

The experiences of health professionals who participate in teamwork education programmes in acute hospital settings: A systematic review of qualitative evidence

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Abstract

Background: Teamwork is seen as an important element of patient care in acute hospital settings. The complexity of hospital settings, the changing care needs of patients and the increasing specialisation of clinicians highlights the need for health professionals to collaborate and communicate clearly with each other. Health organisations in western countries are committed to improving patient safety and the quality of care. A common intervention to achieve this is through education - and teamwork education programmes have been integral to this focus.

Objectives: The objective of this systematic review was to search for the best available evidence on the experiences of health professionals who participate in teamwork education in acute hospital settings.

Methods: A three-step search strategy, following the Joanna Briggs Institute method was used to find published and unpublished qualitative studies meeting set inclusion criteria. Critical appraisal and data extraction were completed using the Joanna Briggs Institute Qualitative Assessment and Review Instruments.

Results: Following the search and appraisal process, seven papers were selected for this review. Thirty-six findings were extracted and assigned to fifteen categories based on identified similarities across the papers. The categories were integrated into six meta-syntheses. The key themes that influenced health professionals experience of teamwork education were organisational culture, understanding how successful teams function, the quality of the teamwork education programmes, the starting points of individual participants when they participated in education programmes, the tools and strategies used in

teamwork education and the confidence and motivation of health professionals to transfer new skills into practice.

Conclusions: The review has identified qualitative evidence that can guide organisations and education facilitators in the preparation of participants for training and the development and implementation of teamwork education in acute hospital settings that changes practice. There are a number of issues that impact on the experiences of health professionals who participate in teamwork education programmes.

Implications: All members of a team should be encouraged by their organisation/managers to participate in teamwork education programmes in order to foster a positive culture of learning and teamwork within the team.

Facilitators of teamwork education programmes should understand how successful teams function and consider these factors when planning or delivering training.

Facilitators of teamwork education programmes need to explore participant learning needs and their prior experiences of working in teams before implementing teamwork education programmes.

Facilitators of teamwork education programmes should provide learning opportunities that are relevant, practical and foster constructive debriefing and reflection.

High fidelity simulation should be considered in acute hospitals for the training of teamwork skills in addition to clinical skills. Scenarios provide realistic opportunities for participants to practice collaboration and communication strategies that enhance teamwork.

Team managers should harness the new confidence and motivation of staff around teamwork skills following participation in teamwork education programmes and ensure that

there are opportunities in the workplace to apply new skills and knowledge into daily practice.

Keywords:

Health professionals

Teamwork

Education

Acute hospitals

Qualitative

Statement of Originality

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Chapter 1: Introduction

Context of the review

'Such is the faith in the efficacy of teamwork between health professions in health and social care that it is in danger of being reified as a self - evident virtue in need of neither justification nor critical review'. Hugh Barr (1) (p. ix)

The importance of teamwork, collaboration and communication between health professionals are high priorities for health services across the world. Quality and safety and patient centred care research has identified that effective teamwork can decrease the number of adverse events experienced by patients when they engage with health care services.^{(2) (3)} The World Health Organization and a number of other organisations and government reports have identified that improved collaboration amongst health care professionals is integral to improving patient care and organisational outcomes.^(2, 4-6) Although there has been much written about the need to improve teamwork in health care, in particular in acute hospital settings, it remains a challenging issue and one that services struggle to achieve.⁽⁵⁾ One of the most common interventions utilised by organisations to develop teamwork is teamwork education and training programmes.⁽⁷⁾ There is a range of programmes being utilised and outcomes for these teamwork education programmes are mixed in the literature. Results appear to be influenced by the complex context in which training is delivered which involves the interplay of a range of health professions, the nature of teams and organisational culture.⁽⁸⁻¹⁰⁾

Cohen and Bailey define a team as 'a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems and

who manage their relationships across organizational borders'.⁽⁵⁾ (p.241) The term 'team' is used broadly in hospitals and other health care organisations.⁽⁷⁾

Teamwork is where two or more health care professionals work interdependently to provide care to patients and consumers.^(4, 5) Inter-professional teamwork is described as a 'type of work which involves different health and or social professionals who share a team identity and work closely in an integrated and interdependent manner to solve problems and deliver services'.⁽³⁾ (p.xiv) Teamwork can be defined by knowledge, skills and values that people use to accomplish interdependent work including affective, cognitive, and motivation states that emerge during the course of that work.⁽¹²⁾ Behavioural processes include actions such as communication, coordination, sharing expertise and helping. Emergent states include mutual respect and psychological safety.⁽¹³⁾ There has been little qualitative research that has documented examples of good inter-professional team working and what are the underlying values and beliefs that influence the behaviour, attitudes and experience of relationships of people who work in teams.⁽¹⁴⁾

Lyubovnikova and West highlight six key 'teamwork processes involved in the delivery of health care'; these are team objectives, participation, conflict management, reflexivity, diversity, management and leadership.⁽⁷⁾ (p.342) Their review of the literature found that health care teams are more effective when they have clear objectives, participate in processes to improve communication about patients such as handover, constructively manage disagreements between health professionals over patient care, review their performance and make changes for the better, embrace inter-professional diversity, respect input from each professional groups despite professional hierarchies and have clear leadership.⁽⁷⁾ Members of a team who display teamwork behaviours understand that they work collaboratively to deliver patient centred care, are dependent on each other,

respect professional autonomy and roles, share information that leads to effective decision making and know when teamwork should be used to deliver the best care.^(5, 15)

In a study of National Health Services staff in 2012, over 90 per cent of staff reported that they worked in a team but only around 50% could identify that their team had 'clear shared objectives, works closely and interdependently, and reviews its effectiveness on a regular basis and these are all important and fundamental team characteristics.'^{(7) (p.357)}

Lyubovnikova and West argue that there is a theoretical difference for a health professional from being in a team that functions with real team characteristics (authentic team) and being in a team that is a team in name only (pseudo team). They question whether there are differences for staff and organisations in terms of patient safety outcomes when there are more authentic teams in an organisation rather than pseudo teams.⁽⁷⁾

Within the health care system, there are different types of teams that people may work in, in order to provide care to patients. It is increasingly common for health care professionals to be a member of multiple teams.^{(7) (16)} Health organisations often use multiple team membership to enhance individual and team productivity and learning, but this structure creates competing pressures on attention and information, which may make it difficult to increase both productivity and learning.⁽¹⁷⁾ Health care teams come in a wide variety of forms, function and composition. They are influenced by skill differentiation amongst team members, the temporal stability of the team including its history, stability of membership, future working relationships and authority differentiation where decision making can be made within the team or by leaders in authority roles.⁽⁷⁾ Buzachero identifies five models of health care teams within hospitals. (1) Teams of equals, which include boards, committees and teams of executives who manage the organisation and all members of the team are expected to contribute to the greater good. (2) Command and control teams have a

hierarchical structure and groups of people come together to deal with crisis or emergency situations. (3) Expert leader dominated teams are led by a clinical or management expert who controls assessment, planning and directs the team to implement the plan. In this type of team consensus decision-making is limited and the leader may have a medical background. (4) Multidisciplinary teams take on issues that cannot be solely addressed by the expert team because patient issues cross areas of expertise and function. This team functions like a project team and must work together using consensus to achieve outcomes for patients. (5) In co-management teams there will be two leaders with teams in administration and clinical areas that work interdependently to achieve outcomes to manage a service or product. This team requires consensus decision making to function. All of the five-team models can be used across acute hospitals to allow for the best approach depending on the task and the reason for forming as a team. ⁽¹⁷⁾

Effective teamwork has been found to have benefits for the individual worker, at team level, at an organisational level and for patients.⁽⁷⁾ Individual outcomes for health professionals include personal satisfaction and wellbeing, improved health and performance and commitment to work and the team.⁽⁷⁾ Team level outcomes include improved quality and safety of care delivered, improved innovation in teams and an increase in quality of inter-team working.⁽⁷⁾ Organisational outcomes are an increase in patient safety, staff workloads can be reduced and staff retention improves.⁽⁵⁾ Patients receive quality and safe health care and have increased satisfaction with consumer engagement and patient centred care. ⁽¹⁸⁾

Drucker states that 'the hospital is altogether the most complex human organization ever devised'⁽¹⁹⁾ (p.50) and teamwork is essential to delivering services in an acute hospital setting. The Australian Government defines 'acute care' as 'care where the primary clinical

purpose or treatment goal is to manage labor (obstetric), cure illness or provide definitive treatment of injury, perform surgery, relieve symptoms of illness or injury (excluding palliative care), reduce severity of an illness or injury, protect against exacerbation and /or complication of an illness and/ or injury which could threaten life or normal function and perform diagnostic or therapeutic procedures'.^{(20) (p.x)} In 2012–13 there were about 87,300 beds in Australia's public and private hospitals, with 65% of these beds in public acute hospitals. ^{(21) (p.2)} Hospitals across the world consist of a large number of services and products that must work together to serve consumers and health professionals. An example of a service in an acute hospital that faces challenges in developing effective teamwork is the surgical team within the modern operating room (OR). ⁽²²⁾ The OR is a challenging and high risk work environment that consists of a range of health professionals that must work together to become a highly reliable team. ⁽²²⁾ The Emergency Department, Intensive Care Units and Obstetric services are also identified in the literature as services where successful teamwork is crucial in order to deliver safe quality care.⁽²³⁻²⁵⁾

Essential to the development of strong team performance in health care is role modelling and guidance by a successful, integrated hospital organisational culture.⁽¹⁰⁾ Beer lists organisational barriers that impact on team functioning as: 'unclear organisational values and conflicting priorities, an ineffective senior team, a top down or a laissez faire leader, poor coordination or communication across functions, inadequate leadership development and poor vertical communication down and up'. ^{(26) (p.30)}

An important organisational value that underpins the success of teamwork is the presence of an organisational learning culture. Learning organisations foster a cohesive vision about education and learning, encouraging and teaching people in the organisation to think beyond their own profession and departments to become integrated and supportive of

other services and patients.⁽²⁷⁾ Individuals must strive for excellence however individual learning must integrate with team learning, as it is in teams that health organisations achieve their goals. Staff are encouraged to continually update their shared mental views of how things are done and be open to new ways of doing things.⁽²⁷⁾ Almeida et al outlines success factors that organisations can use to structure and improve outcomes for their team performance improvement initiatives. These are: align the initiative with the organisations mission, vision and values; provide organisational support; engage leadership at all levels; prepare for training; create a plan; facilitate application of trained teamwork skills on the job; engage champions to drive implementation; prepare the organisation for continuous learning on the job; establish partnerships and collaborations and measure the effectiveness of the team training program.⁽¹⁰⁾ In hospitals where strong teamwork performance is embedded into the organisational culture, teamwork education programmes can be an important strategy in improving teamwork skills and the quality of care delivered to consumers.⁽¹⁰⁾

The current acute hospital environment must constantly adapt and accommodate to the patients that need health services. Hospitals are faced with increasing numbers of client populations that present with complex long term problems and chronic disease.⁽⁴⁾ The advancement of technology enables the treatment of illnesses that were in the past untreatable and disorders and disabilities associated with old age are increasing. Service delivery in acute hospitals is characterised by increasing numbers of patients presenting with cancer and chronic and long term diseases such as obesity and asthma.^(4, 7) The focus of medicine is changing from a model of cure to one of 'controlling symptoms and maximizing patients' level of functioning and quality of life'.⁽²⁸⁾ (p.867)

Poor teamwork can have serious consequences for patients and their families. The To Err is Human report states that 'at least 44,000 people and perhaps as many as 98,000 people in the USA die in hospitals each year as a result of medical errors that could have been prevented. The breakdown of communication is often cited as a common factor in causing errors'.⁽²⁾ (p.1) The South Australian Patient Safety Report, 2011-2012, reports that '11.7% of communication and teamwork related incidents lead to notifications of harm being caused to the patient or the organisation'.⁽⁶⁾ (p72)

The World Health Organization defines a health worker as people engaged in actions whose primary intent is to enhance health.⁽²⁹⁾ (pxvi) The layers of complexity within acute hospitals are also shaped by the broad range of health professionals who work in clinical and administrative roles. Each has specific knowledge, skills and values that are related to their particular undergraduate training and chosen area of work. The Australian Institute of Health reports that doctors (13.3%) nurses (54.2%) and allied health professionals (10.5%) make up the dominant clinical workforce within an Australian hospital.⁽³⁰⁾ Doctors, nurses and midwives tend to specialise in clinical skills and work in one particular area of a hospital. Allied health professionals within an acute hospital setting are represented in smaller numbers and may often work across specialist areas and teams within a hospital. They may include the professions of audiology, dietetics and nutrition, exercise physiology, occupational therapy, podiatry, physiotherapy, psychology, social work and speech pathology.⁽³⁰⁾ Each health discipline continues with postgraduate training and ongoing work based education to develop clinical expertise in the area they have chosen to work.

The complexity in knowledge and skills required to care for patients has led to increasing specialisation which can result in fewer opportunities to collaborate with other health professionals and a tendency to remain working within a team of your own discipline where

there is a similar vocabulary around treatment options, problem solving and common interests.⁽²⁸⁾ This can lead to different health disciplines looking at the same presenting health issue and interpreting it from a completely different professional viewpoint.⁽²⁸⁾ This behaviour has been highlighted in a study by Evanoff et al where researchers interviewed nurses and physicians about their priorities related to caring for patients. There was 'full agreement between the doctors and nurses in 17% of cases, partial agreement in 51% of cases and no agreement in 30% of cases' highlighting the differences in priorities for the care of patients and how professionals communicate to each other.⁽³¹⁾ (p.121) The differences in professional thinking can be further demonstrated by McDonald et al who studied attitudes of health professionals in OR to what constitutes professional conduct and safe care. The study found significant differences between the beliefs of doctors and nurses in regards to adherence to guidelines and procedures. 'Nurses saw guidelines as a key element in providing safe, good quality care. In contrast, doctors viewed guidelines as unnecessary and even potentially harmful'.⁽³²⁾ (p.291) Such differences can affect trust between team members and impact significantly on the development of collaborative inter-professional practice.⁽²²⁾

Despite the differences and specialisation of health professionals, the division of labour amongst them means that no single professional can deliver a complete episode of health care.⁽⁴⁾ Health professionals with specific expertise often must work together to ensure that patients receive the care that they require.⁽⁴⁾ Even when they are not formally assigned to care teams, health professionals must engage in teamwork because it has become an essential part of health care practice today. Without the use of teams in health care delivery, the patient's journey of care would be a series of health events occurring in silos that the patient would need to bring together and make sense of.⁽¹⁶⁾ Eduardo Salas states

that 'patient care is a team sport',⁽³³⁾ (p.1002) however clinicians often do not see how teamwork and communication contribute to excellent patient care, often focussing on an individual hero in caring for patients.⁽⁸⁾ Some teams can be described as a group of experts rather than an expert team.⁽²²⁾

A range of identified competencies exists that are important for the professional development of all health disciplines in developing teamwork skills. These skills can be described as non-technical or professional skills and foster collaboration across disciplines and teams. Medical education has identified that there are a number of teamwork related competencies that are important for a physician.⁽³⁴⁾ They are interpersonal skills and professionalism, interaction with patients and family, fostering a team environment and mentoring and educating other students and staff.⁽³⁴⁾ These competencies, in addition to technical/clinical skills, are necessary for all professions who work in teams to be effective in the complex environments found in acute hospital settings. An example of the interplay of competencies expected by staff working in an OR room would be technical skills including endotracheal intubation, patient positioning and suturing plus the non-technical skills involving the cognitive skills of decision making, planning and analytical thinking and the interpersonal skills of communication, assertiveness and conflict resolution.⁽²²⁾ It is often people who don't utilise competent professional skills who are described as 'not being team players'.⁽³³⁾ (p.1002) Health professionals who are not team players can be a risk to the performance of health teams in caring for patients.⁽¹⁵⁾

Professional differences and hierarchies exist currently in health settings, where members of the team may fear questioning or challenging perceived higher status team members such as medical personnel, and this impacts on effective team functioning.⁽³⁾ Thomas et al found in their study on perceptions of teamwork, only 33% of nurses rated the quality of

collaboration and communication with the physicians in their team as high or very high. In contrast, 73% of physicians rated their collaboration and communication with nurses as high or very high. In contrast to physicians, nurses reported that it is difficult to speak up, disagreements are not appropriately resolved, more input into decision making is needed and nurse input is not well received.⁽³⁵⁾ This study highlights that hierarchies within teams and differences in perceptions of teamwork behaviours can impact on relationships with possible effects on performance within teams.

Frequent changes to personnel caring for patients, due to shift work, patient transfers and human resources procedures in hospitals can impact on team function.⁽⁶⁾ In South Australian health organisations in 2012, the most common time for an adverse incident to occur to patients (through the delay or failure of communication within teams and with external teams) was when a patient was transferred within the health setting.⁽⁶⁾ Teamwork also requires people to deal with the challenges of relating to each other, dealing with conflict and compromise in often a stressful work environment.⁽¹²⁾ Lack of respect amongst health professionals has been identified as a significant barrier in creating a positive work environment and effective teams.⁽¹²⁾ Other barriers that lead to poor team work include different perceptions of what teamwork is, different skills levels in how to function as a team member, a lack of defined designated roles amongst team members including a team leader and an unsafe culture where staff do not feel safe to challenge the actions of others and prevent mistakes happening.⁽¹²⁾

There are a range of interventions to promote teamwork and collaboration in health care that have been researched since the 1990s.⁽³⁾ There are a number of overlapping terms to describe these interventions such as teamwork education, teamwork training, interprofessional learning, interdisciplinary teamwork and transdisciplinary practice and

these terms are used interchangeably throughout the literature.⁽³⁾ (p.91) Reeves et al undertook a systematic review to develop an understanding of interprofessional interventions to improve teamwork and their results revealed that there were three main types of interprofessional interventions. The first type is education-based interventions with a curriculum, clearly stated learning outcomes and learning activities. Examples for qualified health professionals are teamwork workshops, simulations and training programmes. The second type is practice-based interventions, which are aimed to improve how professionals work together. Examples are instigating interprofessional team meetings and tools to improve communication such as checklists. The third type is organisation-based interventions, which provide governance to improve teamwork. These can include policies and procedures to improve teamwork and changes to the work environment to facilitate interprofessional interactions.⁽³⁾ Lybovnikova and West identify three strategies that can improve teamwork. The first strategy is to provide teamwork education to improve teamwork behaviours and competencies of health professionals. The second strategy is to ensure the right skill mix and competencies of teams so that the correct mix of professionals is working together for the necessary task. The third strategy is to create a context where team based working is embedded within the organisation with appropriate structures, resources and education. They recommend that a combination of these strategies are adapted to suit the organisational culture and clinical setting is the best approach.⁽⁷⁾

This aim of this review will be to focus on the first strategy identified by Reeves et al and Lybovnikova and West which is teamwork education, as this is the most common strategy used in the context of acute health care settings to develop teamwork skills.⁽⁷⁾ The experiences of health professionals who work in acute hospital settings and who have

participated in teamwork education programmes will be examined to identify what factors have led to staff valuing teamwork and the education program. This may contribute to a better understanding of how teamwork education programmes can be implemented successfully in the complex environment of acute hospital settings.

