

The Relevance of the Management of Communication Processes in Intensive Care Units

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ABSTRACT

Background: A proper clinical risk management improves the healthcare quality and safety through communication systems that identify, evaluate and reduce the risk of injury with regard to patients and the organization itself. The Intensive Care Unit (ICU) represents a specific medical environment due to its high level of complexity, risk and dynamism that requires the integration of multidisciplinary teams to ensure life-saving care for critically ill patients. Professional interactions among the team members involved in critical care need to be in place in order to overcome difficulties in decision making. Lack of communication and miscommunication has been frequently shown as a contributing factor to adverse events. At present, there are few publications which present the evidence that a good level of collaboration and the use of communication tools improve the quality of critical healthcare consequently with a reduction of errors in ICU. Since it is impossible to eliminate human error and since communication represents an error source, the aim of this study is to demonstrate a close correlation between the employment of some fundamental communication strategies and the reduction of errors which will assure the safety and the quality of healthcare outcomes delivered in the ICU setting.

Materials and Methods: A national and international literature review has been performed through the selection of qualitative and quantitative medical and nursing papers which primarily focus on both the elements that impede and promote an effective professional communication between the staff working in ICU.

Results: Team members involved in critical healthcare are being made more aware that errors may be openly discussed in the team in order to foresee possible risks and adverse events for critically ill patients. The use of communication tools makes professionals more receptive to safety issues and better collaboration thereby

improving their perception of the safety and efficiency of critical healthcare, producing qualitative changes in behaviour and on the organization itself.

Conclusion: A shared employment of communication tools represents a useful methodology for the improvement of healthcare quality in ICU, ensuring patient safety. Efforts in improving communication strategies in line with Clinical Governance framework issues, such as continual professional development (CPD), statistical process control and clinical risk management, help to develop behaviour that can reduce the index of risk and its impact on critical healthcare outcomes.

Una valida gestione del rischio clinico contribuisce al miglioramento della sicurezza e della qualità dell'assistenza attraverso l'impiego di sistemi comunicativi che identificano, valutano e riducono il rischio, e gli eventi ad esso correlati, verso i pazienti e l'organizzazione. Deficit relazionali e comunicativi all'interno del team rappresentano un fattore di rischio rilevante all'insorgere di eventi avversi. L'unità di Terapia Intensiva è un contesto specifico in relazione all'elevato livello di complessità, dinamismo, continuità delle cure e non può prescindere da un'integrazione multidisciplinare efficace per garantire l'assistenza salvavita ai pazienti ricoverati in condizioni critiche. Un buon grado di collaborazione interdisciplinare e l'appropriatezza dei percorsi comunicativi tra i professionisti coinvolti nell'assistenza consentono di superare eventuali difficoltà di fronte alla presa di decisioni tempestive. A tutt'oggi vi è scarsa evidenza che un'adeguata collaborazione e l'impiego di strumenti comunicativi condivisi promuovano il miglioramento della qualità dell'assistenza con una riduzione del nume-

ro di errori e di rischio per il paziente di area critica. Data l'impossibilità di eliminare l'errore umano e, dacché un problema comunicativo interprofessionale costituisce una possibile fonte di errore, obiettivo del presente studio è dimostrare una correlazione tra l'impiego di alcune strategie comunicative all'interno del team e la riduzione di errori a garanzia della sicurezza e della qualità dell'assistenza erogata nel setting di terapia intensiva.

Metodi: selezione di articoli scientifici della letteratura nazionale e internazionale da cui emergono sia elementi che impediscono una collaborazione efficace nel team professionale di terapia intensiva sia quelli che la promuovono.

Risultati: tra i professionisti impegnati nel processo di assistenza in area critica si ravvisa una maggiore consapevolezza rispetto all'importanza di comunicare apertamente eventuali errori che possono condurre ad eventi avversi a carico del paziente. L'impiego di strumenti comunicativi promuove la collaborazione, la percezione della sicurezza e dell'efficienza dell'assistenza intensiva e determina cambiamenti qualitativi nel comportamento organizzativo.

Conclusioni: l'uso condiviso di strumenti comunicativi promuove la qualità dell'assistenza in tera-

pia intensiva e la sicurezza del paziente. L'impiego di strategie comunicative in linea con i principi del Governo Clinico, ovvero la formazione continua professionale, il processo di controllo statistico e la gestione del rischio clinico, contribuisce a ridurre l'indice di rischio e il suo impatto sulla qualità dell'assistenza intensiva al paziente di area critica.

