical intervention is needed. This differs from the traditional "code" team, as the RRT intervenes before the patient reaches respiratory or cardiac arrest. The outcomes have been positive, demonstrating reductions in cardiac arrests, fatalities, and hospitalization durations (Grissinger, 2010).

Barriers to Effective Rapid Response

- Lack of training and education can significantly delay a provider's preparedness and confidence when dealing with acute situations (Al Harthi et al., 2020).

Barriers to Effective Rapid Response

- Ineffective communication among team members can impede the rapid response process. Miscommunication may lead to delays in recognizing and responding to a deteriorating patient (Tiwary et al., 2019).

Barriers to Effective Rapid Response

- Incomplete or incorrect documentation of patient assessments and interventions may impede communication among healthcare professionals and affect the continuity of care. Accurate and thorough documentation is key for tracking patient progress and informing subsequent care decisions (Ciołek et al., 2022).

Barriers to Effective Rapid Response

- Hierarchical structures within healthcare institutions can create barriers to effective communication and collaboration. In some cases, junior staff members may hesitate to voice concerns or initiate rapid response, fearing repercussions from higher-ranking team members (Ferna, n.d.).
- Ineffective collaboration among healthcare disciplines can hinder the success of Rapid Response Teams. Single approaches, where different departments or specialties do not work together, may result in delayed or suboptimal responses (Rosen et al., 2018).

Importance of training sessions in improving patient outcomes

- Regular training allows healthcare providers to update and improve their clinical skills. This ensures that they are well prepared to handle a different range of medical conditions and stay up to date with the latest advancements (Mlambo et al., 2021).
- These sessions focus on refining communication skills among healthcare providers. Effective communication is key for proper coordination and collaboration, leading to better patient outcomes.
- Communication more effectively will help establish trust between patients, families, and providers; this helps reduce anxiety and clashes that may arise during rapid response situations (Kourkouta & Papathanasiou, 2014).

Examples of rapid response situations

Can you think of any conflicts related to team dynamics that occurred while participating during rapid response situations, how these conflicts would have been avoided, and how the situation would have been better managed?

Importance of training sessions in improving patient outcomes

- interdisciplinary training sessions promote effective teamwork and collaboration. When healthcare teams work together, they can provide more comprehensive and integrated care, improving patient outcomes.
- Combining professionals from different disciplines into one training session helps promote mutual respect for the expertise of each member. Understanding and appreciating the unique contributions of various healthcare providers leads to a more collaborative and cohesive team dynamic (Kourkouta & Papathanasiou, 2014).

References

Mlambo, M., Silén, C., & McGrath, C. (2021). Lifelong learning and nurses' continuing professional development a metasynthesis of the literature. BMC Nursing, 20(1). https://doi.org/10.1186/S12912-021-00579-2

Rosen, M. A., DiazGranados, D., Dietz, A. S., Benishek, L. E., Thompson, D., Pronovost, P. J., Hopkins, J., Weaver, S.. & Michael Rosen, note A. (2018). Teamwork in Healthcare: Key Discoveries Enabling Safer, High-Quality Care HHS Public Access. Am Psychol, 73(4), 433–450. https://doi.org/10.1037/amp0000298

Tiwary, A., Rimal, A., Paudyal, B., Sigdel, K. R., & Basnyat, B. (2019). Poor communication by health care professionals may lead to life-threatening complications: examples from two case reports. Wellcome Open Research, 4. https://doi.org/10.12688/WELLCOMEOPENRES.15042.1

References

Al Harthi, M., Al Thobaity, A., Al Ahmari, W., & Almalki, M. (2020). Challenges for nurses in disaster management: A scoping review. Risk Management and Healthcare Policy, 13, 2627–2634. https://doi.org/10.2147/RMHP.S279513

Ciołek, M., Kamińska, K., Nowak, M., & Krysta, K. (2022). EPV1264 Current trends in the use of psychodrama and drama therapy in the treatment of mental disorders. https://doi.org/10.1192/j.eurpsy.2022.1929

Grissinger, M. (2010). Rapid Response Teams in Hospitals Increase Patient Safety. Pharmacy and Therapeutics, 35(4), 191. /pmc/articles/PMC2873718/

Kourkouta, L., & Papathanasiou, I. V. (2014). Communication in Nursing Practice. Materia Socio-Medica, 26(1), 65. https://doi.org/10.5455/MSM.2014.26.65-67

Fundamentals of Rapid Response

Presented by: Ibrahim Takkoush

Outline

- Identifying triggers and warning Signs:
  - Physiologic Indicators
  - Behavioral Changes
  - Cognitive Changes
  - Pain

- MEWS Criteria For Activation
- Understanding time-critical nature
  - The Golden Hour
  - Enhancing Treatment Efficacy
  - Reducing Anxiety and Discomfort

Identifying triggers and warning Signs

- Patients who deteriorate on medical-surgical units often show early physiological warning signs (such as alterations in respiratory rate, heart rate, blood pressure, level of consciousness, or urine output) before cardiac arrest, death, or the need for intensive care unit (ICU) admission (Bogaert et al., 2021)

Physiological Indicators

- Physiological indicators may include changes in vital signs such as heart rate, respiratory rate, blood pressure, and temperature. For example, an upward or downward trend in these vital signs outside the normal range or baseline may indicate upcoming deterioration. Changes in oxygen saturation levels and the quality of respirations are also significant physiological indicators that healthcare providers must observe (Brekke et al., 2019).
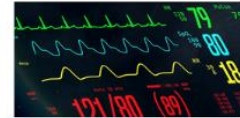
Behavioral and cognitive changes

- Patients may show signs of restlessness, confusion, irritability, or altered levels of consciousness. Changes in responsiveness, increased fatigue, or sudden changes in mobility can also indicate potential deterioration. Observing these behavioral shifts requires healthcare professionals to be aware of the patient's baseline behavior and promptly identify deviations (Cerejeira & Mukaetova-Ladinska, 2011).

Pain

- A sudden increase in pain levels or the inability to manage pain effectively may indicate a change in the patient's condition. It could indicate a new onset of complications, such as infection, inflammation, or other physiological changes requiring immediate attention (Gan, 2017).

- When pain is accompanied by changes in vital signs, such as increased heart rate, respiratory rate, or blood pressure, it may signal a more systemic issue. Combining physiological indicators with pain assessment can provide a more comprehensive picture of the patient's overall condition.

Activation of rapid response teams

- The initiation of rapid response is the responsibility of registered nurses, yet contingent on utilizing a scoring system referred to as the Modified Early Warning Score (MEWS). MEWS serves as a straightforward bedside assessment tool, appraising the patient's physiological condition by assessing six vital signs: heart rate, blood pressure, respiratory rate, core body temperature, cognitive status, and urine output (Gardner-Thorpe et al., 2006).

> After obtaining the correct MEWS score & if needed, a BPA will be triggered.

When you receive the BPA alert, activate RRT on extension #7111

MEWS Criteria

MEWS	0	1	2	3
Respiratory Rate in breaths/minute	9-20	-	≤ 8 / 21-29	≥ 30
SpO₂	-	-	-	< 89% on O2* / < 85% on Room Air*
Systolic Blood Pressure in mmHg	100-150	81-99 / 151-170	71-80 / 171-200	≤ 70* / > 200*
Heart Rate in beats/minute	51-100	40-50 / 101-110	111-139	< 40* / ≥ 140*
Temperature in ºC	36.1-38	35-36 / 38.1-38.5	< 35 / ≥ 38.6	
Level of Consciousness	Alert	Obtundation / Responds to Verbal Commands	Confusion / New Onset Agitation / Stupor / Responds to Painful Stimuli	Unresponsive* / Seizure*
*If any of the MARKED parameters scores 3, activate RRT				

The Golden Hour

- In many medical emergencies, there's a concept known as the "golden hour." This refers to the vital first 60 minutes following a traumatic event or the onset of a critical condition, where prompt medical intervention significantly enhances the chances of positive outcomes. Rapid response teams aim to initiate interventions within this golden hour to optimize patient care (Okada et al., n.d.).

Understanding time-critical nature

- Understanding the time-critical nature of rapid response involves a combination of preparedness, training, effective communication, and a proactive mindset. By recognizing the urgency and taking swift, coordinated actions, healthcare teams can optimize outcomes for patients experiencing rapid clinical deterioration.

Enhancing Treatment Efficacy

- Some treatments are most effective when administered immediately. For example, interventions like thrombolytic therapy for certain types of strokes or administering antibiotics for sepsis have a time-sensitive window of efficacy. Working quickly ensures that patients receive these interventions when they are most beneficial (Middleton et al., 2015; Schinkel et al., 2020).

Reducing Anxiety and Discomfort

- Immediate interventions not only address the physiological aspects of rapid response but also help reduce patient anxiety and discomfort. Patients and their families benefit from seeing healthcare providers respond quickly and confidently, fostering trust in the healthcare team (Mackintosh et al., 2020).

