

Communication in Nursing Practice: Communication exchange event failure in Action teams of High-Risk Patient Care Units (HRPCU's)

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Abstract

Aim: This article presents a discussion of the phenomenon of communication exchange event failure that occurs in action teams of High-Risk Patient Care Units (HRPCU's).

Background: Communication exchange events of action teams in HRPCU's fail regularly and is one of the major causes of sentinel (adverse) events in HRPCU's, such as Operating rooms (OR's), Critical Care units (CCU's) and Trauma and Emergency units (TEU's) internationally, and in South Africa.

Data sources: Using the concepts communication failure; action teams; Operating room; Critical Care unit and Trauma and Emergency unit, an electronic search of PubMed, Cinahl and MEDLINE was conducted.

Discussion: Globally, poor communication between members of action teams in high-risk patient care units (HRPCU's) results in sentinel events and health care litigations. A systemic challenge facing teams in South African TEU's, similar to international TEU teams, is poor communication and the majority of reported sentinel events in OR's are mainly due to a communication exchange event failure and a lack of team co-operation, and not related to clinical performance. Rhetorical communication factors are involved in communication [exchange] event failures, including: content (what information is being communicated), audience (who the information is communicated to), purpose (why the information is being communicated), or occasion (when and where information is communicated). A failed communication exchange event is considered as communication that flawed in at least one rhetorical communication factor. Preventing harm and protecting patients from injury is the main responsibility of action teams in HRPCU's. One way of adhering to this responsibility is through competent (effective and appropriate) communication, thus rendering competent communication vital for action teams in HRPCU's.

Conclusion: Ensuring competent communication within HRPCU action teams will require a more effective and appropriate approach to communication exchange events. The adoption of competent (effective and appropriate) communication exchange event principles and the selection of a communication exchange event failure prevention model by nurses in action teams is vital for positive patient care outcomes in HRPCU's.

Keywords: *Action Teams; Communication; Competent Communication; Critical Care Unit; High-Risk; Operating Room; Sentinel Event; Trauma And Emergency*

Abbreviations

HRPCU's: High-Risk Patient Care Units; OR's: Operating rooms, CCU's: Critical Care units; and TEU's: Trauma and Emergency units.

Introduction

Following an American airline disaster in 1977 when two Boeing 747 aircrafts collided on the Tenerife airport runway, killing 583 people, a pilot made the following comments: "Up until 1980, we kind of worked on the concept that the captain was the authority on the aircraft. What he said, goes. And we lost a few airplanes because of that. Sometimes the captain isn't as smart as we thought he was. And we would listen to him, and do what he said, and we wouldn't know what he's talking about" [1]. The analyses of various cockpit voice recordings of air disasters reveal how flight engineers and first officers tried to bring critical information indirectly and ineffectively to the captain's attention. The latter only grasped what was being communicated when it was too late to avert a disaster. It is clear that communication exchange event failure amongst these cockpit crew members during crucial times is clear. For many years American airlines has been marked by minimal communication amongst its cockpit crews on commercial passenger aeroplanes [1,2]. The lack of communication among cockpit crews resulted in a high incidence of failure to cooperate and many fatal accidents followed [3].

Today, globally, the poor communication between members of action teams in high-risk patient care units (HRPCU's) of health care services closely resembles the communication failures in the American airline industry of the 1970's. Sentinel (adverse) events and health care litigation have become a common occurrence world-wide. Studies revealed that there is a direct link between sentinel events and communication failures in health care services. For example, a study analysing a total of 1 186 medical legal cases found failures in communication one of the most common causes for litigation in South Africa [4,5]. A sentinel (adverse clinical) event is described as an unexpected occurrence, involving death or serious physical or psychological injury to the patient, or the risk thereof [6]. It is also an event that results in unintended harm (or injury) to the patient by an act of commission or omission by a nurse, rather than by the underlying disease condition of the patient [7, p. 14]. In addition, sentinel events "may result in outcomes that may require additional care or hospitalisation" ([8], p. 8). The South African National Patients' Rights Charter stipulates that every patient has the right to a healthy and safe environment [9] thus prohibits any harm to patients and this consideration is rooted in two ethical principles: non-maleficence (not doing deliberate harm) and beneficence (do no harm). The World Health Organisation defines Harm, accordingly as: "the dysfunction of a structure or functioning of the [human] body, which is inclusive of diseases, injuries, suffering, disabilities and death. Harm could be physical, social or mentally" ([10], p. 2).

Action teams

A team is a small group of people with complementary skills, committed to a common cause, approach and performance goals for which they hold themselves mutually accountable [11]. However, the concepts group and team are not synonymous, in that, not all groups are teams but all teams are groups; "Groups consist of any number of people who interact with one another, are psychologically aware of one another and think of themselves as a group" ([12], p. 177). Only when the members of a group focus on helping one another accomplish set objectives does this group qualify as a team. Within the larger health care workforce of health care services, small groups of medical and nursing professionals function as teams, in specific units. Teams, uniquely challenged to exhibit peak performance on demand are called action teams [11]. Medical and nursing teams working in HRPCU's such as operating rooms (OR's), critical care units (CCU's) and trauma and emergency units (TEU's) are classified as action teams, due to the constant demand on these teams to perform at an optimal level [8,13,14].

High-risk patient care units (HRPCU's)

The concept risk is defined as "...possibility of loss or injury and high-risk as "...likely to result in failure, harm, or injury..." A [patient care] unit is defined as "...an area in a medical facility and especially a hospital that is specially staffed and equipped to provide a particular type of care..." [15]. High-risk patients are patients who present with multiple health needs and are at risk for poor health outcomes [16]. A high-risk patient care unit (HRPCU) is thus an area in a medical facility, especially a hospital, that is specially staffed and equipped to provide a particular type of care to patients where there is a high possibility of loss or injury (sentinel events) during the rendering of such care [17].