KEYWORDS

COMMUNICATION TOOLS

COLLABORATIVE TEAMWORK

QUALITY OF HEALTHCARE IN ICU

CLINICAL RISK MANAGEMENT

HEALTHCARE PERFORMANCE IMPROVEMENT

PAROLE CHIAVE

STRUMENTI COMUNICATIVI

TEAM COLLABORATIVO

QUALITÀ DELL'ASSISTENZA IN TERAPIA INTENSIVA

GESTIONE DEL RISCHIO CLINICO

MIGLIORAMENTO DELLE PERFORMANCE

ASSISTENZIALI

INTRODUCTION

A shared vision on safety issues should be considered a specific goal in the core of quality for health care systems. The WHO Patient Safety Group states that "Communication is essential to workplace efficiency and for the delivery of high quality, safe work. It provides knowledge, institutes relationships, establishes predictable behaviour patterns and is vital for leadership and team coordination"¹.

Medical and nursing healthcare in ICU is complex and emotionally charged. ICU patients are in critical condition, vulnerable and require a significant amount of staff attention, responsibility and care. They need constant monitoring with regard to vital functions and timely decisions carried out by physicians and nurses, consequently with a high risk of potential errors harmful to patients.

1 World Health Organisation Patient Safety Group, *Human Factors in Patient Safety. Review of Topics and Tools*, 2009, available at: www.who.int/patientsafety

Errors, when they occur can be seriously harmful in intensive care units because of the complexity and the vulnerability of processes. Nurses and physicians should develop communication strategies in order to reduce the conditions that lead them to make mistakes that can lead to fatal or potentially harmful effects on patients. Staff communication skills and competencies need to be regularly reviewed and updated. Proper documentation is strictly necessary as evidence of the quality of the healthcare provided. Guidelines, protocols and procedures are recommended as ways for employees to facilitate timely and meaningful communication and to achieve proper decision making. Operational tools such as checklists have a potential to improve patient outcomes by democratizing knowledge and helping to ensure that all patients receive evidence-based best practices and safe high-quality care².

2 Bradford Dwinters, Gurses A, Lehmann H, Sexton JB, Rampersad CJ, Pronovost PJ, *Clinical Review: checklists - translating evidence into practice*, *Critical Care*, 2009; 13(6): 210

Improving safety in critical healthcare processes means optimizing communication flows and social networking to break down divisions that limit the information sharing and the reporting of errors. The reporting and the disclosure of errors should promote a blame-free culture which banishes psychological barriers throughout the team increasing the quality of performance. The evidence suggests that healthcare professionals are aware of their direct responsibility for errors and feel worried, guilty or depressed when reporting them³

Difficulties and resistance linked to the reporting of errors are often related to the perception of procedures as being something that may cause fear of reprisal or of disciplinary action. The main factors that impede professionals in communicating effectively are connected to: organizational climate, professional conflict, hierarchical structure, excessive workload, heavy shifts, stressful crowding, resistance to change, lack of feedback and a culture of blame.

In order to ensure uniform behaviour during the analysis, evaluation and risk management, professionals should use appropriately standard communication models. The safety of the patient and the quality of the healthcare provided need to be evaluated with reliable and valid measures.⁴ Root Cause Analysis (RCA) and Failure Mode Effect and Critical Analysis (FMECA) are used to prevent errors or recurring errors in order to create safer workplaces and to promote the quality improvement of the health care provided. RCA is a retrospective approach used to verify the “root cause” regarding a problem that has already occurred. The root cause, which represents the fundamental reason why the event happened, is investigated by analyzing how and why the event occurred. The International Joint Commission of the USA asserts that the goal of RCA, the method historically used retrospectively, is to produce an action plan that identifies the strat-

3 Wolf R, Hughes RG, “Error reporting and disclosure” in *Patient safety and quality: an Evidence-Based handbook for nurses*, Chapter 35, available on: NCBI, Agency for Healthcare Research and Quality (US); 2009, Apr.

4 Donabedian A, *Criteria, norms and standard of Quality: what do they mean*, Am J Public Health, 1981; 71: 409-412

egies the organization intends to implement to reduce the risk of similar events occurring in the future.⁵ The way to perform an RCA procedure requires an investigation into the communication, personnel training and experience, fatigue and organizational planning. The success of any RCA process depends on actions undertaken by the organization in response to the team’s recommendations.⁶

Healthcare Failure Mode and Effect Analysis (HFMEA) is a proactive risk assessment tool used in healthcare to identify potential vulnerabilities in complex and high-risk processes and to generate remedial actions before these processes result in adverse events, ensuring patient safety. Formally introduced in the late 1940’s for military use by the US Armed Forces, nowadays FMEA is increasingly finding use in systematic processes of the service industry and complex health care.⁷ ⁸ FMECA extends FMEA by including a critical analysis to estimate the significance of the consequences of a failure mode.

