EMBEDDING QUALITY IMPROVEMENT CHANGE INTO NURSING PRACTICE

ABSTRACT
Involving clinicians, especially nurses, is critical to improving quality in health care. In this paper, we report on a study that explored nurses’ perceptions of quality improvement (QI) change. Health care organisations and governments, both in New Zealand and other developed countries, are striving to reduce escalating health care costs and improve patient outcomes, to meet the growing demand for health care. The nursing sector is integral to the success of QI change and plays an important role in improving patient outcomes and reducing costs. The aims of this master of nursing study were to explore how nurses perceive QI change, to determine what is needed for nursing to contribute more to QI change and to identify the potential disconnect between the two. A mixed research methodology used a cohort of registered nurses and senior nurses at an inpatient hospital in Auckland, Aotearoa New Zealand. Findings suggested nurses understood the value of QI change and acknowledged they had a role to play in leading and implementing it. However, this was not seen as a core part of the nurses’ role and various barriers to full engagement in QI change were identified. The research’s limitation was that it was undertaken in one large New Zealand hospital. Ensuring QI is part of the nursing sector’s identity, with specific responsibility, accountability and the authority to act, is essential for nurses to lead and implement QI change. While the nursing profession is well-placed to initiate, lead and implement QI change, ambivalence to change is evident. Providing nurses with the responsibility, accountability and authority to act is essential for nursing to encompass QI change within their role.

INTRODUCTION
Health care is a limited resource, but claims on it can be unlimited. As the increasing Aotearoa New Zealand (NZ) population ages, more chronic health problems are expected, increasing the demand for health care, with the cost falling to relatively fewer taxpayers (Ministerial Review Group, 2009). Spurred by the current Ministry of Health message of “better, sooner, more convenient health care for all New Zealanders”, health care organisations are striving to reduce costs and improve patient outcomes.

As politicians, health care managers, clinicians and the public realise the benefits of improved patient safety and patient outcomes, work on quality improvement (QI) change has increased in health care organisations (Wachter, 2008; World Health Organisation, 2005). QI change is defined as the interdisciplinary process designed to raise the standards of the delivery of health care and improve health outcomes of individual patients and populations (Berwick, Nolan & Whittington, 2008; Wachter, 2008). Implementation of QI requires change and while not all change is an improvement, all improvement is a change requiring the management of change and an identified methodology (Berwick, 2010). Change management has been defined as “any action taken to smoothly transition a business process encompassing an individual or group from a current state to a future desired state of being” (Varkey & Antonio 2010).

Nurse are vital to QI change, as they are central to patient care (Darzi, 2009; Page, 2004) and form the majority (about 52 percent) of the New Zealand health workforce (Future Workforce, 2009).

This research, undertaken for a master of nursing programme, explores how nurses perceive their role in QI change, and determines what is needed for nurses to contribute more to QI change. It is hoped these findings will provide health care organisations with a platform to build upon, when engaging nurses in QI change.
LITERATURE REVIEW
The majority of the literature originated overseas, suggesting New Zealand-focused research on this topic is limited. Much of the literature considered barriers to change in relation to practice development and the implementation of clinical guidelines and research, rather than the implementation of QI change. Also, the nursing sector representation is disproportionate to their being the majority workforce. (??)

Change in the health care context
The notion of patient safety – the freedom from accidental injury – fast-tracked its presence into health care following the To Err is Human report (Kohn et al, 2000). The report provided a modern perspective on patient safety, though studies highlighting the impact of adverse events had started to emerge from the 1950s (World Health Organisation, 2005). The report noted a significant number of adverse events identified in the United States (US) health system. Calculations suggested about 44,000 deaths were as a result of medical errors, with associated costs estimated at US$17-29 billion (Kohn et al, 2000; World Health Organisation, 2005). This lead to an enormous push for QI change in health care organisations, with the advent of QI-focused bodies such as the US Institute for Healthcare Improvement (IHI) and the UK Department of Health Quality Initiatives.