There are many examples of HRPCU's in health care services, however this article will focus on the failure of communication exchange events in three main HRPCU's, namely, OR's, CCU's and TEU's.

- **Operating room (OR):** The operating room (OR), is defined as a "room in a hospital in which surgical operations are performed" [17]. It is the HRPCU in a health service that pose the most medical-legal risks. Annually an estimated 234 million major surgical operations are performed worldwide, and the more the volume and importance of surgery in global healthcare increases, the more attention is focused on patient safety and quality in surgical care [18]. The avoidable risks that patients are exposed to in OR's include: wrong-sided surgery, retained instruments and swabs, failed surgery, infection, diathermy and other burns or death [5], as well as human error (improper cleaning and disinfecting of endoscopic equipment, failure to check devices and emergency equipment [8].
- **Critical care unit (CCU):** The critical care unit (CCU) is another HRPCU in a health care service in that it is a specialised unit where specialised care is rendered to patients with life-threatening conditions requiring comprehensive care [17]. The CCU can be defined as "a specially staffed and equipped, separate and self-contained area of a hospital ([13], p. 12), in which the acuity levels of patients are high and high-intense interventions and therapies are performed [14]. The nurses functioning in CCU's are more inclined to make mistakes due to the demands placed on them by caring for critically ill patients, the patient families, the high workload in CCU's and the physical CCU milieu [66].
- **Trauma and emergency unit (TEU):** Trauma refers to "...injury or damage to a person caused by physical harm from an external source..." and a [medical] emergency to "...a person with a medical condition requiring immediate treatment..." [17]. An emergency unit is defined as "...the department in a hospital which provides immediate treatment..." [17]. Combined, a trauma and emergency unit refers to a department in a hospital which provides immediate treatment to persons who sustained injuries caused by physical harm from external sources or suffers from medical conditions.

HRPCU's versus other patient care units

There are significant differences between HRPCU's and other patient care units. The differences are best explained according to the type and function of the unit; team functioning; climate; and communication in the unit: HRPCU's are usually closed types of units, which are separate and self-contained areas [13], unlike Out-patient or Pre-admission units that are open and interdependent areas. The functions of HRPCU's are more specialised than the function of other patient care units and include the care of critically ill, seriously injured or anaesthetised patients [8,14,19]. The risk-level and potential for sentinel events are usually higher in HRPCU's than in other patient care units due to the increased demands of critically ill, seriously injured or anaesthetised patients [13]. The teams functioning in HRPCU's are small action teams comprising of multi-disciplinary specialists from medical and nursing professions. Other patient care units usually have large functional teams with a mix of generalists and specialists from the medical and nursing professions [14]. The climate in HRPCU's are usually different than the climate in other patient care units [20]; the HRPCU climate is more stressful, demanding and fast paced, due to the intensified acuity levels of the patients. Communication in HRPCU's usually has a specific purpose and audience and is focussed [21], compared to communication in other patient care units that might be non-specific in nature, having a wider scope, purpose and audience. The actions and communication in HRPCU's are often more coordinated than that of other patient care units. Coordination is defined as "...the organisation of the different elements of a complex body or activity so as to enable them to work together effectively..." [17].

Communication exchange events

Communication is a two-way process, whereby senders transmit information, through channels, via verbal and non-verbal formats or types to receivers, who interprets and responds to it, considering various barriers [22]. Information consists of "facts provided or learned about something/someone... conveyed or represented by a particular arrangement or sequence of things..." [17].

The two-way process occurring between members of small groups for the attainment of specific goals resembles team communication. Communication in small groups is more complex than dyadic (two-way) communication, since more members are added, increasing information sharing; an observer or audience is present, possibly influencing the interaction positively or negatively; the potential for a majority exists, that can form a coalition; and, there are no continuity, members leave and are replaced by new members [22]. Communication with others that is both effective and appropriate within a set context, based on results is Communication competence [23]. Communication, effectiveness is a measure of achievement of set goals. Appropriateness relates to how well the prescriptions (rules of right or wrong) and its associated expectations have been adhered to [23].

A [relevant] communication exchange event includes any communication relevant to a procedure (resuscitation; surgery; etc.), excluding all social conversations and other discussion not immediately relevant to the team's procedural tasks [21]. Communication exchange events within action teams in HRPCU's are immediate, direct and instructional, procedurally-directed and often occur between members of different professions. Due to the high risk of sentinel events occurring in HRPCU's, action teams must use high levels of competence during their relevant communication exchange events.

Theoretical approaches to communication exchange events

Theory (a body of theoretical approaches to a specific phenomenon) and its usage value in communication has been misunderstood and underestimated by many theorists, and therefore to understand communication theory it is necessary to examine the nature of its theoretical approaches. Due to the multi-faceted nature of the communication phenomenon, a complete view thereof is precluded. Each theoretical approach "inevitably offers a limited view which highlights only certain aspects of the phenomenon" ([24], p. 2).

Theoretical approaches pertaining to the structure of communication exchange events

Approaching communication by means of its structure can emphasise the entire structure (functionalism) or a particular component of the structure (focussing on communicator, medium and recipient) [24].

Functionalism

Functionalism provides a true structural view of the phenomenon communication, as this approach deals with the entire structure of communication. Mutual relationships between the individually identified parts and a need to retain their interdependence (for efficient functioning and survival of the whole) are highlighted in functionalism [24].