Structure of the Thesis

This thesis consists of five chapters. The introduction chapter provides an overview of the international literature in regards to the context in which teamwork occurs in acute hospital settings. It also summarises the structure of the thesis.

Chapter two provides background to the phenomena of teamwork education programs and identifies the research question, which this systematic review explores.

Chapter three provides an overview of qualitative synthesis and the methodological basis for the review. It also includes the study design and methods used for the review, with specific information provided on the search strategy, critical appraisal process and data extraction methods used. Limitations to the study will also be included in this chapter.

Chapter four will present the results of the review, including detailed information on the studies selected as well as the synthesised findings devised from the review process.

Chapter five will include a discussion and analysis of the results of the review. Conclusions will be presented along with implications for practice and further research.

Chapter 2: Background

Introduction

Currently within Australia and overseas, the most common strategy utilised by health organisations to improve teamwork in acute hospital settings is to provide education based interventions that include a curriculum, learning outcomes and learning activities that focus on developing knowledge, skills and values around teamwork.⁽³⁾ There is currently no clear direction in the literature about the best format for teamwork education for particular types of teams and what is the ideal timing and methods.⁽³⁶⁾ In order to situate this piece of research, it is important to have a solid understanding of the types of education programmes currently being delivered in acute hospitals, the learning needs of participants, principles for team training programmes and outcomes from studies about teamwork education programmes.

The phenomenon of teamwork education in acute hospital settings

The aim of teamwork education programmes in acute hospital settings is to improve team effectiveness. Programmes are evident at a number of levels in the health system starting with inter-professional training with students from various health professional backgrounds in university settings such as student clinics and also in general teamwork training with health professionals in the workplace.⁽⁷⁾ Guise states that 'teamwork training is likely to be a continuum where the foundation for the importance of teamwork and teamwork skills are introduced early in training, and then knowledge, behaviour and attitudes are refined and maintained during actual clinical practice.'⁽³⁶⁾ (p 941) Teamwork education can be delivered in core teams of the same profession such as nursing teams and it can also be delivered

through an interprofessional focus. This review focuses on research where qualified health professionals are working in acute hospitals, are experienced clinically and are participating in teamwork education programmes that are part of ongoing professional development in their workplace to improve teamwork communication and collaboration.

It is recommended that teamwork education programmes are based on sound educational concepts such as adult learning principles, the creation of authentic and experiential learning environments and utilising debriefing and reflection for ongoing learning.^(24, 25) The underpinning concepts of adult learning principles are demonstrated when learning is provided in a safe and positive environment, is relevant to current work settings, includes the previous experience of learners, engages learners in meeting and evaluating their own learning needs and is immediately applicable to practice.⁽³⁷⁾ Spencer and Jones state that the traditional models of education in hospital settings, for example in medical education, are the 'antithesis of the adult learner approach'.⁽³⁷⁾

Experiential learning is based on learning theories such as Kolb's cycle of learning. This learning cycle integrates a variety of learning modalities that involves hands on learning, observation and reflection, refining prior views and practices and then testing newly formed ideas.⁽³⁸⁾ This process in the context of the health workforce means actively practising the knowledge, skills and values of teamwork in an environment that authentically relates to the learner's own workplace. The learning environment can be one of the most 'powerful influences on motivation' by fostering 'cooperation, considering individual needs and encouraging participation in problem solving'.⁽³⁷⁾ (p.41) Debriefing and reflection is the process of examining actions, reasons and feelings about what occurred in the learning situation, in this case, teamwork and then thinking about how teamwork could be improved in the future. ⁽³⁷⁾ Spencer and Jones states that 'traditionally medical education at all levels

has been good at providing opportunities for doing and thinking but perhaps less for the promotion of reflection'.⁽³⁷⁾ (p.41) Education methods that do not promote changes in practice are characterised by 'one-off events, unsolicited dissemination of materials, didactic lectures and passive participation by learners'.⁽³⁷⁾ (p.400)

There has been little research available about the individual education and training needs of health care professionals that will enhance their participation in workplace teams and teamwork education programmes.⁽³⁹⁾ Health care team members may not understand or have insight into their own personal competencies required for team success.⁽¹²⁾ Individual factors that influence performance in teams will include the person's knowledge, attitude, motivation and personality. ⁽³⁹⁾ Each team member comes with his/her own learning style, personality, skills, experience and values and these will determine his/her ability to interact with a group, cooperate, follow group norms and contribute to team and organisational goals.⁽⁴⁰⁾ There may be assumptions made by managers and education facilitators that individual members of health care teams are ready or able to engage in structured teamwork education programmes where this may not be the case. Although staff may value teamwork, their individual position in the team means that they engage in different types of teamwork and can have different perceptions of what teamwork means to them. Generally staff in lower structural positions in teams do not share the same meanings of teamwork as staff in higher structural positions.⁽⁴¹⁾ Thus there is a need for teamwork education to also focus on the individual abilities of people as a pre-requisite characteristic of effective teamwork.⁽³⁹⁾ This could include education programmes that bring to light the advantages of collaborative approaches within teams and investigates what the individual's values, norms and principles are around teamwork and what are the current issues that support or prevent collaboration within the team.⁽⁵⁾ This process could highlight factors

within teams that need to be addressed to improve teamwork such as trust, interpersonal relations and better prepare them for the process of developing collaboration and communication.⁽³³⁾ Cannon-Bowers et al recommend the use of 'pre-practice techniques' which will prepare and provide participants with a structure for the information provided in team training. ⁽⁴⁰⁾ (p.210)

There is limited information in the literature about the recommended educational knowledge and facilitation skills of the staff who deliver teamwork education. Education facilitators in health care are often highly skilled clinical educators that are experienced senior professionals where clinical expertise is assumed.⁽²³⁾ It is unclear in the literature how prepared education facilitators are to deal with the complexities of the teams that they engage with in a teaching role. For example, health care teams are often characterised by the presence of professional hierarchies - if facilitators are not skilled in engaging diverse professional groups and creating safe learning environments or in constructively facilitating and guiding debriefing and reflection with teams and individuals, then the outcomes of the teamwork education could be lessened or even be counterproductive to the development of a positive and effective team culture. ^(24, 42) The type of training and support necessary to provide education facilitators or trainers with the necessary knowledge, skills and values to facilitate teamwork education is not clearly identified in the literature. It is recommended that education facilitators would benefit from education to prepare them for their training roles that provides them with the experience of active learning opportunities and of receiving and giving feedback. Lecture based instruction for facilitators does not guarantee understanding or confidence in group facilitation techniques nor does it provide modelling and practice for facilitators to develop an active learning plan or coaching skills for their teamwork education programmes. ⁽⁴³⁾

Gregory et al identify four components to team training. These are 'information, demonstration, practice and feedback'.⁽⁴²⁾ (p.460) The mix of components provided should be devised by conducting a needs analysis of the team for developing teamwork.⁽⁴²⁾ There is little evidence in the literature about how often teamwork education should be provided to a team, however in order to achieve higher levels of performance and deliberate practice it is necessary to repeatedly train skills in teamwork rather than engage in programmes once a year which happens in some organisations.⁽⁴⁴⁾ Information based training can be delivered in a range of formats such as face to face lectures, e-learning and workbooks to improve knowledge on a topic related to teamwork. Didactic teamwork education is the most common format currently available in hospitals.⁽³⁶⁾ Topics can include information about how human errors impact patient safety and principles of teamwork.⁽³⁶⁾ Organisations see benefits with information-based methods as they can deliver base-line information to a large number of staff, at a low cost and it is easy to deliver. Didactic education programmes can influence a participant's attitudes and knowledge to teamwork; however, when used in isolation, information-based training methods are passive and have little impact on improving skills through team training. ^(36, 42) Demonstration based methods are more active methods of delivering education and complement knowledge-based methods. Teamwork scenarios and behaviours are demonstrated to participants by video, actors or through simulation. Demonstrations can display the level of skill desired and can show good and poor examples of teamwork.⁽⁴²⁾ Practice-based methods such as role play and simulation, when guided by facilitators, will ensure that team members practice new skills in a safe learning environment that is authentic to the teams learning needs.⁽⁴²⁾ Simulations that are conducted in situ in real environments provides active learning opportunities for staff to learn, rehearse, practice and evaluate teamwork skills. In a qualitative review of 43 studies on team training conducted by Salas et al, 59% (26 studies) included opportunities

for practice with 62% (16 studies) using high fidelity simulation and 23% (six studies) using role play.⁽³³⁾ Feedback (that is accurate, timely and constructive) is an important component to team training particularly in practice-based programs. Individual and team feedback should be about performance and lead to debriefing and reflection about positive and negative teamwork skills and performance.⁽⁴²⁾ The ideal team education programme would include the four components of 'information, demonstration, practice and feedback'.⁽⁴²⁾ (p.460) but this is often not feasible due to financial or practical issues within an organisation.⁽⁴²⁾

The content of teamwork education programmes currently being used in healthcare has been influenced by the principles of Crew Resource Management (CRM), which originated in high risk organisations such as aviation and defence.^(25, 36) CRM concentrates on leadership, situation monitoring, mutual support and effective communication. It promotes standardised communication between all members of a team to reduce human error that occurs in complex systems.⁽¹⁵⁾ An example of a standardised communication strategy provided as training to health care staff is SBAR (situation, background, assessment, recommendation), which improves team communication. ⁽⁷⁾ SBAR has been adapted from defence to healthcare settings including acute hospitals across the world. ⁽⁴⁵⁾ SBAR is used to structure communication between health professionals in situations such as shift handovers, sudden changes in the environment or care of the patient, telephone calls and updating new staff. ⁽³⁶⁾ An example of a teamwork education programme based on CRM principles is TeamSTEPPS® which was developed in the United States of America by the Agency for Health Care Research and Quality in 2006. The teamwork concepts that have been adapted from CRM for healthcare are communication, situational awareness, resource management and leadership.⁽¹⁵⁾ The program was introduced in South Australia

by the Department of Health and Ageing in 2008 and by 2012, 60 wards or units were enrolled in the training across SA Health in diverse areas including emergency departments, rehabilitation and mental health.

The use of simulation training has become a popular tool that can combine the use of CRM principles with an authentic learning environment to develop teamwork skills. High fidelity human patient simulators and equipment in realistic clinical environments, replicate scenarios which are played out in real time. Simulations can portray an environment (managing an acutely ill or injured patient that is high risk) where the problem for the patient may be unclear, information may be incomplete or conflicting, the situation may be rapidly changing, there may be multiple conflicting goals, there are time pressures and consequences of error that are life threatening. ⁽³³⁾ Simulations can also be developed where the focus is not on emergency situations and represents the less urgent every day work of teams where optimal coordination and communication between team members is important. This could include changes in routines, technical problems, receiving a patient. ⁽²⁴⁾ Reflection and debriefing is an important part of simulation training and there are tools that have been developed to explicitly assist the structure and process of debriefing and reflection and to develop the skills of health professionals. Examples of tools developed by the Imperial College London are the Objective Structured Assessment of Debriefing (OSAD) and SHARP which consists of the five steps; 'Set learning objectives, How did it go?, Address concerns, Review learning points, Plan Ahead'.⁽⁴⁶⁾ ^(p.3) When staff participate in simulations they are often videotaped and they then participate in the simulation debrief afterwards about clinical outcomes and also about the underlying team working processes such as cooperation, coordination, leadership and communication. This time for reflection

is an important opportunity for reinforcing teamwork skills and improving individual and team practice.⁽³⁶⁾

Salas and colleagues proposed to identify key principles of team training in health care using simulation technology. They undertook a quantitative and qualitative review of the literature including a 'content analysis conducted on team training literature specific to health care' and developed the following evidence based principles:⁽³³⁾ (p.1003) These principles are also valid for other forms of teamwork education.

- 'Identify critical teamwork competencies and use these as a focus for training content
- Emphasize teamwork over task work, design teamwork to improve team processes
- Let the team-based learning outcomes desired and organizational resources guide the process
- Task exposure is not enough – provide guided hands on practice
- Ensure training relevance to transfer to the work environment
- Feedback must be descriptive, timely and relevant
- Go beyond reaction data and evaluate clinical outcomes, learning, and behaviours on the job.'

The last principle, which focuses on evaluation of teamwork education programmes and measuring the translation of skills to practice and outcomes for patients, staff and the organisation has not been consistently demonstrated in the literature to date. The current literature has been mixed in regards to evidence that training is effective in improving teamwork and ultimately the quality of healthcare to consumers.

Salas et al undertook a quantitative and qualitative review of the literature on team training implemented in health care and concludes and advocates that team training provides an 'effective vehicle for optimizing team-based competencies in health care'. (33) (p 1002)

Other studies have not found evidence to unequivocally state that teamwork training leads to changes to teamwork practice or improves outcomes for consumers and organisations. Chakraborti, Boonsasai and Wright systematically reviewed teamwork training interventions used in medical student and resident training.⁽⁴⁷⁾ Buljac-Samardzic et al. reviewed interventions to improve team effectiveness.⁽⁴⁸⁾ Reeves, Zwarenstein and Goldmann reviewed the effectiveness of inter-professional education on patient and health outcomes.⁽⁴⁹⁾ Hammick et al. conducted a systematic review of inter-professional education and its effectiveness.⁽⁵⁰⁾ In each of these systematic reviews, the authors found it difficult to draw conclusions around teamwork education due to small numbers of studies and sample sizes, problems with conceptualising and measuring collaboration, and the heterogeneity of interventions and settings.

Currently in the literature, there is mixed evidence around the issue of the effectiveness of teamwork education strategies for teams of a specific profession such as nursing or for multidisciplinary teams (interprofessional education) in improving outcomes for patients and organisations. ⁽⁵¹⁾ It is also documented that even though health professionals value participating in teamwork education programmes, there is little evidence of the experiences of health professionals when they are involved in the process or of the skills and knowledge learnt being transferred into practice.⁽¹⁰⁾ There is unclear evidence of what type of teamwork education interventions work, how much education is needed to change practice, with whom and why - yet health organisations continue to fund and implement teamwork education programmes.

Health organisations in western countries including the United Kingdom, United States of America, Canada, Norway and Australia are currently committed to improving team effectiveness in acute hospital settings.⁽⁴⁾ Teamwork education programmes are integral to that commitment. As more health professionals are involved in teamwork education programmes, it is therefore important to develop an insight into and an understanding of health professionals' experience of teamwork education. A systematic review on this area has not been undertaken in the literature to date.

Research Aim

The purpose of this review is to collate, critically appraise, synthesise and establish the best available evidence on the experiences of health professionals who participate in teamwork education in acute hospital settings.

This review aimed to explore the following question:

What are the experiences of health professionals who participate in teamwork education in acute hospital settings?

Definition of terms

Team - a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems and who manage their relationships across organisational borders.^(5, 11)

Teamwork - is where two or more health care professionals work interdependently to provide care to patients and consumers.^(4, 5)

Teamwork Education - education based interventions that include a curriculum, learning outcomes and learning activities that focus on developing knowledge, skills and values around teamwork.⁽³⁾

Health Professionals - a broad range of professionals who work in clinical and administrative roles. Each has specific knowledge, skills and values that are related to their particular undergraduate training and chosen area of work. The Australian Institute of Health reports that doctors (13.3%) nurses (54.2%) and allied health professionals (10.5%) make up the dominant clinical workforce within an Australian hospital.⁽³⁰⁾

Acute Hospital - is a hospital that provides acute care. Acute care is where the primary clinical purpose or treatment goal is to manage labour (obstetric), cure illness or provide definitive treatment of injury, perform surgery, relieve symptoms of illness or injury (excluding palliative care), reduce severity of an illness or injury, protect against exacerbation and /or complication of an illness and/ or injury which could threaten life or normal function and perform diagnostic or therapeutic procedures'.^{(20) (p.x)}

Conclusion

Principles and educational practices that improve the quality of teamwork education have been outlined in this chapter as well as some of the challenges for implementing teamwork education programmes. Using a systematic approach in the research of literature, will enable a broad investigation into what health professionals value and experience when participating in teamwork education programmes. This can lead to evidence that impact on the development, implementation and evaluation of effective teamwork education programmes.

Chapter 3: Methodology and Methods

Introduction

The context and background of this review has highlighted the multiple factors that influence teamwork and teamwork education in acute hospitals. A qualitative methodology was chosen for this review as the most appropriate approach for pooling together all the experiences of health professionals who participate in teamwork education in order to gain a deeper understanding of what are the influences that impact on their understanding and practice of teamwork within the complex environment in which they work. In this chapter, an overview of qualitative synthesis science and the methodological approach chosen for this systematic review is discussed.

Overview of the science of qualitative evidence synthesis

In the context of 2014, most health organisations engage in the utilisation of evidence-based practice and use evidence-based guidelines to inform clinical practice. ⁽⁵²⁾ This evidence based approach is underpinned by the historical and traditional positivist approach of scientific enquiry focussed on effectiveness.⁽⁵³⁾ 'Evidence synthesis is the evaluation or analysis of research evidence and opinion on a specific topic to aid in decision-making in health care'. ⁽⁵⁴⁾ (p.21) Although the randomised control trial is seen as the gold standard in quantitative research in generating evidence around effectiveness, health professionals are not only interested in the cause and effect of interventions but want to explore the understanding, meaningfulness and feasibility of the 'experience of health, illness and health care'.⁽⁵²⁾ (p.47) Over the last 20 years, the positivist paradigm has been complemented by qualitative research methods, which can expand and enhance the view of what is evidence. Popay and Williams suggest that the results of qualitative

research can provide evidence that explores everyday clinical practices, provides insight into the consumer's perspective, develops and evaluates interventions and provides insight into organisational culture and policy initiatives.⁽⁵⁵⁾

Qualitative meta-synthesis is an interpretative integration of qualitative findings that may have come from phenomenological, ethnographic or grounded theory studies.⁽⁵³⁾ The process of synthesising results of similar qualitative studies has led to criticism by researchers who think that summarising individual studies interferes with the integrity of each individual project, and as a result, losing the experience of the participants in each study.⁽⁵⁶⁾ Countering this criticism is the notion that single primary qualitative studies have minimal power to inform or guide organisations and practice. Synthesising qualitative evidence through a process that is aggregative, systematic and rigorous can 'enable the nuances, taken for granted assumptions, and textured milieu of varying accounts to be exposed, described and explained that bring fresh insights'.⁽⁵⁶⁾ (p.205) These insights can then go on to guide practice which can engage policy makers and clinicians. There is growing interest in meta-synthesis as a 'technique for generating insights and understanding from qualitative health care research' and as a result strategies that deepen an understanding of the layers of healthcare have been developed.⁽⁵⁶⁾ (p.204) The strategy for the method of qualitative synthesis used in this review is discussed below.