Situation Background Assessment Recommendation (SBAR), is a common mental model in communication⁹. It represents the theoretical framework around which a message is structured, focused on problem resolution and suitable for face to face, telephone and written communication.

Initially introduced in 1999 in the USA by A. Frankel as a programme for hospital leadership to promote conversations to identify hazards and gather information to enhance de-

5 Joint Commission International, *Root Cause Analysis in Health Care: Tools and Techniques*, JC Resources, 2015, p. 2, available on: www.jointcommission.org

6 Ministero della Salute, *Sicurezza dei pazienti e gestione del rischio clinico: Manuale per la formazione degli operatori sanitari*, available on: www.salute.gov.it/imgs/c_17_pubblicazioni_640_allegato.pdf

7 Mayall SJ, Banarjee AK, *Therapeutic Risk Management of Medicines*, Woodhead Publishing, 2014, p. 175

8 VA National Center for Patient Safety, *The basic of healthcare Failure Mode and Effect Analysis*, available on: www.patientsafety.va.gov

9 Haig KM, Suttan S, Whittington J, *SBAR: a shared mental model for improving communication between clinicians*, Joint Commission Journal on Quality and Safety, 2006, Mar, 32 (3): 167-75

cision making with regard to patient safety,¹⁰ the Safety Walk Round (SWR) represents an effective method which increases in healthcare providers the awareness of the need to support an open communication focused on timely reporting and feedback. In the following years, SWR has been adapted and implemented in different healthcare settings including ICU. For instance, starting from 2006 it has been extended by Hamilton Health Sciences of Canada to all medical services since patient safety represents a responsibility for everyone.¹¹

In medical and nursing literature there is a limited number of papers regarding communication approaches usable in the ICU setting with regard to HFMEA, FMECA, RCA, SBAR and SWR and their use has not significantly increased in recent years. Furthermore, the paucity of papers conflicts with the growing interest in communication skills and with the evidence of the usefulness of these tools. Their use is fundamental in ensuring the safety and the quality of critical patient care, in reducing the clinical risk and in improving the level of staff performance and satisfaction.

In order to contribute to the assumption that communication skills and tools are necessary to promote the quality and safety of critical healthcare in ICU, an in-depth analysis of evidence through a selection of papers concerning this topic is given below.

MATERIALS AND METHODS

Inclusion criteria

Design:

the present narrative review includes studies implemented on qualitative and quantitative research pre-post design, qualitative improvement projects and descriptive studies related to exploring problems and solutions

10 Frankel A, Grillo SP, Pittman M, Thomas EJ, Horowitz L, Page M, Sexton B, *Revealing and resolving patient safety defects: the impact of leadership walkrounds on frontline caregiver assessment of patient safety*, Health Service Res. 2008, Dec; 43 (6): 2050-66

11 Ziemmerman R, Daniels C, Smith T, Shaver J, *An evaluation of patient safety leadership walkrounds*, Healthcare Quarterly, 2008; 11 (3 Special No): 16:20

with regard to the quality of communication between nurses and physicians working in ICU. The sequences of each research process and its correlation or difference among the studies gathered have been identified.

Team selection, setting and timing:

participants were mainly medical and nursing staff. The context is represented by the general, cardiac and paediatric ICU. Other healthcare settings different from ICU are not included in the present review. A shared use of communication tools is essential to increase the level of collaboration inside the team, to reduce the clinical risk connected with a complex environment such as the ICU and to create a safe critical healthcare setting.

Phenomena of interest:

the main factors have been analyzed that prevent the team members communicating effectively and which may contribute to errors and adverse events related to critically ill patients. The study focuses on the employment of communication strategies which promote the level of collaboration between nurses and physicians and which reduce harm to patients thereby increasing the safety of the healthcare delivered.

Outcome:

the present review considers studies that include the following outcome measures: the improvement of cooperation at all multidisciplinary levels of the teamwork in ICU; clinical risk management through better team communication; the acknowledgment and the encouragement of nurses in using communication tools and procedures during routine work; the analysis of the conditions for a better team climate that emphasizes a no-blame culture and that facilitates the employment of shared communication tools.

