(SCQIRE) PATIENT SAFETY, CULTURE, LEADERSHIP & IMPROVEMENT CAPABILITY IN FRONTLINE PRACTICE

Literature Review

Literature Review produced by Anne Martin and Prof Kim Manley

SCQIRE Research Team

Prof Kim Manley, Carolyn Jackson, Christine McKenzie, Anne Martin, Dr Toni Wright

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Background

The concept of patient safety emerges from raised awareness about mistakes made often due to human factors in the process of delivering healthcare that may lead to harm and concerted effort to improve the quality of patient care (Kim et al., 2015). There is no universally agreed definition for 'patient safety' and the nature of this concept continues to evolve to encompass newly recognised episodes as safety issues (Vincent & Amalberti, 2016a). Definitions that are commonly used focus on the preventing harm. For example, the World Health Organisation Europe (WHO, 2017) defines patient safety as the prevention of errors and adverse effects to patients associated with healthcare. The UK Department of Health (2009:106) details patient safety to *be freedom, as far as possible, from harm, or risk of harm, caused by medical management as opposed to harm caused by the natural course of the patient's original illness or condition*. While this definition centres the patient whose trust of no expected harm lies in the hands of those that deliver care, the WHO definition emphasises vigilance in the processes of providing healthcare. Key to medical ethics, the concept of 'do no harm' involves contentious debates about lines of responsibility for ascertaining patient safety. Patient harm may not result from intent or negligence but systems operations or policy constrictions short of practitioners' control (Summers & Morrison, 2009).

From a systems perspective, we augment the definition arising from Kim et al. (2015)'s concept analysis of patient safety and define it as 'collaborative effort by healthcare entities in a well-integrated system to maximise safe care in frontline practice. This definition emphasises the wider and collective responsibility of individuals, healthcare providers and systems (including pharmaceuticals and medical equipment manufactures) to optimise the benefit of healthcare and minimise harm. The definition shifts focus away from 'preventing errors and harm' to *what happens when safety is present rather than what happens when it is absent'* (Hollnagel et al., 2015:5).

A safe health system is determined through the patient's view point in light of their experiences at different points of care across the system (Illingworth, 2015). In some contexts, a diagnostic error that leads to disease progression could be considered as poor quality care falling below acceptable standards but may be regarded as harm from a patient's view (Vincent & Amalberti, 2016b). Patients may not be knowledgeable about the technical aspects of healthcare, but they are largely aware of the 'feeling of safety', especially during inpatient admissions (Mollo, 2014). Investing in safe care is expensive but unsafe care is costlier to the public and healthcare systems (Hollnagel et al., 2015). For instance, despite a 4.6% reduction in the new clinical negligence claims (11,497 to 10,965) that the UK National Health Service Litigation Authority received in 2015/16, damages paid to patients increased by 23% compared with

2014/15, rising from £774.4 million to £950.4 million (NHS Litigation Authority, 2016). The cost in terms of loss of productivity due to permanent disability or death is yet to be evaluated (Yu et al., 2016).

Patient safety, culture and leadership

Patient safety rests upon organisational culture and associated idiocultures[1] which may be influenced by factors external to the organisation such as the policy environment, professional bodies and care regulators (UK, Healthcare 2016). Schein (2010) defines organisational culture as basic assumptions emanating from repeated success of implementing beliefs and values deeply rooted in leadership. Leadership influences others to collaboratively engage in developing and attaining a shared purpose (Richardson & Storr, 2010). The quality of action at organisational and microsystem levels combined with external influences, which model organisational interests and opportunities impact on the experiences of patients and communities (Berwick, 2002). Moreover, the performance of the larger organisation depends on the effectiveness of microsystems shaped by the nature of organisational culture that either enables or foils safety cultures (Manley et al., 2011). People experience care at the microsystems level where patient safety is realised or mislaid (Berwick, 2002). It is therefore an ethical requirement for leadership to support healthy cognitive and emotional cultures in teams and organisations to enable effective team functioning in a changing environment (Kerfoot, 2016). However, many leaders in healthcare organisations struggle to manage workplace cultures, specifically theirs and others' emotional cultures. These involve feelings of fear, envy and suppression, which increase risks of delivering unsafe care (Barsade & O'Neill, 2016; Hazan, 2016).

The Academic Health Science Network developed a patient safety collaborative (PSC) initiative to facilitate safety culture, improvement capability and leadership across four acute sites in the South East of England. The aim was to work collaboratively with frontline teams and subsequently grow capability and understanding at higher levels. The key assumption underpinning the PSC initiative was that transformation does not happen by top down change, training nor raising awareness, but through individual and collective development of self-awareness. This in turn enables self-empowerment and implementation of learning supported and challenged by teams with shared values and purpose facilitated by leadership that values learning in the workplace (Manley et al., 2011). This review is part of a larger study aimed to evaluate the PSC initiative through identifying what works. In this study, the focus is intently on frontline teams (microsystem) that regularly works together with linked processes and

[1] Idiocultures describe "*a system of knowledge, beliefs, behaviours, and customs shared by members of an interacting group to which members can refer and employ as the basis of further interaction*" (Fine, 1979: 734).

shared information to achieve safe and effective care (Nelson et al., 2002). The purpose of the review was to synthesise evidence about patient safety, a safety culture, leadership and their interdependence to develop a theoretical framework as a basis for identifying what works for whom in practice.

Design

The literature review employed a concept analysis method (Rodgers, 2000) to distil characteristics of a safety culture, factors that would enable these to happen and the consequences of having a safety culture within an organisation and in frontline practice. A concept analysis informs the research landscape and also enables understanding of concepts to guide their implementation in practice and to evaluate their components and the relationships between them (Rodgers, 2000). Realist evaluation informed the literature review to facilitate mapping of factors that may help explain how things work, for whom and under what circumstances (Pawson et al., 2004). Realist evaluation is an iterative theory driven approach that integrates theory development, testing and refinement (McEvoy & Richards 2003).