Methodological basis of the chosen approach to synthesis

This systematic review followed the Joanna Briggs Institute (JBI) review methods for qualitative synthesis outlining a structured approach to performing a systematic review and devising synthesised findings from included qualitative studies.

The JBI method supports the use of multiple methods to synthesise qualitative findings through a process of categorising and aggregating findings and conclusions. The JBI agreed method of synthesis is outlined in this thesis.⁽⁵³⁾ It entails:

1. Development of a rigorous study protocol;
2. Clear statement of a study question;
3. Identifying a detailed search strategy to find all relevant studies, with inclusion and exclusion criteria;
4. Establishing a process for assessing the quality of each study to be included in the review through the critical appraisal process;
5. Extracting data from the primary studies regarding participants, phenomena of interest, settings and key findings; and
6. Establishing a method of aggregating data to create a synthesised finding.

Statement of Review Question

The purpose of this review is to collate, critically appraise, synthesise and establish the best available evidence on the experiences of health professionals who participate in teamwork education in acute hospital settings.

This review aimed to explore the following question:

What are the experiences of health professionals who participate in teamwork education in acute hospital settings?

Criteria for Considering Studies for this Review

Types of Studies

This review considered interpretive and critical enquiry studies that focus on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography, action research and feminist research.

In the absence of research studies, other text such as opinion papers, discussion papers and reports were considered. Studies published in English from 1990 to 2013 were included in this review.

Types of Participants

This review considered publications of qualitative studies reporting on experiences of health professionals who work in acute hospitals. This includes medical, nursing and midwifery and allied health professionals.

Phenomena of Interest

The phenomena of interest and focus of the meta-synthesis was the experiences and reflections of health professionals who were involved in teamwork education in acute hospital settings. This included the experiences of education that is provided within teams of the same professions such as nursing teams and in inter-professional teams (including medical, nursing and allied health staff) who work in wards and departments in acute hospital settings. The range of teamwork education considered included informal teamwork education opportunities within a team such as those that could aim to improve communication skills and formalised organisationally driven teamwork education programs such as TeamSTEPPS®. Studies that included specific education strategies were explored

such as the use of simulation scenarios to focus on teamwork skills such as leadership, situational awareness and designated roles in complex clinical contexts.

Context

The geographical context for this review was acute hospitals in rural or metropolitan settings anywhere in the world. The review focused on the experiences of health professionals who work in acute hospitals and have participated in teamwork education programmes.

Review Methods

Search Strategy

Prior to commencing the review in 2013, a search of the Cochrane Library and Joanna Briggs Institute Library was conducted to explore if there were any existing published reviews on lived experiences of health professionals who have been involved in teamwork education and work in acute hospital settings. There was no evidence of any published reviews and a comprehensive search strategy was devised to explore the topic.

The search strategy aimed to find both published and unpublished studies. The literature search for relevant papers occurred between 13th September and 26th October 2013. A three-step search strategy was utilised in this review. An initial limited search of MEDLINE and CINAHL was undertaken followed by analysis of the text words contained in the title and abstract, and of the index terms used to describe papers. A second search using all identified keywords and index terms was undertaken across all included databases. The results of the searches were exported to Endnote and duplicates were removed. Thirdly, the reference list of all identified papers was searched for additional studies. Studies published in English from 1990 to 2013 were included in this review. The specific time

frame was chosen because research into the relationship between patient safety and teamwork began in the early 1990's and qualitative data from this time is still relevant. Examples of search strategies are presented in Appendix I.

The following databases were searched: PubMed, CINAHL Plus with full text, EMBASE, SCOPUS. The search for unpublished studies included TRIP, Dissertation International, MEDNAR, Conference Proceedings, Google Scholar, and Australian Government websites - Department of Health and Ageing and NHMRC (National Health and Medical Research Council).

Initial keywords used were:

health professionals, health personnel, allied health personnel

teamwork, patient care team, medical care team, interdisciplinary team

education, teaching, staff development

hospitals

qualitative

Assessment of Methodological Quality/Critical Appraisal

The review followed methodology which is outlined in the JBI 2011 Reviewers' manual and JBI 2014 Reviewers' manual.^(53, 57) Papers were read and selected by the primary reviewer to assess the methodological quality of the papers for inclusion in critical appraisal. A secondary reviewer was invited to also read the papers and both reviewers independently assessed the suitability of articles using the analytical module Qualitative Assessment and Review Instrument (JBI-QARI). The JBI-QARI critical appraisal tool has a checklist outlining ten criteria that aim to establish the appropriateness of the methodological

approach, methods utilised and the representation of the voices of participants in the studies (Appendix 111). The two reviewers met afterwards to identify any differences and a consensus was reached for each paper. There was no need for a third reviewer.

The agreed findings of the primary and secondary reviewers using the JBI-QARI appraisal tool questions are outlined in the Findings Assessment Table presented in Table 2.

Data Extraction

Data that included statements and text of interest was extracted from papers included in the study using the standardised data extraction tool from JBI-QARI. The data included methods, phenomena of interest, the setting of the research, geographical context, cultural context, and information about participants, data analysis, conclusions of the study and the reviewers' conclusions.

Extraction of Findings

During the extraction stage, I encountered challenges with the identification and extraction of findings in the primary papers selected when following JBI methodology. The JBI Reviewers' Manual 2014 states that:

'A finding is a verbatim extract of the author's analytic interpretation of their results or data. Undertaking the synthesis component of a meta-aggregative review, each finding that is extracted from a paper is accompanied by an illustration. An illustration is defined as a direct quotation of a participant's voice, field-work observation or other supporting data'.⁽⁵⁷⁾
(p.20)

Sandelowski and Barroso state that 'one of the greatest obstacles to integrating the findings of qualitative studies is the difficulty of finding them in these studies'.⁽⁵⁸⁾ (p.213)

Reports of quantitative research generally use a writing style known as the experimental scientific report where a logical sequential report outlines the problem, question, method findings and interpretation. In direct contrast, qualitative studies do not have a standard format and the structure of papers and the style of writing by authors means that often the presentation of findings can be found anywhere in the report or not clearly explained at all.

(58) (59)

As will be noted later in the results section of this thesis, there were significant variations in the style of reporting by each author which meant finding and understanding the authors' analytic interpretation of their results was a challenge during the extraction stage. This influenced the number of findings that could be included for categorisation and aggregation. In collaboration with my supervisors, review panel and by adhering to the JBI guidelines, findings were extracted that could be suitable for inclusion in a systematic review.

In three out of the seven papers, there were no sections titled as 'findings', and the authors analytic interpretation was not clearly defined or illustrated with examples. For example in the Cooper paper (2012), findings were in the results and discussion sections and in a table of 'illustrative insights from the simulation experience.'⁽⁶⁰⁾ (p.237) This meant that rich data had to be excluded from the systematic review because verbatim findings could not be extracted and compared with other studies.

In four of the papers, there were findings sections; however the writing styles of some authors lead to difficulties in identifying clear unequivocal statements that could be interpreted as findings. For example in the Sandahl paper (2013), the findings section was written in a narrative style with few verbatim illustrations.⁽²⁴⁾ In all papers, statements that

could be interpreted as findings were also found in the discussion and data sections of the study making it difficult to include them as findings appropriate for data extraction.

The lack of clarity and diversity in how the findings were written made it difficult to extract verbatim what the author had stated. It was tempting to interpret what the author stated to include more findings and illustrations, however meta-aggregation is about extracting the author's work accurately and truthfully, which resulted in having fewer findings in order to establish generalisability of findings across all the included papers. I considered that there were a total of one hundred and five potential findings evident across the papers however only thirty-seven verbatim examples could be included. Interestingly, I did not lose any categories during meta-aggregation by having less findings and am satisfied that the findings that could not be included for methodological reasons did not impact on the outcomes of the systematic review.

Data Synthesis

Qualitative research findings were pooled using JBI-QARI. This involved the aggregation and synthesis of findings to generate a set of statements that represent that aggregation, through assembling the findings (Level 1) rated according to their quality, and categorising these findings on the basis of similarity in meaning (Level 2 findings). These categories are then subjected to a meta-synthesis in order to produce a single comprehensive set of synthesised findings (Level 3 findings) that can be used as a basis for evidence-based practice.

Findings and illustrations (direct quotes) from the papers were graded to communicate the degree to which the interpretation of the researcher is credible using JBI-QARI. The levels of credibility were:

- Unequivocal (U) – evidence beyond reasonable doubt, including findings that are matter of fact, directly reported/observed and not open to challenge.
- Credible (C) – interpretations, plausible in light of data and theoretical framework. They can be logically inferred from the data but can be challenged because the findings are interpretive.
- Unsupported – findings are not supported by the data.

This systematic review followed the JBI review methods for qualitative synthesis. The seven studies considered for this review produced a total of thirty seven level one findings. Those findings with a credibility level of U or C were integrated into fifteen categories based on similar meanings. These categories then underwent a meta-synthesis in order to produce six meta-syntheses leading to a more comprehensive understanding of the phenomena of interest in this review.

Conclusion

By choosing the JBI model as a meta-aggregative approach for qualitative studies, there were challenges in the extraction of findings which is a common experience documented in the research literature when conducting qualitative systematic reviews. However the rigorous process using JBI-QARI, created an opportunity to analyse results in chapter four that captured a deeper understanding about the experiences of health professionals around teamwork education and to a synthesis of findings that lead to the development of recommendations for action; these are explained in chapter four.

Chapter 4: Results

Introduction

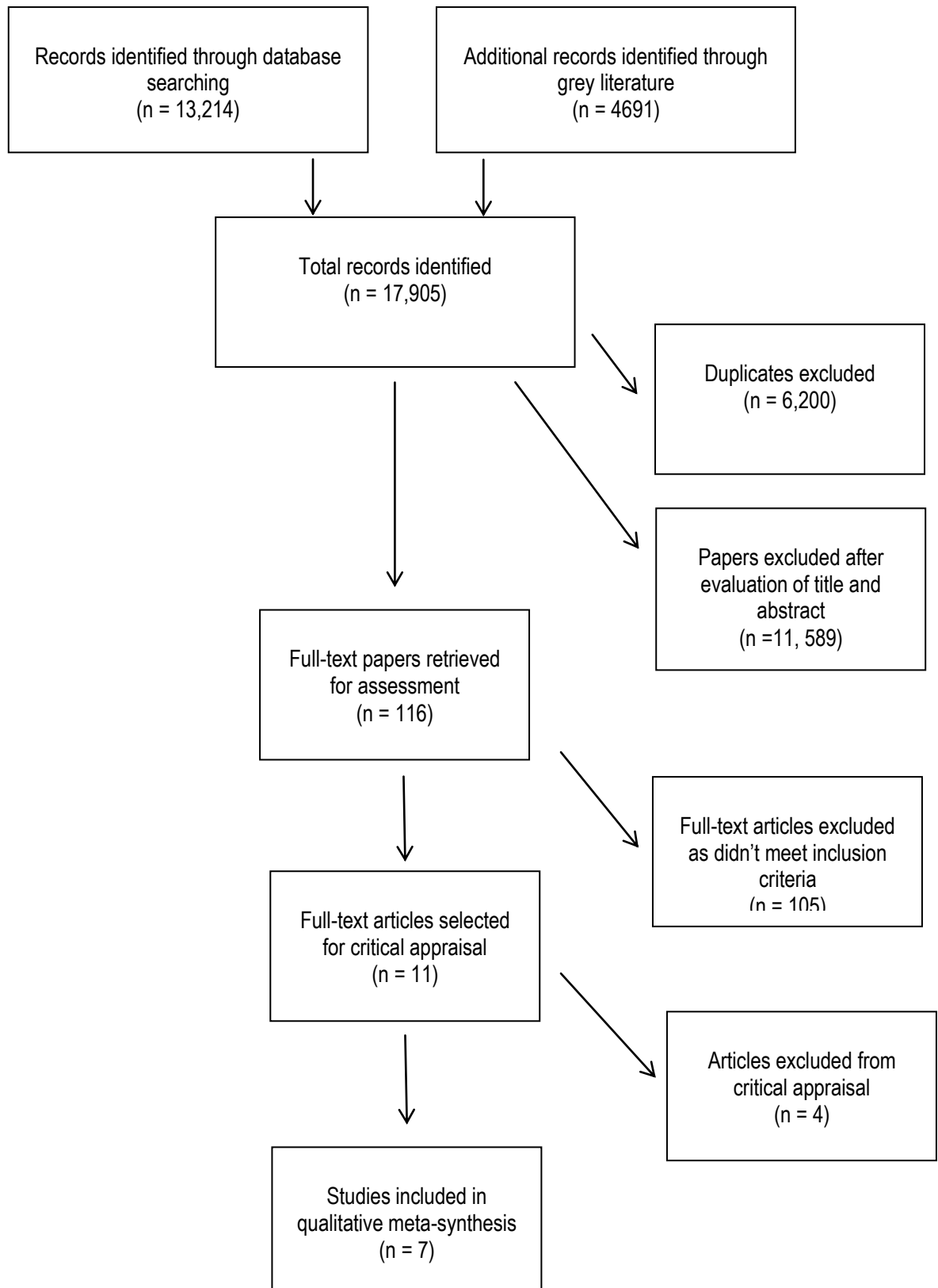
This chapter reports on the results of the systematic review, details the descriptions of the included and excluded studies, and the conclusions extracted with the levels of credibility assigned. The results of the syntheses are reported by presenting each synthesised finding. With each synthesised finding there is a visual JBI-QARI view, which demonstrates the relationships between the findings (level one finding), categories (level two finding) and synthesised finding (level three finding). The following evidence in the form of illustrations, observations and quotes has been written verbatim and are authentic to how they were presented in the primary data.

Results of Search

A comprehensive search was conducted from the 8th September to 17th October 2013 including databases and grey literature. Duplicates identified through the Endnote function and hand searching in Endnote resulted in studies being screened for their relevance by title and abstract.

In total, one hundred and sixteen papers were selected from the database and hand searches for the analysis of full text and eleven papers were selected for critical appraisal. The eleven papers were critically appraised by two reviewers and it was agreed that seven papers be included in the review. Four papers were excluded because they were of poor methodological quality as determined by the JBI-QARI appraisal tool for inclusion in the review (Appendix IV). The flow chart of the selection process for papers is outlined in Figure 1.

Figure 1: Selection process for papers



Description of included studies

A total of seven papers were included in the review (Appendix III). Of these seven papers, two were described as descriptive qualitative studies with no specifically stated methodology.^{20, 21} There were two mixed method studies with thematic analysis of qualitative results,^{22, 23} two ethnographic studies,^{24, 25} and one action research study.^{22, 26} One paper was a thesis²¹ and six were published papers^{20, 22-26} All of the participants in the papers were health professionals working in acute hospitals in western countries including the United Kingdom,^{22, 25} Canada,²⁴ Sweden,²⁶ and the United States of America.^{20, 21, 23}

All papers focussed on teamwork education where a range of health professionals (physicians, nurses, allied health) attended the sessions together. All teamwork education programmes in the papers focussed on improving communication, leadership and roles in teams.²⁰⁻²⁶ High fidelity simulations and debriefing was utilized as a strategy to facilitate teamwork education in five of the papers.^{20-23, 26} A detailed description of included studies is provided in Appendix V.

Methodological quality

The included papers were critically appraised using the JBI-QARI critical appraisal instrument (Appendix III). Prior to appraisal the primary and secondary reviewers met and agreement was reached on what constituted acceptable levels of information to allocate positive appraisal compared to a negative or unclear rating. It was agreed that studies needed to rate positively in research methodology (criteria 2,3,4,5) and that there needed to be adequate representation of participant's voices (criteria 8) and evidence of ethics approval (criteria 9).

The seven papers were strong methodologically in regards to stated philosophical perspective, research question and associated methods, research methodology and the conclusions that flowed from the analysis and interpretation of data. All papers had strong representation of the voices of participants in the studies and ethics approval from appropriate committees.⁽²⁰⁻²⁶⁾ Only two papers mentioned the location of the researcher culturally or theoretically ^(9, 14) and four papers stated the influence of the researcher on the research.^(9, 14, 23, 25) The JBI-QARI assessment results for the methodological quality of papers are in Table 1.

Table 1: JBI-QARI Assessment Results

Final Assessment Table

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Freeth, D., Ayida, G., Berridge, E. J., Mackintosh, N., Norris, B., Sadler, C., Strachan, A., 2009	N/A	Y	Y	Y	Y	N	Y	Y	Y	Y
Jeffrey B. Cooper, Sara J. Singer, Jennifer Hayes, Michael Sales, Jay Vogt, Daniel Raemer, Gregg S. Meyer, 2011	N/A	Y	Y	Y	Y	N	N	Y	Y	Y
Jones, Aled & Jones, Delyth, 2011	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sandahl, C., Gustafsson, H., Wallin, C. J., Meurling, L., Ovretveit, J., Brommels, M., Hansson, J., 2013	U	Y	Y	Y	Y	N	N	Y	Y	Y
Severson, Mary Ann, 2012	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y
Wehbe-Janek, H., Lenzmeier, C. R., Ogden, P. E., Lambden, M. P., Sanford, P., Herrick, J., Song, J., Pliego, J. F., Colbert, C. Y., 2012	N/A	Y	Y	Y	Y	N	N	Y	Y	Y
Rice, K. Zwarenstein, M. Conn, L. G. Kenaszchuk, C. Russell, A. Reeves, S., 2010	Y	Y	Y	N	Y	N	Y	Y	Y	Y
%	66.67	100.00	100.00	85.71	100.00	28.57	57.14	100.00	100.00	100.00

Meta-synthesis of Findings

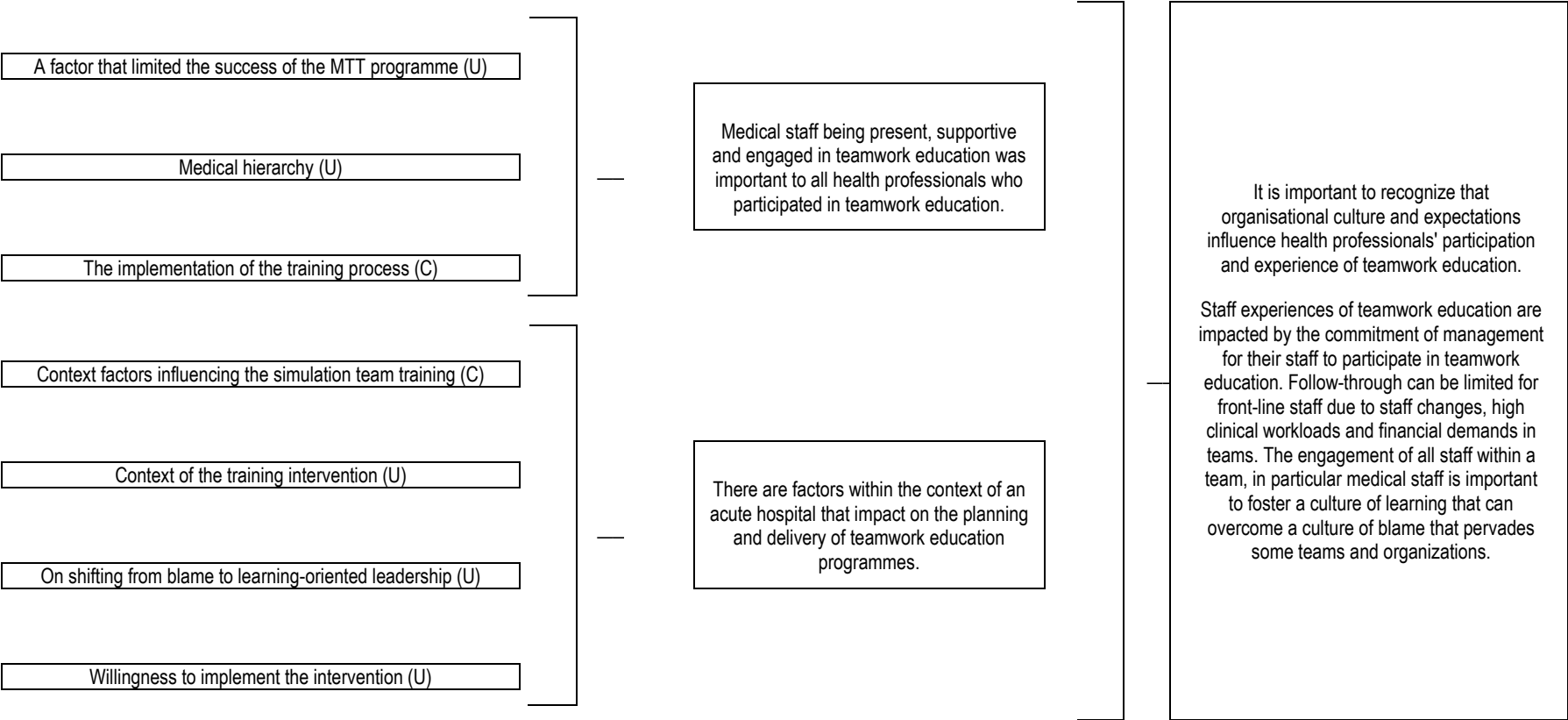
An analysis of the seven included papers resulted in thirty six findings. The findings were rated in terms of their credibility - (C) credible refers to findings that are plausible in the light of the data, (U) unequivocal relates to findings that beyond reasonable doubt and unsupported is when findings are not supported by the data. The findings were assigned to fifteen categories based on identified similarities across the papers. The categories were integrated into six meta-syntheses.