Interrelated structural components

Theoretical approaches, assuming that communication consists of several interrelated structural components include approaches focussing on the communicator, medium and recipient respectively:

- **The communicator:** Theoretical approaches that examine communication from the viewpoint of the communicator not only focus on the position of the communicator in relation to the other components of communication but specifically focus on the decisive impact of a communicator in a communication process. The communicator as driver of a communication event, initiates communication and intervening where necessary to ensure that desired results are achieved [24].
- **The medium:** In the communication process, the medium represents means whereby messages are transmitted. Theoretical approaches examining communication from the view of the medium vary in scope from the physical verbal (spoken language) and non-verbal (facial expressions, gestures) means to the technical (intercom, telephone, etc.) means of communication. Such approaches view a medium as most important part of a communication process, playing an influential role in how the message is formulated and understood. The approach is often directed at how a communicator can be assisted by the medium to deliver a more effective (persuasive) message and/or the effects of the message on the recipient [24].

- **The recipient:** Approaches focusing on the recipient view a recipient as an equal and active partner in the communication process, and not just as end-point, passive receiver of communicator messages. Theoretical approaches examining communication from the view of recipients are generally directed at ways in which the recipient can overcome the emphasis that is often placed on the communicator's intentions or the effects of the medium on a message. Recipients are thus responsible for the outcome of the communication exchange event, because the emphasis is placed on the way in which recipients interprets the message by making a conscious effort to become subjectively involved in giving meaning to the message within their own frame of reference [24].

Theoretical approaches pertaining to the process involved in communication exchange events

Generally communication is described as a process of transmission and exchange of information, pivotal to functioning of systems. In theoretical approaches, regarding the process involved in communication, the successful processing and exchange of information is emphasised and efforts are made to limit factors (called noise) that could endanger this success. Human beings ultimately make up communication systems, and therefore the focus on the communication process within (and between) systems emphasises the need for structuring these systems to ensure their smooth functioning. The general systems theory offers the most comprehensive description of communication from a process perspective [24].

General system theory: The general systems theory describes a system as a whole, consisting of several interrelated sub-systems and which has characteristics of its own [22]. A system maintains important relationships with its environment; it receives inputs from and provides outputs to the environment [24]. Channels of information within and between systems are emphasised as information is crucial for input-output in a system. In this view communication not as a linear and closed process but rather as a circular and open process. Feedback, originating from output, makes (goal-oriented and self-maintained) systems operate within limits (norms) for proper functioning [24].

Theoretical approaches about the dynamics of communication exchange events

Only human beings have the capability to ascribe meaning to communication and thus communication involves the constitution and exchange of meaning between individuals. Agreement by more than one conscious mind, essential to the dynamic, constitution and exchange of meaning in the communication exchange event, allows for shared meaning between the participants [24].

Symbolic Interactionalism: Symbolic interaction refers to a process whereby meaning (a human trait along with self-consciousness) is established and becomes shared by interlocutors in communication [22]. Structuring influence exerted on the communication developing process, in symbolic interactionalism, is stressed by forms of shared meaning. Meaning is expressed in symbols, such as linguistic symbols, which induce the same meaning in all the interlocutors, thereby structuring exchange events and turning it into a symbolic interaction [24].

Phenomenology: Phenomenology departs from the principle that human beings live in a world of meaning (a life-world) which exists over and above their social circumstances and the physical world [22]. Constructing this life-world comprises a constantly developing communication process in which human beings participate in agreement by more than one conscious mind. Existing meaning is therefore not only confirmed by communication, communication also creates new meaning. The phenomenology focus is on the structure of the live-world which consists of those forms of underlying social reality normally taken for granted [24].

Existentialism: The existentialism approach focuses on the quality of human existence. It highlights the vital role of a person in determining the quality of his/her own existence, emphasising the individual adoption of shared meaning – thus whether his/her existence is authentic or not. Authentic existence includes self-expression and self-actualisation. Communication is a mode of existence for existentialists, through which people can actualise themselves. Communication must make allowance for individual participation in the adoption of meaning in order for authentic self-actualisation to occur. Traits of poor self-actualisation include communication deprived of self-awareness, awareness of other people and self-expression [24].

Semiology: Semiology (the science of signs) provides for analysis of the character of signs, the relationship between signs and the creation of meaning. Signs can include everything that may be used for communication, such as words, images, gestures, etc. The semiotic approach reminds individuals that they communicate through the use of signs (with pre-set or flexible meanings) and that meaning/s are constantly transmitted through communication. Semiology does not focus on the way in which meaning is created and exchanged between interlocutors [22], but rather focus on how the actual message interacts with individuals to create meaning, in this sense, the message becomes both the object and subject of semiological analysis [24].

Critical theory: Critical theorists argue that communication shapes human reality; the way in which humans perceive themselves and the way others think of them is negatively impacted by unjust power relations [22]. "This in turn impacts on behaviour towards people thought less of; those in power often discriminate against people of lesser power" ([22], p. 40).

Communication exchange failure

Some studies highlight rhetorical communication factors involved in communication [exchange] event failures [21,25]. From these studies a common set of problems were identified, namely, ineffective timing, inconsistency in the accuracy and completeness of the content, the exclusion of significant team members, and the non-resolving of urgent matters. Rhetorical communication factors in communication event failure involve failures in content, audience, purpose and occasion. Observers in a Toronto (Canada) OR study recorded 129 communication failures of 421 communication exchange events [21]. It included 45.7% occasion failures where timing was poor; 37.7% content failures where information was missing or inaccurate; 24.0% purpose failures where issues were unresolved; and 20.9% audience failures where key staff were excluded from information transfers [21,26]. A failed communication exchange event is communication that flawed in at least one rhetorical communication factor: content (what information is being communicated), audience (who the information is communicated to), purpose (why the information is being communicated), or occasion (when and where information is communicated) of the communication exchange [21].