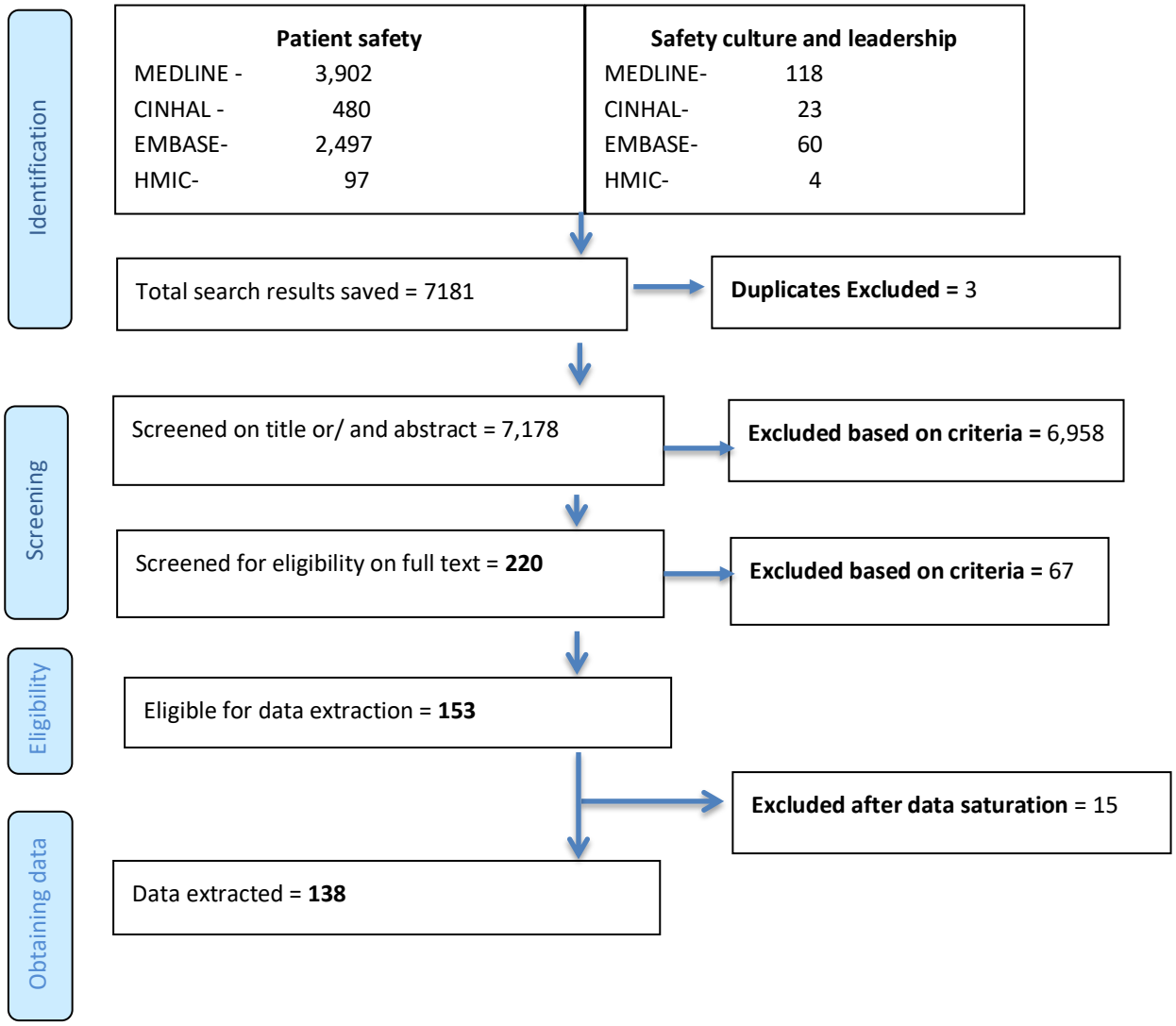
Scoping the review

There is a large body of evidence on patient safety, which continues to grow. Efforts to consolidate this evidence have borne concept analyses (Mollon, 2014; Kim et al 2015), evidence reviews exploring effectiveness of patient safety interventions (Clay-Williams et al., 2014;); reporting of adverse events (Rosenthal et al., 2015; Stavropoulou et al., 2015), patient participation (Vaismoradi et al., 2015); measurement of patient safety (Hanskamp-Sebregts et al., 2016), governance of patient safety (Hasselink et al., 2016) and evidence maps (Rodrigues et al., 2014). The team therefore decided to narrow the search to evidence published from January 2014 to September 2016 intently focused on three concepts including patient safety, safety culture and leadership for a safety culture in acute hospitals to mirror the objectives of the Patient Safety Collaborative (PSC) initiative.

The search for evidence

The search was completed through Healthcare Databases Advanced Search (HDAS) using four databases including EMBASE, MEDLINE, CINHAL and HMIC. The search purposively centred patient safety in the process of care, a safety culture in healthcare organisations and leadership for a safety culture. The aim was not to be encyclopaedically comprehensive, but to identify relevant literature sufficient to enable us to generate relationships of what works for whom in what circumstances in acute settings. Figure 1 shows the process of searching and identifying relevant papers for synthesis.

Figure 1: Process of identifying papers relevant for synthesis



The criteria for including and excluding literature were developed in view of the PSC initiative assumptions and objectives. The PSC initiative is a person-centred model embracing values that underpin a safety culture. Participating leaders for safety and improvement capability were fully equipped to champion these values in close collaboration with frontline staff to deliver excellent and safe patient care (AHSN, 2015). Papers written in English reporting on findings in acute settings were excluded if they:

- Were not relevant to patient safety, a safety culture or leadership for a safety culture;
- Targeted a particular age group e.g. patient safety in paediatric units;
- Were concerned with safety of using specific drugs;
- Largely focused on specific care procedures e.g. catheterisation; and or

- Researched into factors that affect individual performance.