Meta-synthesis 1: It is important to recognise that organisational culture and expectations have an impact on health professionals' participation and experience of teamwork education.

The first synthesis is created from a total of seven findings and two categories and relates to the range of organisational factors that influence staff experiences of teamwork education delivered in a hospital setting.

Staff experiences of teamwork education are impacted by the commitment of management for their staff to participate in teamwork education. Follow-through can be limited for front-line staff due to staff changes, high clinical workloads and financial demands in teams. The engagement of all staff within a team, in particular medical staff is important to foster a culture of learning that can overcome a culture of blame that pervades some teams and organisations. Table 2 below outlines meta-synthesis 1.

Table 2: Meta-synthesis 1



Category 1: Medical staff being present, supportive and engaged in teamwork education was important to all health professionals who participated in teamwork education.

Finding 1: The implementation of the training process (C)

“Some of the doctors reported to management and in interviews that they had initially felt that the training was a covert test of their medical skills”. 26 p.180

Finding 2: A factor that limited the success of the MTT programme. (U)

“It’s always somewhat sad when things like this happen [i.e. non-attendance of doctors at the training due to last-minute rescheduling of work at the ward], because it creates apprehension in the group. [It’s frustrating....] to sit and expect a doctor to be there and none comes”. (Nurse) 26 p. 183

Finding 3: Medical hierarchy (U)

“It is unusual to ask [for another profession’s input] if you are not seeking advice. If you are giving an order, then their input is not warranted. (Physician, intervention leader) 24 p.356

Category 2: There are factors within the context of an acute hospital that impact on the planning and delivery of teamwork education programmes.

Finding 4: Context factors influencing the simulation team training (C)

Several of the interviewed physicians at the ICU indicated having a lack of time [for attending training] and unclear employment commitments with different principals. In interviews, a majority of the nurses reflected on difficulties related to participating in projects at the unit and insufficient time for required training and development. 26 p.181

Finding 5: Willingness to implement the intervention (U)

“ I would say the reaction was somewhat cooperative. They said, okay, fine, we will try. Not a hell of a lot of enthusiasm but it was also not outright rejection saying, well, that’s silly.”

(Attending physician, intervention leader). ^{24 p. 355}

Finding 6: On shifting from blame to learning-oriented leadership (U)

“The creaking sound you heard was us thinking about taking an event like this and taking an approach that is not blame-focused but learning-focused.”(Clinician, ER scenario) ^{23 p.}

237

Finding 7: The context of the training intervention (U)

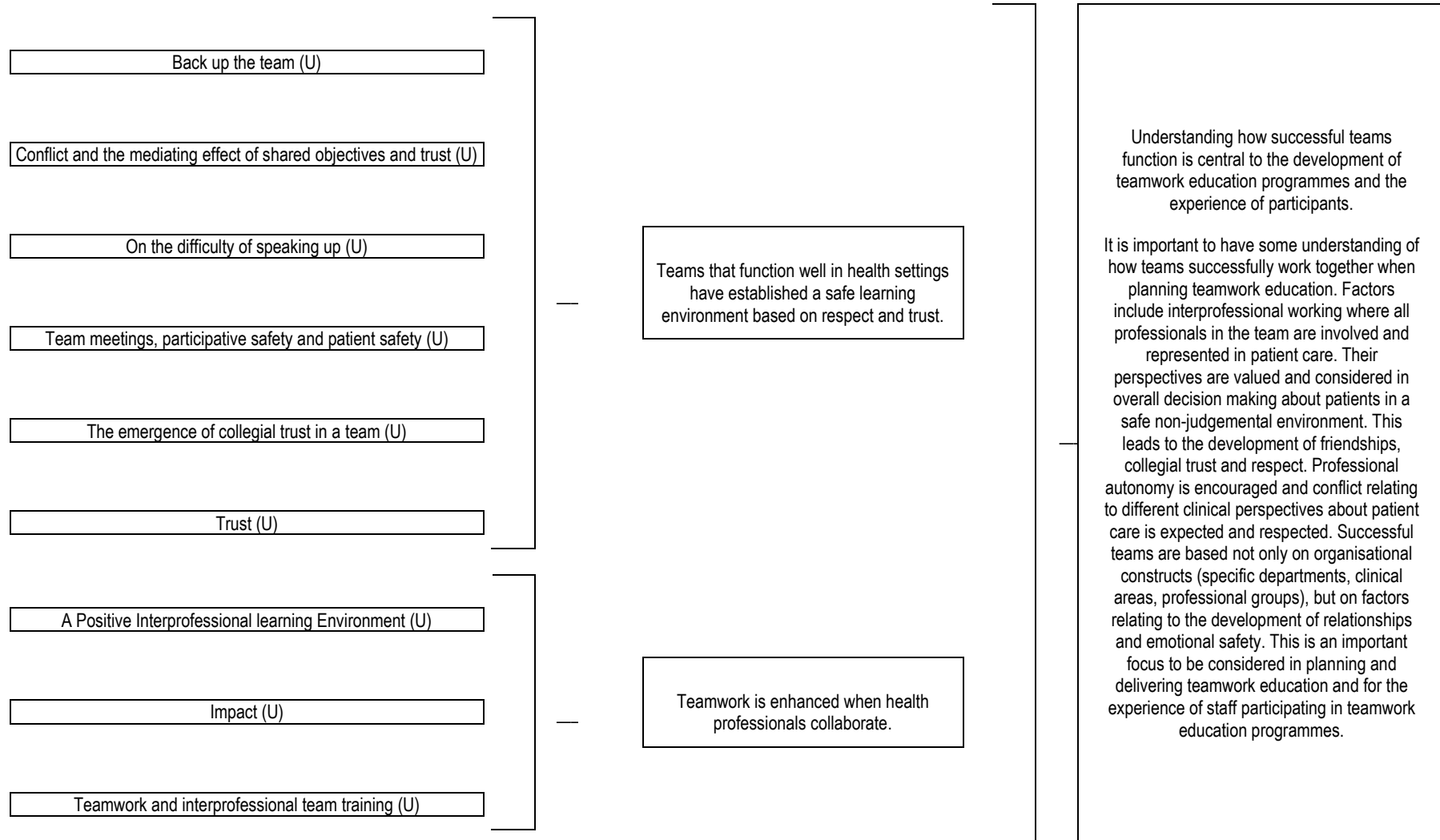
“It was important that the simulator was placed at our centre, not [way off somewhere else] like a distant satellite, but directly in our workplace”. ^{26 p.178}

Meta-Synthesis Two: Understanding how successful teams function is central to the development of teamwork education programmes and the experience of participants.

The second synthesis is created from a total of 14 findings and four categories and identifies how successful teams function and the implications for staff experiences of teamwork education.

It is important to have some understanding of how teams successfully work together when planning teamwork education. Factors include inter-professional working where all professionals in the team are involved and represented in patient care. Their perspectives are valued and considered in overall decision-making about patients in a safe non-judgemental environment. This leads to the development of friendships, collegial trust and respect. Professional autonomy is encouraged and conflict relating to different clinical perspectives about patient care is expected and respected. Successful teams are based not only on organisational constructs (specific departments, clinical areas, professional groups), but on factors relating to the development of relationships and emotional safety. This is an important focus to be considered in planning and delivering teamwork education and for the experience of staff participating in teamwork education programmes. Table 3 below outlines meta-synthesis 2.

Table 3: Meta-synthesis 2



Autonomy within the interprofessional team (U)

Make our role clear (U)

Team leader must know the plan and share the plan. (U)

On being welcoming rather than defensive (U)

Situation awareness (U)

Understanding the perspectives of team members is important in developing a positive team culture.

Well-functioning teams foster positive feelings in staff of being valued as a team member.

Category 3: Teams that function well in health settings have established a safe learning environment based on respect and trust. (U)

Finding 8: Back-up the team (U)

“We know where they stand. We know where to look for them because there is a specific spot for everybody, and they kind of give the rundown on what’s going to happen. We all have our own spot that we stand in. I don’t know how far that goes back, but in the Trauma Bay there’s a diagram of how that works. Where everybody goes so even if you didn’t hear them, you can look at the sticker, you would know that’s where they are always.” ^{21 p.73}

Finding 9: Conflict and the mediating effect of shared objectives and trust (U)

“The rigorous debate in the meeting was impressive e.g. when discussing the date for discharge for Mrs Hughes when Joanne (physio) clearly stated why she disagreed with Paul (consultant) when he said Mrs Hughes could go home Friday. Paul had somewhat reached the decision just by reviewing how Mrs Hughes was progressing in terms of ‘medical markers’ (U&Es, compliance/tolerance with medication) but Joanne soon pointed out the limitations experienced when Mrs Hughes was walking and with her overall posture and strength. There was no sense of ‘one-upmanship’ in any of this though, and the debate was very direct but not abrupt and was all about the patient rather than ‘scoring points’.
(Extract from field notes/reflections on MDT meeting 3) ^{25 p.178}

Finding 10: On the difficulty of speaking up (U)

“To feel safe enough that I feel I can challenge is important. We all have the same goal of patient safety. Whether it is because we know each other or we know we have the same values. For me it is feeling safe to speak up.” (Clinician, ER scenario) ^{23 p.237}

Finding 11: Team meetings, participative safety and patient safety (U)

“When patients such as this come in (pause) you know in the future then we should all aim to pool our ideas as soon as possible regarding the UA [unified assessment] paperwork and what needs to be sorted out (Audio-recording, Social Worker, MDM 4) ^{25 p.178}

Finding 12: The emergence of collegial trust in the team (U)

“Meeting more frequently together means that, as an example the ward manager gets to trust that the physiotherapist is going to do what they say. That’s why this has been a success. Trust does make a difference, you develop friendships then as well
“(Occupational therapist) ^{25 p.177}

Finding 13: Trust (U)

“We had a good level of respect for one another in the room.” (RT) ^{21 p.73}

Category 4: Teamwork is enhanced when health professionals collaborate. (U)

Finding 14: A Positive Interprofessional Learning Environment (U)

“It’s really helped me to see it from the consultants’ point of view, and it’s really helped me to understand [their] pattern of thinking. . . What has really helped me as well is that he was there in the role play to be able to witness what midwives actually do in situations like that, because in most instances. . . they’re not usually there, to see things, you know, happening . . . now I know how to approach and discuss with them better, when planning care for the client.” (Midwife, DS3) ^{22 p.10}

Finding 15: Impact (C)

All of the interviewees said that they were positive towards MTT and the idea of improving patient safety by achieving better inter-professional communication and collaboration. They considered this to be a beneficial learning experience. ^{26 p. 183}

Finding 16: Teamwork and interprofessional team training (U)

“The inclusion of the anesthesia resident and the ICU nurse really helped out with drug and rhythm knowledge.” ^{20 p.46}

Category 5: Understanding the perspectives of team members is important in developing a positive team culture. (U)

Finding 17: Autonomy within the interprofessional team (U)

“It’s best to keep professional expertise working within the overall team. It’s like adding our little bit to the pot. As therapists as opposed to nurses or doctors we see things the others don’t and it adds to the team.” (Physiotherapist) ^{25 p.179}

Finding 18: Make our Role Clear (U)

“The particular points that I think were useful were the fact that we really have to make our role clear and we have to stay in that role. We can’t just trigger or respond where you can go here or there, to stay in that role, to perform that role to the best of our ability and to communicate effectively.” (MD) ^{21 p. 71}

Finding 19: Team leader must know the plan and share the plan. (U)

“I feel they did a good job because in the beginning, and this is what we do in the real situation too is, before they arrive, they come in and they start by introducing themselves and say, I am going to be the team leader today.” (RN) ^{21 p.72}

Category 6: Well-functioning teams foster positive feelings in staff of being valued as a team member. (U)

Finding 20: On being welcoming rather than defensive (U)

“When someone asks you to talk, you need to stop writing on the computer and pay attention to them.” (Clinician, ER scenario) ^{23 p.237}

Finding 21: Situation awareness (U)

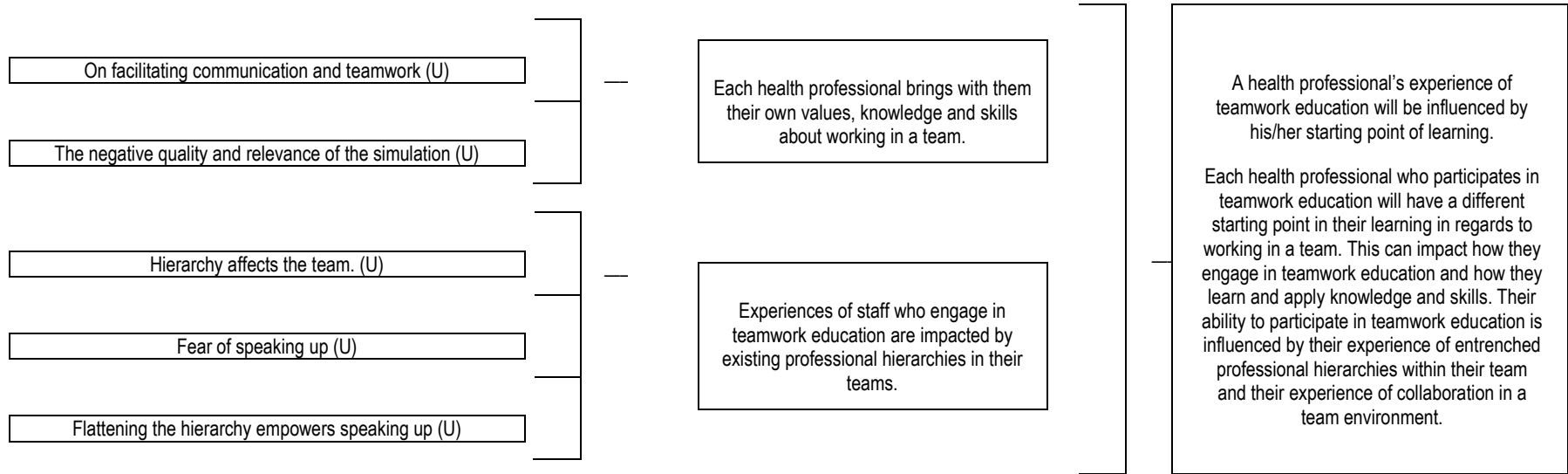
“You can see that happening, and so if something is going on in the airway, they are all focused on the airway; but in reality you have couple guys for the airway you should be able to multitask. Those guys do that; but there is still other stuff that needs to be done; and just because you are taking care of it doesn’t mean that I have to stand there and watch you. Just some things like that. So I think there is a lot lessons from the dynamic standpoint. I do think so because of that experience. I think with anything in life experience brings a lot of positive assets to your practice. Whether it is how to deal with conflict, treatment modalities, or how you approach the patient. It helps a lot just your comfort level.” (RN) ^{21 p.73}

Meta-Synthesis Three: A health professional's experience of teamwork education will be influenced by his/her starting point of learning.

The third synthesis is created from a total of five findings and two categories and acknowledges that there are different starting points of learning for health professionals around teamwork and this will impact on their experience of teamwork education.

Each health professional who participates in teamwork education will have a different starting point in their learning in regards to working in a team. This can impact how they engage in teamwork education and how they learn and apply knowledge and skills. Their ability to participate in teamwork education is influenced by their experience of entrenched professional hierarchies within their team and their experience of collaboration in a team environment. Table 4 below outlines meta-synthesis 3.

Table 4: Meta-synthesis 3



Category 7: Each health professional brings with them their own values, knowledge and skills about working in a team. (U)

Finding 22: On facilitating communication and teamwork (U)

“One of the interesting things about our group is that this group has probably never been together around a table because we come from different divisions and clinical expertise - Everyone’s used to leading from their own perspective.” (Clinician, ER early session) ^{23 p.237}

Finding 23: The negative quality and relevance of the simulation

“I really didn’t connect with the exercise from this morning and how it related to [achieving out team’s project objectives].(Clinician, ER scenario) ^{23 p.237}

Category 8: Experiences of staff who engage in teamwork education are impacted by existing professional hierarchies in their teams.