Content failure: a failure in the content of the communication exchange points to subject matter of communication exchange (information exchanged), thus relates to insufficiency or inaccuracy apparent in the information being transferred [21]. When relevant information is absent from a communication exchange event or information communicated is inaccurate, the communication will fail in the communication content factor. The concept information, defined earlier, implies "what [facts provided or learned about something/ someone] is conveyed or represented by a particular arrangement or sequence of things [thoughts, ideas, words and symbols]..." [17]. Failure to construct important thoughts, ideas, words or symbols in a comprehensible, logical sequence in any setting could lead to information loss, even more so in HRPCU's. Communication loops (the full cycle of information flow between the participants in communication exchange events) that are open, non-directed, or with delayed closure, can be susceptible to information loss. A high proportion of team coordination of communication (using indicators such as questions, replies, and announcements) to ensure that the right information needs to get to the right person at right time, can be characterized as susceptible to information loss [25].

Audience failure: a failure in the audience in a communication exchange event refers to the participants that are present during a communication exchange event, thus relates to gaps in the composition of the group engaged in the communication [21]. Communication can fail when information is being communicated to the wrong team member (audience) during the communication exchange event, if a vital team member is absent. Participants can also differ from one event to the next depending on the situation. In a Wisconsin (USA) OR study, extending across all disciplines, clinicians indicated that when working with unfamiliar team members, they increased the frequency and quality of their verbal communication, slowed down, avoided assumptions about the knowledge base of unfamiliar team members, and were more vigilant [27]. Information may be withheld or diluted when the integrity of team members from other health disciplines are doubted.

Purpose failure: a failure in the purpose of communication exchange refers to the implicit or explicit goals of the communication event, in which the purpose is inappropriate, unclear or not achieved [21]. When the objectives of the communication [exchange event]

are not reached due to matters that are left unresolved or the interruption of the objectives of a communication [exchange event] (by members provoking each other), communication in the purpose factor will fail.

Occasion failure: a failure in the occasion of the communication exchange refers to the physical and temporal situation of a communication event, thus relating to problems in the situation or context of the communication exchange event [21]. When background noise renders the transfer of information inaudible, communication in the occasion factor will fail. Another reason for occasion communication failure could include suboptimal timing of communication exchange events, in that, the information was requested or provided too late to have an optimal effect.

Communication event failure in HRPCU's

Communication exchange events of action teams in HRPCU's fail regularly. Studies show that communication exchange event failures is one of the major causes of sentinel events in HRPCU's, such as OR's, CCU's and TEU's internationally, and in South Africa [8,14,28]. Each of these HRPCU's has its own set of communication exchange event challenges:

Communication exchange event failure in the Operating room (OR): The WHO (2008) declares that 75% of reported sentinel events in the OR were mainly due to a communication exchange event failure and a lack of team co-operation, and not related to clinical performance [29,30]. Communication problems within OR teams are common and communication exchange event failure amongst OR team members have become the main reason for medical mistakes and a major concern for most health care services [8,21,31]. In the Toronto (Canada) OR study, about 30% of the overall 421 communication exchange events observed in OR was classified as failures [21,25]. From the results of these studies, it was concluded that in an effort to improve patient safety in the OR, it is essential that the quality of communication in the OR must also improve [31].

Communication exchange event failure in the Critical Care Unit (CCU): Communication exchange event failures and lack of teamwork were two of the identified causes of human errors in CCU's [14]. CCU nurses are expected to be assertive; to think on their feet, without asking unnecessary questions [32]. It is required of CCU nurses to know what to expect, when to act independently and when to call for medical assistance [13]. This might be true in an ideal world but in the real world the health condition and situation of every patient is different. During a period of just 24-hours, a total of 584 sentinel events (that compromised patient safety) affected 391 patients in CCU's in Europe [14]. In South Africa, due to progressive demographic changes, the demand for health care and intensive care nursing are on the increase [13,33], however sentinel events are also on the increase. Competent (effective and appropriate) communication is essential to reduce medical errors in environments such as CCU's [34].

Communication exchange event failure in the Trauma and Emergency unit (TEU): South African health services have some of the busiest TEU's in the world, with very high case-loads [13,35]. An example of this high case load in emergency medicine was found in a regional hospital in South Africa, where 36% of the emergency unit patients' cases were trauma related [36]. Such a scenario again reiterates the fact that "...team relations, team effectiveness and communication in the emergency setting is crucial for improving patient safety, reducing clinical errors and waiting times" ([28], p. 133). Therefore, the organisational culture in emergency settings has to "foster and promote strategies and processes, which enhance teamwork and communications" ([19], p. 52). This is not the case unfortunately. Studies point out that one of the systemic challenges facing teams in South African TEU's, similar to international TEU teams, is poor communication, which, in turn, has a critical influence on the level of organisational culture of emergency units [19,37].

Consequences of communication exchange event failures in HRPCU's

The consequences of communication exchange event failure in an action team, is aptly illustrated by the American airline industry scenario mentioned earlier. The same bleak scenario is unfortunately also a reality in HRPCU's. Globally, it is an accepted norm that patients are subjected to and have to rely on the knowledge, skills and attitudes of doctors and nurses. However, after analysing the safety record of action teams in health care services, an alarming picture emerges. Communication exchange event failures in HRPCU's can lead

to: potential for procedural errors, harm, injuries or loss of patient lives; inefficiency and delays; tension amongst the members of the action team [21], and financial (cost) implications.