Initial screening yielded 220 potentially relevant papers. Applying the same criteria, these were screened on full text resulting in 153 papers eligible for data extraction.

Quality assessment

There was no formal or systematic appraisal of papers included in the review. Inclusion was purposively informed by relevance of the literature in articulating factors that enable patient safety, a patient safety culture and its leaderships; the defining features of these concepts in view of the enablers and how to recognise effectiveness of applying the concepts under study (consequences) to facilitate development of testable theory in practice. There is no consensus about the obligation of quality assessments for qualitative research since relevance over methodological rigour maximises the contribution of heterogeneous perspectives on concepts investigated (Dixon-Woods et al., 2006).

Extraction and Synthesis

Out of the 138 papers reviewed, 75 had a specific focus on patient safety while 63 were about patient safety culture and leadership for a culture of safety. Pawson et al. (2004) contend that theories distinguish different roles for individuals, teams and organisations because implementation of interventions happens in various layers of social reality where the dynamics of relations influence the performance of the intervention in any context. Two people independently (AM, TW) extracted data to populate the concept analysis framework for each of the three levels (individual team and organisation) using an appreciative inquiry approach. Appreciative inquiry involves a systematic search for the best and most transformational non-judgemental factors that enable organisational capability and effectiveness (Cooperrider & Whitney, 2011). The purpose is to strengthen a system's capacity to achieve, anticipate and continuously improve its potential; building on what works. Using the papers included, reviewers populated the framework with factors that need to be in place at different levels across the system for a patient safety culture (enablers); what would be happening at individual, team and organisational levels in presence of a safety culture (attributes); and the results of delivering care within a culture of safety (consequences). The reviewers made a joint decision to stop extracting data on realising that similar themes reappeared across datasets, regardless of the viewpoint of the literature reported.

Data synthesis

Data synthesis focused on developing relationships between factors that enable implementation of a safety culture and leadership for patient safety and the circumstances in which they operate. We adapted steps recommended for realist synthesis (Rycroft-Malone et

al., 2012) to develop and refine the theoretical framework for testing practitioners' and organisational experience of reality. This involved:

- Merging both reviewers' data into one evidence table maintaining the concept analysis format for individual team and organisation;
- Collapsing text data into themes for each of three levels;
  Comparing the themes according to perspective in which the evidence was reported and formulating strings of inference from identified themes; and
- Connecting strings of inference to formulate hypotheses.

The research team converged for a joint analysis of the merged data to develop shared understanding of the content of the data and overall agreement on themes. The team themed data for one level at a time, discussing and resolving differing views. The team compared themes, situated them in originating papers and formulated strings of inference about contexts that would facilitate a culture of safety within the organisation, the frontline of practice and associated outcomes.

The literature review sought to answer three main questions:

- How would a culture of patient safety at the frontline be recognised?
- What are the enablers for patient safety cultures at individual staff, teams and organisation/service levels?
- What are the consequences of having a patient safety culture for staff, patients and organisation/ service?

These questions frame the structure of the review. The findings focus on the discreet components for the individual, teams and the organisational levels, while recognising the interdependence between the levels through a whole systems lens.

Findings

Findings highlight discreet aspects of enablers, attributes and consequences of a culture of a culture safety at individual, team and organisational levels while recognising interdependence and implications for each of the levels. A culture of patient safety is recognised in frontline practice through individual and team activities and behaviours. Organisations focus on activities for supporting and embedding safety behaviours of individuals and teams. Organisational consequences also emerge as enablers for what individual and teams are able to achieve.

Individual and team consequences are conjoined to reflect the potential effect of team cultures on individual actions and behaviours.

Enablers for patient safety cultures at the individual level

Personal Qualities

Individual qualities recognised as enablers for delivering safer care in practice include compassion and person centredness (Day, 2014). Individuals that are honest, truthful, courteous, trusting and ethical in practice are able to deliver care that is compassionate and humanistic (Millar et al., 2015). They are supportive, respect and protect patients' dignity and build relationships based on empathy while they demonstrate perseverance in challenging and transforming unsafe practice cultures (Scott et al., 2014, Sokol-Hessner, 2015). Individuals are thinkers and doers with a drive to set safety objectives and to pool team support to achieve set objectives (Dight & Peters, 2015).

Individual values and beliefs

Values of collaboration, inclusion and participation inspire individual practitioners to engage peers in shaping safety culture, which motivates staff to take pride in their professions and the care delivered (Day, 2014). Individual leaders delight in transformational leadership and model optimism, enthusiasm and confidence in developing a shared vision (McFadden, 2014). Practitioners believe in fairness to address all forms of harm with rigour including emotional harm and respectfully implementing corrective action to restore trustful relationships. They value respectful behaviour with peers, superiors and systems of care (Sokol-Hesserner et al., 2015). Individuals believe in assertiveness in seeking clarification in the way safety procedures are implemented (F. de Korne et al., 2013). A commitment to ethical delivery of medical care ascertains safety, good quality care, accountability and contribution to initiatives that make patient care safer (Johnston et al., 2014).

Individual skills and knowhow

Clinical skills are crucial for patient care however, a set of core skills facilitate individuals to sustain a safety culture within systems of healthcare. These include the ability to appraise and use safety data for quality improvements, leadership skills for multidisciplinary teams and comprehensive knowledge of safety guidelines (Scott et al., 2014). Skills such as the ability to listen, communicate with stakeholders in a timely and practical way and effective work planning support patient safety in frontline practice (Lyndon et al., 2015).

Individual role clarity

Role clarity, particularly about individual responsibility and accountability in implementing tasks within evidence-based guidelines contributes to effective, efficient and safe care processes (Carayon et al., 2015). Clarity and consistency of concepts of what constitutes an adverse event as well as clear reporting lines enhance disclosure and learning from failures that may harm patients (Stavropoulou et al., 2015).