Finding 24: Hierarchy affects the team (U)

“There’s also a hierarchy at play where depending on individual’s relationship with the other people in the trauma bay as well as their role and their own personal characteristics.” (RN) ^{21 p.74}

Finding 25: Fear of speaking up

“Some individuals might be hesitant to speak up because they don’t want to be chastised or put down if they are wrong, or even if they are right and someone disagrees with them” (RN) ^{21 p.75}

Finding 26: Flattening the hierarchy empowers speaking up

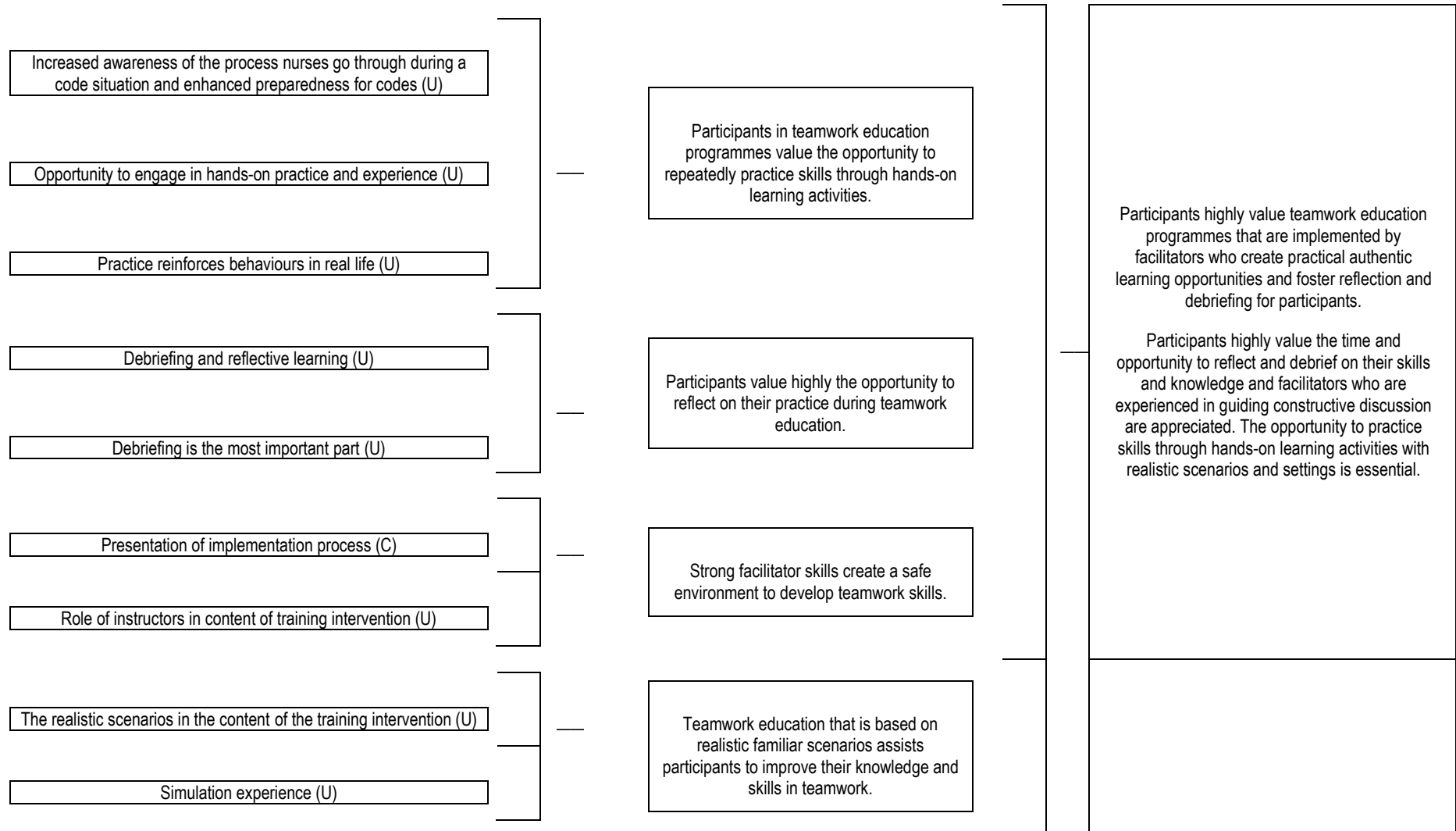
“This is what we found: does everyone agree? Are we missing anything? It’s that last line that often gets left out. That is pretty critical. It gives everyone the opening to speak up if something doesn’t sound right.” ²¹ p.77

Meta-Synthesis Four: Participants highly value teamwork education programmes that are implemented by facilitators who create practical authentic learning opportunities and foster reflection and debriefing for participants.

The fourth synthesis is created from a total of nine findings and four categories and relates to elements of teamwork education that create a positive learning experience for health professionals.

Participants highly value the time and opportunity to reflect and debrief on their skills and knowledge and facilitators who are experienced in guiding constructive discussion are appreciated. The opportunity to practice skills through hands-on learning activities with realistic scenarios and settings is essential. Table 5 below outlines meta-synthesis 4.

Table 5: Meta-synthesis 4



Category 9: Participants in teamwork education programmes value the opportunity to repeatedly practice skills through hands-on learning activities.

Finding 27: Increased awareness of the process nurses go through during a code situation and enhanced preparedness for codes (U)

“changing tasks during a code rapid or blue to familiarize oneself with the many facets of the codes and learning the function of the RRT. . . and all the things I have to do in calling an RRT (i.e., my responsibilities).” ^{20 p.46}

Finding 28: Opportunity to engage in hands-on practice and experience (U)

“hands- on training [was] the most valuable part of the training. Changing roles and running several scenarios is so important.” ^{20 p.46}

Finding 29: Practice reinforces behaviours in real life (U)

“This process needs to be practiced over and over to even feel remotely comfortable. I think simulation is wonderful for all involved. I’m a huge supporter of multidisciplinary education and really feel it will improve patient care.” (RN) ^{21 p.79}

Category 10: Participants value highly the opportunity to reflect on their practice during teamwork education.

Finding 30: Debriefing and reflective learning (U)

“taking time to re- view and learn; being able to have the time to step back and review the situation,” ^{20 p. 47}

Finding 31: Debriefing is the most important part (U)

“Debriefing is the most important part. Because it allows you time to reflect on things that went well, and didn’t go well, and how you need to change your practice.” (MD) ^{21 p.80}

Category 11: Strong facilitator skills create a safe environment to develop teamwork skills.

Finding 32: Presentation of implementation process (C)

“Interviews with the managers and group leaders confirmed that the information had been received positively by the staff members, although it was not clear whether everyone had understood the implications.” ^{26 p.179}

Finding 33: Role of instructors in content of training intervention (U)

“Your review what happened, help each other, and discuss together with the instructors how it can be done better. That gives you a chance to improve. Your leave with pride, with your head held high, feeling that you’ve actually done something better.” ^{26 p.178}

Category 12: Teamwork education that is based on realistic familiar scenarios assists participants to improve their knowledge and skills in teamwork.

Finding 34: The realistic scenarios in the content of the training intervention (U)

“Most of the interviewees reported that the scenarios were realistic. Furthermore many said that they were surprised how soon the team acted very seriously towards each other and towards the mannequin in the training, as if it had been a real-life situation”. ^{26 p. 178}

Finding 35: Simulation experience (U)

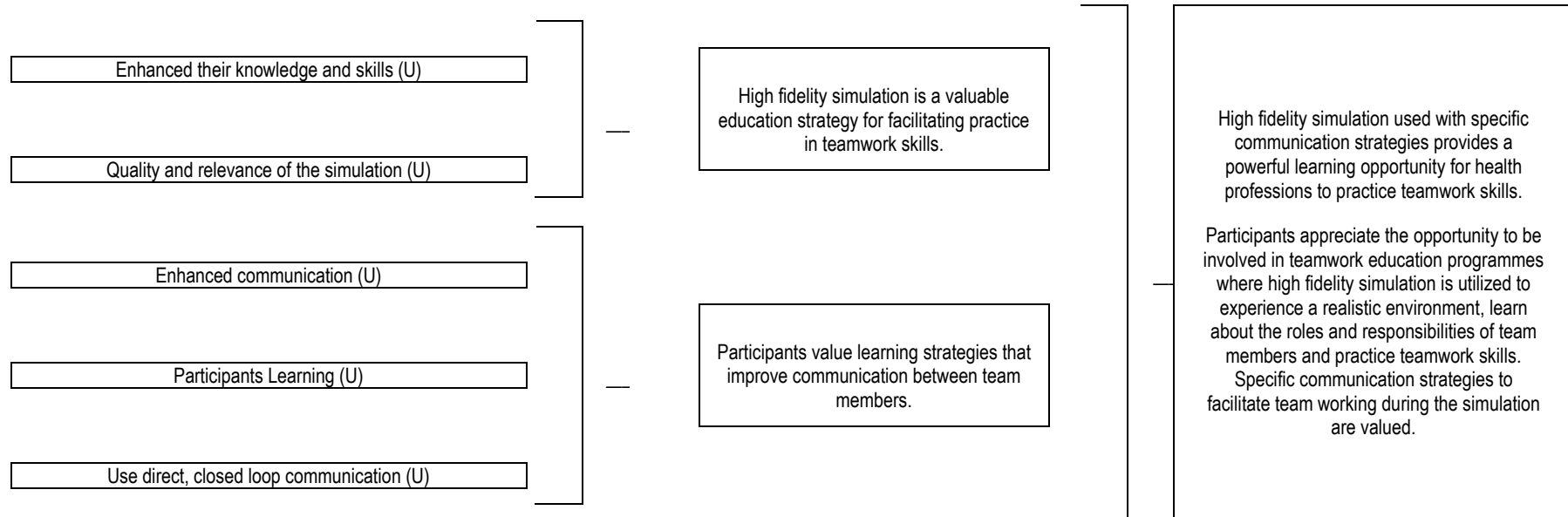
“Sim- Man made it great to practice and build confidence.” ^{20 p.47}

Meta - Synthesis Five: High fidelity simulation used with specific communication strategies provides a powerful learning opportunity for health professions to practice teamwork skills.

The fifth synthesis is created from a total of four findings and two categories and relates to strategies used in teamwork education to facilitate the development of teamwork for health professionals.

Participants appreciate the opportunity to be involved in teamwork education programmes where high fidelity simulation is utilised to experience a realistic environment, learn about the roles and responsibilities of team members and practice teamwork skills. Specific communication strategies to facilitate team working during the simulation are valued by participants. Table 6 below outlines meta-synthesis 5.

Table 6: Meta-synthesis 5.



Category 13: High fidelity simulation is a valuable education strategy for facilitating practice in teamwork skills.

Finding 36: Enhanced their knowledge and skills (U)

“allowing them to identify “weaknesses/shortcomings and attempting to learn and build on mistakes or lack of knowledge in regards to uncomfortable issues/areas,” 20 p.46

Finding 37: Quality and relevance of the simulation (U)

“Sim- Man made it great to practice and build confidence” 23p.236

Category 14: Participants value learning strategies that improve communication between team members.

Finding 38: Enhanced Communication (U)

” learning to work together and listening to the team leader” 20 p.46

Finding 39: Participants learning (U)

“The lesson is that I now know in moments of crisis I should be proactive in communicating with the lead of that crisis about any observations I note, even if I think he/she is aware of it.” (Obstetrician, DS1) 22 p.101

Finding 40: Use direct, closed loop communication. (U)

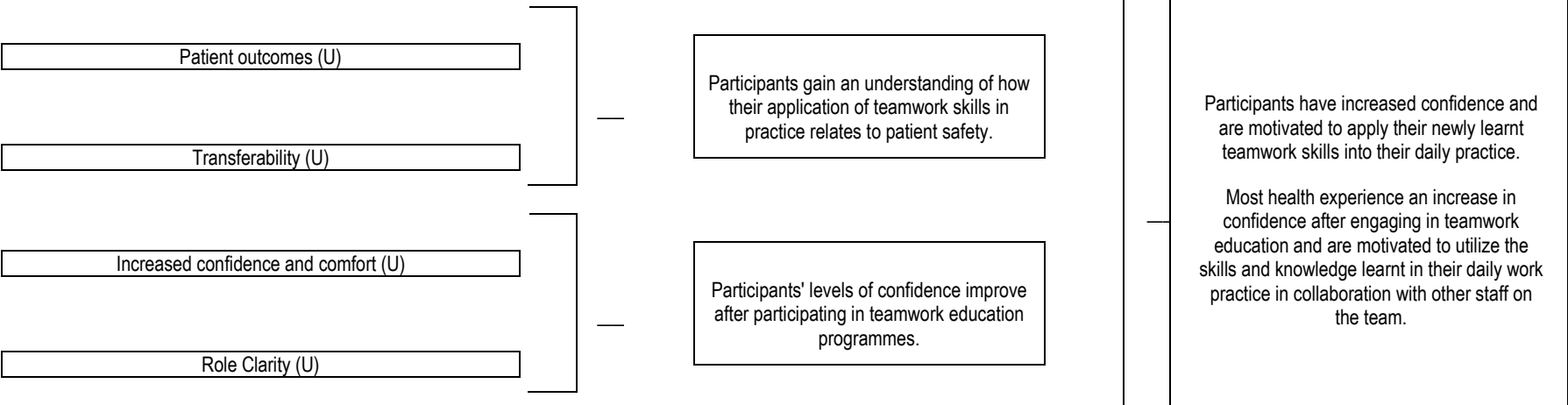
“I’m going to speak loudly, know my role, and be more assertive.” (RN) 21 p. 77

Meta-Synthesis Six: Participants have increased confidence and are motivated to apply their newly learnt teamwork skills into their daily practice.

The sixth synthesis is created from a total of four findings and two categories and relates to the motivation to apply new skills and knowledge learnt during the teamwork education programme into daily practice.

Most health professionals experience an increase in confidence after engaging in teamwork education and motivation to utilise the skills and knowledge learnt in their daily work practice. Table 7 below outlines meta-synthesis 6.

Table 7: Meta-synthesis 6



Category 15: Participants gain an understanding of how their application of teamwork skills in practice relates to patient safety.

Finding 41: Patient Outcomes (U)

“being able to perform better as a team to better help the patient.” ^{20 p.47}

Finding 42: Transferability (U)

“I think personally and [anesthetist2] was saying this as well . . . certainly the 2 of us there were not aware that they did drills on labour ward. . . First of all we are aware of that now and secondly, I think we may want to get a bit more involved and maybe develop some of the scenarios with the midwives as well, because potentially if they are led by 1 group they may focus on only a limited range of problems.(Anaesthetist, DS4) ^{22 p.1}

Category 16: Participants' levels of confidence improve after participating in teamwork education programmes.

Finding 43: Increased confidence and comfort (U)

“I feel more confident in knowing my role during a Rapid/Code. I also feel more confident in using the crash cart and knowing the location of things in the crash cart.” ^{20 p.46}

Finding 44: Role clarity (U)

“I’ve never been in a code before and I feel this class has been extremely helpful in letting me not only know my role but what to expect of everyone else. I don’t feel as terrified as I did about being in a code before taking this class.” ^{20 p.46}

Conclusion

The results of seven papers lead to the pooling of forty-four findings that resulted in sixteen categories and six meta-syntheses. They bring to light a broad range of important issues that influence the experience of health professionals who participate in teamwork education programs in a range of acute hospital settings across the western world.

Chapter 5: Discussion and Conclusion

Introduction

The aim of this qualitative systematic review was to gain insight and understanding into health professionals' experiences of participating in teamwork education programmes in acute hospital settings. Findings highlight the need to go beyond focussing on teamwork education programmes as specific interventions that can solve teamwork issues to viewing them as part of a solution within a complex health care system where health professionals are encouraged, motivated and have the knowledge and skills to communicate and collaborate effectively when caring for consumers.

I have developed a diagram (Figure 2) to illustrate six findings as themes that influence the experiences of health professionals who participate in teamwork education programmes. Each circle represents a theme. The two-way arrow represents how the experience of participants can also influence the findings. The diagram also represents how the discussion will be presented with each finding discussed in detail.

Figure 2: Themes that Influence Teamwork Education

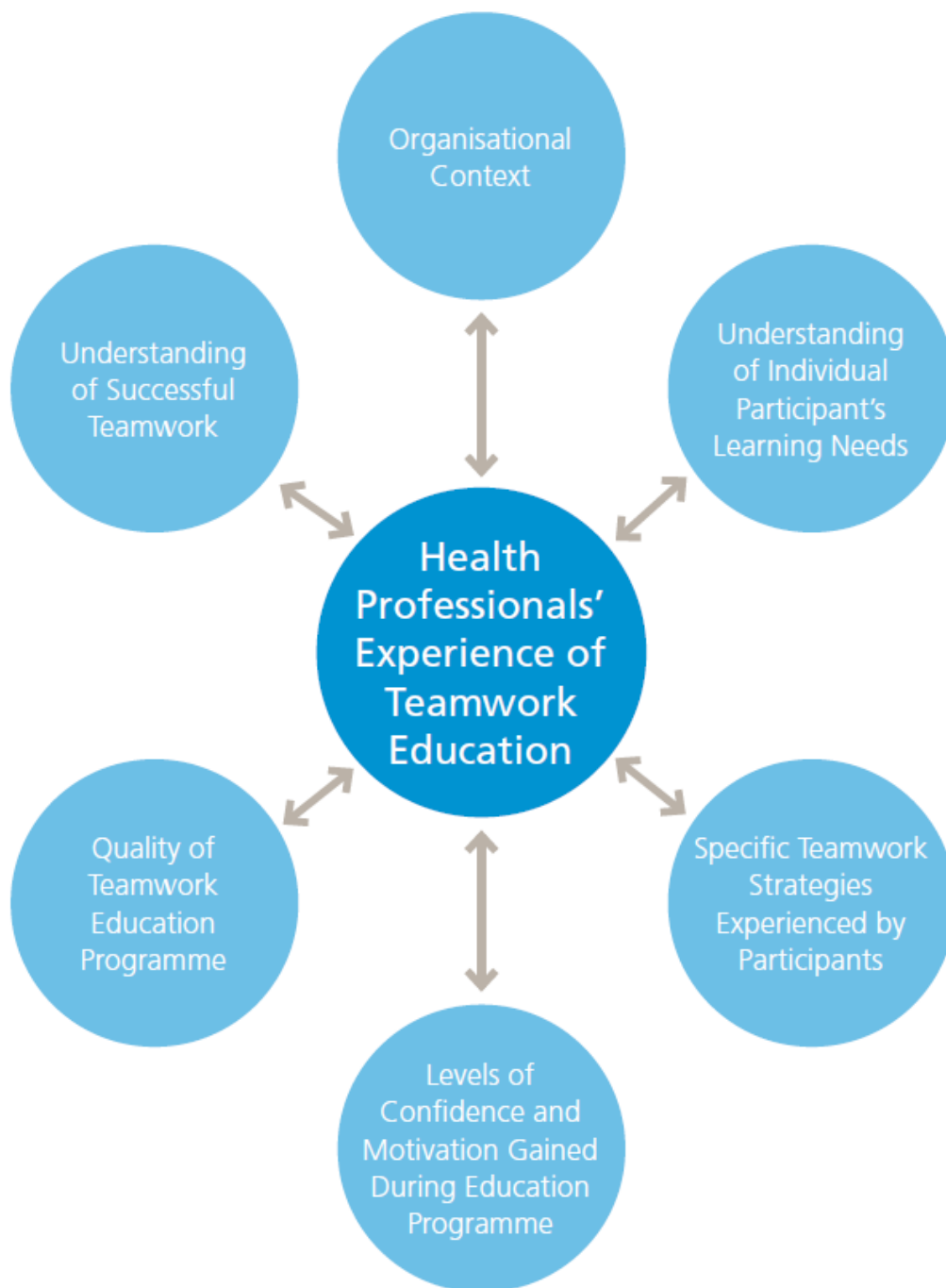


Figure 2 depicts the six synthesised findings as themes that influence the experiences of health professionals who participate in teamwork education programmes in acute hospital settings.