Potential for procedural errors, harm, injuries or loss of patient lives: Communication exchange event failures are the leading cause of inadvertent patient harm, and breakdowns in team communication a main contributor to sentinel events [6]. When team members have to re-do or undo procedural steps, waste time and resources, and delay team progress, action teams become procedurally ineffective. In the 2006 Institute of Medicine report it is stated that daily an average patient in hospital is subjected to more than one medication error [38]. This scenario becomes worse as the World Health Organisation (WHO) published an observational, evidence-based study in 2013, identifying sentinel events (adverse drug events, catheter-related urinary tract events, catheter-related blood stream events, nosocomial pneumonia, venous thrombo-embolism, decubitus pressure ulcers and falls) as being the main source of morbidity and mortality rates worldwide [39]. The results of various studies [18,40-42] indicate that 50% of avoidable sentinel events in the OR, such as wrong site surgical procedures and the retaining of swabs, are related to incidents which occur intra-operative, due to a lack of communication [8].

Tension amongst the members of action teams: Tension amongst HRPCU action team members appears as a resultant emotional response to communication failures. In the Toronto (Canada) OR study it is noteworthy that communication patterns were observed to vary from case to case and team to team [21]. The cause for most of the frequently high tension levels in teams seemed to be imbedded in the for a particular purpose way that team members transferred critical information in the teams. Interviewing these team members, it was found that team member perceptions varied regarding their roles and motivations during communication exchange events. What they were in unison about was the fact that their educational, administrative and clinical outcomes were negatively influenced by the communication tension. They also revealed that many of their communication exchanges were reactive and tension provoking, and that due to team members not being assembled, decisions were often made without all of the relevant team members present [21].

Malpractice litigation: Malpractice litigation cases are a direct result to a high level of clinical negligence [5,43]. All cases litigated are referred to as medical malpractice (improper or unethical conduct or unreasonable lack of skill by a holder of a professional or an official position), and all the members of a healthcare team who were involved in caring for the patient are included [5,44]. In South Africa the medical malpractice awareness and number of medical litigation claims and cases are increasing. A quantitative, retrospective audit research study analysed medical litigation cases that occurred in all private hospital groups in the Western Cape Province [5]. The results of this study revealed that out of the 81 (100%) sentinel event cases analysed, 43 (53.1%) of the cases occurred in general patient care units and 38 (46.9%) of the cases occurred in HRPCU's (of which 14 (17.3%) in OR's, 12 (14.8%) in CCU's and 12 (14.8%) in TEU's) of private hospitals in the Western Cape [5]. In 2008 the South African Nursing Council (SANC) reported that for the period 2003 and 2008 a total of 537 sentinel events (not limited to CCU only) occurred in the South African health care setting [45]. Between 2012 and 2017, the SANC handled 200 cases of nursing related misconduct of which 68 (34%) related to poor nursing care [46].

Financial (cost) implications: Sentinel events have a direct cost implication. International studies highlight the financial impact of sentinel events on the state coffers of various countries. The cost of hospitalisation stays in the United Kingdom (UK), as a result of inadequate initial health care provision, is approximately 200 million pounds per year [47]. A further 400 million pounds is paid out annually by the UK National Health Service towards litigation claims.

The annual cost of avoidable adverse medical events in the case of the United States of America (USA) is estimated to be between 17 and 29 million US dollars (47). The annual cost of harm to patients in Australia totals more than 2 billion Australian dollars (48). In developing countries the cost is even higher. Annually, the South African National Department of Health (NDOH) faces numerous medical negligence claims in all nine of its provinces and pays out billions of Rand to claimants in compensation as a result of medical and health service errors in public health care institutions [50-56]. The private health care sector in South Africa is also in the same dire predicament [5,57-60].

Factors related to communication exchange event failures

Understanding the importance of team communication, and that failures in communication exchange events can contribute to sentinel events [27,61,62], it is also important to understand the factors related to communication event failure in HRPCU's. Although the causes of communication exchange event failures are legion, certain physical and psychological communication factors related to teams functioning in HRPCU's are identified by literature [25,48].

Physical communication factors related to communication exchange event failures in HRPCU's include: time-constraints, strict hierarchical structures, complex environments, disruptions and noise, unclear methods (modes or types) of communication, unfavourable and unethical communication, lack of coordination and collaboration, individualism instead of collectivism, and poor team identity and team unfamiliarity:

- **Time-constraints:** Quality health care delivery is dependent on competent (effective and appropriate) communication in high-risk, time constraint environments such as TEU's [63] however quality care is not materialising in HRPCU's due to time constraints. Time constraints present itself in different ways though. A national survey of training program directors in the USA, conducted on the average daily census of patients in CCU's, revealed high patient-to-attending physician ratios. In this study respondents perceived significantly more time constraints, than respondents with low patient/physician ratios [64]. Time constraints are evident also in HRPCU's in the South African health care services. Time constraints in emergency centres in the Western Cape had a negative impact on the quality of care, due to the delay in timeous patient transfers, specifically on the turnaround time of critically ill patients [13]. Time constraints also impacted on comprehensiveness of the nursing care documentation (written communication) of these critically ill patients [13].
- **Strict hierarchical structures:** A strict hierarchical structure in a health care service could increase the potential for poor communication in multiple places along the structure (such as between the doctor and the nurse), as poor communication stem from an "inevitable and irreversible hierarchy of power within hospitals" (65, p. 86). Nurses are often unwilling and refrain from asking assistance from doctors on "potentially obvious or unimportant questions" ([32], pp. 186-194). In OR's globally the hierarchy of staff is common and is viewed as a barrier in OR settings, especially when certain functions needs to be performed by nurses instead of surgeons or anaesthetists [8]. Staff hierarchy is one of the processes that can effect nursing and medication errors in the CCU either directly (through miscommunication) or indirectly (by creating unpleasant work conditions) [66].
- **Complex environments:** The more complex work environments are the more competent communication exchange events should be, as "work environments that promote effective communication plays an important role in work complexity and nurses' cognitive thinking" ([66], p. 29). Nursing care in HRPCU's is often labelled as complex, fast-paced, and emotionally charged [8,13,14]. Patients in CCU's are critically ill and require constant monitoring and instantaneous decision-making from nursing staff [14]. The potential for errors is high in complex work environments. This high level of complexity demands involvement of inter-disciplinary teams, effective teamwork and communication to ensure the effectiveness thereof and the exclusion of sentinel events in the OR [8,66].
- **Disruptions and noise:** Communication exchange event failures (due to disruptions and noise) can result in information loss and degraded information sharing within the OR team [25]. High noise levels in work areas negatively affect nurse efficiency and impede effective communication [66,67]. In the CCU setting per se nurses highlighted noise as one of the major performance obstacles related to the physical CCU environment and that noise was central to their complaints regarding to miscommunication [66].
- **Unclear methods (modes or types) of communication:** Methods of communication include: verbal, non-verbal and written communication, information systems and electronic and symbolic communications [68,75]. The actual method (mode or type) of communication could lead to sentinel events [69]. Thus how and what the team members communicates to each other could lead to adverse incidents, for example when a doctor telephonically enquires after the well-being of his CCU patient and the nurse