Individual activities and behaviours

Building relationships with patients and staff

Patients feel safer in healthcare environments where practitioners endeavour to establish and maintain therapeutic, responsive and trusting relationships to meet patient needs in a timely way (Mollo, 2014). The presence of a healthcare practitioner, attentiveness and involvement of patients in their care create a sense of safety. The individual practitioner interacts with various elements within the microsystem to contribute to care processes through building trusting relationships, effective communication and creating an enabling climate for patients to participate in their care (Carayon et al., 2014; Tingle, 2014a). Functional interaction between patients, professionals and the environment where patient care is delivered mitigates preventable adverse events (Kim et al., 2015).

Safety behaviours and activities

A culture of safety in frontline practice is not only evident through individual behaviours but also values in pursuit of safe care. Individuals comfortably challenge established norms, power structures and decisions that have safety implications (Hole et al., 2015). Conflicts are resolved in a more respectful way to which individuals sign up as codes of conduct and safety values. Individuals recognise the importance of safety compliance in the context of human factors and sciences and effectively implement standards and protocols to maximise patient outcomes. Individuals are able to work flexibly and adaptively with protocols, combining these with other safety models when required to (Vincent & Amaberti, 2016). For example, care contexts that experience an unpredictable flow and complexity of patients may require individuals to work adaptively to allow time for patient care (Hollnagel & Braithwaite, 2015).

Learning behaviours

Some of the challenges of regulating patient safety lie in individuals' assumptions that create sustained patterns of failure to elucidate what may be ignored or discounted (Macrea, 2014). A safety culture is recognised when individual practitioners are able to reflect, recognise their own assumptions and develop awareness about their own interventions (Lyndon et al., 2015). At the edge of their competence, individuals show readiness to reframe the traditional culture

of autonomy and decisive action and participate in practice-based learning through seeking help from colleagues in their teams to optimise patient safety (Novik et al., 2014).

Individual leadership behaviours

Mattson et al. (2015) suggest a strong correlation between individual leadership behaviour and team behaviours. Individual leadership behaviour is normatively interpreted as acceptable behaviour and hence, clinical leaders model patient safety values, beliefs and ethical standards to convey responsibility and accountability to their teams.

Optimising safety

In the presence of a culture of patient safety in frontline practice, individuals optimise safety by actively working with safety concepts and managing risks. For example, creatively adapting to the spatial design of the care environment both physically and behaviourally to enhance communication flow while minimising interruptions to meet both patients and clinicians needs (Hor et al., 2014). A safety climate motivates clinicians to foster safety initiatives to proactively identify threats, consequences and pre-empty safety issues (Scott et al., 2014).

Assessing, monitoring and acting

Individuals actively assess for, monitor and recognise deteriorating patients and act to either treat or get assistance of skilled clinicians in a timely way (Alam et al., 2014). A culture of safety supports access to specialised teams through modes aligned to early warning systems for timely management of deterioration and improvement of patient outcomes. Individual practitioners participate in scrutinising patient safety issues and developing strategies to minimise patient safety risks and hazards (Johnson et al., 2014; Van Mourik, 2015; Thomas, 2015; Bates & Zimlichman, 2014; Hughes et al., 2014).

Effective communication, challenging assumptions and sharing ideas

Effective communication is the bedrock of a patient safety culture in frontline practice. Practitioners ask clarifying questions, share vital information and take responsibility for their own behaviour and the behaviour of others within a team to maximise safe care (Kigler, 2014). Individuals vigilantly challenge assumptions about patient safety and consciously raise awareness of obsolete knowledge and beliefs that are out of synch with current practice and organisational reality (Macrea, 2014). Individual practitioners actively participate in strategies such as safety huddles to share ideas and reflect on how to communicate more effectively (Sutton et al., 2014).

Providing accurate handovers

A handover in healthcare involves moving the accountability for patient care and information required to provide care from one professional (or team) to another (Smaggus & Weinerman,

2015). Individuals that are constantly safety aware ascertain appropriate discharges to care settings and make sure that vital information such as medication dosage, patient status and active medical problems is well documented for continuity and safe patient care (Donaldson et al., 2014). Individuals make the most of structured tools for handovers and decision making to facilitate timely transfer of complete and accurate information between care settings (van Sluisved, 2015) to aid medical treatment particularly for patients that are vulnerable at an end of life (Tingle, 2015).

Documenting

During litigation procedures for cases of medical negligence, practitioners are considered as good as their notes and records (Tingle, 2014b). Patient safety as a discipline in healthcare focuses on reporting, analysing and delivering safe care (Kim et al., 2015). Practice within a culture of patient safety involves accurate and transparent recording and reporting of processes of patient care to provide grounded evidence for identifying what works and priorities for quality improvement (Palojoki et al., 2017).

Enablers for patient safety cultures at team level

Shared values and authentic leadership

Shared perceptions of values, beliefs, practices and supported safety behaviours illuminate a team's safety climate (Ginsburg et al., 2016). Clinical leadership plays an active role in modelling a compelling vision to create the right conditions for teams to provide safe patient care and implement quality improvement programmes (Mcfadden et al., 2014). Authentic leadership that nurtures trust and engagement in safety initiatives and practices with a shared vision for achievement creates an enabling environment (Day, 2014).

Participation and engagement with patients and staff

Teams that value person centredness and patient participation in care processes sustain a safety culture in frontline practice. Teams streamline patient participation through providing relevant information on how patients can participate in safety campaigns, innovations for strengthening safety and detecting failures (Vaismoradi et al., 2015). Clinical leadership's ability to value and work with the team's evidence-based contributions establishes a safety climate (Rotteau et al., 2014). Frontline teams are motivated through systems that enable staff autonomy and value frontline experiences that may offer adaptive solutions to safety concerns (Carayon et al., 2014; Hollnagel et al., 2015). Such systems facilitate teams to take accountability of and achieve change in the areas that they oversee.