Search strategy:

a literature review has been performed in order to examine articles connected with the study objective using the following databases: PubMed, Cochrane Database for Systematic Reviews, PMC, International Emergency Nursing, Nurse Education in Practice, Journal of Critical Care. The key words used for the research were: professional communication tools, clinical risk management, intensive care

unit collaboration, critical healthcare, performance improvement. Only studies published in English, full text with abstract included, were considered in this review. After a first step in which 16 reports were selected throughout the national and international literature, only one national paper and seven international studies have been included in the final reference. Grey literature reports have not been considered, but the search for unpublished studies concerning communication improvement in intensive care units has promoted the understanding of psychological and sociological implications throughout the team.

Studies included in the review:

1) Rose L, *Interprofessional collaboration in the ICU: how to define?*, Nursing Critical Care 2011, Jan-Feb; 16 (1): 5-10

2) Foronda C, MacWilliams B, McArthur E, *Interprofessional communication in healthcare: an integrative review*, Nurse Education in Practice, 19 (2016); 36-40

3) Justice LB, Cooper DS, Henderson C, Brown J, Simon K, Clark L, Fleckenstein E, Benscoter A, Nelson DP, *Improving communication during cardiac ICU Multidisciplinary Rounds through visual display of patient daily goals*, Pediatric Critical Care Med., 2016, Jul; 17(7): 677-683

4) Dingley C, Daugherty K, Derieg MK, Persing R, *Improving Patient Safety through provider communication strategy enhancements*, in Henriksen K, Battles JB, Keyes MA, Grady ML, editors. *Advances in Patient Safety: New Directions and Alternative Approaches* (Vol. 3: Performance and Tools). Rockville (MD): Agency for Healthcare Research and Quality (US): 2008 Aug.

5) Manojlovich M, DeCicco B, *Healthy Work Environments, Nurse-Physician communication and Patients' Outcomes*, American Journal of Critical Care, November 2007, Vol 16, No. 6, 536-543

6) Bagnasco AM, Tubino B, Piccotti E, Rosa F, Aleo G, Di Pietro P, Sasso L, Passalacqua D, Gambino L, *Identifying and correcting communication failures among health professionals working in the Emergency Department*, International Emergency Nursing, 21 (2013), 168-172

7) Ainsworth CR, Pamplin JC, Allen DA, Linfoot JA, Chung KK, *A bedside communication tool*

did not improve the alignment of a multidisciplinary team's goal for intensive care unit patients, Journal of Critical Care, 2013, 28, 112.e7 – 112.e13

8) Centofanti JE, Duan EH, Hoad NC, Swinton ME, Perry D, Waugh L, Cook DJ, *Use of a Daily Goals Checklist for Morning ICU Rounds: a Mixed-Methods Study*, Critical Care Medicine, Aug 2014, Vol 42, N. 8, 1797-1803

RESULTS

To follow, the characteristics of the studies included.

1)

DESIGN: Review including descriptive analysis, ethnographic observations, empirical studies and cross-sectional study designs. Papers included: 41; Period: 1986-2009

SETTING: ICU team core context (physicians and nurses) and specialists;

OBJECT: To find: a) Determinants of interprofessional collaboration; b) Evidence supporting the impact of collaboration on ICU outcomes; c) Tools to promote team communication.

COMPONENTS: Authority, Education, Patient needs, Knowledge, Resources, Time;

Evaluated Outcomes: a) Medical: patient survival, complication rates, adverse events, symptoms control, incidence of ventilator pneumonia, presence of pressure ulcers; b) Psychological: long-term recovery, quality of life; c) Institutional: staff satisfaction, staff turnover, ICU bed utilization, efficiency of ICU services, satisfaction by other hospital departments, teamwork scores;

Tools: checklist, daily goal sheets, interdisciplinary rounds, protocols.

RESULTS: Individual professionals have to update knowledge and skills in order to collaborate effectively and to realize promptly and safely shared plans of care. The literature review shows that promoting the interprofessional communication represents a useful strategy to increase cooperation and staff satisfaction inside the teamwork, but not enough to ensure the quality and the safety of care in ICUs. Checklists, protocols, briefings, daily

goal sheets and safety walk-rounds represent effective additional tools that may improve the inter disciplinary collaboration in some realities of ICUs ensuring timely and appropriate decision-making that may result in improved patient care outcomes.

REMARKS: Data analysis highlights that communication tools such as audit and feedback, checklists, protocols and inter disciplinary rounds help the teamwork to increase the quality of healthcare with a reduction of harm to patients, decreasing of length of stay and staff satisfaction improvement. The study analyses searches developed in different ICU setting of US during a long period of time (1986-2009) highlighting the determinants and some main interventions recommended to promote the interdisciplinary collaboration, overlooking daily routine work communication difficulties that may influence the quality and safety of critical healthcare.