Organisational Context

The first synthesised finding identified that the organisational context where teamwork education programmes are implemented has a significant influence on how health professionals engage with and experience learning about teamwork. Health professionals' experiences in the review were impacted by the level of executive support demonstrated within the organisation and the clarity of executive goals and objectives for promoting and embedding teamwork. Health professionals described that there were a number of initiatives occurring at the same time around improving teamwork communication and collaboration skills within the hospital that created competition for their involvement. This was confusing and repetitious for staff and diluted the power of a shared language and goals around improving teamwork.⁽²⁴⁾ The engagement and attendance of team members was reliant upon the level of support provided by managers to free up staff to attend education opportunities. Staff cutbacks and absences by staff in training (common for medical staff) due to clinical demands and financial constraints diminished and constrained the experience of teamwork education for all health professionals in the team. ^(23, 24)

In two of the studies in the review, teamwork education was combined with interventions to change team processes with the aim to improve team communication and collaboration. Interventions included initiating interprofessional team meetings, introducing communication strategies at handover and physically changing a ward environment to move health professionals closer together. In one study, where there was total support for the process from the organisation, ward managers and staff, all health professionals of the team experienced positive outcomes and developed a shared language, expectations and understanding about teamwork.⁽¹⁴⁾ In contrast, the other study revealed that due to a lack of engagement of managers and senior staff and direct opposition by some health

professionals, the intervention was not embraced by the team and no changes to communication or collaboration practice occurred.⁽⁹⁾

The influence of the organisational context on health professionals experience of teamwork education is a significant finding in the review and is consistent with information from a number of international studies including Almeida et al who report on what has been learnt in the USA over the past ten years in the roll out of the TeamSTEPPS® programmes in acute hospitals and other health organisations. The training programme alone did not lead to the transfer of newly learned teamwork skills and success required participants to be well prepared for teamwork education, that there be a clear vision and objectives at executive and leadership levels of the organisation and a supportive and positive workplace environment for staff to practice new teamwork skills.⁽¹⁰⁾

Understanding of Successful Teamwork

The second synthesised finding highlighted that the level of understanding health professionals have in what it means to work in a team and how successful teams function, is central to the development and delivery of teamwork education programmes. Team working is a term used often in health care however it is a complex concept and individual health workers are often unclear about what it is and they are expected to work in teams that have no clear purpose, no specific roles for team members or clarity about who is a member of the team.⁽¹⁴⁾ Educators facilitating the MOSES program reported that participants 'starting points' in their understanding of conceptual and practical skills around teamwork impacted on how much depth and understanding they gained during the simulation and also in debriefing discussions after the simulation.⁽²³⁾ (p.102)

A strong theme reported by health professionals was that successful teamwork was based on the development of trust amongst team members.^(14, 23, 24, 61) Jones and Jones describe

'team working' as 'not an abstract managerial construct but an emotionalised and negotiated by product of working closer as a group'.^{(14) p.180} Teamwork is underpinned by the presence of 'collegial trust' within a team where staff behave professionally and perform actions that they had said they would do. This takes time and creates a safe working environment. ^{(14) (p.177)} Teamwork was stronger in a climate of 'participative safety' where there was respect, 'interpersonal warmth and information sharing without fear of recrimination from other team members'. ^{(14) (p.178)}

All education programmes in the review facilitated training with interprofessional teams comprised of health professionals such as doctors, nurses, midwives and allied health who each hold different views and perspectives on how patient care should be managed. Health professionals described teams that were functioning well as being able to value the professional autonomy of each staff member. They believed that conflict was accepted as an 'inevitable consequence of working across professional boundaries' but is made easier when teams are working towards the attainment of shared objectives.^{(14) (p.179)} Conflict that is based around patient care and that is managed constructively can also lead to innovation and creativity, as people will take calculated risks to share and try out new ideas and projects.⁽¹⁴⁾ In teams where there is a lack of conflict, teams may develop a culture of 'groupthink' where there is a focus on consensus and agreement and a lack of debate and critical thinking in how to solve a problem.^{(3) (p.64)}

Lyubovnikova and West highlight that individual team members experience higher team member satisfaction, performance, engagement, health and wellbeing when they work in a team that is positive, effective and supportive. This is highly valued in an acute hospital setting where work can often be characterised by pain, grief and loss for consumers and their families. Research in health care shows that staff that work in unsupportive teams, have lower levels of job satisfaction and often leave their work.⁽⁷⁾

Health professionals in all studies included in this review valued the opportunity to practice the teamwork skills of establishing a team leader, understanding the roles of members in teams and sharing their particular knowledge and expertise to improve patient care. These are foundational skills for successful teamwork. (9, 14, 23-25, 60, 61) These findings align with those of Reeves et al in Canada who state that 'ideal interprofessional teamwork' is based on a range of 'key dimensions including clear goals (the primary goal being effective patient care), shared team identity, shared commitment, clear team roles and responsibilities, interdependence between team members and integration between work practices.'⁽³⁾ (p.4) Reeves et al believe that inter-professional teamwork is the ideal however 'teams function in the real world, and as a result they are affected by a 'cocktail' of individual, professional, organisational, educational and structural factors which can impede their performance and function'. (3) (p.4)

Education facilitators must be aware of what comprises successful and unsuccessful teamwork in an emotional and functional sense so that they can identify and foster successful teamwork in their education programmes. Teamwork education is not only about teaching specific strategies and tools for staff. The education programme needs to take into account the environment in which teamwork is occurring.⁽²⁴⁾ Health professionals reported positive experiences in their participation of programmes where education facilitators understood that it was important to model and create a safe, trusting learning environment where professional autonomy was respected and differing opinions valued and shared.⁽²³⁻²⁵⁾

Understanding of Individual Participants' Learning Needs

The third synthesised finding focussed on the notion that each participant who attends teamwork education will have his/her own experience, knowledge, skills and values around teamwork and this will influence engagement in the learning process. The willingness to work in a collaborative manner must also be present and motivation to engage in inter-professional teamwork is different for each individual.⁽³⁾

Reeves et al highlight that important relational factors for individual members of teams in health care are 'professional power, hierarchy and socialisation'.^{(3) (p.58)} Inter-professional teamwork in practice requires the sharing of power in order to communicate and collaborate. The concepts of teamwork and teamwork education often refer to behaviours and skills that lead to the practice of equality in regards to information sharing and collaboration between professionals within teams and this may mask the 'underlying power differentials'.^{(3) (p.60)} Gibbon states that 'in reality team members do not share equality of status and power, but this is part of the rhetoric of teamwork and is misleading at best, and patronizing at worst.'^{(62) (p.248)}

Health professional's perception of where they belonged in their team hierarchy influenced their engagement in the teamwork education programmes in the review.^(9, 14, 25) Within each health profession there is also an established internal hierarchy where based on years of experience and seniority, senior staff supervise less experienced staff. This can be beneficial to supervision and professional development but it can lead to problems in teamwork, if the hierarchical structures in place do not encourage and support less powerful members from contributing to communication and collaboration in the team.⁽³⁾ Reeves et al states that if there are power differentials within teams that are not managed well, there can be resistance and undermining of power by some team members who are

usually at a lower status within the team. This can be played out in non-attendance at team meetings and potentially non-attendance at teamwork education programmes⁽³⁾ Health professionals reported that the presence of professional hierarchies with medical professionals occupying the dominant position within their teams, impacted on teamwork and their experiences of teamwork education programmes.^(9, 14, 23-25, 60, 61) The behaviours and values of medical staff were identified as having a significant influence on the experience of all participants in the teamwork education programmes. When doctors were supportive of the aims and outcomes of the program, valued developing an understanding of each professional role and practising skills that created a shared understanding of how to communicate and collaborate, participants' experiences were positive.^(14, 25, 31) Where doctors were not supportive of the implementation of the education program, did not attend, took on an authoritarian role, were critical of facilitators or other staff, participant's experiences were negative and some expressed disappointment of missed opportunities to learn new skills and work with colleagues to improve teamwork.^(9, 24)

Professional socialisation is a process in which 'individuals acquire the norms, values and attitudes associated with a particular professional group'.⁽³⁾ (p.61) The process of professional socialisation begins in undergraduate training and can have a significant influence on healthcare professionals as they identify and align themselves with their own professional group. Some health professionals in the review believed that the practice of interprofessional collaboration in a team or between teams was seen as a low priority.^(9, 60) American researchers Salas et al highlight this, stating that often physicians may be team leaders in the acute hospital setting but may consider themselves as not actively part of the team. If leaders (often nursing and medical staff) within hospital teams do not actively promote teamwork then the experience of teamwork education programmes by staff in

those teams will be different to those staff where teamwork is championed and reinforced by their team leaders.⁽⁶³⁾

Facilitators of education programmes in the review observed that health professionals who had negative experiences and motivations around teamwork found it more difficult to engage in teamwork education because entrenched patterns of socialisation and communication were hard to change. ^(23, 24) Assessment and preparation in regards to the learning needs of health professionals around teamwork education will assist facilitators to plan and implement their programmes and provide a relevant learning environment for health professionals to develop their knowledge, values and skills around teamwork. This will enhance participants learning and transfer of practice into the workplace.⁽⁴⁰⁾

Quality of Teamwork Education Programme

The fourth finding examined how teamwork education programmes are designed and what educational processes assisted health professionals to develop skills and knowledge around teamwork. In the review, health professionals identified specific elements of the programmes that facilitated learning and positive experiences for them individually and as a group. These were the development of clear learning goals, skilled facilitators who create a safe learning environment, an authentic learning environment that is similar to the workplace, opportunities to practice skills and the opportunity to reflect afterwards about how to improve next time.^(23, 25, 31, 60, 61) Health professionals valued having a clear understanding of the purpose of the education programme and how it related to their work. In education programmes where simulation was used, it was important to be clear that the scenarios were about developing teamwork skills and not a test of clinical skills to allay fears of staff that they were being judged. It was also important to be explicit about the process of simulation and roles of participants in the process. ^(24, 60) Health professionals

identified that it was very important for facilitators to create a safe relaxed environment that enabled concentration and a fun atmosphere.⁽²⁴⁾ This was crucial in teamwork education programmes where participants were a group of health professionals who did not work together on a daily basis and were required to come together as a team for specific purposes e.g. health care managers dealing with organisational issues or health professionals who work in rapid response events. ^(60, 61) All health professionals valued the opportunity to work in a learning environment that was similar to their own workplace. This was the case in studies where education programmes utilised high fidelity simulation. Health professionals valued the opportunity to attend training in their own hospital where the setting was familiar and staff knew all equipment used in the simulation scenarios. ^(24, 60, 61) Health professionals enjoyed the opportunity to be able to practice skills, make mistakes, and improve skills in a safe environment and to then reflect on improvements to practice after the simulation. The use of video to observe individual skills during simulations was a powerful tool for reflection, having the opportunity to evaluate and then continue to improve skills. Education facilitators that had strong skills in debriefing and promoting the process of reflection were appreciated by staff as they believed that they had little time or encouragement to reflect on their clinical and teamwork practice in their daily work. ^(23-25, 60, 61)

This finding is similar to data obtained through a meta-analysis by Salas and colleagues in 2008 who examined 37 articles where all forms of team training in different countries was examined. A qualitative review revealed that 86% of the articles used hands on practice or simulation to provide participants opportunity to practice new team skills. Health professionals as adult learners value teamwork programmes that promote active learning to scenarios that apply to their clinical practice. Scenarios need to be scripted to foster desired behaviours and also to situations where outcomes do not go according to plan

where teamwork practice is guided through these situations.⁽⁶³⁾ Eighty-one percent of articles reported the use of feedback to participants so that they can reflect on their performance. Feedback that was explicit, timely, constructive and encouraged reflection about changes to practice, lead to very positive experiences for participants of teamwork education programmes.^(23, 61, 63)

Minimal information was written in papers included in the review around the education and organisational support that education facilitators receive in order to plan, deliver and evaluate teamwork education. There was also limited evidence about the individual experience, knowledge, skills and values of the facilitators who conducted teamwork training. Freeth et al report that health professionals who attended a teamwork education programme appreciated an education facilitator who had 'effective facilitation skills that supported and enabled learning, sometimes commenting that reviews of performance in clinical practice were more likely to be pejorative'.⁽²³⁾ (p.101) Professional backgrounds of facilitators in the review ranged from clinical experts to experienced actors in simulation with no clinical background.^(23, 24, 60) Cooper et al believed that confidence and acting ability were essential skills for education facilitators conducting realistic clinical simulations around teamwork.⁽⁶⁰⁾ The need for facilitators to have high levels of clinical expertise that related to technical skills being demonstrated in the simulations was mentioned in other papers.^(24, 61) Two papers referred to education facilitators having a combination of clinical and education skills, though these skills were not specified.^(23, 61) The lack of available evidence in this review about the qualities and skills of education facilitators who plan, implement and deliver teamwork education programmes is representative of the limitations in finding information in the broader literature.

Specific Teamwork Strategies Experienced by Participants

The fifth synthesised finding identified that high fidelity simulation used with specific communication strategies was the most common educational tool utilised by organisations and education facilitators in the review. Five out of the seven papers reported on teamwork training using high fidelity simulation.^(23-25, 60, 61) Health professionals reported that simulation provided a familiar environment that stimulated learning opportunities for them to practice teamwork skills through the use of mannequins, working medical equipment and other participants. The simulation experience that focussed on teamwork and communication strategies was a positive experience for most participants though some health professionals (in particular medical staff) felt threatened that their clinical skills were being scrutinised. ⁽²⁴⁾

It is important that simulation based training is based on clear and measurable learning outcomes so that participants have clarity on what is expected of them when commencing training. ⁽⁶³⁾ Health professionals' experience of simulation was positive when they clearly understood their role, the role of an observer and expectations about reflection and debriefing after the simulation. ⁽²⁵⁾ Most health professionals reported that they were able to engage in varying degrees with the simulated scenarios and operated as though they were in realistic situations.^(23, 24) This behaviour is known as the suspension of disbelief.⁽⁶⁴⁾ The ability to suspend disbelief was influenced by the level of preparation provided by the facilitators prior to beginning the simulation.^(24, 60) Health professionals highly valued the opportunity to receive feedback, debrief in groups and reflect on how to improve their practice. This was seen as an opportunity that was not available in their work environments.^(23, 25, 61) The experiences of health professionals in the review to be able to repeatedly practise new skills, think about how they went, work out solutions and try again emulates Kolb's Cycle of Learning and demonstrated that the practise-based educational

methodologies employed in simulation are aligned with adult learning principles and therefore are more likely to increase knowledge and skills. This finding is similar to other international studies who advocate the use of practise based learning and reflection as the most effective method to improve teamwork skills.⁽³⁾ ^(65, 66)

Communication strategies that were part of education programmes in the review originated from the principles of Crew Resource Management training where standardised communication tools are used to promote a shared language around teamwork.⁽¹⁵⁾ These tools fostered inter-professional collaboration providing structure to enable team members to respect professional differences, identify a leader and other roles in the team, exchange information and feeling safe to speak up.⁽²⁵⁾ Health professionals valued the learning and practising of these tools particularly in scenarios that mirrored work situations where rapid responses were expected.⁽²⁵⁾ These findings reflect the use of standardised communication tools in teamwork programmes used internationally in acute hospital settings.^(10, 15)

Levels of Confidence and Motivation Gained During Education Programme

The sixth synthesised finding identified that health professionals experienced increases in confidence and motivation to practise new skills in their workplace when they participated in quality teamwork education programmes.^(23, 24, 31) Team members were motivated to use the teamwork skills that were relevant to their workplace setting. Where teamwork education programmes included a range of professionals, there was motivation to work collaboratively and engage in innovative practices.⁽⁹⁾ Staffs experience in being able to incorporate new teamwork skills were influenced by the context, culture and the opportunities provided within their work environment to practice their new teamwork skills.
^(23, 24) Some health professionals were unable to transfer their new skills into their

workplace due to time and physical constraints such as no available time or space to get together as a team to reflect on practice.⁽²⁴⁾ Others were unable to introduce new communication strategies as these were not embraced by managers to be used as part of teamwork on a daily basis to improve communication and collaboration. ⁽²⁴⁾ These findings are similar to Cannon-Bowers et al who state that a variety of factors can have a 'profound impact on transfer of training in teams. These include a climate to support teamwork, performance measurement and reward systems, leader and team member support, relapse prevention and team goals' ⁽⁴⁰⁾ (p.215)

The six synthesised findings offer a rich insight into the experiences of health professionals who participate in teamwork education in acute hospital settings and offers insights for executive staff, managers and education facilitators when considering how to get the most value from the teamwork education programmes planned for the future or currently being run in their organisations. This will be discussed further in the conclusion section.

Potential Limitations

Assumptions, limitations and delimitations

Even though a large volume of data was retrieved in this review, there were limitations in the search. Potential limitations to this qualitative systematic review relate to the challenges in identifying all relevant papers. Some could have been missed from indexed search engines and grey literature. Only articles in English were retrieved so that information may have been missed from non-English studies. The temporal parameters of this study 1990 to 2013 may be seen as a limitation to the review however the relationship between learning organisations, patient safety and teamwork have mainly been reported in the literature over the past twenty - three years.

The use of terms to describe 'teamwork education' and 'teamwork interventions' are diverse in the literature and is represented with a number of terms including team training, interprofessional training, interprofessional education to name a few. For the purposes of the review, I have included the collective findings of participants in the studies included in this systematic review. Despite the differences in what the team education programme has been named, there have been similar reported experiences by health professionals who have participated in teamwork education programmes in acute hospitals, and I have been able to able to group these findings into categories to create the final meta-syntheses.

Conclusion

The review has identified qualitative evidence that can guide organisations and education facilitators in the development and implementation of teamwork education in acute hospital settings. Six themes were identified that influenced health professionals experience of teamwork education. These themes not only focus on the quality of the specific teamwork education programme but highlight the need for the consideration of the context that the programme is delivered in, what it means to work in a successful team, the diversity of health care teams, starting points of individual learners, the type of tools utilised in education programmes, the levels of confidence and motivation of learners post training and the transfer into practice of new learning. More high quality quantitative and qualitative studies are required to establish evidence around how teamwork education programmes delivered in the complex environment of acute hospital settings can be integrated successfully across the organisations so that a culture of collaboration and teamwork across all staff is developed, fostered and maintained.