Patient safety has not gone unmissed in New Zealand. Davis et al (2001) undertook a retrospective study to ascertain the extent of adverse events in New Zealand. One of the key findings was that 12.9 percent of hospital admissions were associated with an adverse event, requiring almost twice as long as the average hospital stay. Brown et al (2002) suggested that New Zealand public health institutions’ expenditure was approximately $2.9 billion in 2001, and of this, $590 million was spent on treating preventable adverse events. This means about 30c in every health dollar was being spent on preventable adverse events. New Zealand’s Ministry of Health has commissioned and empowered a national Quality Improvement Agency to analyse options for strengthening quality and safety support functions in the health and disability system. The organisation has placed significant emphasis on the importance of QI and invested in a specific unit for QI, while working towards a wider centre for health care excellence.

Barriers to change
QI requires change (Berwick, 2008) and change inevitably meets the challenges of barriers and resistance (National Institute for Clinical Excellence, 2007). Consequently, change interventions are not only required to implement the change itself but to also overcome barriers and resistance to change.

Different types of change – such as change focused on fixing a problem, reactive change or planned incremental change – all have different barriers in their way (Moore & Price, 2004). Barriers are categorised into extrinsic and intrinsic factors. Extrinsic factors are the physical environment – the availability of staff and resources – while intrinsic factors are the skills, knowledge and attitude of the clinician (nurse) (Koh et al, 2008).

Change interventions
The literature suggests there are “no magic bullets” to overcome barriers to change, and while there are numerous models and frameworks for implementing change, some of which have been used in health care, such as Kotter (1996), it is beyond the scope of this paper to review these. However, change interventions can be tailored to address identified barriers at both the individual and team level, the “sharp end”, or organisational barriers, the “blunt end” (Baker et al, 2010). The challenge for health care providers is to consider both “ends” as part of a continuum, to promote a systematic approach to change (Currie & Watterson, 2007).

Change interventions range from very effective, such as facilitative methods and active dissemination of information, to those that are ineffective for training in information management and passive dissemination of change, such as mailing education materials (Robertson & Jochelson, 2006). Audit and feedback, and the use of opinion leaders, are considered variable in their effectiveness (Grimshaw et al, 2001; Robertson & Jochelson, 2006).

Essentially, the most effective change is created when a locally considered and planned multi-faceted approach is used across three identified categories – the individual, the team and the organisation (Currie & Watterson, 2007). Which facet was more important, or offered the greatest effectiveness when a single approach was used, was not determined by the literature (Powell, Rushmer & Davies, 2009; Robertson & Jochelson, 2006).

Implementation of change interventions
Understanding the psychological and emotional impact of change allows nurses and nurse leaders to have an insight into the effect change has on staff. Several studies showed doctors had an effect on nurse-led change, ranging from an influence, at best, to disruption and undermining at worst (Hannes et al, 2007; Ring et al, 2005). Therefore the engagement of all staff, including doctors, in nurse-led QI change should be considered.

One of the commonly identified intrinsic barriers to change is the lack of individual knowledge and skills, in particular the ability to critically apply research findings in practice, described by Currie and Watterson (2007) as the adaptation and reconstruction of evidence. Technical skills, including estimation and management of risk, are also required (French, 2005). Up-skilling nurses in QI change requires support, and substantial investment in partnerships between academic providers and health care organisations, to ensure ongoing learning, both academically and technically (Jones, Mayer & Mandelkehr, 2009; Moore & Price, 2004).

Research has also explored the impact of nurses’ attitudes on their involvement in the implementation of change. An evident gap in the application of action following education and training suggests nurses’ attitudes and intentions did not materialise into actions that subsequently improved patient outcomes. An approach which includes assessing readiness to change offers education providers an insight into participants’ motivation, attitudes and intentions, which could, in turn, inform education delivery (Buckley et al, 2003). Additionally, by creating cognitive dissonance between observed staff beliefs and knowledge and their actual behaviour can lead to ongoing practice development and sustainable change (Walsh et al, 2004).

There was a lack of research on nurses’ involvement, either individually, within teams, or organisationally, in QI change and how they perceived their role. This study evolved from these findings.

THE STUDY
The aims of the study were to explore how nurses perceived QI change, to determine what was needed for nursing to further contribute to QI change and to identify any potential disconnect between the two.

METHODOLOGY
This study was undertaken at a New Zealand inpatient hospital,
which serves a diverse population of about 400,000 people. A sequential mixed methods methodology, incorporating a survey and focus group, was used to investigate nurses’ perceptions of QI change. A stratified random sampling technique was used to identify participants. About 10 percent of the hospital’s nurses were invited to participate and a response rate of 66 percent was achieved (99 of the 150). The study sample consisted of 74 nurses (just over 74 percent of the total) employed as registered nurses (RNs), and 25 nurses (just over 25 percent) employed as senior nurses (SNs).