2)

DESIGN: Review; update of factors affecting interprofessional communication in healthcare; *Papers included*: 28; *Period*: 2002-2014

SETTING: General Internal Medicine , Rehabilitation, Primary Care, ICU, Emergency medicine.

OBJECT: To shed light onto what is known regarding difficulties in order to interprofessional communication in healthcare.

COMPONENTS: a) difficulties from Verbal Synchronous (meeting, ward round, handoff, or impromptu conversation) asynchronous (white boards, through medication orders, or written progress notes) inter-professional communication; b) not verbal and written communications includes body language, attitude and tone; c) different professional communication style assumed with academic training; d) interprofessional hierarchies (historic nurse servant role); e) mutual frustration;

Moreover: a) Nurse: holistic perspective; b) Physician: structured/objective/succinct evaluation

Tools: a) Interprofessional simulations (even during academic training); b) Team strategies and tools to enhance performance and patient safety; c) SBAR.

RESULTS: Interprofessional communication skills may be significantly improved throughout individuals' training using simulation and standardized communication tools. Differences in communication styles conduct to frustration and to loose relevant information. No discussion or negotiation between nurses and medical staff. Lack of confidence, fear of feeling like nurse's opinion is not evaluated. Stress and frequently interruptions throughout communications. Simulation and SBAR represent effective approaches that improve internal staff communication and satisfaction supporting interactions and feedback. It results in increased knowledge, skill performance, learner satisfaction, critical thinking and self-confidence.

REMARKS: A sharing mental model allows for mutual understanding. Standardized communications, such as the SBAR tool, provide a method in order to structured, organized and integrated communication that better reflects the care provider's true narrative. Simulation has been supported by a successful pedagogy to build interprofessional communication skills.

3)

DESIGN: Experimental study; A pre-post intervention evaluation was done to verify the efficacy of the Visual Display of Patient Daily Goals in improving percent agreement for patient goals among staff during daily cardiac ICU multidisciplinary rounds and in family's satisfaction with rounds and understanding goals. SETTING: 25 beds in cardiac ICU in Cincinnati Children's Hospital Medical Centre.

OBJECT: a) to create a tool that improves cardiac ICU patient care and that facilitates information transfer inside the staff using the read-back. b) to create a culture that enhances an open communication and that promotes the documentation of goals through the implementation of a centred plan of care for each patient.

COMPONENTS: *Treatment 1*: Daily Goal write-down and read-back process. *PILOT STUDY*; *Treatment 2*: Daily Goal write-down and read-back process by using a whiteboard to write down the goals on display goals during the read back process. *Outcome*: The effectiveness of communication during rounds was

tested: a) change in the Round Effectiveness Assessment and Communication Tool (REACT) score; percentage of agreement; b) change in the number of matching questions per patient round (as percentage of total rounds); c) increased parents' satisfaction with rounds and understanding goals was evaluated by means of a questionnaire built on EMPHATIC items.

RESULTS: Percent of agreement: Increasing from 62% to 87.6%. Family satisfaction: increasing of mean score from 4.6 to 5.6 (maximum 6).

REMARKS: Multidisciplinary rounds realized among nurses and physicians using a visual display at patient's bedside increases the understanding on patient care goals. Moreover, it contributes to enhance the perception of teamwork eliminating the hierarchical differences between physicians and nurses in decision-making. The main limits of the present study are connected with the specific patient population that impede the generalizability of the findings and with the difficulties detected on the language used to implement the REACT survey.

4)

DESIGN: Experimental study; Pre and post-test design to evaluate the effect of a toolkit of interventions to improve communication strategies by means of the process analysis of communication events from July 2005 to June 2007.

SETTING: Medical Intensive Care Unit (MICU) and the Acute Care Unit (ACU) in medical centre of Denver Health and Hospital Authority. *Participants of experimentation*: multidisciplinary healthcare providers (physicians, nurses, respiratory therapists, physical therapists, radiology and laboratory staff).

Statistical unit: nurse-initiated communication with another healthcare team member (247 pre-intervention; 248 post-intervention); Information provider: nurse.

OBJECT: To develop safe communicational toolkit (SBAR, safety walk rounds using daily goals sheet, team huddles at each shift) with the final aim of overtaking difficulties during conversation and promoting interdisciplinary communication.

COMPONENTS: a) *Exposition*: application of communication toolkit after educational train-

ing of health providers staff; b) *Outcome*: change in time needed to communicate and resolve the issue; change in proportion of positive issue resolution; change in proportion of nurses' satisfaction with interaction/communication.