Open, collaborative learning and improvement culture

A practice environment that supports open communication, valuing each other's opinions and trusting decisions made endorses a safety culture at the frontline. Teams perform more efficiently and effectively with shared perception of teamwork, openness, mutual learning and support (Keebler et al., 2014). Staff work collaboratively to reinforce safety and to address failures that cut across disciplines, adapting resolutions to suit discrete clinical settings (Lamont & Waring; 2015; Kliger, 2015). Clinical champions embedded in teams support teams to identify problems with existing cultures and use influencing skills to engage staff in system wide safety and quality improvement (Dight & Peters 2015; Clay-Williams et al., 2014). Clinical champions have the drive and resilience to provide expertise, leadership skills and facilitation support to build capacity for continuous improvements in healthcare (Chattergoon et al., 2014; Wood et al., 2015). Innovative and varied facilitation approaches enable behavioural change and promote more humanised relationships in frontline practice (Day, 2014).

Safety culture that is blame free

Healthcare systems are high reliability organisations in which managers' commitment to patient safety and articulation of the safety mission to teams nurtures clinical excellence (Parand et al., 2014). Psychological safety is crucial for sustaining the safety culture in practice where teams share belief that it is safe to report their own and others' errors in a blame free environment without fear of castigation (Curry et al., 2015; Kliger, 2014). The open and safe reporting culture facilitates the focus on what works and how it works to improve areas where safety fails (Westbrook et al., 2015).

Measures

Meaningful outcome measures and indicators in an integrated system accelerate change of unsafe cultures and adaptation of improvement programmes in various clinical settings. This is achieved through analysing and sharing information about areas of excellence and experiences on safety issues (Kerfoot, 2016; Clay-Williams et al., 2014).

Protected time for reflection and learning

Time protected for staff to discuss and reflect on safety issues in their units facilitates collaboration in identifying a shared vision of patient safety topics of focus (Dight & Peters, 2015). Team conversations enable reflection on individual behaviours, clinical processes, and interpersonal relations with different stakeholders as well as creating opportunities for mentoring junior practitioners (F. de Korne et al., 2015).

Context for patient care and access to care coordination infrastructure

Patients subjectively perceive safe care especially during hospitalisation. A positive and comfortable environment confers a sense of safety and security from harm. Active

collaboration between staff, patients and visitors in a care context furnished with equipment required to provide care supports the notion of safe and effective teams (Mollon, 2014). Factors such as lighting, noise levels and family presence suited to the patient's comfort enable safe practice. Regular availability of specialised services and senior clinical input enhances team effectiveness (Hughes et al., 2014). The optimal use of computerised clinical decision-making support systems mitigates the discrepancy between evidence based and ideal practice to improve consistency in providing care and positive healthcare outcomes (Best al., 2016).

Effective coordination of care across different settings, including contexts where patients are engaged in organising their care improves patient safety and health outcomes (Vincent & Amaberti, 2016). Teams' access to infrastructures that support timely communication and rapid response to urgent needs for care support accelerates effective coordination of care. For example, access to electronic records and prescribing systems enables interdisciplinary communication and sharing of vital information including condition of patient, treatment and physical location (Hitchcock et al., 2015). Liaison staff at different points of care improve communication and care coordination while formal standardized forms facilitate timely, complete and accurate handover information (van Sluisveld et al., 2015).

Team activities and behaviours

Coordinating care and sharing information

Teams at the frontline exhibit a culture of patient safety when they work cohesively to deliver well-coordinated patient care. System based practice entails effective clinical leadership that plans to enable experiences of seamless care across care settings for a safe, effective and sustainable system (Scott et al., 2014). Well-coordinated care improves triage and patient flow which mitigate delayed treatments and adverse events (Rooney & Schilling, 2014). Teams in different settings undertake advance notifications of impending patients' arrival before handoff to aid good management of admissions and discharge (McElroy et al., 2015). Teams work collaboratively with clinical leadership to plan for presence of the right number of staff with the right skill mix (Gallego et al., 2015). This facilitates effective diagnoses, treatment and timely administration of medication (Donaldson et al., 2014; Kynaston, 2014; Smeulers et al., 2014).

Teams endeavour to share information effectively with different care settings along the patient pathway, particularly in an emergency situation (Weller et al., 2014). This facilitates an integrated multidisciplinary model that explains the patient's status, potential risks and

complications, which are key for team effectiveness in enhancing patient outcomes (McElroy, 2015). Teams also seek to cement relations between colleagues, patients and their families through communication and involving people in their care.

Participating in safety initiatives

Teams that practice within a culture of safety actively engage in designing, implementing and evaluating the performance of patient safety strategies (Clay-Williams et al., 2014). This sustains the trust required for healthcare relationships built on a shared purpose and values for successful implementation of quality improvement initiatives (Auer et al., 2014). Frontline teams' participation in developing safety protocols and customising these to different patient pathways enhances patient safety awareness. Collective responsibilities address safety challenges and facilitate reconciliation of differing views about safety procedures (McElroy et al., 2015).

Contributing to and using safety dashboards

Relevant metrics are a means for improvement processes and monitoring the quality of care. Teams focus on accurate and comprehensive contribution to relevant data to enable early detection of weaknesses in systems and cultures that incubate latent conditions that compromise patient safety (Martin et al., 2015). Teams regularly and directly provide information about the realities of safety at the frontline to supplement standard metrics. There is collective responsibility to gather data to enable ongoing learning, developing and improving (Thomas, 2015; Stavropoulou et al., 2015). Teams are able to interpret clinical data that is overtly availed to enable understanding of what is happening in clinical services and take responsibility for their practice (Millar, 2015). Clinical leaders work with respective teams to swiftly address what does not go right in specific areas of care to strengthen safe care (Donaldson et al., 2014; Kliger, 2014).