References

Bogaert, V. P., McGaugheyJ, R. L., & BogaertP, V. (2021). Cochrane Library Cochrane Database of Systematic Reviews Early warning systems and rapid response systems for the prevention of patient deterioration on acute adult hospital wards (Review) Early warning systems and rapid response systems for the prevention of patient deterioration on acute adult hospital wards (Review). https://doi.org/10.1002/14651858.CD005529.pub3

Brekke, I. J., Puntervoll, L. H., Pedersen, P. B., Kellett, J., & Brabrand, M. (2019). The value of vital sign trends in predicting and monitoring clinical deterioration: A systematic review. PLoS ONE, 14(1). https://doi.org/10.1371/JOURNAL.PONE.0210875

Cerejeira, J., & Mukaetova-Ladinska, E. B. (2011). A Clinical Update on Delirium: From Early Recognition to Effective Management. Nursing Research and Practice, 2011, 12. https://doi.org/10.1155/2011/875196

Gan, T. J. (2017). Poorly controlled postoperative pain: prevalence, consequences, and prevention. Journal of Pain Research, 10–2287. https://doi.org/10.2147/JPR.S144066

Gardner-Thorpe, J., Love, N., Wrightson, J., Walsh, S., & Keeling, N. (2006). The value of Modified Early Warning Score (MEWS) in surgical in-patients: A prospective observational study. Annals of the Royal College of Surgeons of England, 88(6), 571–575. https://doi.org/10.1308/003588406X130615

References

ugo, J., & Ganguli, M. (n.d.). Dementia and Cognitive Impairment: Epidemiology, Diagnosis, and Treatment. https://doi.org/10.1016/j.cger.2014.04.001

lackintosh, N. J., Davis, R. E., Easter, A., Rayment-Jones, H., Sevdalis, N., Wilson, S., Adams, M., & Sandall, J. (2020). Interventions to increase patient and family involvement in escalation of care for acute life-threatening illness in community health and hospital settings. The Cochrane Database of Systematic Reviews, 2020(12), 12. https://doi.org/10.1002/14651858.CD012829.PUB2

liddleton, S., Grimley, R., & Alexandrov, A. W. (2015). Triage, Treatment, and Transfer. Stroke, 46(2), e18–e25. https://doi.org/10.1161/STROKEAHA.114.006139

kada, K., Matsumoto, H., Saito, N., Yagi, T., Lee, M., & Jp@, ; Okaka. (n.d.). Open access Revision of "golden hour" for hemodynamically unstable trauma patients: an analysis of nationwide hospital-based registry in Japan. https://doi.org/10.1136/tsaco-2019-000405

:hinkel, M., Nannan Panday, R. S., Joost Wiersinga, W., & Nanayakkara, P. W. B. (2020). Timeliness of antibiotics for patients with sepsis and septic shock. Journal of Thoracic Disease, 12(Suppl 1), 566. https://doi.org/10.21037/JTD.2019.10.35

COMMUNICATION AND TEAM COORDINATION

Communication and Team Coordination
Presented by: Ibrahim Takkoush

Outline
- Roles and responsibilities of each team member
- Barriers to Effective Communication
- Effective vs. Ineffective Communication
- Use of SBAR tool for communication
- Case Study

- Rapid response events involve a multidisciplinary team of healthcare providers, including nurses, physicians, respiratory therapists, etc. Effective communication ensures smooth coordination and collaboration among team members. This collaborative effort allows for a comprehensive approach to patient care, simultaneously addressing various medical, nursing, and therapeutic needs (Dietz et al., 2020).

Understanding each team member's role in rapid response.
- Identifying and understanding the specific roles of each team member is Important. This includes outlining responsibilities based on their expertise and specialization, such as nurses, physicians, respiratory therapists, and other healthcare workers. Knowing who is responsible for what ensures a more efficient response.

Physicians' role during rapid response
- Initial Assessment
- Communication and Information Relay
- Decision-making and Treatment Initiation
- Collaboration with Senior Physicians
- Supervision and Learning Opportunities
- Documentation and Reporting

Medical-Surgical Nurses' Role in Rapid Response
- Early Identification of Deterioration
- Activation of RRT
- Providing Initial Stabilization
- Communication and collaboration with the Rapid Response Team members
- Implementing Orders and Interventions
- Documentation of Events
- Continuous Monitoring

Critical Care Nurses' Role in Rapid Response
- Timely Recognition of Critical Changes
- Active Participation in Rapid Response Team
- Initiation of Advanced Interventions
- Communication and Coordination
- Collaboration with Physicians and Specialists
- Patient and Family Support
- Documentation of Events

Respiratory Therapists' Role
- Rapid Assessment of Respiratory Status
- Immediate Intervention and Support
- Ventilator and airway Management
- Collaboration within the Multidisciplinary Team
- Patient and Family Education
- Documentation

Barriers to Effective Communication
- Communication challenges and risks within a rapid response team are inherent in the dynamic and high-pressure nature of high-stakes situations. Recognizing and addressing these challenges is essential for optimizing team performance and, ultimately, patient outcomes

Misinterpretation of Information
- Challenge: Rapid response situations necessitate a quick and accurate understanding of information. Misinterpretation of vital signs, patient history, or interventions can occur in the moment's urgency.
- Risk: Misinterpretations may lead to incorrect interventions, delays in care, or failure to recognize subtle changes in the patient's condition, compromising overall patient safety.

Hierarchical Communication
- Challenge: Hospital settings often have hierarchical structures, and team members may hesitate to communicate freely, especially when challenging decisions are being made by senior providers.
- Risk: Hesitancy to voice concerns or suggestions can hinder critical communication, leading to missed timely intervention and collaboration opportunities.

Ambiguity in Role Clarity
- Challenge: Rapid response teams include members from various disciplines, and roles may not always be clearly defined or communicated during the event.
- Risk: Ambiguity in role clarity may result in confusion, duplication of efforts, or gaps in task performance, reducing the efficiency of the response.

Cognitive Load and Stress:
- Challenge: High-stress situations can overload cognitive processes, affecting attention, memory, and decision-making abilities.
- Risk: Cognitive overload may result in information processing errors, reduced situational awareness, and increased likelihood of communication errors.

Fear of Consequences
- Challenge: Team members may fear negative consequences or judgment when expressing concerns or questioning decisions.
- Risk: This fear can lead to unwillingness to speak up about potential issues, impacting the team's ability to identify and address problems immediately.

Ineffective interaction with patients
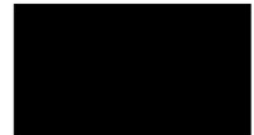
Effective Interaction with patients

Ineffective Communication Between Healthcare Providers

SBAR II

Effective Communication Between Healthcare Providers

SBAR IV

- Improving communication in healthcare during rapid response situations is crucial for effective teamwork and optimal patient outcomes.

ISBARR adapted from SBAR is a powerful tool to have clear communication for effective client care. It is a standard way to communicate medical information. It improves accuracy and cuts down on dangerous errors. SBAR stands for Situation, Background, Assessment and Recommendation.

I Identify	Identify • Who are you? • Where are you? • Why are you calling about? Patient's name, age, gender, and department.
S Situation	What is the problem/reason for contact? • I'm calling because... (describe) • I have observed major changes... (ABCDE) • I have observed the following values... • I have received the following test results
B Background	If it's urgent and/or you are concerned – speak up Brief and relevant case history to assist provider with familiarity. • Admission diagnosis and date • Previous illnesses of significance • Relevant problems and treatment/interventions to date • Allergies
A Assessment	Assessment of the situation and background • Provide the chief issue's set of vital signs or other data relevant to the communication. • I think the problem/issue for the patient's condition is related to (respiration, circulation, neurologic) • I don't know what the problem is but the patient's condition has worsened. • The patient is unstable; we need to do something – ASK concerns!!
R Recommendation	Request specific advice and interventions, and clarify expectations • I suggest/request the following. (be specific) • Immediate intervention • Investigation/treatment • How often should... • When should I next make contact/When will you be here?
R Read back	Confirm messages and interventions with a closed loop • Repeat the orders that were given • Clarify anything that is unclear

ISBARR

- SBAR (Introduction, Situation, Background, Assessment, Recommendation, and Readback) is a widely used and standardized communication tool in healthcare, especially during rapid response events. Its structured format enhances the clarity and effectiveness of communication between healthcare professionals (Shahid & Thomas, 2018).

Introduction

- Definition: This involves providing a clear and concise introduction, including the name and role of the person initiating the communication.

- Example: "Hello, this is [Your Name], the [Your Role], and I'm calling about [Patient's Name]."

Situation:

- Definition: Describes the current situation or problem that requires attention.

- Application: In rapid response events, this could involve stating the patient's name, location, and a brief description of the critical issue. For example, "This is Nurse [Name] from [Unit]. I have a patient, [Patient Name], whose condition is rapidly deteriorating."

Background

- Definition: Provides relevant patient history information and contextual factors.