RESULTS: Time needed to communicate and resolve issue:

in MICU Significant reduction (from 4.5 min to 3.4 min; $p=0.01$)

in ACU no significant change (from 6.6 to 5.3 min; $p=0.31$)

Proportion of positive issue resolution:

In MICU: Significant increase (from 67.7% to 80.2%; $p=0.04$);

In ACU: no significant increase (from 66.7% to 75.0%; $p=0.13$);

Proportion of satisfaction with interaction/communication:

In MICU: marginally significant increase (from 85.5% to 92.8%; $p=0.08$);

In ACU: no significant increase (from 77.1% to 80.1%; $p=0.53$).

REMARKS: SBAR, team huddles, daily briefings and debriefings appear to be fundamental tools in sustain a no-hierarchical structure. Their use is likely to be an aid for physicians and nurses to overtake difficulties during conversation promoting the interdisciplinary communication.

Suggestion: SBAR could be a standardized communication framework that may be used in different environments for no-emergency events. *Limits*: The evaluation of improvement of outcomes is based only on nurses' perception. It is not possible to distinguish between the effect of educational training and the effect of toolkit application.

5)

DESIGN: Non-experimental descriptive cross-sectional design. Object of the descriptions are the working conditions of the healthcare providers in association with outcomes in intensive care settings.

SETTING: 25 Intensive Care Units, located within 8 hospitals as part of 3 health systems in the southeastern Michigan. *Participants involved*: all nurses (N=866) working in the 25 ICU selected for the study. All nurses involved in the study were asked to complete anonymous

surveys regarding: 1) characteristics of magnet hospital and workplace environment; 2) nurse-physician communication; 3) their perception of VAP; catheter-related sepsis and medication errors; 4) demographic information.

OBJECT: The aims were: a) to examine the relationship between nurses' perception of ICU practice environment and nurse-physician communication; b) to examine the independent role of the practice environment and nurse-physician communication on selected outcomes (Ventilator Associated Pneumonia, catheter associated sepsis and nurses' reports on medication errors), as perceived by nurses.

COMPONENTS:

Exposition: 1. Two features of the work environment: a) workplace empowerment b) magnet hospital characteristics; 2. Nurse-physician communication. *Outcome:* Patient Safety Outcomes was expressed by means of nurses' perception of frequency of: ventilator-associated Pneumonia, catheter-associated sepsis, medication-related errors.

Tools: a) Workplace environment was described by using the Conditions for Work Effectiveness Questionnaire-II. b) The Practice Environment Scale of the Nursing Work Index was used to analyze the hospitals' nursing practice in line with the characteristics of magnet hospitals; c) Nurse-physician communication was measured by using part of the ICU Nurse-Physician Questionnaire. d) Patient Safety Outcomes (4-point Likert-type scale of frequency).

RESULTS: a total of 462 nurses (53%) responded. Nurses' perception of communication with physicians was only directly associated with workplace empowerment. It was not influenced by the type of ICU setting. In traditional regression models, the nurse-physician communication was predictive of all three health outcomes. Years of nurses' experience were directly and significantly associated with more frequent reporting of medication errors.

REMARKS: in the discussion, the Authors suggest that nurse-physician communication may not influence all outcomes. Moreover, enhancing the characteristics of the practice work environment (more information, sup-

port, resources and opportunities, adequate staffing and the use of a nursing model to deliver patient care) will improve nurse-physician communication.

Limitations: a) the study design (cross-sectional) does not allow a perspective interpretation of potential interventions; b) social desirability response effect bias is the tendency to overreport socially desirable characteristics and to underreport under desirable characteristics; c) in considering the dyad nurse-physician, the study includes only the nurses' perception; d) unclear presentation of the results of the statistical analyses.

6)

DESIGN: Prospective cohort study, from April 2008 to May 2009. The health care process was divided in five phases in order to identify which phase of the Emergency Department process presented the highest number of actual or potential communication errors and defects (communication failures). Almost 400 communication events were recorded in order to identify communication failures.

SETTING: *Participants involved:* A group of 43 healthcare workers (physicians and nurses) employed in the Paediatric Emergency Department of a Children's Teaching Hospital in Genoa, Italy. FMECA of 400 communication events recorded during 12 months of observation. Ranking of risk of possible process failures.

OBJECT: *General aim:* To improve timeliness and to develop communication patterns among the healthcare workers during information and data transfer. *Specific aims were:* 1. To identify the main process failure of non-technical skills 2. To identify effective corrective measures to ensure patient safety in the Paediatric Emergency Department.