Working towards safe and effective teams

A safety culture motivates teams to work with safety principles at all times, including crisis situations (Hinde et al., 2016). Interdisciplinary teams communicate effectively using different forms of interaction to share vital information and work collaboratively to provide suitable and safe care to all people (Hitchcock et al., 2014). Teams function effectively within a climate of transparent and open communication, valued opinions and jointly owned decisions (Millar et al., 2015). Teams continuously work towards safe patient care whilst demonstrating effective clinical leadership, communication, situation monitoring and mutual support to maintain safety in frontline practice (Keebler, 2014).

Learning from safety issues

Reporting safety issues, including near misses provides opportunity for mutual learning and support (Macrae, 2014). Outcomes of analyses what goes right and what goes wrong are shared with all staff, including practitioners in training in an open and supported environment to promote higher standards of patient safety in the future (Baruch, 2014). Teams are encouraged to engage in designing and implementing innovations for addressing areas that require improvement (Clay-William et al., 2014). Regular availability of technical support and peer mentorship offers learning experiences and improves patient outcomes (Hughes et al., 2014). Teams actively participate in facilitated patient safety networks to celebrate good practices, share challenges and learn mutually (Clarkwest et al., 2014; Curry et al., 2015).

Evidence based practice

Where a culture of safety exists, care is patient driven to enable collaborations in understanding patient needs, inform processes at the frontline of practice and improve quality of care of care based on evidence (Shuker et al., 2015). For example, the UK has a large variation in cancer prescribing precipitated by the National Health Service healthcare boundaries that influence local treatment habits, capacity and policy (Chamberlain et al., 2015). With a culture of safety, teams apply scientific knowledge to practice to provide person centred care and improve consistency and quality of care.

Consequences of having a patient safety culture for patients, Individuals and teams

Patients

Improved outcomes and care experiences

A culture of safety fortifies patient safety and minimises failures and unplanned care with associated financial, physical and emotional costs (Sutton et al., 2014). Building trusting relationships between patients and care providers inculcates confidence in patients to participate in their own care and the ability to identify error and enhance their safety (Vaismoradi et al., 2015). Patient safety awareness improves continuity of care across care settings, decreases length of hospital stay and significantly reduces safety failures (van Sluisveld et al., 2015). Patients experience timely and smooth transitions between care settings as well appropriate management of risks of deterioration. Practitioners' compliance to using safety protocols reduces safety failures associated with medication, incomplete information and breakdowns in recognising signs of decline in patients' conditions (Ramrattan et al., 2014).

Individuals and teams

This section highlights the consequences of individual and team activity in presence of a safety culture (*attributes*) and the prerequisites that would enable them to undertake these actions (*enablers*).

Compliance to safer individual and team behaviours

A safety culture in frontline practice results in increased compliance to safer behaviours such as hand hygiene that effectively transform behavioural characteristics of individuals and teams to enhance healthcare performance (De Bono, 2014; Midturi et al., 2015). Clinical leadership's commitment and prioritisation of safety refocuses norms, values and basic assumptions to safer practices in the delivery of care and effectively influences behavioural change (Borg, 2014).

Interventions for patient safety increase safety awareness, initiate reflection on own behaviour and promote ownership of individual actions and decisions made in the process of delivering care (F.de Korne et al., 2015; Wood, 2015). This leads to improved compliance with healthcare policies and clinical guidelines (Castro-Sánche & Holmes, 2015). Frontline staff express ideas through open dialogue and speak up when they see behaviours that may compromise the quality of patient care (Brborović et al., 2014). This approach fosters shared values and norms that stimulate healthier emotional and cognitive cultures.

Professional development and evidence based practice

A safety culture empowers staff with principles of ongoing learning and creative problem solving to implement and sustain safety in patient care (Curry et al., 2015). Patient care is based on the best and most relevant clinical evidence (Shuker et al., 2015). Clinical leadership's prioritisation of and regular communication about the significance of safety boosts the level of safety knowledge among individuals and teams (Mattson et al., 2015). Feedback from peers premised on performance data gives rise to validation of staff competence and continuous quality improvement (Garner, 2015). A culture of safety in frontline practice enhances active participation and team growth into improved practitioners that utilise evidence in clinical practice to meet patient needs aligned to organisational priorities (O'Connor & Carlson, 2016). A safety culture and clinical leadership support improve teamwork skills with a multidisciplinary stance on patient safety in the healthcare system. Staff confidently report incidents with a view to improving teamwork and the quality of care (Hotton et al., 2016). Staff feel empowered to initiate safety awareness and improvement (Shin et al., 2014). This equips staff with additional skills that enhance individual's career options and employability (Scott et al., 2014).

Accurate recording of care processes

Practicing within a safety culture encourages accurate recording of care processes including incidents, which provides reliable evidence for sustainable improvements (Starmer et al., 2014). Accurate and comprehensive records offer a shared understanding of the teams' safety values and development in sustaining those values (McElroy et al., 2015). Individual and team clarity about roles and responsibilities in contributing to documenting relevant information lead to patient centred and safer care across acute care settings (Carayon et al., 2014; Wiig et al., 2014). Clarity about roles and responsibilities retains focus and enhances frontline practitioners' engagement in programmes geared towards strengthening safety in patient care (Mitchell et al., 2016).

Staff engagement, improved morale and job satisfaction

A safety culture in frontline practice empowers teams to develop safety action plans (Auer et al., 2014). Staff feel supported to have open dialogue about safety concerns and challenge unsafe practices that may compromise safe patient care (Baruch, 2014). Clinical leadership support inspires teams to develop and use critical thinking skills in lieu of system deficiencies and encourages staff engagement in safety analyses to identify pragmatic ways of addressing system failures (Daly, 2014). Greater visibility and transparency of information related to patient safety enables the public to appreciate risks involved in patient care (Donaldson et al., 2014). This reduces work related stress, improves staff morale and offers greater job satisfaction (Lavery, 2016).