conveys the wrong or incomplete information about the patient. In CCU's the mode of communication of nurses vary according to the kind of information they are trying to relay and the target of their communication. The modes of communication mainly used in CCU's are face-to-face, mobile phone, computer and written documentation [66]. CCU nurses interchange between modes of communication fast when performing tasks or interacting with other nurses. The communication interactions between them in CCU zones were usually patient-related and done in passing. The built environment and the choice where nurses want to interact also determined the mode of communication interactions of these nurses with other staff members in the CCU [66]. Hospital work environments support individual work and allow for communication exchange event failures, rather than supporting teamwork and collaboration.

- **Unfavourable and unethical communication:** Similar to the aviation industry, health care services are also challenged by unfavourable team communication. It shows a definite lack of communication ethics [23]. Unfavourable communication between OR team members might lead to a communication lack, compromised patient safety and sentinel events [8,30]. Ethics in communication is essential. All humans possess the characteristic of considering moral behaviour correctness. Unethical communication include: dishonest, unfair, disrespectful, irresponsible, intimidating/threatening communication [23]. Communication competence (effectiveness/appropriateness) demand ethical behaviour from communicators in that they have to be concerned with more than what works for them personally but acknowledges the contributions of the larger group [23].
- **Lack of coordination and collaboration:** Coordination in a team context means that all individuals should work together to accomplish [set goals] [70]. The communication pattern in a team serves as a coordination device; enabling "sequencing of actions to accomplish tasks required by the work" [71]. Coordination in teams is important in order for team members not to duplicate or contradict each other's actions teamwork requires members to communicate with one another [72,75]. A lack in communication, information and coordination contributed to 41% of all sentinel events in CCU's in Australia; a lack in communication contributed to 20% of cases, a lack in information to 12% of the cases and a lack in coordination to 9% of the cases [14,48]. Instances of suboptimal communication between members of inter-disciplinary care teams were cited by study participants as major contributing factors to readmissions in CCU's. Competent (effective/ appropriate) communication and collaboration are imperative for CCU nursing staff to perform their jobs [49] and to reduce errors in this demand for quality and safety [66].

Collaboration is "an interpersonal relationship between and among colleagues defined by the commonality of a goal recognized by each party shared authority, power, based on knowledge and expertise" ([73], pp. 2-3). Collaboration is sustained and encouraged by communication, coordination, problem-solving, shared processes, and professionalism [66,73]. Team members hold perceptions about the communication and collaboration with others in team, but these perceptions might vary amongst the different team members. Out of 320 participants (90 doctors and 230 nurses) in a Houston (Texas) CCU study, 70% of the doctors rated their quality of collaboration and communication with other doctors as high, and 73% rated their quality of collaboration and communication with CCU nurses as high or very high [74]. In comparison, 71% of the nurses rated their quality of collaboration and communication with other CCU nurses as high to very high, and only 33% rated their quality of collaboration and communication with doctors, as high to very high [74].

Individualism instead of collectivism: Individualists view autonomy as pivotal and emphasise self-actualisation and personal growth. Their consciousness is "I" centred; competition is encouraged and cooperation is discouraged. Their expectation of individual achievement, self-promotion, and initiative is heightened and decisions are made on the basis of what is beneficial to the individual [23]. Conversely, collectivists are group committed and have a "we" consciousness. They strongly emphasise cooperation within groups. Their conversations are based on communal benefits as the goals of the group are perceived as more important than individual goals [23]. When individuals focus only on themselves instead of on others it can lead to confusion and conflict. This individualistic outlook may stem from defensiveness (when the individual feels threatened), superiority (when individuals feel that they know more than others) and ego (when individuals feel that they are the centre of an activity) [75].

Poor team identity and team unfamiliarity: For teams in HRPCU's to function effectively they need to identify with each other but not all team members identify with each other in the same way. The Wisconsin (USA) OR study investigated the conceptualizations of Team Identity within three OR disciplines (nurses and surgical technologists; anaesthetic professionals and surgeons) [27]. It found that nurses and surgical technologists identified other technologists and nurses as their team. Anaesthesia professionals were more task-orientated and identified their team as anyone assisting in anaesthetic care. The broadest definition of team identity was found amongst surgeons who identified the team as all clinicians in the OR as well as clinicians involved in the patient's preoperative and postoperative care [27]. With such a limited identification with other team members it can be assumed that the communication exchange events between them would also be limited. With regard to Team Unfamiliarity the Wisconsin (USA) OR study found that across all disciplines, clinicians indicated that when working with unfamiliar team members, they had to increase the frequency and quality of their verbal communication, slow down, avoid assumptions about the knowledge base of unfamiliar team member(s), and become more vigilant [27].