- Application: Healthcare professionals use this section to provide a brief background on the patient, including their medical history, recent interventions, and any relevant factors contributing to the current situation. For example, "The patient has a history of [medical condition], and we administered [medication/intervention] approximately [time] ago."

Assessment

- Definition: An analysis of the patient's current status based on clinical findings.

- Application: This component is crucial during rapid response, where the healthcare provider articulates their assessment of the patient's condition. This might include vital signs, symptom changes, or other critical findings. An example could be, "The patient's blood pressure has dropped significantly, and they are now unresponsive to painful stimuli."

Recommendation

- Definition: Proposes an intervention or requests specific assistance.

- Application: In the rapid response setting, healthcare professionals use this section to suggest immediate actions or interventions required. For instance, "I recommend initiating [specific intervention], and we need the rapid response team to respond urgently. Can we also request a consultation with [specialty]?"

Case Study

Scenario:
- A family member observed the patient displaying signs of lethargy and confusion, leading them to notify the nurse. Despite the nurse's assurance to check on the patient, the assessment occurred an hour later following a reminder from the family member. During the assessment, the nurse examined vital signs, noting no specific clinical changes but acknowledging the patient's lethargy. Urged by the family member, the nurse contacted the physician, but the conversation primarily centered on the family member's insistence to call rather than providing a detailed description of the patient's condition. Due to the unclear assessment, the physician lacked specific instructions and recommended additional monitoring. Another nurse suggested involving the Rapid Response Team (RRT), a resource unfamiliar to the first nurse due to missed training. Relying on a colleague's advice, the nurse called the RRT through the operator, but the call lacked essential details. Upon arrival, the RRT faced delays and lack of information, eventually discovering that the patient was overmedicated during their assessment. The scenario underscores communication gaps, unfamiliarity with the Rapid Response System (RRS), and challenges in conveying critical information, affecting the timeliness and effectiveness of the response.

Discussion

- What might the nurse have done to address the family concerns?

Case Study

- Scenario:
- A night nurse observed that a patient, present on the unit for two days, appeared more fatigued than usual during the evening shift. Despite being responsive, the patient exhibited weakness and confusion after two check-ins. The nurse contacted the physician at 3 a.m., describing the patient's general change in status as "not quite right" without offering a detailed report or recommendation. The physician, feeling frustrated, didn't inquire further about the patient, suggested tiredness, and instructed the nurse to monitor. The next morning, finding an incomplete update, the physician ordered a stat MRI to rule out a stroke after assessing the patient. The nurse felt anxious due to the patient's deteriorating condition and the challenges in communicating with the physician. The physician, frustrated by the lack of comprehensive information during the initial communication, remained unaware of the patient's stroke during the evening shift.

Discussion

- What tools or strategies could the nurse have used when calling the doctor?

References

Dietz, A., Brunner, M., Vermorken, J. B., Taberna, M., Net, M., Mesía, R., Gil Moncayo, F., Jané-Salas, E., Antonio, M., Arribas, L., Vilajosana, E., & Torres, E. P. (2020). The Multidisciplinary Team (MDT) Approach and Quality of Care. Frontiers in Oncology | Www.Frontiersin.Org, 1, 85. https://doi.org/10.3389/fonc.2020.00085

Shahid, S., & Thomas, S. (2018). Situation, Background, Assessment, Recommendation (SBAR) Communication Tool for Handoff in Health Care – A Narrative Review. Safety in Health 2018 4:1, 4(1), 1–9. https://doi.org/10.1186/S40886-018-0073-1

APPENDIX D
SIMULATION CLASSROOM BASICS

Simulation Classroom Basics

Presented by: Ibrahim Takkoush

Outline

- Purpose
- Goals of Training
- Simulated Environment
- Debriefing
- Code of Conduct
- Confidentiality

Goals of Training

- Facilitate ongoing professional development and learning for healthcare providers.
- Strengthen the ability to make effective, timely, and critical decisions in a controlled and realistic setting
- Foster effective communication and teamwork skills among healthcare providers.
- Prepare healthcare professionals for managing high-stakes, crisis situations.

What is a Simulated Environment?

- A simulated environment in healthcare refers to a controlled setting replicating real-world healthcare scenarios for training, education, and assessment. In this context, simulation involves creating lifelike situations with which healthcare professionals, students, or teams can interact, allowing them to practice and refine their skills in a risk-free and controlled setting.

- Clinical Settings: Simulated environments replicate real healthcare settings, such as hospital rooms, operating rooms, or emergency departments.
- Simulation Control Room: Instructors oversee and control simulations from a dedicated room, manipulating scenarios and observing participants' actions.
- Debriefing Area: A space for participants to reflect on their performance, discuss their decisions, and receive feedback from instructors

Purpose

- The Nursing Simulation Lab aims to provide our participants with an exceptional educational experience in a dynamic and diverse learning environment. We aim to provide high quality, evidence-based learning opportunities while promoting clinical competence.

Debriefing

- Debriefing is an essential and structured process where participants and facilitators reflect on the simulated experience, discuss the actions taken, and analyze the outcomes. It provides a valuable opportunity for learners to review their performance, share observations, and gain insights into their decision-making and actions. Debriefing is an essential component of simulation-based training and serves.

Simulation Components:

- Manikins and Task Trainers: Physical models used to simulate patient experiences or specific procedures.
- Simulated Patients: Actors or individuals trained to portray patients, allowing learners to practice communication and interpersonal skills.

Conduct

- Professional conduct and communication are always expected in the simulation lab. providers will be participating in and observing others during simulation exercises. It is expected that all participants maintain a respectful learning environment.

Confidentiality

- All simulation day information is confidential and should not be discussed outside the simulation lab.

APPENDIX E
SIMULATED SCENARIOS - ESSENTIAL HEALTHCARE

SKILLS

Simulation 1:

Description of client:

Name: Mr. Sami

Age: 70

Allergies: Morphine

Past medical history:

 HTN, DM, DL, Heart Failure

Past surgical history:

 right total knee replacement (2013)

History of present illness:

3-day history of shortness of breath and fever.

Primary medical diagnosis:

Community-acquired pneumonia.

Setting/Environment:

Medical-surgical unit

Equipment/Supplies:

Simulated mannequin: high fidelity

Mode for simulator: manual programmed.

Equipment attached to mannequin: ID band.

Equipment available in the room: O2 delivery device, suction equipment, defibrillator,

IV set.

Other essential equipment: Data scope machine with continuous SPO2 monitoring.

Scenario Progression Outline:

Medical-surgical nurse:

Timing	Manikin Actions	Expected Interventions	Cues to Provide
0-5 min	The patient is sleeping in bed with increased work of breathing, RR=22-24 The patient is difficult to arouse and only wakes up when touched. Vitals: SPO2= 85% on room air HR=90 BP=101/60 T=37.3 Crackles in the right lower lobe. The patient is only oriented to self.	Perform hand hygiene and wake the patient. Confirm patient ID/Assess orientation. Ask how the patient is feeling. Take vital signs, place the patient on O2 therapy, and keep on a monitor. Auscultate breath sounds. Check for and administer the ordered nebulizer treatment. Call respiratory therapy if needed.	"You can wake the patient up for assessment." "How are his breath sounds." "He seems to be in distress are his vitals stable?"
5-10 min	The patient has a further decrease in the level of consciousness and now is only responding to painful stimuli. Increase in respiratory rate and drop in O2 saturation and blood pressure.	Identify the abnormal signs according to the MEWS criteria. Call for rapid response. Provide ISBARR to the rapid response team. Implement the written orders by the rapid response resident (labs, ABGs, CXR).	"What do you think is going on with this patient?" "Should you take a new set of vital signs." "Does the new set of vitals meet the rapid response team activation criteria?"

		Notify the nursing supervisor if transferring to the intensive care unit is needed.	
10-30 min	The patient is now unresponsive to deep painful stimuli. Vital signs: HR= 121 RR=26 BP= 91/48 and T= 38.4 Lactic acid is 3.1 WBC=15.3	Identify that the patient is in sepsis. Communicate with the provider using ISBARR about the change in the patient's condition. Discuss the next step of treatment with the medical team. Discuss the need to transfer the patient to the ICU.	

Intensive care nurse:

The rapid response team pager goes off, and you arrive at the scene.