Improved team communication and performance

Leadership for safety promotes improved communication and teamwork which facilitate effective coordination of care across all providers to alleviate risks and maximise positive health outcomes (Vincent & Amalberti, 2016). High performing teams promptly share relevant information to enable effective response to acute care needs (Weller et al., 2014).

Learning and improvement

Understanding the significance of patient safety and involving patients in all aspects of their care develops trust between practitioners, patients and healthcare systems (Kynaston, 2014). A culture of openness in reporting errors provides scope for learning and continued improvements in patient care (Youngson, 2014). Patient safety forums accelerate discussion about the feasibility of safety ideas and support mutual learning through sharing knowledge for sustained quantifiable changes (Clarkwest et al., 2014; Tilford & Dylak, 2015).

Organisational enablers and activities for patient safety cultures in frontline practice

Organisational factors that enable a safety culture and activities that follow on are geared towards supporting individuals and teams in frontline practice to develop, implement and sustain safety in frontline practice. While the focus is on frontline teams where care is experienced, teams are located within organisations and systems.

Enablers for patient safety cultures at organisational level

Whole systems approach

Whole system focused processes regulate procedures that strengthen the safety of a health system as a whole (Dixon-Woods & Pronovost, 2016). Organisational leaderships' prioritisation of and long-term commitment to patient safety enable partnerships across organisations and disciplines within the system (Wiig et al., 2014). Collaborative working between individuals, teams and all partners that contribute to the patient pathway in a well-integrated system promotes mutual understanding of safety procedures and eliminates possibilities of errors that may result from variable practices in different contexts (Kim et al., 2015). Sharing lessons learnt from incident reports at all levels of the systems enables a focus on system improvement rather than individual performance (Hotton et al., 2016).

Organisational culture

Clinical engagement and senior leadership support for partnerships and ongoing improvement facilitate the achievement and maintenance of organisational safety cultures (Curry et al., 2015). Regular sharing of resources on topical safety issues and best practices through established (virtual and web based) learning communities encourages stakeholders to participate in safety initiatives; and promotes a blame free culture, organisational learning and commitment to patient safety (Clarkwest 2014; Baruch, 2014).

Organisational readiness

Organisational readiness to change predetermines whether safety cultures are attained and maintained. Overall systems and organisational leadership that is appropriately inspired, with positive values and attitudes to change creates a facilitative environment for ongoing improvement (Wiig et al., 2014). The organisation's ability to respond to changes in the system (adaptive capability) is one of the key drivers for clinical quality and safety (Vaughan et al., 2014). Organisations that are party to continuous improvement transform experiences from safety events into knowledge to promote a safety culture that adopts simple initiatives for improvement and ways to continuously engage staff (Day, 2014). Sufficient investment of resources in safety initiatives, including different mechanisms for capturing safety concerns

enable safer care (Mitchell et al., 2016). Incident reports support reflection and wider organisational learning, particularly data collected from patients that may not fit within existing definitions of medical error or adverse events (Waterson & Catchpole, 2015; O'hara et al., 2016).

Organisational systems of support

Organisational systems that support regular use of safety protocols, collection and sharing of relevant patient safety data, active management of patients, their medication and complaints sustain well-grounded organisational safety cultures. Systems with clear instructions for clinical procedures and interventions to remedy complications support frontline practitioners to adhere to safety briefings, guidelines and standardised protocols (Schwappach, 2015). However, these systems require auditing and administrative support to enable adaptability, flexibility for prompt, skilled and safe healthcare (DeVita, 2014)

Incident reporting systems provide insight into leadership fallibilities, frontline practitioner fatigue and training needs (Stavropoulou et al.,2015). Effective reporting structures facilitate collection and sharing suitably detailed data to illustrate improvement trends. Organisations are able to compare safety trends against goals, showcase approaches to successful achievement and celebrate success (Clarkwest et al., 2014; Thomas et al., 2014). Challenges identified enable learning through honest appraisal of data (Tingle, 2014a). Financial incentives for evidence of continued improvement in acute settings promotes clinical governance, accelerates the adoption of safety programmes and reduces hospital readmissions (Cheh et al., 2015).

Organisational systems that facilitate active management of patients and their medical intake opportunely alert to arising complications and patient decompensation to prevent safety hazards. These systems allow for direct activation of rapid response teams to improve healthcare outcomes (Bates & Zimlichman, 2014). Innovations such as rapid response teams, ward-based pharmacy, and walk rounds that value experiences of frontline staff seek to address identified safety issues, overcome reoccurrences and improve the overall safety culture of the organisation (Sutton et al., 2014).

Organisational structure and leadership

Non-hierarchical organisation structures designed to empower and guide frontline staff support safety cultures (Wood et al., 2015). Such structures foster interprofessional learning, non- hierarchical communication across different professions and encourage individuals to disclose safety concerns (van der Nelson et al., 2014). Non-power driven organisational structures are inclusive of all staff in decision making processes, promote bottom up initiatives and enable ownership and accountability of standards of care. Such structures accelerate

adoption and consistency in implementing innovations for improvement alongside other safety practices (Best et al., 2015; Borg, 2014; Corrado et al., 2015). Committed and collective leadership facilitates system change through establishing a conducive climate and actively working with clinical champions to influence their networks at all levels (Curry et al., 2015).

Organisations' Engagement approach

Organisational practices influence whether social action necessary to transform frontline practice to provide safer care occurs or not (Szymczak, 2014). Organisational engagement that involves timely and effective communication within the organisation and across multidisciplinary partners raises awareness about safety issues and risks and enhances understanding of effective strategies for overcoming these (De Bono, 2014). Organisations that rapidly adopt evolving communication means and technologies such as social media, smartphones and apps widen the spread of healthcare safety messages, required behaviour change and opportunities for stakeholder engagement (Castro-Sánche & Holmes, 2015). Organisational leadership with outstanding communication skills, listens openly and conducts effective dialogues in processes of rectifying errors and achieving shared understanding of what needs to be done to attain desired safety goals (Lyndon et al., 2015).