COMPONENTS: *Exposition:* Health professionals were observed while they were working; they were recorded for how long and how they communicated. *Outcome:* To identify the main process failure by means of FMEA, FMECA, and RPN of non-technical skills on patient's therapeutic pathway from admission to discharge.

Tools: Failure Mode and Effects Analysis (FMEA) and Failure Mode, Effects and Critical-

ly Analysis (FMECA) were conducted in order to outline a map of the risk.

Error Modes were categorized and correlated with the Risk Priority Number (RPN= product of Severity, Occurrence, Detection) to determine the priority criteria for corrective actions. For “Severity” and “Occurrence” a scale from 1 to 10 was used; for error “Detection” was used a scale from 10 to 1. The issues, identified with the RPN scores, were analyzed by using the JCI standards.

RESULTS

1. Process failure: 22 possible failures of the process were identified. The most dangerous Failure Modes resulted those related to communication among health professionals

2. Effective and corrective measures: a) choice of correction actions in reorganizing communication (SBAR); b) role-playing and simulation training of a multidisciplinary team to enhance the attitude to standardize verbal communication.

REMARKS: the use of communication tools (FMEA, FMECA) and of corrective actions (SBAR, briefing and multidisciplinary rounds) promotes the effectiveness of information transfer and the documentation of data, helps to optimize timing and enhances the attitude to teamwork into the Emergency Department. Limits limited generalizability (Paediatric ED setting) to ICU. The ‘effectiveness’ of the corrective actions proposed by the authors was not tested in the study. ‘Effectiveness’ is only based on literature.

7)

DESIGN: Experimental study. A pre-post intervention randomized was realized to assess the efficacy of a patient daily goals toolkit named “Door Communication Card” (DCC) among the healthcare team (HCT) members during ICU multidisciplinary rounds. *Period*: December 2009 – April 2010; Selection of 5 random days before and after intervention for assessment.

SETTING: 20-bed, surgical ICU in a 45-bed academic military medical center, USA; *Participants*: Primary Team, Attending physicians, Resident physicians, Nurses.

OBJECT: To test the hypothesis that the implementation of a daily goals tool (DCC) would

improve a goal alignment among the staff members by enabling them to identify and to share the same important patient daily goals.

COMPONENTS: 1. *Exposition*: a) HCT members were asked to list their top care goals for a patient on a given day; b) the official daily goals were recorded during multidisciplinary rounds; c) one month after application of DCC, HCT members were re-queried about their patients’ daily goals. 2. Nurse-physician communication; 3. *Outcome*: Difference of percentage agreement between the alignment rates of goals among the team members before and after introduction of DCC.

RESULTS: Alignment of daily patient care goals between HCT members did not improve after implementation of the DCC, demonstrating a lack of a shared understanding of care priorities. Percentage before and after alignment of patient daily goals. Decreasing of the relationship from 55% to 38% for the attending to the bedside nurse ($P=.02$) vice-versa from 52% to 36% ($P=.03$); Decreasing of the relationship from 55% to 38% for the bedside nurse to the resident and vice-versa ($P=.05$).

REMARKS: *Limits*: lack of control of many confounders such as individual provider biases. No coaching related to team members about the use of the goal cards. No definition about what a “patient goal” is. Multidisciplinary rounds focused on “tasks” and not on “goals” perceiving them not as priorities. The extreme peculiarity of the setting (mixed surgical and intensive) does not allow for generalization of the results.

8)

DESIGN: Observational Mixed-Method Study using both qualitative and quantitative approaches.

Statistical unit: 80 patient rounds.

SETTING: 15-bed closed medical-surgical ICU in a tertiary care, university affiliated hospital, Ontario, Canada.

Participants: physicians, nurses, pharmacists, dietitians, respiratory therapists, ICU fellows, intensivists, residents, students.

OBJECT: To understand the perspectives and attitudes of ICU clinicians regarding the use of a “Daily Goal Checklist and Plan of Care”

during morning rounds in a teaching hospital.

COMPONENTS: 1. *Tools:* Daily Goal Checklist (DGC). The overnight nurse was responsible for completion of the form, reviewed and completed by the daytime nurse. The round section of the DGC was filled in during morning rounds by the physician-led. 2. *Steps:* field observations performed during morning rounds were investigated to test how the DGC was used in terms of: timing, depth, champion of the review, nonverbal communication. Document analysis using both quantitative and qualitative approaches to reveal areas to focus on. Individuals semistructured interviews and focus groups realized to complete opinions on DGC and to complete the dataset. Validation of qualitative analysis was obtained using multiple techniques.