Timing	Manikin Actions	Expected Interventions	Cues to Provide
0-5 min	The patient is unresponsive to painful stimuli. Last vital signs reading: HR= 121 RR=26 BP= 91/48 and T= 38.4	Identify yourself and quickly assess the patient's vital signs, level of consciousness, and overall clinical status. Use ISBARR to obtain information from the medical-surgical nurse about	"He seems to be in distress are his vitals stable?" "What happened"

		the patient's history, baseline, and interventions done prior to activating RRT. Communicate with the rapid response resident on the next step of the treatment plan.	
5-10 min	IV fluids were given, but the patient did not respond, and blood pressure is now 76/45. The resident refused to acknowledge your suggestion and	Inform the rapid response resident about the change in the patient's condition and the need for inotropic medications and transfer to the ICU. Share insights into the critical nature of the situation and the potential negative impact on the patient's outcome if	"What would you do if this patient was in the ICU?"

	decided to administer more fluids.	fluids were given, knowing that the patient has heart failure.	"Who do you call for support"
		Seek support from the nursing supervisor.	
	The physician replied that it is not your job to decide on the course of treatment	Follow the chain of command in the hospital and inform the person in charge about the current situation using ISBARR.	
10-30 min	The chief resident arrives to the scene and decides to take charge of the situation.	Inform the chief about the latest updates to the patient's condition.	"is there a specific treatment for this type of situation?"
	The chief decides to start vasopressor medications.	Insert a new peripheral IV. Prepare medications from the EC carriage and administer them with a witness.	

47

		Inform the physician and nursing supervisor about the need to urgently transfer the patient to the ICU. Document the events in the EMR and file an incident report for communication misconduct.	

Rapid response interns and residents:

Current Situation: During the night shift, the nurse informs you that the patient's condition has deteriorated rapidly. The patient is now experiencing severe shortness of breath, increased confusion, and a decrease in blood pressure. The initial assessment indicates signs of septic shock.

Simulated Objectives for Physicians:

1. **Early Recognition of Deterioration:**

   - *Objective:* Recognize early signs of clinical deterioration in Mr. Sami's condition, including increased respiratory distress, altered mental status, and worsening vital signs.

- *Implementation:* Present subtle changes in the patient's clinical status, such as an increasing respiratory rate, confusion, and a drop in blood pressure.

2. **Effective Communication with Nursing Staff:**

   - *Objective:* Communicate effectively with the nursing team to obtain a comprehensive patient history, share diagnostic findings, and discuss concerns.

   - *Implementation:* Introduce communication challenges, such as interruptions or unclear information from nursing staff, testing the physician's ability to communicate under pressure.

3. **Timely Decision-Making for Sepsis Protocol:**

   - *Objective:* Make quick decisions regarding the initiation of sepsis protocols, including ordering diagnostic tests and administering antibiotics.

   - *Implementation:* Integrate time-sensitive elements, allowing the physician to make critical decisions quickly in response to a deteriorating patient's condition.

4. **Coordinated Team Response:**

   - *Objective:* Coordinate with the nursing team, delegate tasks effectively, and foster a collaborative environment to manage the patient's worsening condition.

- *Implementation:* Include multiple team members, each with specific roles, simulating the dynamics of a real healthcare team and requiring the physician to coordinate a response.

5. **Adaptability and Critical Thinking:**

   - *Objective:* Demonstrate adaptability to sudden changes and apply critical thinking to manage a complex clinical scenario.

   - *Implementation:* Introduce sudden challenges, such as sudden changes in vital signs or unanticipated complications, to assess the physician's ability to adapt and problem-solve.

6. **Utilizing Diagnostic Tools and Resources:**

   - *Objective:* Effectively use available resources, including diagnostic tools and collaboration with other providers, to make informed decisions.

   - *Implementation:* Integrate scenarios that require the physician to request and interpret diagnostic tests, demonstrating effective resource utilization.

7. **Participation in Debriefing:**

   - *Objective:* Participate in the debriefing session to facilitate reflective practice and identify areas for improvement.

   - *Implementation:* Conclude the simulation with a structured debriefing session, allowing the physician to discuss their decisions, share insights, and receive feedback from facilitators and peers.

Team collaboration:

The patient's family became very angry because of the patient's deterioration, how would you address this situation?

Suggested responses:

- Remain calm.

- Express empathy and understanding.

- Allow time for family members to express their feelings.

- Active listening

- Reassure them that the situation is being taken care of seriously.

- Communicate the condition of the patient.

- Explain factors that are contributing to the patient's deterioration.

- Avoid medical jargon as much as possible.

- Discuss different treatment options available.

- Relay the plan of care.

- Document.

Debriefing:

Debriefing is a key component of any simulation-based training session. It provides an opportunity for learners to reflect on their performance, identify any weaknesses, and improve their future practice. To ensure an effective debriefing, we can use the following debriefing guide:

Introduction: Start by introducing the debriefing process and expressing gratitude to the participants for their engagement in the simulation.

Reactions: allow participants to share their opinions about the simulation, urging them to discuss both positive and negative aspects of their experience.

Observations: Examine the scenario with participants, allowing them to share their observations. Discuss what was done effectively and areas that could have been improved.

Analysis: Provide a conversation on the factors that influence the success or challenges faced in the scenario. Encourage participants to share any knowledge or skill gaps contributing to their performance.

Key Learning Points: summarize the key learning points derived from the simulation, covering technical and non-technical skills like teamwork, communication, and leadership.

Transfer of Learning: Lead a discussion on how the experience gained from the simulation can be implemented in participants' clinical practice.

Closing: sum up the key points from the debriefing and provide participants with extra resources for ongoing learning.

SIMULATED SCENARIOS - EFFECTIVE HEALTHCARE COMMUNICATION AND DOCUMENTATION

Simulation 2:

Description of client:

Name: Mrs. Salwa

Age: 66

Allergies: No known allergies

Past medical history:

 DM, left breast cancer (on chemotherapy), osteoporosis

Past surgical history:

left breast mastectomy with lymph node removal.

History of present illness:

2-day history of nausea, vomiting and diarrhea

Primary medical diagnosis:

gastroenteritis.

Setting/Environment:

Medical-surgical unit

Equipment/Supplies:

Simulated mannequin: high fidelity

Mode for simulator: manual programmed.

Equipment attached to mannequin: ID band.

Equipment available in the room: O2 delivery device, suction equipment, defibrillator,

IV set.

Other essential equipment: Data scope machine with continuous SPO2 monitoring.

Medical-surgical nurse:

Timing	Manikin Actions	Expected Interventions	Cues to Provide
0-5 min	You received a call from the patient's room and arrived to find that she was lying on the floor unconscious. The family members are angry and anxious.	Check the level of consciousness, circulation, airway, and breathing.	"Is the patient in cardiac arrest?"
	The patient is breathing and has a pulse.	Activate rapid response and take a vital sign reading. Take blood glucose measurements.	"What do you do if the patient is not in cardiac arrest but is unstable?"
	The family members start blaming you for what happened and state that it is your negligence that led	Maintain a calm demeanor and a professional tone. Offer a clear and	"Always remember to be professional when you communicate with your coworkers."

	to the patient's condition.	concise explanation of the events leading up to the deterioration. Share the steps taken immediately upon recognizing the changes in the patient's condition.	"Be honest and tell what happened and what interventions you did"
5-10 min	The rapid response team arrives. The resident assesses the patient and clears her to be moved back into bed. The RRT resident orders a stat CT brain. The technician informs	Use ISBARR to communicate what happened. Assist with transferring the patient back to bed. You call the CT technician and inform him you need to do a CT for your patient. Call the nursing supervisor	"when can we move the patient back in bed?" "Always remember to inform your superior of any

	you that he has other patients in the ER who also need a stat CT.	and inform them of the situation.	issue or problem that you can't solve."
10-30 min	Family members stated that the patient was getting drowsy and that they informed the nurse taking care of her the previous shift. The nurse did not mention anything about the patient being drowsy during handoff. The physician taking care of the patient starts blaming you for not reporting what happened earlier.	Check the nurse's notes and physical assessments for any documentation about drowsiness. You did not find any documentation. Provide accurate information about the events that occurred. Be clear about your actions and responsibilities, and, if necessary,	"Check EPIC for any clues of what happened." "Always remember to be professional and try to clear any misunderstandings."

		gently correct any misunderstandings.	
		If the blame is unjust or there are persistent issues, document the conversation and the details of the events. Keep a factual record of the discussion, noting any agreements or resolutions reached.	
	The previous shift nurse informs you that he/she missed documentation because of	After the patient is stabilized, try contacting the previous shift nurse and figure out what happened.

Follow the institution's guidelines for incident reporting for | "Remember that patient safety is the number one priority." |

		missing documentation and miscommunication conduct as applicable.	

Critical care nurse:

Timing	Manikin Actions	Expected Interventions	Cues to Provide
0-5 min	RRT pager goes off, and you arrive at the scene to find a patient lying on the floor, and the family members are anxious.

The resident clears the patient to be moved back to bed. | Ask the med-surg nurse about what happened.

Take a full set of vital signs and blood glucose and wait for the RRT resident to finish the assessment.

Collaborate with the med-surg nurse to move the patient back into bed.

Perform a quick physical assessment of the patient focusing on | "Communication and collaboration with nurses from other department is essential to find out what happened and to move forward with the plan of care." |

		issues that could cause syncope such as cardiac or neuro.	
5-10 min	The rapid response resident orders a stat CT brain.	Coordinate with the medical-surgical nurse when will the patient be sent to CT and accompany her if necessary.	
	CT brain was done and showed a right embolic MCA stroke.	Coordinate with the physician to immediately initiate RTPA and transfer to ICU. Coordinate with the medical surgical nurse and nursing supervisor on transferring the patient.	
10-30 min	The physician agrees with you on the need to initiate RTPA.	Insert a new IV line, draw labs, and initiate RTPA as per protocol.	"Remember to follow the recommended guidelines for treatment."