Healthcare organisations that champion a safety culture work collaboratively with all partners that contribute to the patient pathway and share common values about prioritising quality and safety in delivering patient care (Wiig et al., 2014). Organisational leadership sustainably addresses deficiencies in designs, governance and operations including professional competence, monetary and structural constrictions using a systems approach (Scott et al., 2014). Senior leadership transcends quality and safety programmes to establish safety cultures entailing transparency, system vigilance, stakeholder involvement, explicit accountability and shared responsibility with a blame free and non-punitive approach to human errors (Daly, 2014).

Senior leadership takes and maintains authentic interest in quality and a culture of patient safety (Auer et al., 2014). Effective leadership in this vein creates the right climate for staff to take responsibility of their actions, fair treatment of staff when acting with good intent (Tilford & Philip, 2015) and encourages staff to voice concerns when they encounter unsafe behaviour (Brborovic et al., 2014). Senior leaders communicate safety values and provide feedback on performance to maintain positive healthcare outcomes (Mattson et al., 2015).

Executive boards involve people with clinical backgrounds to facilitate skilful engagement of all stakeholders in safety improvements and care designs. Organisational leadership enthusiastically engages in increasing awareness about patient safety including providing formal apologies empathetically and support if there are safety failures (Tingle, 2014a).

Protocols, tools and measures

Evidence based clinical care protocols promote safer, more efficient and cheaper care and ultimately improve patient outcomes. An established single access point for clinical care protocols and other guidelines support adherence to standardised care since frontline practitioners know how and where to access safety protocols, specifically when moving between care contexts (Thomas et al., 2014).

Organisations with robust systems of evaluating and monitoring quality and safety of care achieve higher performance (Millar et al., 2015). Using numerous sources of data to detect weak systems and cultures that may otherwise lead to failures in care processes promotes coordinated action to avert safety risks. Standardised classification of likely events with clear description of categories in incident reporting systems encourages voluntary reporting, generates interpretable and comparable data across organisations and provides a credible basis for intervention (Palojoki et al., 2017). Patient exit interviews in addition to conventional metrics facilitate collection of useful information that may not be easy to classify or quantify to inform safety interventions (Martin et al., 2015).

Training and Education (knowledge, skills, competences)

Organisational investment in regular staff training increases awareness of risks, compliance to proper implementation of safety protocols and cements a safety culture in frontline practice (Attenello et al., 2015; Stavropoulou et al., 2015). The right staffing levels enable frontline staff to effectively utilise time protected for learning and development (Tingle, 2014b). Educating staff on all aspects of safety including but not limited to reporting of events, teamwork skills, implementation of new technology, national safety priorities and patient safeguarding maximises learning and improves clinical judgement and accountability (Howell et al., 2016; Hughes et al., 2014). Integrating safety and quality improvement knowledge in the curricula at all levels of healthcare education and professional development activities promotes good quality and person-centred care (Scott et al., 2014; Till et al., 2015). Incident reports may also be used in educational programmes to instil a culture of safety amongst junior practitioners (Howell et al., 2016).

Knowledgeable and competent staff enable patients to feel safe during hospitalisation (Mollon, 2014). Staff competence in safety improves the quality and buoyancy of relations between individuals, processes and organisations to promote positive workplace cultures and effective collaborations (Lamont, 2015). Teamwork skills empower frontline practitioners and level the power gradient between different disciplines (Clay-Williams & Colligan, 2015).

Organisational resources

Effective senior leadership prioritises patient safety in allocating scarce resources to maintain a healthcare system that focuses on reinforcing a culture of safety in frontline practice (Wiig et al., 2014; Auer et al., 2014). Accurate staffing levels and skill mix, tools and safety improvement initiatives enable safer operation of the system (Clay-Williams et al., 2014; van der Nelson et al., 2014). Emphasis on technological designs that account for vulnerabilities to safety failures that may result from the interaction between practitioners and sophisticated equipment supports safety in frontline practice. For example, emphasising use of standardised detachable procedural devices where an erroneous switch with an inappropriate device can lead to dire consequences (Kliger, 2014).

Organisational consequences

Sustainable patient safety cultures and continued improvements

Organisational leadership's commitment to safety and engagement with frontline teams improves the overall patient safety culture and climate (Rotteau et al., 2014). Senior leadership's focus on facilitating healthy environments for patient safety cultures modifies staff attitudes to eliminate disruptive behaviours and enhance organisational performance (Kerfoot, 2016). Organisational readiness for improvement creates opportunities for learning and reduces organisational stress (Curry et al., 2015). Senior leadership with positive values and attitudes to change supports profound changes in the organisation to transform cultures that lead to improved capacity to recover and learn from safety failures (Lyndon et al., 2015).

Partnership working transforms institutional cultures leading to sustainable safety practices in patient care (Hole et al., 2015). Organisational support for team collaborations fosters retention of staff with positive cultures and enhances effective use of resources (Dight & Peters, 2015; Leone et al., 2015). Organisational support systems and innovations in a culture of continuous improvement lead to better compliance to safety standards and reduce waiting times and the length of hospital stay that may potentially expose patients to safety risks (Chattergoon et al., 2014).

Sharing best practices and developing plans for strengthening patient safety stimulate commitment to safety cultures and encourage overall stakeholder engagement (Clarkwest et al., 2014). Organisations that demonstrate ongoing improvements receive higher quality ratings that indicate good patient safety policies infiltrating all levels of the organisation (Tingle, 2014b). Policy focus on patient safety initiates investment in translational research, which contributes to development and application of scientific knowledge for better health and wellbeing (Lamont & Waring, 2015).

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