RESULTS: The DGC was perceived to improve the management of critically ill patients enhancing the safety and the quality of the care delivered. Field observations: The DGC was completed for 93% of the 80s observed rounds and it was primarily reviewed at the end of each patient's bedside round (80%) identifying new clinical developments about care plans (sedation, weaning, rehabilitation, medications).

Document Analysis: 72 DGC completed analysis; bedside nurses filled in the form highlighting the main issues from their clinical assessment. Nurses stressed on patient's fluid status, nutrition, skin integrity and catheters so drawing physicians' attention. *Interviews:* 3 main topics: a) Impact on Communication: participants emphasized DGC as a systematic tool that fostered everyone to adopt openness and a holistic approach regarding patient's daily goals. b) Impact on Patient Care: the use of DGC promoted a standardized approach on patient's daily goals and ad lib discussions focused on urgency interventions. c) Impact on Education: The DGC represented a useful training tool in supporting the continuous improvement of the best practices, engaging the entire team.

REMARKS: DGC revealed to be a simple and quick useful tool with a positive impact on communication among staff members during

multidisciplinary rounds in ICU. The use of DGC promoted a systematic approach and helped in supporting prompted discussions for timely decision-making.

DISCUSSION

By the studies analyzed we evince that communication tools are designed to minimize errors and to ensure a clear and unambiguous communication among professionals involved in critical healthcare. In emergency conditions, time is short for clinical thinking and it may lead to a delay in decision-making consequently with an increased possibility for adverse events.¹²

The implementation of shared communication strategies as the application of reactive and proactive tools represents an efficient method to assess patient safety in ICU. The evidence suggests that attention should be stressed on employment of RCA, FMECA, SBAR and SWR as communication processes and techniques used to increase the safety and quality of critical healthcare. From analysis of the papers selected a close correlation between the reduction of errors and the application of some fundamental communication tools deserves some reflections: in ICU the use of communication tools to communicate effectively should not overlook the organizational climate and the emotional management of staff. In line with the Clinical Governance issues and the continuous improvement of the professional practice, healthcare systems should support high levels of cooperation, openness and learning from errors. Throughout the different communication strategies, Safety Walk Rounds and Bed-side Rounds provide useful opportunities for frontline staff to identify and discuss the safety concerns thereby minimizing risks for the patient. These ef-

¹² Burstrom L, EDs., *Patient Safety in the Emergency Department: Culture, Waiting and Outcomes of Efficiency and Quality*, 2014, in Molavi Taleghani Y, Rezaei J, Sheikhbardsiri H, Risk assessment of the emergency processes: Healthcare failure mode and effect analysis, *World Journal of Emergency Medicine*, Vol 7, No 2, 2016: 97-105

fective tools help to unify the organization in solving systemic problems on communication sharing common areas of concern.¹³ Moreover, when staff concerns are heard and errors lead to constructive perception instead of punishment, error reporting provides more opportunities for healthcare improvement.¹⁴

CONCLUSION

ICU is a complex, dynamic and high risk environment which requires a multidisciplinary team in taking care of critically ill patients. Staff members should be aware that critical patient safety is the result of a shared task at all medical and nursing levels. Transparency and shared information can be achieved by developing effective communication within the team and through the promotion of a no-blame culture in error reporting. Design that encourages the reporting of errors and their investigation through the employment of communication tools helps to promote a culture focused on learning from errors, minimizing possible harm to patients hence improving the quality of the critical healthcare delivered.

Effective communication is not just about providing the right information at the right time. From the heterogeneity of the approaches applied we evince that the use of strategic communication tools encourages physicians and nurses to collaborate properly and help to establish patient safety as a constantly relevant topic during daily routine work and handovers. Making sure that medical and nursing staff cooperate and communicate effectively is essential in preventing the clinical risk and helps ensure the quality and safety of patient care as part of a skills set. Behaviour standardization and team training in developing communication skills together with the

13 Budrevics G, O'Neil C, *Changing a culture with Patient Safety Walk Rounds*, *Healthcare Quarterly*, 8(Sp) October 2005: 20-25

14 April M Taylor, Chuo J, Altmann AF, Di Taranto S, N Shaw K, *Using Four-Phased Unit-Based Patient Safety Walkround to Uncover Correctable Systems Flaws*, *Joint Commission Journal on Quality and Patient Safety*, 2013, Sept, 39 (9): 396

use of communication tools should create the emotional basis to perceive those strategies as fundamental for error prevention in line with Clinical Governance and EBM-EBN issues.

Disclosure: The author declares the complete absence of conflict of interest in the present review.

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