	The family members remain anxious as to why the patient is not regaining consciousness.	Monitor patient. Provide education on treatment and the need to give some time for the patient to respond to treatment.	"Acknowledge thefamily's feelings and provide anexplanation to what is happening"

Rapid response interns and residents:

Current Situation: You are the physician on call and receive a call about a patient who has experienced a sudden loss of consciousness. You rush to the patient's room and find the nursing team attending to the patient. The patient is unconscious, and after a quick assessment, you suspect a stroke.

Simulated Objectives for Physicians:

1. **Clinical Assessment and Rapid Decision-Making:**

   - Evaluate the patient's neurological status quickly.

   - Recognize signs of a stroke.

   - Make quick decisions to initiate the stroke protocol.

2. **Effective Communication with the Nursing Team:**

   - Communicate the plan of care to the nursing team.

- Ensure efficient collaboration with nurses in managing the patient's condition.

- Provide clear instructions for immediate interventions, including thrombolytic therapy and CT scan.

3. **Coordination of Stroke Response Team:**

- Consult neurology.

- Use ISBARR to relay the situation.

- Coordinate between different healthcare professionals involved in stroke care.

- Demonstrate leadership in directing the team towards a common goal of timely and effective stroke management.

4. **Family Communication and Empathy:**

- Engage with the family members in an empathetic and compassionate manner.

- Clearly explain the situation, the suspected stroke, and the urgency of interventions.

- Provide updates on the patient's condition in an understandable and supportive way.

5. **Informed Decision-Making and Patient/Family Involvement:**

- Discuss the CT scan results with the family, explaining the type and extent of the stroke.

- Involve the family in the decision-making process regarding the treatment plan.

- Address any questions or concerns from the family, ensuring they are well-informed and feel supported.

6. **Documentation and Reporting:**

- Maintain accurate and timely documentation of the patient's assessment, interventions, and communication with the family.

- Report key findings, decisions, and actions taken during the scenario for continuity of care.

- Demonstrate adherence to hospital policies regarding documentation and reporting.

7. **Adaptability and Response to Changes:**

- Adjust the treatment plan based on the CT scan results and evolving patient condition.

- Demonstrate flexibility in response to unexpected developments during the simulation.

- Effectively manage any challenges or uncertainties that may arise.

8. **Patient-Centered Care:**

- Prioritize patient-centered care throughout the simulation, ensuring the patient's well-being and safety.

- Tailor communication and decision-making to meet the individual needs and preferences of the patient and family.

Provide debriefing after the scenario and allow participants to share their insights and provide constructive feedback on their experiences.

SIMULATED SCENARIOS - COMPREHENSIVE TRAINING

IN CRITICAL CARE

Simulation 3:

Description of client:

Name: Mr. Jad

Age: 88

Allergies: None

Past medical history:

HTN, DM, DL, Heart Failure, CKD (on hemodialysis), CAD

Past surgical history:

 Left AV fistula insertion, cholecystectomy, CABG

History of present illness:

 presenting for elective Whipple procedure

Primary medical diagnosis:

 NA

Setting/Environment:

Medical-surgical unit

Equipment/Supplies:

Simulated mannequin: high fidelity

Mode for simulator: manual programmed.

Equipment attached to mannequin: ID band.

Equipment available in the room: O2 delivery device, suction equipment, defibrillator,

IV set.

Other essential equipment: Data scope machine with continuous SPO2 monitoring.

Scenario Progression Outline:

You've just received the patient from the anesthesia care unit; vitals are stable, the

dressing is clean and dry, and the drain output is minimal.

Timing	Manikin Actions	Expected Interventions	Cues to Provide
0-5 min	The patient suddenly starts experiencing severe abdominal pain. Pain is 10 over 10	Assess the level of pain using VDS or NRS. Give the patient PRN morphine/fentanyl and assess pain levels as well as POSS pre- and post-opioid administration.	"Remember to assess the pain PQRST, administer medications according to the severity of pain"
	Pain has not subsided and remains 10/10, and you notice increased drain output. Vitals: temp: 37.7 HR: 115,	Take vital signs and report findings to the physician.	

	RR: 22 BP: 85/53 SPO2: 91%	Call rapid response and communicate with the team using ISBARR	
5-10 min	The physician assesses the patient and orders labs and vital signs monitoring Q 1 hrs. The physician agrees to keep the patient on the unit and take vitals Q 2 hrs. instead of Q 1 hrs. The labs showed that the patient had a drop in hemoglobin, so the physician ordered 2 units of blood to be transfused stat.	Draw blood and communicate with the physician on the need to move the patient to intensive care if vitals need close monitoring. Call the blood bank and communicate the patient's findings and the need for 2 units of blood urgently. Communicate findings with the patient and provide education professionally and empathetically. Make sure to remind the physician to obtain	"How often can we take vitals on medical-surgical units?" "Did the patient agree on receiving blood? Are there any available units in the blood bank?"

	The patient and family members are anxious and confused as to why the 2 units of blood are needed.	written consent for blood transfusion.	
10-30 min	After 10 min of transfusion, the patient starts experiencing chest pain and shortness of breath. Vitals are temp: 38.8, HR: 134, BP: 76/42, RR: 28. The physician orders to discontinue transfusion, give a 1 L NSS bolus, and transfer the patient to the ICU.	Stop the transfusion and keep the IV-line patent with normal saline. Communicate findings with the physician. Communicate new findings with rapid response. Coordinate with the ICU team and nursing supervisor on transferring the patient.	"You should try to figure out what is causing these symptoms and stop the underlying cause.

	The medical team orders a stat CT abdomen to rule out internal bleeding. While moving the patient onto the CT machine, the wound eviscerates.	Cover the wound with sterile gauze soaked in NSS.	

The Intensive care nurse:

Timing	Manikin Actions	Expected Interventions	Cues to Provide
0-5 min	You arrive at the scene to find that the patient is in severe abdominal pain; the medical-surgical nurse also reported that the patient was also experiencing a transfusion reaction.	Perform a quick physical assessment and communicate with the team on the need to start the patient on PCA to control the pain.	

	The medical team ordered a PCA.	Insert a new peripheral IV, ask the medical-surgical nurse to communicate with the pharmacy, and obtain a PCA bag. After the bag is secured, take a set of vitals and communicate with the pain team to start the pump.	
5-10 min	Vitals: temp: 37.7 HR: 115, RR: 22 BP: 85/53 SPO2: 91% Blood pressure did not improve after fluid administration and is now 65/42. The medical team orders a stat CT abdomen.	Withhold the PCA until blood pressure is stabilized. Communicate findings with RRT and administer IV fluids as ordered. Immediately notify the medical team, insert a new peripheral line and start the patient on Norepinephrine. Place the patient on a monitor and send to CT.	
10-30 min	While moving the patient onto the CT	Communicate with the surgical team on what happened using ISBARR and the need to move the patient to the OR.	

	machine, the wound eviscerates. The surgical resident agrees and immediately books an OR. The family members are blaming you for what happened to the wound.	Move the patient immediately to the OR. File an incident report of what happened and inform the nursing supervisor. Acknowledge the patient's emotions and concerns. Use statements that show empathy. Avoid admitting fault or making statements that could be interpreted as an admission of liability without a thorough understanding of the situation. It's essential to gather facts and conduct a comprehensive review before making any statements.	"You should communicate with your superior and seek advice in case an incident occurs."

Interns and Residents:

1. **Assessment and Stabilization:**

   - Conduct a quick assessment of the patient's condition, prioritizing vital signs stabilization.

- Perform immediate interventions to control and manage ongoing internal bleeding.

2. **Collaborate with Surgical Team:**

   - Contact the surgical team to review the patient's history, identify potential internal bleeding causes, and discuss interventions.

3. **Order and Review Diagnostic Tests:**

   - Order and interpret relevant diagnostic tests, including imaging studies and laboratory investigations, to identify the source and extent of internal bleeding.

4. **Consult Hematology Team:**

   - Consult the hematology fellow to assess and manage the transfusion reaction and follow the institution's protocol in case of a transfusion reaction.

5. **Surgical Intervention:**

   - Consider damage control surgery if indicated, focusing on controlling bleeding, repairing damage, and minimizing further complications.

6. **Monitor Fluid Balance:**

   - Monitor the patient's intake and output closely, adjusting intravenous fluids and blood products as necessary to maintain hemodynamic stability.

7. **Communication with Family:**

- Keep the patient's family informed about the ongoing situation, providing updates on the patient's condition, planned interventions, and expected outcomes.

8. **Document:**

- Document all assessments, interventions, and communication in the patient's medical record, ensuring a comprehensive and accurate care record.