Implications for practice

Drawing from the synthesised findings of the review, recommendations for practice have been provided to guide the development and implementation of teamwork education in acute hospital settings and to improve the experience of health professionals who participate:

All members of a team should be encouraged by their organisation/managers to participate in teamwork education programmes in order to foster a positive culture of learning and teamwork within the team.

Facilitators of teamwork education programmes should understand how successful teams function and consider these factors when planning or delivering training.

Facilitators of teamwork education programmes need to explore participant learning needs and their prior experiences of working in teams before implementing teamwork education programmes.

Facilitators of teamwork education programmes should provide learning opportunities that are relevant, practical and foster constructive debriefing and reflection.

High fidelity simulation should be considered in acute hospitals for the training of teamwork skills in addition to clinical skills. Scenarios provide realistic opportunities for participants to practice collaboration and communication strategies that enhance teamwork.

Team managers should harness the new confidence and motivation of staff around teamwork skills following participation in teamwork education programmes and ensure that there are opportunities in the workplace to apply new skills and knowledge into daily practice.

Implications for research

In order to strengthen the evidence-base about teamwork education in acute hospital settings there needs to be quantitative and qualitative research into:

How do organisations that have successfully embedded a culture of collaboration and safety in teams in acute hospital settings plan, implement and evaluate teamwork education programmes?

The practical aspects of how to create a supportive organisational climate and the conditions under which specific transfer solutions apply are still largely unknown. There is little qualitative or quantitative evidence in the literature demonstrating how organisations have successfully undertaken cultural change around teamwork improvement. There is also a need for quantitative research that measures the outcomes of teamwork education programmes on team member satisfaction, performance and wellbeing, teamwork performance including the quality of care being delivered and patient satisfaction and organisation level outcomes such as patient outcomes, staff absenteeism, staff retention levels and financial performance. ⁽⁶⁵⁾

What are the characteristics of teams that have led to successful participation in teamwork education and positive outcomes for team performance?

The diversity and lack of clarity in health care teams about what constitutes team membership and what are team characteristics will influence the success of teamwork education programmes. Research into the presence of fundamental team characteristics prior to beginning teamwork education will assist in the facilitation and evaluation of teamwork programmes. Team characteristics to explore are the presence of clear shared objectives, designated leaders, close working relationships, respect of professional autonomy and mechanisms present to review team effectiveness on a regular basis. ^(24, 65)

What are the experiences, training and support provided to education facilitators who successfully implement teamwork education programmes in acute hospitals?

The skills, knowledge and values of facilitators of teamwork education are rarely documented in studies and yet their role is crucial to the engagement of participants and the outcomes of the training. Research into the training and support needed to provide education facilitators appropriate skills to focus on quality education principles in addition to expert clinical skills is required. Education principles to explore are: the use of adult learning principles in teaching, evidence of outcomes based learning in programme curriculum, skills in facilitating reflection and debriefing, and experience in facilitating high fidelity simulation tools.

Conflict of Interest

There is no conflict of interest.

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Appendices

Appendix I: Search strategy

PubMed Search Logic Grid

Search conducted 13.9.13

3774 papers were retrieved by linking the concepts in each column with 'AND'

Health Professionals	Team	Education	Hospitals	Qualitative
health professional[mh]	team*[tw]	education [mh]	hospital[mh]	qualitative[tw]
OR	OR	OR	OR	OR
health professional*[tw]	teamwork [tw]	training*[tw]	hospital*[tw]	qualitative stud*[tw]
OR	OR	OR	OR	OR
Health personnel [tw]	team work[tw]	learning*[tw]	hospital department*[tw]	experience health care professional*[tw]
OR	OR	OR	OR	OR
health worker*[tw]	OR	inservice training*[tw]	acute hospital*[tw]	experience*[tw]
OR	OR	OR	OR	OR
allied health [tw]	OR	staff development[tw]	Or emergency department*[tw]	Interview*[pt]
OR	OR	OR	OR	OR
nurs*[tw]	OR	professional development[tw]	OR emergency	finding*[tw]
OR	OR	OR	OR	OR

doctor*[tw]		OR	service*[tw]	focus group*[tw]
OR		simulation[tw]	OR	OR
midwi*[tw]		OR	surgical	phenomenolog*[tw]
OR		teamSTEPPS	department*[tw]]
physician*[tw]		[tw]	OR	OR
OR		OR	surgical	ethnograph*[tw]
speech		interprofessiona	service*[tw]	OR
pathologist*[tw]		l education[tw]	OR	grounded
OR		OR	surgery	theor*[tw]
speech therapist*		patient	department*[tw]	OR
[tw]		safety[tw]]	action
OR		OR	OR	Research[tw]
occupational		professional	intensive	OR
therapist* [tw]		development[tw]	care[tw]	metasynthesis[tw]
OR]	OR	OR
social worker* [tw]		OR	intensive care	meta synthesis[tw]
OR		continuing	unit*[tw]	OR
physiotherapist*[tw]		education[tw]	OR	turf war*[tw]
]		OR	delivery	OR
OR		teach*[tw]	suite*[tw]	interprofessional
pharmacist*[tw]			OR	relations[tw]
OR			delivery	OR
			room*[tw]	

psychologist*[tw]			OR	interprofessional
OR			hospital	communication[tw]
radiologist*[tw]			birthing	OR
OR			center*[tw]	interdisciplinary
dietician*[tw]				relations[tw]
OR				OR
audiologist*[tw]				Interdisciplinary
OR				communication[tw]
health care[tw]				
OR				
healthcare[tw]				
OR				
patient care[tw]				
OR				
multidisciplinary				
team*[tw]				
OR				
Interdisciplinary				
Team*[tw]				

CINAHL Search Logic Grid

Search conducted 13.9.13

1403 papers were retrieved by linking the concepts in each column with 'AND'

Health Professionals	Team	Education	Hospitals	Qualitative
MH health professionals +	MH team+	MH education+	MH hospital+	MH experience+
OR	OR	OR	OR	OR
TI health professional*	TI team*	TI education	TI hospital*	TI experience*
OR	OR	OR	OR	OR
AB health professional*	AB team*	AB education	AB hospital*	AB experience*
OR	OR	OR	OR	OR
TI health personnel	TI teamwork	TI train*	TI hospital department*	TI qualitative
OR	OR	OR	OR	OR
TI health personnel	AB teamwork	AB train*	AB hospital department*	AB qualitative
OR	OR	OR	OR	OR
AB health personnel	TI team work	TI learn*	TI acute hospital*	TI qualitative stud*
OR	OR	OR	OR	OR
TI health worker*	AB team work	AB learn*	AB acute hospital*	AB qualitative stud*
OR	OR	OR	OR	OR
AB health		TI inservice training	AB acute hospital*	TI experience health care
		OR	OR	

worker*		AB inservice	TI emergency	profession*
OR		training	department*	OR
TI allied health		OR	OR	AB experience
OR		TI staff	AB emergency	health care
AB allied health		development	department*	profession*
OR		OR	OR	OR
TI allied health		AB staff	TI emergency	TI interview*
profession*		development	service*	OR
OR		OR	OR	AB interview*
AB allied health		TI professional	AB emergency	OR
profession*		development	service*	TI finding*
OR		OR	OR	OR
TI nurs*		AB professional	TI surgical	AB finding*
OR		development	department*	OR
AB nurs*		OR	OR	TI focus group*
OR		TI simulation	AB surgical	OR
TI medical staff		OR	department*	AB focus group*
OR		AB simulation	OR	OR
AB medical staff		OR	TI surgical	TI
OR		TI TeamSTEPPS	service*	phenomenolog*
AB midwi*		OR	OR	OR
OR		AB	AB surgical	AB
		TeamSTEPPS	service*	phenomenolog*
			OR	

TI midwi*		OR	TI surgery	OR
OR		TI	department*	TI ethnography*
TI physician*		interprofessional	OR	OR
OR		educat*	AB surgery	AB ethnography*
AB physician*		OR	department*	OR
OR		AB	OR	TI grounded
TI speech		interprofessional	TI intensive	theory
patholog*		educat*	care	OR
OR		OR	OR	AB grounded
AB speech		TI professional	AB intensive	theory
patholog*		development	care	OR
OR		OR	OR	TI action
TI speech		AB professional	TI intensive	research
therap*		development	care unit*	OR
OR		OR	OR	AB action
AB speech		TI continuing	AB intensive	research
therap*		education	care unit*	OR
OR		OR	OR	TI turf wars
TI occupational		AB continuing	TI delivery	OR
therap*		education	suite*	AB turf wars
OR		OR	OR	OR
AB occupational		TI teaching	AB delivery	TI
therap*		OR	suite*	interprofessional
		AB teaching	OR	

OR			TI delivery room*	relation*
TI social worker*				OR
OR			OR	TI
AB social worker*			AB delivery room*	interprofessional relation*
OR			OR	OR
TI physiotherap*			TI hospital birthing center*	TI interprofessional communication
OR			OR	OR
AB physiotherap*			AB hospital birthing center*	AB interprofessional communication
OR				OR
TI pharmac*				TI interdisciplinary relation*
OR				OR
AB pharmac*				AB Interdisciplinary relation*
OR				OR
TI psycholog*				TI interdisciplinary
OR				
AB psycholog*				
OR				
TI radiolog*				
OR				
AB radiolog*				

OR				communication*
TI dietician*				OR
OR				AB
AB dietician*				interdisciplinary
OR				communication*
TI Audiolog*				
OR				
AB Audiolog*				
OR				
TI Health care				
OR				
AB Health care				
OR				
TI Healthcare				
OR				
AB healthcare				
OR				
TI				
multidisciplinary				
team				
AB				
multidisciplinary				

team				
OR				
TI				
interdisciplinary				
team				
OR				
AB				
interdisciplinary				
team				

Scopus Search Logic Grid

Search conducted 21.09.13

3526 papers were retrieved by linking the concepts in each column with 'AND'

Health Professionals	Team	Education	Hospitals	Qualitative
"health professional"	team	education	hospital	qualitative
OR	OR	OR	OR	OR
"health personnel"	teamwork	training	"hospital department"	"qualitative study"
OR	OR	OR	OR	OR
"health worker"	"team work"	learning	"acute hospital"	"exper* health care professionals"
		OR		
		"inservice		

OR		training”	Or	OR
“allied health”		OR	“emergency	experience
OR		“staff	department”	OR
nurse		development”	OR	interview
OR		OR	“emergency	OR
doctor		“professional	service”	findings
OR		development”	OR	OR
midwife		OR	“surgical	“focus group”
OR		simulation	department”	OR
physician		OR	OR	phenomenology
OR		teamSTEPPS	“surgical	OR
“speech		OR	service”	ethnography
pathologist”		“interprofessional	OR	OR
OR		education”	“surgery	OR
“speech		OR	department”	“grounded
therapist”		“patient safety”	OR	theory”
OR		OR	“intensive	OR
“occupational		“professional	care”	“action research”
therapist”		development”	OR	OR
OR		OR	“intensive	“turf wars”
“social worker”		“continuing	care unit”	OR
OR		education”	OR	“interprofessional
		OR	“delivery	relations”
			suite”	

physiotherapist		teaching	OR	OR
OR			“delivery	“interprofessional
pharmacist			room”	communication”
OR			OR	OR
psychologist			“hospital	“interdisciplinary
OR			birthing	relations”
radiologist			centres”	OR
OR				“interdisciplinary
dietician				Communication”
OR				
audiologist				
OR				
“health care”				
OR				
healthcare				
OR				
“patient care”				
OR				
“multidisciplinary				
team”				
OR				
“interdisciplinary				

team”				
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Embase Search Logic Grid

Search conducted 21.09.13

5336 papers were retrieved by linking the concepts in each column with ‘AND’

Health Professionals	Team	Education	Hospitals	Qualitative
“health practitioner”/syn	team	education/syn	hospital/syn	“qualitative research”/syn
OR	OR	OR	OR	OR
“health personnel”	teamwork/syn	training	“hospital department”	“qualitative study”
OR		OR	OR	OR
“health worker”		learning	“acute hospital”	“experience health care professionals”
OR		OR	Or	OR
“allied health”		“inservice training”	“emergency department”	OR
OR		OR	OR	OR
nurse		“staff development”	OR	experience
OR		OR	“emergency service”	OR
doctor		“professional development”	OR	interview
OR		OR	“surgical	OR
				findings

midwife		simulation	department”	OR
OR		OR	OR	“focus group”
physician		teamSTEPPS	“surgical service”	OR
OR		OR	OR	phenomenology
“speech pathologist”		“interprofessional education”	“surgery department”	OR
OR		OR	OR	ethnography
“speech therapist”		“patient safety”	“intensive care”	OR
OR		OR	OR	“grounded theory”
“occupational therapist”		“professional development”	“intensive care unit”	OR
OR		OR	OR	“action research”
“social worker”		“continuing education”	“delivery suite”	OR
OR		OR	OR	“turf wars”
physiotherapist		teaching	“delivery room”	OR
OR			OR	“interprofessional relations”
pharmacist			“hospital birthing centres”	OR
OR				“interprofessional communication”
psychologist				OR
OR				“interdisciplinary relations”
radiologist				

OR dietician OR audiologist OR "health care" OR healthcare OR "patient care" OR "multidisciplinary team" OR "interdisciplinary team"				OR "interdisciplinary communication"
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Appendix II: Studies selected for retrieval

Jonathon R. B. Halbesleben, Karen R. Cox, Leslie Hall. Transfer of crew resource management training. A qualitative study of communication and decision making in two intensive care units. *Leadership in Health Services*.2011; 24(1): 19-28.

Clark, P. R.. Teamwork: Building healthier workplaces and providing safer patient care. *Critical Care Nursing Quarterly*.2009; 32(3): 221-231.

Eduardo Salas PhD,, Deborah DiazGranados MS,, Sallie J. Weaver MS,, Heidi King MS,. Does Team Training Work? Principles for Health Care. *Academic Emergency Medicine*.2008; 15: 1002- 1009.

Eduardo Salas, Sallie J, Weaver, Deborah DiazGranados, Rebecca Lyons, Heidi King. Sounding the Call for Team Training in Health Care: Some Insights and Warnings. *Academic Medicine*.2009; 84(10): 128-131.

Freeth, D., Ayida, G., Berridge, E. J., Mackintosh, N., Norris, B., Sadler, C., Strachan, A.. Multidisciplinary obstetric simulated emergency scenarios (MOSES): Promoting patient safety in obstetrics with teamwork-focused interprofessional simulations. *Journal of Continuing Education in the Health Professions*.2009; 29(2): 98-104.

Jeffrey Augenstein, David Birnbach, Deborah DiazGranados , Julia Grim, Heidi King , Elizabeth Lazzara. Simulation-based training at the sharp end: a qualitative study of simulation-based team training design, implementation, and evaluation in healthcare. *Journal of Emergencies, Trauma and Shock*.2010; : 369.

Jeffrey B. Cooper, Sara J. Singer, Jennifer Hayes, Michael Sales, Jay Vogt, Damiel Raemer, Gregg S. Meyer. Design and Evaluation of Simulation Scenarios for a Program Introducing Patient Safety, Teamwork, Safety Leadership, and Simulation to healthcare Leaders and Managers. *Sim Healthcare*.2011; 6: 231-238.

Jones, Aled and Jones, Delyth. Improving teamwork, trust and safety: An ethnographic study of an interprofessional initiative. *Journal of Interprofessional Care*.2011; 25(3): 175-181.

Lee, P., Allen, K., Daly, M.. A 'Communication and Patient Safety' training programme for all healthcare staff: can it make a difference *BMJ Qual Saf*.2012; 21(1): 84-8.

McCaffrey, R. G., Hayes, R., Stuart, W., Cassell, A., Farrell, C., Miller-Reyes, C., Donaldson, A.. A program to improve communication and collaboration between nurses and medical residents. *J Contin Educ Nurs*.2010; 41(4): 172-8.

Rice, K. Zwarenstein, M. Conn, L. G. Kenaszchuk, C. Russell, A. Reeves, S.. An intervention to improve interprofessional collaboration and communications: a comparative qualitative study. *Journal of Interprofessional Care*.2010; 24(4): 350-361.

Sandahl, C., Gustafsson, H., Wallin, C. J., Meurling, L., Ovretveit, J., Brommels, M., Hansson, J. Simulation team training for improved teamwork in an intensive care unit. *International Journal of Health Care Quality Assurance*.2013; 26(2): 174-188.

Severson, Mary Ann. Insights into Participant's Experiences in Multidisciplinary Medical Trauma Simulation-Based Team Training. 2012; 3549326: 133.

Wehbe-Janek, H., Lenzmeier, C. R., Ogden, P. E., Lambden, M. P., Sanford, P., Herrick, J., Song, J., Pliego, J. F., Colbert, C. Y.. Nurses' perceptions of simulation-based interprofessional training program for rapid response and code blue events. *Journal of Nursing Care Quality*.2012; 27(1): 43-50.

Appendix III Appraisal instruments

QARI Appraisal instrument

JBI QARI Critical Appraisal Checklist for Interpretive & Critical Research

Reviewer Date

Author Year Record Number

	Yes	No	Unclear	Not Applicable
1. Is there congruity between the stated philosophical perspective and the research methodology?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is there congruity between the research methodology and the research question or objectives?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is there congruity between the research methodology and the methods used to collect data?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is there congruity between the research methodology and the representation and analysis of data?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is there congruity between the research methodology and the interpretation of results?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is there a statement locating the researcher culturally or theoretically?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the influence of the researcher on the research, and vice-versa, addressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are participants, and their voices, adequately represented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal: Include Exclude Seek further info.