The psychological communication factors include: poor relationships, conflict and low morale; lack of confidence, uncertainty and fear; lack of situational awareness; and ego problems and negative attitudes:

- **Poor relationships, conflict and low morale:** Medical and nursing staff are trained to communicate differently [66]; it complicates their inter-disciplinary relationships in stressful environments. A study conducted on the perceptions of staff during a transformation process in Kwa-Zulu Natal emergency units found poor interpersonal communication among the participants, resulting in interdisciplinary strife and conflict. Strife and conflict in an emergency unit can be potentially dangerous to the lives of patients, as time-constraint and immediate decisions have to be made by all members of the inter-disciplinary team [19]. Not only do poor-interdisciplinary relations lead to conflicts, it also fosters negative morale amongst team members. Perceived conflicts and poor relationships between CCU staff are factors contributing to negative morale [76]. In the Wisconsin (USA) OR study clinicians indicated that events preoperative set the mood of the OR (either harmonious or conflicting) for the rest of the case or even the rest of the day and that surgeons were key initiators in setting the mood in the OR. Miscommunication or delays in the preoperative phase resulted in tension in the OR [27].
- **Lack of confidence, uncertainty and fear (Lack of confidence to question authority):** Communication exchange event failures due to poor inter-personal communications between staff arise largely when one party fears questioning the authority or medical ability of a superior party. Although nurses are encouraged by health care services to raise their concerns regarding patient care issues, when appropriate and necessary, their role as caregivers remains subservient to that of medical staff, in that, they do not have the power to prescribe or administer care without the authority of medical staff. Nurses, who are on a lower hierarchical level, will inevitably feel intimidated by medical staff on upper levels, which, "as a consequence, causes nurses to suppress instead of voice their concerns" ([65], p. 86). On analysing the data obtained in the Houston (Texas) CCU study it was found that, relative to doctors, CCU nurses indicated that they found it difficult to speak up, felt that disagreements were not appropriately addressed and that the input from nurses was not well received, although more inputs into decision-making were required [74].
- **Lack of situation awareness:** Surgeons, heading OR teams, often expect a quiet work area and surgical teams to anticipate their requirements/actions without verbal requests. These expectations create a dynamic situation that demands a high situational awareness from surgical teams at all times. Situation awareness is the process by which people acquire information, understand it, and utilize it to comprehend and be aware of the dynamic situation [25]. It is a complex process for individuals that become even more complex when situation awareness is extended to teams [25]. Situation awareness in teams relates to the task- and team-oriented knowledge held by all the individuals in the team and the collective understanding of the unfolding situation [25]. Communicative and coordinative practices used within teams can aid in the understanding of team situational awareness [71,77]. Arguably, having completed a number of similar operations it could be expected of a surgical team to anticipate the actions of the surgeon; the team having become routinized and accustomed to the modus operandi of the surgeon. If the surgical team however become too automated, devoid of any communication and situational awareness, the potential for human errors and sentinel events is created [42].

- **Ego problems and negative attitudes:** The lack of communication, in the airline industry example mentioned earlier, was caused by an ego problem amongst cockpit crews [1,78]. The negative attitudes of cockpit crews devoid them of any verbal communication and their actions became (task orientated) an unacceptable situation, especially during emergency situations), which had dire consequences for both crew members and passengers. Negative attitudes, together with a lack of knowledge, skills and confidence, can lead to poor service delivery and an increase in the mortality and morbidity of patients in HRPCU's [19]. The Houston (Texas) CCU study found that CCU doctors and nurses had discrepant attitudes about the teamwork they experienced with each other, such as suboptimal conflict resolution and interpersonal skills [74]. Possible rationales offered for these discrepant attitudes include the differences in status/authority, responsibilities, gender, training and medical and nursing cultures [74].

Preventing communication exchange event failures

Preventing communication exchange event failures from occurring is a goal for many industries, including global health care services. Research has shown that industries, where safety and lives of people are at stake, are unfortunately the most vulnerable and susceptible to communication exchange event failures. In an effort to curb this negative communication phenomenon it is important that industries learn from one another and apply the principle of best practice to their own settings. Some researchers have suggested models towards preventing communication exchange event failures in various health care settings:

- **Crew Resources Management (CRM) system:** The American aviation industry did a serious introspection of its cockpit crew communications and developed a Crew Resources Management (CRM) system (78). The CRM is basically an early warning system through which a discrepancy between what is happening and what should be happening is recognised as first indicator that an error is occurring. It is less concerned with technical knowledge and skills (required to operate equipment) and more focused on cognitive skills (the mental processes used for gaining/maintaining situational awareness, for solving problems, decision-making) and interpersonal skills (communications and a range of teamwork associated behavioral activities associated) needed to manage resources within an organised system. The aim of the CRM system is to foster a climate or culture where authority may be respectfully questioned. The CRM was implemented in some health services in the USA but are not rolled-out to all of its health care services as standard best practice yet due to the varied results achieved by the CRM system.
- **Surgical Safety Checklists (SSC):** Another model used internationally to prevent failures in communication exchange events, researched in the South African OR context, is the Surgical Safety Checklists (SSC). The SSC is a tool used to promote safety of patients undergoing surgery and the reduction of surgical complications through independent verification of critical steps in the work process [8]. Although the SSC is widely used in international and South African OR's, its implementation as a standard global best practice tool faces various barriers, such as a lack of understanding of critical points on the SSC, lack of education, the timing of the SSC execution, confusion about the roles and names of team members, anxiety, unfamiliarity amongst team members, strict hierarchical settings, time consuming nature of the SSC, and lack of ownership of the SSC.
- **Situational briefing guide:** A third model for prevention of failures in communication exchange events in acute CCU's and psychiatric facilities, is a Situational briefing guide, the SBAR [26]. The acronym SBAR stands for Situation (what is going to happen to the patient?); Background (what is the clinical background or context?); Assessment (what do I think the problem is?); and Recommendation (what do I think needs to be done for the patient?). The SBAR provides amongst others a standardised way of communicating, a common and predictable structure for communicating and organising relevant information when conversing with other team members in patient care situations [26].
- **Critical language:** A fourth alternative is the use of a critical language in HRPCU's. Due to the complexity of medical care, coupled with the inherent limitations of human performance and dependency of effective communication on the situation or personality of staff in HRPCU's recommends that HRPCU staff have standardised communication tools, create an environment in which individuals can speak up and express concerns, and share common critical language to alert team members to unsafe situations

[79]. The health care environment is a hierarchy with many levels of power and speaking up for lower level staff members regarding concerns can be difficult. Besides a lack of power, lower level staff members also have to deal with psychologically unsafety, cultural norms and uncertain plans of action that could complicate the situation. To address these issues HRPCU staff members can adopt a critical language as part of their unit culture that would ensure everyone stops what they are doing and listen to the critical concern of a staff member. Critical language creates a clearly agreed upon communication model, that avoids the natural tendency to speak indirectly and deferentially. Phrases such as 'I'm concerned, I'm uncomfortable, this is unsafe, or I'm scared' must be adopted into the unit culture as meaning "there is a serious problem...listen to me now" ([79], p. i87).

Preventing harm and protecting patients from injury is the main day-to-day responsibility of all members of action teams in HRPCU's. One way to adhere to this responsibility is through competent communication, rendering competent (effective and appropriate) communication vital for action teams functioning in HRPCU's, because "the importance of effective communication in high-risk, time constraint units such as emergency departments should be deemed fundamental to the delivery of quality healthcare" ([63], p. 121). In an effort to prevent communication exchange failures from occurring in HRPCU's, taking cognisance of the fact that time and accuracy are crucial factors, action team members are advised to focus on measures for the prevention of failures during the actual communication exchange event and to avoid incompetent (ineffective and inappropriate) communication exchange events in the team.

Regarding actual communication exchange events, all team members should be encouraged to participate in all events. HRPCU staff must function as a team; respect each other's knowledge, experience and trust the opinions of other team members, regardless of rank or difference of profession. The delivery of a high level of care to patients in HRPCU's such as TEU's or the peri-operative care to a surgical patient is considered a team effort and as depend on the leadership skills of both nurses and medical staff [19]. Communication, team cohesion, and coordination of care are fundamental to patient safety [8]. Members of action teams must use accurate information to compile specific important messages and identify the correct audiences (for information to have the maximum impact). Only if the communication purpose is pure (and no hidden agendas are present) should they engage in exchange events. Using the correct method to convey the message is essential. The WHO (2009) emphasises that both the method of communication and the transfer of information stand central to patient safety [8,80]. Action team members must emphasize the importance of the specific information they are transferring and selecting the correct occasions when the specific information should be conveyed (to avoid the information from being delayed or cancelled due to hesitation, fear or stress) is also important.

Ensuring competent communication within HRPCU action teams will require a more effective and appropriate approach to communication exchange events. The characteristics of effective teams (and communication) should have a clear purpose in which the vision, mission, goal, or task of the team has been defined and is accepted by all and an action plan has been established, within informal, comfortable and relaxed climate parameters, and absence of obvious tensions [11]. To get ideas out, action team members must use effective listening techniques like questioning, paraphrasing, and summarising, and when they disagree, use civilized disagreement (if the team disagrees but show no signs of avoiding, suppressing or smoothing over the conflict).

Action teams have to reach consensus for important decisions, through open discussion of everyone's ideas, avoidance of formal voting, or easy compromises as the goal might be substantial, but not necessarily a unanimous agreement. Open communication is essential in that the team members feel free to express their feelings on the tasks as well as on the group's working, because open communication works towards interpersonal trust in teams [81]. There are few hidden agendas in open communication and communication also takes place outside of meetings. HRPCU action teams have a need for mechanisms to be in place to ensure that everyone is part of effective platforms for open communication between the teams. Action teams could practice shared leadership (whilst the team has a formal leader, leadership functions shift from time to time, depending on the circumstances, the needs of the group, and the skills of the members. The formal leader models the appropriate behaviour and helps establish positive norms), and embrace style diversity (especially when the team has a broad spectrum of team-player types including members who emphasize attention to task, goal setting, focus on process, and questions about how the team is functioning). Action teams have to perform periodic self-assessment (the team stops to examine how well it is performing and what may be interfering with the effectiveness of its performance).

Conclusion

In South Africa, medical and nursing staff function together as action teams in the HRPCU's, (such as OR's, CCU's and TEU's) of health care services, to achieve specific patient care outcomes. However, following a global trend [28], research has identified failures in communication exchange events as one of the major causes of sentinel events in South African HRPCU's [8,14]. Concluding that, communication exchange event failures lead to sentinel events, the adoption of competent (effective and appropriate) communication exchange event principles and the selection of a communication exchange event failure prevention model by nurses in action teams is vital for positive patient care outcomes in HRPCU's.

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