Provide debriefing after the scenario, allowing participants to share their insights and provide constructive feedback on their experiences.

APPENDIX F

Date: _____ Candidate: _____ Assessor: _____

<table>
<tr><td colspan="5" align="center">**ABCDE:**
Assessment & Management of Clinical Deterioration</td></tr>
<tr><td colspan="2">**CHECKLIST:**
Please rate each item by ticking in the box (1 = performed; 0 = not performed; NA = Not Applicable)</td><td>**1**</td><td>**0**</td><td>**NA**</td></tr>
<tr><td rowspan="5">AIRWAY</td><td>Assess airway (look/ listen/ feel)</td><td></td><td></td><td></td></tr>
<tr><td>Perform head tilt chin lift or jaw thrust</td><td></td><td></td><td></td></tr>
<tr><td>Insert oropharyngeal airway</td><td></td><td></td><td></td></tr>
<tr><td>Place patient on the side</td><td></td><td></td><td></td></tr>
<tr><td>Perform oropharyngeal or tracheal suctioning</td><td></td><td></td><td></td></tr>
<tr><td rowspan="6">BREATHING</td><td>Assess breathing (rates / patterns / depth)</td><td></td><td></td><td></td></tr>
<tr><td>Measure oxygen saturation level</td><td></td><td></td><td></td></tr>
<tr><td>Auscultate chest for breath sound</td><td></td><td></td><td></td></tr>
<tr><td>Place patient in a head-up position</td><td></td><td></td><td></td></tr>
<tr><td>Initiate oxygen</td><td></td><td></td><td></td></tr>
<tr><td>Titrate oxygen (keep SpO2 > 94% or SpO2 at 90-92% for patients with COPD)</td><td></td><td></td><td></td></tr>
<tr><td rowspan="14">CIRCULATION</td><td>Palpate pulses</td><td></td><td></td><td></td></tr>
<tr><td>Measure heart rates</td><td></td><td></td><td></td></tr>
<tr><td>Measure blood pressure</td><td></td><td></td><td></td></tr>
<tr><td>Observe skin colour</td><td></td><td></td><td></td></tr>
<tr><td>Feel skin temperature</td><td></td><td></td><td></td></tr>
<tr><td>Measure body temperature</td><td></td><td></td><td></td></tr>
<tr><td>Check urine output</td><td></td><td></td><td></td></tr>
<tr><td>Measure capillary refill time</td><td></td><td></td><td></td></tr>
<tr><td>Lower patient head of bed position</td><td></td><td></td><td></td></tr>
<tr><td>Establish intravenous (IV) access</td><td></td><td></td><td></td></tr>
<tr><td>Prepare an IV infusion line with Normal Saline 0.9%</td><td></td><td></td><td></td></tr>
<tr><td>Attach a cardiac monitor</td><td></td><td></td><td></td></tr>
<tr><td>Perform 12 lead ECG</td><td></td><td></td><td></td></tr>
<tr><td rowspan="3">DISABILITY</td><td>Assess level of consciousness using AVPU or GCS</td><td></td><td></td><td></td></tr>
<tr><td>Examine pupillary reaction & size</td><td></td><td></td><td></td></tr>
<tr><td>Monitor blood glucose level</td><td></td><td></td><td></td></tr>
<tr><td rowspan="4">EXPOSE / EXAMINE</td><td>Expose body to examine</td><td></td><td></td><td></td></tr>
<tr><td>Examine dressing site or drainage system</td><td></td><td></td><td></td></tr>
<tr><td>Examine pain using PQRST</td><td></td><td></td><td></td></tr>
<tr><td>Examine patient's chart or document</td><td></td><td></td><td></td></tr>
</table>

GLOBAL RATING SCALE
Please make a mark on the scale below to rate the participant's overall performance in assessing and managing deteriorating patient.

1	2	3	4	5	6	7	8	9	10
Unsatisfactory									Outstanding

Total ABCDE Score_____

<table>
<tr><td colspan="5" align="center">**SBAR:**
Reporting of Clinical Deterioration</td></tr>
<tr><td colspan="2">**CHECKLIST**
Please rate each item by ticking in the box (1 = performed; 0 = not performed; NA = Not Applicable)</td><td>**1**</td><td>**0**</td><td>**NA**</td></tr>
<tr><td rowspan="4">SITUATION</td><td>State own identity</td><td></td><td></td><td></td></tr>
<tr><td>State location</td><td></td><td></td><td></td></tr>
<tr><td>State patient's identity</td><td></td><td></td><td></td></tr>
<tr><td>Briefly describe the problem</td><td></td><td></td><td></td></tr>
<tr><td rowspan="3">BACKGROUND</td><td>State admitting diagnosis</td><td></td><td></td><td></td></tr>
<tr><td>State medical history</td><td></td><td></td><td></td></tr>
<tr><td>Provide a brief outline of treatment to date</td><td></td><td></td><td></td></tr>
<tr><td>ASSESSMENT</td><td>State assessment of the problem</td><td></td><td></td><td></td></tr>
<tr><td>RECOMMENDATION</td><td>Provide recommendation</td><td></td><td></td><td></td></tr>
</table>

GLOBAL RATING SCALE
Please make a mark on the scale below to rate the participant's overall performance in reporting about patient's deterioration

1	2	3	4	5	6	7	8	9	10
Unsatisfactory									Outstanding

Total SBAR Score_____

_____ (Total ABCDE Score) + _____ (Total SBAR Score) = _____ (Total RAPIDS-Tool score)

Fig. 1. RAPIDS Tool

APPENDIX H

Educational Practices Questionnaire (Student Version)

In order to measure if the best practices are being used in your simulation, please complete the survey below as you perceive it. There are no right or wrong answers, only your perceived amount of agreement or disagreement. Please use the following code to answer the questions.

Use the following rating system when assessing the educational practices:
- 1 - Strongly Disagree with the statement
- 2 - Disagree with the statement
- 3 - Undecided - you neither agree or disagree with the statement
- 4 - Agree with the statement
- 5 - Strongly Agree with the statement
- NA - Not Applicable; the statement does not pertain to the simulation activity performed.

Rate each item based upon how important that item is **to you.**
- 1 - Not Important
- 2 - Somewhat Important
- 3 - Neutral
- 4 - Important
- 5 - Very Important

Item	1	2	3	4	5	NA	1	2	3	4	5
Active learning											
1. I had the opportunity during the simulation activity to discuss the ideas and concepts taught in the course with the teacher and other students.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
2. I actively participated in the debriefing session after the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
3. I had the opportunity to put more thought into my comments during the debriefing session.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
4. There were enough opportunities in the simulation to find out if I clearly understand the material.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
5. I learned from the comments made by the teacher before, during, or after the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
6. I received cues during the simulation in a timely manner.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
7. I had the chance to discuss the simulation objectives with my teacher.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
8. I had the opportunity to discuss ideas and concepts taught in the simulation with my instructor.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
9. The instructor was able to respond to the individual needs of learners during the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
10. Using simulation activities made my learning time more productive.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5

Educational Practices Questionnaire (Student Version)

Use the following rating system when assessing the educational practices:	Rate each item based upon how important that item is **to you.**
1 - Strongly Disagree with the statement 2 - Disagree with the statement 3 - Undecided - you neither agree or disagree with the statement 4 - Agree with the statement 5 - Strongly Agree with the statement NA - Not Applicable; the statement does not pertain to the simulation activity performed.	1 - Not Important 2 - Somewhat Important 3 - Neutral 4 - Important 5 - Very Important

Item	1	2	3	4	5	NA	1	2	3	4	5
Collaboration											
11. I had the chance to work with my peers during the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
12. During the simulation, my peers and I had to work on the clinical situation together.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
Diverse Ways of Learning :											
13. The simulation offered a variety of ways in which to learn the material.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
14. This simulation offered a variety ways of assessing my learning.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
High Expectations											
15. The objectives for the simulation experience were clear and easy to understand.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5
16. My instructor communicated the goals and expectations to accomplish during the simulation.	○ 1	○ 2	○ 3	○ 4	○ 5	○ NA	○ 1	○ 2	○ 3	○ 4	○ 5

Revised December 22, 2004

REFERENCES

Al Harthi, M., Al Thobaity, A., Al Ahmari, W., & Almalki, M. (2020). Challenges for nurses in disaster management: A scoping review. *Risk Management and Healthcare Policy*, *13*, 2627–2634. https://doi.org/10.2147/RMHP.S279513

Al-Omari, A., Mutair, A. Al, & Aljamaan, F. (2019). Outcomes of rapid response team implementation in tertiary private hospitals: a prospective cohort study. *International Journal of Emergency Medicine, 12(*1). https://doi.org/10.1186/S12245-019-0248-5

Al-Qahtani, S., & Al-Dorzi, H. M. (2010). Rapid response systems in acute hospital care. *Annals of Thoracic Medicine, 5*(1), 1. https://doi.org/10.4103/1817-1737.58952