Comments (Including reason for exclusion)

Appendix IV: Data extraction instruments

QARI data extraction instrument

JBI QARI Data Extraction Form for Interpretive & Critical Research

Reviewer Date

Author Year

Journal Record Number

Study Description

Methodology

Method

Phenomena of interest

Setting

Geographical

Cultural

Participants

Data analysis

Authors Conclusions

Comments

Complete

Yes

No

Appendix V: Included studies

QARI

Study	Methodology	Methods	Participants	Intervention	Outcomes	Notes
[1], Freeth, D., Ayida, G., Berridge, E. J., Mackintosh, N., Norris, B., Sadler, C., Strachan, A., 2009	Mixed Methods Phenomenology for Qualitative data	Semi-structured telephone or email interviews were conducted 2 to 6 weeks after each course with participants and facilitators. Video recordings of debriefing sessions were examined.	93 participants were involved in 16 MOSES courses. They included 57 midwives, 21 obstetricians and 15 anaesthetists.	Participants' perceptions and reactions to the Multidisciplinary Obstetric Emergency Scenarios (MOSES), their learning and the transfer of its principles to clinical practice.	The authors concluded that many participants improved their knowledge and understanding of inter-professional team working, especially communication and leadership in obstetric crisis situations. The starting point of participants affected learning and those with some insight into their non-technical skills showed the greatest benefit. Some transfer of learning into the workplace was identified but it was noted that mechanisms to support transfer were underdeveloped. Closer integration with educational and management processes within the workplace would improve the impact of this continuing education on daily practices and hence, on patient safety.	The paper identifies the benefits of skilled facilitation and simulation for developing team working in support of patient safety. It also identifies how mechanisms need to be in place to foster application of teamwork skills into practice.
[2], Jeffrey B. Cooper, Sara J. Singer, Jennifer Hayes, Michael Sales, Jay Vogt, Damiel Raemer, Gregg S. Meyer, 2011	Mixed Methods Phenomenology for Qualitative data	Analysis of written comments made by participants and interviews of the facilitators of the training.	108 participants in 12 teams were involved in the training program	The reactions of individual participants who attended simulation training focused on teamwork and safety leadership	The authors stated that firm conclusions couldn't be drawn about the impact of the simulation scenarios on the participants or their organizations. They did infer from participant comments that clinicians and non-clinicians can benefit from participation in a simulated care experience.	This paper raises interesting observations about the experiences of managers in hospitals when participating in simulation training focused around teamwork and patient safety
[3], Jones, Aled and Jones, Delyth, 2011	Ethnography	Data from multiple sources was collected including observation,	12 health professionals in rehabilitation ward.	Perceptions of staff in an inter-professional team following the introduction of a service	This study contributes important insights into the development of team working in healthcare by confirming findings from	This study offers valuable insights into the positive outcomes of teamwork

		field notes, and audio recordings of workshops, ward rounds and team meetings. Staffs were purposively sampled and interviewed using semi-structured interviews.		improvement programme designed to promote better team working.	previous studies in addition to providing new insights into the emergence of trust in teams resulting in increased collegiality, participative safety and innovative working practices between disciplines.	initiatives on relationships and outcomes in an inter-professional teams.
[4], Rice, K. Zwarenstein, M. Conn, L. G. Kenaszchuk, C. Russell, A. Reeves, S., 2010	Ethnography	Observation and informal and formal interviews of participants in both intervention and non intervention comparison wards in a hospital.	No specific number identified in paper. Participants selected from GIM division which comprised of approximately 250 staff	Perceptions, reactions and relationships between ward staff to an intervention to improve inter-professional collaboration and communications.	The authors concluded that introducing minimally intrusive interventions into the existing framework of healthcare appear to be ineffective in improving inter-professional collaboration and communications.	This paper highlights the importance of engaging of all staff when attempting to change the culture of teamwork in health care.
[5], Sandahl, C., Gustafsson, H., Wallin, C. J., Meurling, L., Ovretveit, J., Brommels, M., Hansson, J., 2013	Action Research	Observations of MTT sessions, activities in ICU. Semi-structured interviews with key managers and nurses and physicians at different organizational levels.	152 ICU staff consisting of medical staff and nurses.	Participants' experience of the planning, content and implementation of simulation - based medical team training and the impact of this programme on inter-professional working in an intensive care unit.	The authors concluded that in situ simulator-based MTT has many advantages but this approach will not contribute to lasting change, unless senior management ensures that physicians can be actively involved. Improved communication and inter-professional collaboration can result in a demand for regular meetings for debriefing and feedback. If management supports such a development, it will most likely contribute to a cultural change that will facilitate learning, teamwork, and leadership.	This paper provides insight into the role planning and facilitation plays in teamwork training and how the input of all professional groups is important.
[6], Severson, Mary Ann, 2012	Descriptive Qualitative Study	Data was collected by direct observation and recording of SBTT session and observation of debriefing sessions	23 trauma team staff including 3 Physicians, 7 Resident Physicians, 2 Physician Assistants, 9 Nurses, 2	Participants' experiences in multidisciplinary medical trauma simulation based team training.	SBTT provides a flexible design that gives learners an opportunity to practice team principles allows for collection of performance data and provides feedback regarding performance. More than just participation in the SBTT experience is	This PhD provides valuable insight into team dynamics in trauma care and the use of SBTT to enhance teamwork and patient safety.

		with participants. Participants were required to answer 4 written reflection questions and be involved in an individual semi-structured interview with 23 open ended questions.	Respiratory Therapists. There were 11 male and 12 female participants		necessary to achieve the cultural change required in healthcare to reduce medical errors and improve patient safety.	
[7], Wehbe-Janek, H., Lenzmeier, C. R., Ogden, P. E., Lambden, M. P., Sanford, P., Herrick, J., Song, J., Pliego, J. F., Colbert, C. Y., 2012	Descriptive Qualitative Study	The study used a qualitative methodology to analyse narrative data from open-ended survey questions and quantitative methodology to analyse Likert-response items.	A total of 360 nurses participated in the study. 65% were registered nurses and 35% were licensed vocational nurses. 93% were female and their average ages were 40.5 years.	Nurses' perceptions of simulation-based inter-professional training program for rapid response and code blue events.	The authors concluded that it was important for stakeholder's buy-in when developing and implementing simulation programs that involve culture and system change. This study supports the implementation and continued use of simulation based team-training programs in hospital settings for nurses who work with inter-professional teams for emergency events.	This paper provides insights into the experiences of nurses' simulation-based team training.

Appendix VI: Excluded studies

QARI

[1] Jonathon R. B. Halbesleben, Karen R. Cox, Leslie Hall, Transfer of crew resource management training. A qualitative study of communication and decision making in two intensive care units

Reason for exclusion: lack of data re participant's views, unable to determine where conclusions are drawn from.

[2] Clark, P. R., Teamwork: Building healthier workplaces and providing safer patient care

Reason for exclusion: no examples of data collected from which conclusions drawn.

[3] Lee, P., Allen, K., Daly, M., A 'Communication and Patient Safety' training programme for all healthcare staff: can it make a difference?

Reason for exclusion: lack of qualitative data re participant's views, unable to determine where conclusions are drawn from

[4] McCaffrey, R. G., Hayes, R., Stuart, W., Cassell, A., Farrell, C., Miller-Reyes, C., Donaldson, A., A program to improve communication and collaboration between nurses and medical residents

Reason for exclusion: No evidence of ethics approval or data that represents participant's voices, unable to determine where conclusions are drawn from

Appendix VII: List of study findings / Conclusions

Multidisciplinary obstetric simulated emergency scenarios (MOSES): Promoting patient safety in obstetrics with teamwork-focused interprofessional simulations

Finding1	A Positive Interprofessional Learning Environment
Illustration	“It’s really helped me to see it from the consultants’ point of view, and it’s really helped me to understand [their] pattern of thinking. . . What has really helped me as well is that he was there in the role play to be able to witness what midwives actually do in situations like that, because in most instances. . . they’re not usually there, to see things, you know, happening . . . now I know how to approach and discuss with them better, when planning care for the client.” [Midwife, DS3] (Freeth, et al,2009,p.101)
Finding2	Participants Learning
Illustration	“I realized the patient had asystole and assumed the anesthetist was aware of it. Although the situation was under his control, he recognized the asystole later and he managed the case appropriately. On reflection, I can recall when a hint of advice/warning in some critical situations would have helped in managing these situations better. The lesson is that I now know in moments of crisis I should be proactive in communicating with the lead of that crisis about any observations I note, even if I think he/she is aware of it.” [Obstetrician,DS1] (Freeth, et al, 2009,p.101)
Finding3	Transferability
Illustration	“I think personally and [anesthetist 2] was saying this as well . . . certainly the 2 of us there were not aware that they did drills on labor ward. . . First of all we are aware of that now and secondly, I think we may want to get a bit more involved and maybe develop some of the scenarios with the midwives as well, because potentially if they are led. “ [Anesthetist, DS4] (Freeth, et al,2009, p.102)

Design and Evaluation of Simulation Scenarios for a Program Introducing Patient Safety, Teamwork, Safety Leadership, and Simulation to healthcare Leaders and Managers

Finding1	On shifting from blame to learning-oriented leadership
Illustration	“The creaking sound you heard was us thinking about taking an event like this and taking an approach that is not blame-focused but learning-focused.” (Clinician, ER scenario) (Cooper, et al, 2011, p. 237)

Finding2	On the difficulty of speaking up
Illustration	“To feel safe enough that I feel I can challenge is important. We all have the same goal of patient safety. Whether it is because we know each other or we know we have the same values. For me it is feeling safe to speak up.” (Clinician, ER scenario) (Cooper, et al, 2011, p.237)
Finding3	On being welcoming rather than defensive
Illustration	“When someone asks you to talk, you need to stop writing on the computer and pay attention to them.” (Clinician, ER scenario) (Cooper, et al, 2011, p.237)
Finding4	On facilitating communication and teamwork
Illustration	“One of the interesting things about our group is that this group has probably never been together around a table because we come from different divisions and clinical expertise –Everyone’s used to leading from their own perspective?” (Clinician, ER early session) (Cooper, et al, 2011, p.237)
Finding5	The negative quality and relevance of the simulation
Illustration	“I really didn’t connect with the exercise from this morning and how it related to achieve our team’s project objectives” (Clinician, ER early session) (Cooper, et al, 2011, p.236)
Finding6	The positive quality and relevance of the simulation
Illustration	“Simulation training is an excellent way to learn” (Clinician, ER early session) (Cooper, et al, 2011, p.236)

Improving teamwork, trust and safety: An ethnographic study of an interprofessional initiative

Finding1	Conflict and the mediating effect of shared objectives and trust
Illustration	“The rigorous debate in the meeting was impressive e.g. when discussing the date for discharge for Mrs Hughes when Joanne (physio) clearly stated why she disagreed with Paul (consultant)when he said Mrs Hughes could go home Friday. Paul had somewhat reached the decision just by reviewing how Mrs Hughes was progressing in terms of medical markers (U&Es), compliance/tolerance with medication) but Joanne soon pointed

	<p>out the limitations experienced when Mrs Hughes was walking and with her overall posture and strength. There was no sense of one-upmanship in any of this though, and the debate was very direct but not abrupt and was all about the patient rather than scoring points". (Extract from field notes/reflections on MDT) (Jones, et al, 2011, p.178 meeting 3)</p>
Finding2	The emergence of collegial trust in a team
Illustration	<p>"Meeting more frequently together means that, as an example the ward manager gets to trust that the physiotherapist is going to do what they say. That's why this has been a success. Trust does make a difference; you develop friendships then as well." (Occupational therapist) (Jones et al 2011, p.177)</p>
Finding3	Team meetings, participative safety and patient safety
Illustration	<p>Social worker: "When patients such as this come in (pause) you know in the future then we should all aim to pool our ideas as soon as possible regarding the UA [unified assessment] paperwork and what needs to be sorted out." (Audio-recording, MDM 4) (Jones, et al, 2011, p.178)</p>
Finding4	Autonomy within the interprofessional team
Illustration	<p>"It's best to keep professional expertise working within the overall team. It's like adding our little bit to the pot. As therapists as opposed to nurses or doctors we see things the others don't and it adds to the team" (Physiotherapist)(Jones, et al, 2011,p.179)</p>

An intervention to improve interprofessional collaboration and communications: a comparative qualitative study

Finding1	Willingness to implement the intervention
Illustration	<p>"I would say the reaction was somewhat cooperative. They said, okay, fine, we will try. Not a hell of a lot of enthusiasm but it was not also outright rejection saying, well, that's silly." (Rice, et al, 2010, p.355)</p>
Finding2	Medical hierarchy
Illustration	<p>"It is unusual to ask [for another profession's input] if you are not seeking advice. If you are giving an order, then their input is not warranted." (Physician, intervention leader) (Rice, et al, 2010, p.356)</p>

Simulation team training for improved teamwork in an intensive care unit

Finding1	The implementation of the training process
Illustration	Some of the doctors reported to management that they had initially felt that the training was a covert test of their medical skills and the researchers. (Sandahl et al, 2012, p 183)
Finding2	Content of the training intervention
Illustration	“It was important that the simulator was placed at our centre, not [way off somewhere else] like a distant satellite, but directly in our workplace.” (physician) (Sandahl, et al, 2012, p. 178)
Finding3	Presentation of the implementation process
Illustration	The researchers' observations and the interviews with the managers and group leaders confirmed that the information had been received positively by the staff members, although it was not clear whether everyone had understood the implications. (Sandahl, et al, 2012, p. 179)
Finding4	Context factors influencing the simulation team training
Illustration	Several of the interviewed physicians at the ICU indicated having a lack of time {for attending training} and unclear employment commitments with different principals. In interviews, a majority of the nurses reflected on difficulties related to participating in projects at the unit and insufficient time for training and development. (Sandahl, et al, 2012, p. 181)
Finding5	Impact
Illustration	“I think that the collaboration between different professional groups has improved things at the unit, and in acute situations we try to think in terms of how we were trained.” (Sandahl, et al, 2012, p. 183)
Finding6	A factor that limited the success of the MTT programme
Illustration	“It’s always somewhat sad when things like this happen [non-attendance of doctors at the training due to last-minute rescheduling of work at the ward], because it creates apprehension in the group. It’s frustrating to sit and expect a doctor to be there and none comes.” (Sandahl, et al, 2012, p. 183)
Finding 7	Role of instructors in content of training intervention

Illustration	<p>“You review what happened, help each other and discuss together with the instructors how it can be done better. That gives you a chance to improve. You leave with pride, with your head held high, feeling that you’ve actually done something better” (Physician) (Sandahl, et al, 2012, p. 178)</p>
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Insights into Participant's Experiences in Multidisciplinary Medical Trauma Simulation-Based Team Training

Finding1	Back up the team
Illustration	<p>“We know where they stand. We know where to look for them because there is a specific spot for everybody, and they kind of give the rundown on what’s going to happen. We all have our own spot that we stand in. I don’t know how far that goes back, but in the Trauma Bay there’s a diagram of how that works. Where everybody goes so even if you didn’t hear them, you can look at the sticker, you would know that’s where they are always.”(RN) (Severson, 2012, p.73)</p>
Finding2	Trust
Illustration	<p>“We had a good level of respect for one another in the room.” (RT) (Severson, 2012, p. 73)</p>
Finding3	Make our Role Clear
Illustration	<p>“The particular points that I think were useful were the fact that we really have to make our role clear and we have to stay in that role. We can’t just trigger or respond where you can go here or there, to stay in that role, to perform that role to the best of our ability and to communicate effectively.” (MD) (Severson, 2012, p. 71)</p>
Finding4	Team leader must know the plan and share the plan.
Illustration	<p>“I feel they did a good job because in the beginning, and this is what we do in the real situation too is, before they arrive, they come in and they start by introducing themselves and say, I am going to be the team leader today.” (RN) (Severson, 2012, p. 72)</p>
Finding5	Situation awareness
Illustration	<p>“You can see that happening, and so if something is going on in the airway, they are all focused on the airway; but in reality you have couple guys for the airway you should be able to multitask. Those guys do that; but there is still other stuff that needs to be done; and just because you are taking care of it</p>

	<p>doesn't mean that I have to stand there and watch you. Just some things like that. So I think there is a lot lessons from the dynamic standpoint. I do think so because of that experience. I think with anything in life experience brings a lot of positive assets to your practice. Whether it is how to deal with conflict, treatment modalities, or how you approach the patient. It helps a lot just your comfort". (RN) (Severson, 2012, p. 73)</p>
Finding6	Hierarchy affects the team.
Illustration	"There's also a hierarchy at play where depending on individual's relationship with the other people in the trauma bay as well as their role and their own personal characteristics." (RN) (Severson, 2012, p. 74)
Finding7	Practice reinforces behaviours in real life
Illustration	"This process needs to be practiced over and over to even feel remotely comfortable. I think simulation is wonderful for all involved. I'm a huge supporter of multidisciplinary education and really feel it will improve patient care." (RN) (Severson, 2012, p.79)
Finding8	Debriefing is the most important part
Illustration	"Debriefing is the most important part. Because it allows you time to reflect on things that went well, and didn't go well, and how you need to change your practice." (MD) (Severson, 2012, p.80)
Finding9	Use direct, closed loop communication
Illustration	"I'm going to speak loudly, know my role, and be more assertive." (RN) (Severson, 2012, p.77)
Finding 10	Fear of speaking up
Illustration	"Some individuals might be hesitant to speak up because they don't want to be chastised or put down if they are wrong, or even if they are right and someone disagrees with them" (RN) (Severson, 2012, p.88)
Finding 11	Flattening the hierarchy empowers speaking up
Illustration	"This is what we found: does everyone agree? Are we missing anything? It's that last line that often gets left out. That is pretty critical. It gives everyone the opening to speak up if something doesn't sound right" (MD)

(Severson, 2012, p.88)

Nurses' perceptions of simulation-based interprofessional training program for rapid response and code blue events

Finding1	Teamwork and interprofessional team training
Illustration	"The inclusion of the anesthesia resident and the ICU nurse really helped out with drug and rhythm knowledge." (Wehbe-Janek, et al, 2012, p. 46)
Finding2	Opportunity to engage in hands-on practice and experience
Illustration	"Hands- on training [was] the most valuable part of the training. Changing roles and running several scenarios is so important." (Wehbe - Janek, et al, 2012, p.46)
Finding3	Increased awareness of the process nurses go through during a code situation and enhanced preparedness for codes
Illustration	"Learning the function of the RRT. . . and all the things I have to do in calling an RRT (ie, my responsibilities)." (Wehbe- Janek, et al, 2012, p. 46)
Finding4	Debriefing and reflective learning
Illustration	"Taking time to re- view and learn; being able to have the time to step back and review the situation." (Wehbe-Janek, et al, 2012, p.47)
Finding5	Enhanced their knowledge and skills
Illustration	Allowing them to identify "weaknesses/shortcomings and attempting to learn and build on mistakes or lack of knowledge in regards to uncomfortable issues/areas." (Wehbe-Janek, et al, 2012, p.46)
Finding6	Simulation experience
Illustration	"SimMan made it great to practice and build confidence." (Wehbe-Janek, et al, 2012, p.47)
Finding7	Role clarity

Illustration	<p>"I've never been in a code before and I feel this class has been extremely helpful in letting me not only know my role but what to expect of everyone else. I don't feel as terrified as I did about being in a code before taking this class." (Wehbe- Janek, et al, 2012, p. 46)</p>
Finding8	Increased confidence and comfort
Illustration	<p>"I feel more confident in knowing my role during a Rapid/Code. I also feel more confident in using the crash cart and knowing the location of things in the crash cart." (Wehbe-Janek, et al, 2012, p. 47)</p>
Finding9	Patient outcomes
Illustration	<p>"Being able to perform better as a team to better help the patient." (Wehbe- Janek, et al, 2012, p. 47)</p>
Finding10	Enhanced communication
Illustration	<p>"Learning to work together and listen to the team leader." (Wehbe- Janek, et al, 2012, p. 46)</p>
Finding 11	Simulation experience
Illustration	<p>"Sim-Man made it great to practice and build confidence" (Wehbe-Janek, et al, 2012, p. 47)</p>