Andrieux, M., & Proteau, L. (2016). Observational learning: Tell beginners what they are about to watch and they will learn better. *Frontiers in Psychology*, *7*(JAN). https://doi.org/10.3389/FPSYG.2016.00051

Benin, A. L., Borgstrom, C. P., Jenq, G. Y., Roumanis, S. A., & Horwitz, L. I. (n.d.). *Defining Impact of a Rapid Response Team: Qualitative Study with Nurses, Physicians, and Hospital Administrators*. https://doi.org/10.1136/postgradmedj-2012-000390rep

Bienstock, J., & Heuer, A. (2022). A review on the evolution of simulation-based training to help build a safer future. *Medicine*, *101*(25). https://doi.org/10.1097/MD.0000000000029503

Blasche, G., Szabo, B., Wagner-Menghin, M., Ekmekcioglu, C., & Gollner, E. (2018). Comparison of rest-break interventions during a mentally demanding task. *Stress and Health*, *34*(5), 629. https://doi.org/10.1002/SMI.2830

Blumenthal, K. J., Chien, A. T., & Singer, S. J. (2018). Advance Access publication 18 May. *Health Service Research*, 718–723. https://doi.org/10.1093/fampra/cmy029

Buljac-Samardzic, M., Doekhie, K. D., & Van Wijngaarden, J. D. H. (n.d.). *Interventions to improve team effectiveness within health care: a systematic review of the past decade*. https://doi.org/10.1186/s12960-019-0411-3

Campeanu, A. (2022). *1382477875*. https://doi.org/10.1080/13561820.2020.1713063

Chaghari, M., Saffari, M., Ebadi, A., & Ameryoun, A. (2017). Empowering education. *Adv Med Educ Prof*, *5*(1), 26–32.

Chalwin, R. P., & Flabouris, A. (2013). Utility and assessment of non-technical skills for rapid response systems and medical emergency teams. *Internal Medicine Journal, 43*(9), 962–969. https://doi.org/10.1111/IMJ.12172

Chalwin, R., Flabouris, A., Kapitola, K., & Dewick, L. (2016). Perceptions of interactions between staff members calling, and those responding to, rapid response team activations for patient deterioration. *Australian Health Review : A*

Publication of the Australian Hospital Association, 40(4), 364–370.
https://doi.org/10.1071/AH15138

Chalwin, R., Giles, L., Salter, A., Kapitola, K., & Karnon, J. (2020). Re-designing a
rapid response system: effect on staff experiences and perceptions of rapid
response team calls. *BMC Health Services Research, 20*(1).
https://doi.org/10.1186/S12913-020-05260-Z

Chan, P. S., Jain, R., Nallmothu, B. K., Berg, R. A., & Sasson, C. (2010). Rapid
Response Teams: A Systematic Review and Meta-analysis. *Archives of Internal
Medicine, 170*(1), 18–26.
https://doi.org/10.1001/ARCHINTERNMED.2009.424

Chichirez, C.-M., & Assistant, P. (n.d.). Interpersonal communication in healthcare.
Journal of Medicine and Life, 11, 119–122.

Chua, W. L., Ting, M., See, A., Legio-Quigley, H., Jones, D., Tee, A., & Liaw, S. Y.
(2017). Factors influencing the activation of the rapid response system for
clinically deteriorating patients by frontline ward clinicians: a systematic review.
International Journal for Quality in Health Care, 29(8), 981–998.
https://doi.org/10.1093/intqhc/mzx149

Cotter, J. M., Ziniel, S., Lockwood, J., & Reese, J. (2019). Care Escalation: Teaching
Residents How to Effectively Communicate Patient Care Concerns.
MedEdPORTAL : The Journal of Teaching and Learning Resources, *15*, 10833.
https://doi.org/10.15766/MEP_2374-8265.10833

Couloures, K. G., & Allen, C. (2017). *Use of Simulation to Improve Cardiopulmonary
Resuscitation Performance and Code Team Communication for Pediatric
Residents*. https://doi.org/10.15766/mep_2374

Dagne, A. H., & Beshah, M. H. (2021). Implementation of evidence-based practice: The
experience of nurses and midwives. *PLoS ONE*, *16*(8).
https://doi.org/10.1371/JOURNAL.PONE.0256600

Dayton, E., & Henriksen, K. (2007). Communication failure: basic components,
contributing factors, and the call for structure. *Joint Commission Journal on
Quality and Patient Safety, 33*(1), 34–47. https://doi.org/10.1016/S1553-
7250(07)33005-5

DeVita, M. A., Bellomo, R., Hillman, K., Kellum, J., Rotondi, A., Teres, D., et al.
(2006). Findings of the first consensus conference on medical emergency teams.
Critical Care Medicine, 34(9), 2463–2478.
https://doi.org/10.1097/01.CCM.0000235743.38172.6E

Dingley, C., Daugherty, K., Derieg, M. K., & Persing, R. (2008). Improving Patient
Safety Through Provider Communication Strategy Enhancements. *Advances in
Patient Safety: New Directions and Alternative Approaches* 3: Performance and
Tools. https://www.ncbi.nlm.nih.gov/books/NBK43663/

Eddy, K., Jordan, Z., & Stephenson, M. (2016). Health professionals' experience of
teamwork education in acute hospital settings: a systematic review of qualitative

literature. *JBI Database of Systematic Reviews and Implementation Reports*, *14*(4), 96–137. https://doi.org/10.11124/JBISRIR-2016-1843

Ede, J., Jeffs, E., Vollam, S., & Watkinson, P. (2020). A qualitative exploration of escalation of care in the acute ward setting. *Nursing in Critical Care*, *25*(3), 171–178. https://doi.org/10.1111/NICC.12479

Gaba, D. M. (2004). The future vision of simulation in health care. *Qual Saf Health Care*, *13*(1), 2–10. https://doi.org/10.1136/qshc.2004.009878

Gardner-Thorpe, J., Love, N., Wrightson, J., Walsh, S., & Keeling, N. (2006). The value of Modified Early Warning Score (MEWS) in surgical in-patients: A prospective observational study. *Annals of the Royal College of Surgeons of England, 88*(6), 571–575. https://doi.org/10.1308/003588406X130615

Giuliano, K. K. (2017). Improving Patient Safety through the Use of Nursing Surveillance. *Biomedical Instrumentation & Technology*, *51*(s2), 34–43. https://doi.org/10.2345/0899-8205-51.S2.34

Gong, X.-Y., Wang, Y.-G., Shao, H.-Y., Lan, P., Yan, R.-S., Pan, K.-H., & Zhou, J.-C. (2020). A rapid response team is associated with reduced overall hospital mortality in a Chinese tertiary hospital: a 9-year cohort study. *Annals of Translational Medicine, 8*(6), 317–317. https://doi.org/10.21037/ATM.2020.02.147

Gottlieb, L. N., Gottlieb, B., & Bitzas, V. (2021). Creating empowering conditions for nurses with workplace autonomy and agency: How healthcare leaders could be guided by strengths-based nursing and healthcare leadership (SBNH-l). *Journal of Healthcare Leadership*, *13*, 169–181. https://doi.org/10.2147/JHL.S221141

Hashemiparast, M., Negarandeh, R., & Theofanidis, D. (2019). Exploring the barriers of utilizing theoretical knowledge in clinical settings: A qualitative study. *International Journal of Nursing Sciences*, *6*(4), 399. https://doi.org/10.1016/J.IJNSS.2019.09.008

Herod, R., Frost, S. A., Parr, M., Hillman, K., & Aneman, A. (2014). Long term trends in medical emergency team activations and outcomes. *Resuscitation, 85*(8), 1083–1087. https://doi.org/10.1016/J.RESUSCITATION.2014.04.010

Hillman, K. M., Chen, J., & Jones, D. (2014). Rapid response systems. *The Medical Journal of Australia, 201*(9), 519–521. https://doi.org/10.5694/MJA14.01088

Jones, D. A., DeVita, M. A., & Bellomo, R. (2011). Rapid-response teams. *The New England Journal of Medicine, 365*(2), 139–146. https://doi.org/10.1056/NEJMRA0910926

Jones, D., Baldwin, I., McIntyre, T., Story, D., Mercer, I., Miglic, A., Goldsmith, D., & Bellomo, R. (2006). Nurses' attitudes to a medical emergency team service in a teaching hospital. *Quality and Safety in Health Care, 15*(6), 427–432. https://doi.org/10.1136/qshc.2005.016956

Jones, D., Bellomo, R., & DeVita, M. A. (2009). Effectiveness of the Medical Emergency Team: the importance of dose. *Critical Care (London, England), 13*(5). https://doi.org/10.1186/CC7996

Jones, D., Drennan, K., Hart, G. K., Bellomo, R., & Steven, A. R. (2012). Rapid Response Team composition, resourcing and calling criteria in Australia. *Resuscitation, 83*(5), 563–567. https://doi.org/10.1016/J.RESUSCITATION.2011.10.023

Kaplan, G., Lopez, M. H., McGinnis, J. M., Care, C. on O. S. in H., & Medicine, I. of. (2015). *Improving Health Care Scheduling*. https://www.ncbi.nlm.nih.gov/books/NBK316135/

Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (2000). *To Err is Human: Building a Safer Health System.* https://doi.org/10.17226/9728

Koukourikos, K., Tsaloglidou, A., Kourkouta, L., Papathanasiou, I. V., Iliadis, C., Fratzana, A., & Panagiotou, A. (2021a). Simulation in Clinical Nursing Education. *Acta Informatica Medica*, *29*(1), 15. https://doi.org/10.5455/AIM.2021.29.15-20

Koukourikos, K., Tsaloglidou, A., Kourkouta, L., Papathanasiou, I. V., Iliadis, C., Fratzana, A., & Panagiotou, A. (2021b). Simulation in Clinical Nursing Education. *Acta Informatica Medica*, *29*(1), 15. https://doi.org/10.5455/AIM.2021.29.15-20

Kourkouta, L., & Papathanasiou, I. V. (2014). • PROFESSIONAL PAPER. *Communication in Nursing Practice*, *26*(1), 65–67. https://doi.org/10.5455/msm.2014.26.65-67

Kumar Kar, S., Doherty, A. M., Singh, A., Banerjee, D., Søvold, L. E., Naslund, J. A., Kousoulis, A. A., Saxena, S., Walid Qoronfleh, M., Grobler, C., & Münter, L. (2021). Prioritizing the Mental Health and Well-Being of Healthcare Workers: An Urgent Global Public Health Priority. *Frontiers in Public Health | Www.Frontiersin.Org*, 1, 679397. https://doi.org/10.3389/fpubh.2021.679397

Lancaster, G., Kolakowsky-Hayner, S., Kovacich, J., & Greer-Williams, N. (2015). Interdisciplinary communication and collaboration among physicians, nurses, and unlicensed assistive personnel. *Journal of Nursing Scholarship*, *47*(3), 275–284. https://doi.org/10.1111/JNU.12130

Linnander, E., Health, G., Mcnatt, Z., Boehmer, K., Cherlin, E., Bradley, E., & Curry, L. (2021). Changing hospital organisational culture for improved patient outcomes: developing and implementing the leadership saves lives intervention. *BMJ Qual Saf*, *30*, 475–483. https://doi.org/10.1136/bmjqs-2019-010734

Massey, D., Chaboyer, W., & Anderson, V. (2017). What factors influence ward nurses' recognition of and response to patient deterioration? An integrative review of the literature. *Nursing Open*, *4*(1), 6–23. https://doi.org/10.1002/NOP2.53

Mohammed, C. A., Anand, R., & Saleena Ummer, V. (2021). Interprofessional Education (IPE): A framework for introducing teamwork and collaboration in

health professions curriculum. *Medical Journal, Armed Forces India*, *77*(Suppl 1), S16. https://doi.org/10.1016/J.MJAFI.2021.01.012

Mohammed Iddrisu, S., Hutchinson, A. F., Sungkar, Y., & Considine, J. (2018). Nurses' role in recognising and responding to clinical deterioration in surgical patients. *Journal of Clinical Nursing*, *27*(9–10), 1920–1930. https://doi.org/10.1111/JOCN.14331

Namatovu, J. F., Buwembo, W., Nakigudde, J., Kiguli, S., & Mubuuke, A. G. (2023). Continuing professional development training needs for primary care doctors in central Uganda. *African Journal of Primary Health Care & Family Medicine, 15*(1). https://doi.org/10.4102/PHCFM.V15I1.3983

Norouzinia, R., Aghabarari, M., Shiri, M., Karimi, M., & Samami, E. (2016). Communication Barriers Perceived by Nurses and Patients. *Global Journal of Health Science*, *8*(6), 65. https://doi.org/10.5539/GJHS.V8N6P65

O'Daniel, M., & Rosenstein, A. H. (2008). Professional Communication and Team Collaboration. *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. https://www.ncbi.nlm.nih.gov/books/NBK2637/

Padilla, R. M., Urden, L. D., & Stacy, K. M. (2018). Nurses' Perceptions of Barriers to Rapid Response System Activation: A Systematic Review. *Dimensions of Critical Care Nursing : DCCN*, *37*(5), 259–271. https://doi.org/10.1097/DCC.0000000000000318

Papathanasiou, I. V., Kleisiaris, C. F., Fradelos, E. C., Kakou, K., & Kourkouta, L. (2014). Critical Thinking: The Development of an Essential Skill for Nursing Students. *Acta Informatica Medica*, *22*(4), 283. https://doi.org/10.5455/AIM.2014.22.283-286

Razavi, N. S., Jalili, M., Sandars, J., & Gandomkar, R. (2022). Leadership Behaviors in Health Care Action Teams: A Systematized Review. *Medical Journal of the Islamic Republic of Iran*, *36*(1). https://doi.org/10.47176/MJIRI.36.8

Reevess, Z. M. (2018). *Cochrane Library Cochrane Database of Systematic Reviews Interprofessional collaboration to improve professional practice and healthcare outcomes (Review)*. https://doi.org/10.1002/14651858.CD000072.pub3

Rosen, M. A., DiazGranados, D., Dietz, A. S., Benishek, L. E., Thompson, D., Pronovost, P. J., Hopkins, J., Weaver, S. J., & Michael Rosen, note A. (2018a). Teamwork in Healthcare: Key Discoveries Enabling Safer, High-Quality Care HHS Public Access. *Am Psychol*, *73*(4), 433–450. https://doi.org/10.1037/amp0000298

Rosen, M. A., DiazGranados, D., Dietz, A. S., Benishek, L. E., Thompson, D., Pronovost, P. J., Hopkins, J., Weaver, S. J., & Michael Rosen, note A. (2018b). Teamwork in Healthcare: Key Discoveries Enabling Safer, High-Quality Care HHS Public Access. *Am Psychol*, *73*(4), 433–450. https://doi.org/10.1037/amp0000298

Sbaffi, L., Walton, J., Blenkinsopp, J., & Walton, G. (2020). Information Overload in Emergency Medicine Physicians: A Multisite Case Study Exploring the Causes,

Impact, and Solutions in Four North England National Health Service Trusts. *Journal of Medical Internet Research, 22*(7). https://doi.org/10.2196/19126

Sethi, S. S., & Chalwin, R. (2018a). Governance of rapid response teams in Australia and New Zealand. *Anaesthesia and Intensive Care, 46*(3), 304–309. https://doi.org/10.1177/0310057X1804600308

Sethi, S. S., & Chalwin, R. (2018b). Governance of Rapid Response Teams in Australia and New Zealand. *Anaesthesia and Intensive Care, 46*(3), 304–309. https://doi.org/10.1177/0310057X1804600308

Severson, M. A., Maxson, P. M., Wrobleski, D. S., & Dozois, E. J. (2014). Simulation-based team training and debriefing to enhance nursing and physician collaboration. *Journal of Continuing Education in Nursing*, *45*(7), 297–303. https://doi.org/10.3928/00220124-20140620-03

Sittner, B. J., Schmaderer, M., Zimmerman, L., Hertzog, M., & George, B. (2009). Rapid Response Team Simulated Training for Enhancing Patient Safety (STEPS). *Clinical Simulation in Nursing*, *5*, 119–127. https://doi.org/10.1016/j.ecns.2009.02.007

Wakefield, M. K., Williams, D. R., Menestrel, S. Le, & Flaubert, J. L. (2021a). *The Future of Nursing 2020-2030*. https://doi.org/10.17226/25982

Wakefield, M. K., Williams, D. R., Menestrel, S. Le, & Flaubert, J. L. (2021b). *The Future of Nursing 2020-2030*. https://doi.org/10.17226/25982

Wheeler, D. S., Geis, G., Mack, E. H., LeMaster, T., & Patterson, M. D. (2013). High-reliability emergency response teams in the hospital: improving quality and safety using in situ simulation training. *BMJ Quality & Safety*, *22*(6), 507–514. https://doi.org/10.1136/BMJQS-2012-000931

Wolf, Z. R., & Hughes, R. G. (2008). Error Reporting and Disclosure. *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. https://www.ncbi.nlm.nih.gov/books/NBK2652/

Yu, J., Lee, woosuck, Kim, M., Choi, S., Lee, S., Kim, S., Jung, Y. et al. (n.d.). *Effectiveness of simulation-based interprofessional education for medical and nursing students in South Korea: a pre-post survey*. https://doi.org/10.1186/s12909-020-02395-9

Zenani, N. E., Sehularo, L. A., Gause, G., & Chukwuere, P. C. (2023). The contribution of interprofessional education in developing competent undergraduate nursing students: integrative literature review. *BMC Nursing*, *22*(1), 1–12. https://doi.org/10.1186/S12912-023-01482-8/TABLES/2