Based on a review of the literature and consultation with key stakeholders in the organisation, a 31-point questionnaire was developed, consisting of open and closed questions. Key findings from the literature review were thematically analysed into the following five categories (see Table 1, right).

The questionnaire was piloted on one ward, resulting in some minor formatting changes. Key themes were identified by a general inductive approach in the closed-end questions, and a thematic analysis of the open-ended questions. A focus group was formed to further explore these key themes; a recording of the focus group was transcribed and a thematic analysis of the data undertaken.

Ethical approval was sought and obtained from the Ministry of Health (MOH) Northern Y Region Ethics Committee and the DHB Māori Research Review Committee (MRRC). The study was also registered with the DHB Ethics Committee, as is DHB policy.

RESULTS

Demographic characteristics of the participants

All participants were female, with an average age range of 30-39 years; RN participants were 30-39 years and SN participants aged 40-49 years. The ethnicity identified most frequently for all participants was European, at 39.4 percent (n = 39). Māori was identified the least – 1.6 percent of RNs (n = 1), and 4 percent of SNs (n = 1). Of those participants who answered the question on the origin of training (n = 84), more than 51 percent (n = 43) completed their nursing training overseas, while almost 49 percent (n = 41) trained in New Zealand.

When training origin was cross-tabulated with participants’ ages, overseas-trained participants outnumbered their New Zealand counterparts in the three youngest age brackets (ages 21-29 years, 30-39 and 40-49) while New Zealand-trained nurses dominated the two oldest age ranges – 50-59 years and 60-69 years.

The largest group of participants, more than 31 percent, had been qualified for one to five years (n = 31). Of the RN participants, almost 42 percent (n = 31) had been qualified for one to five years, while senior nurses were more commonly qualified for 11-15 years or 16-20 years. Cross-tabulation with origin of training showed participants who were aware of the relevance and impact of QI change.

Questionnaire results

1) Understanding the relevance of QI change

Understanding the relevance of QI change was identified as a key area in the questionnaire. Findings suggested that all participants were aware of the relevance and impact of QI change. Open-ended responses reflected this:

“QI is important in my clinical area because it will assist in improving the health of the population, assist staff in improving their experience in the delivery of care, decreasing the cost of care to the population.” (RN)

When asked specifically about engaging in QI change, SN responses were more likely to highlight the challenge of engaging others when leading QI change:

“The factors that allow me to implement the change needed for QI are change of thinking from nurses on the floor, needs total participation and agreement.” (SN)

Focus group members also acknowledged the challenge of engaging others:

“I think that there certainly are a number of people that don’t like change. And would say that they want quality, but don’t want to have to change to have quality.” (SN)

2) Implementation of QI change

In both open and closed-ended questionnaire responses, both RN and SN participants identified availability of resources as a requirement for implementation of QI change:

“The factors that allow me to implement the change needed for QI are the ideal versus available resources.” (SN)

Time was particularly identified as a resource by all participants:

“I am unable to implement the QI change needed because increased patient load and it [QI change] is time-consuming.” (RN)

“Often time is a huge factor and there many other urgent priorities.” (SN)

One focus group member put the theme of having time to participate in QI change in terms of getting support:

“For me, like to be supported in the role, you know, like I said about having some time put aside so you can do it, not just taking on extra. Like, you get the recognition for the work that you’ve done, praise for the work you’ve done. Reassurance that you are doing a good job despite half the nurses on the ward thinking you’re horrible because you’re highlighting all of the errors. You know someone that you can go and talk to, who is reassuring and will help you along. And to back you up.” (RN)

The focus group widely acknowledged that QI was part of the SN role; but the context was different for RNs:

“Part of my role as a charge nurse [SN] is to drive quality. And sometimes there’s no compromise getting the nurses on board, but if they want to deliver really good patient care, they need to do it.” (SN)

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<th>Table 1. Key themes from the literature review</th>
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<td><strong>Category</strong></td>
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<td>Understanding of QI</td>
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Included in this theme were succession planning, and the identification of RNs who might become SNs by demonstrating involvement in QI change through the professional development and appraisal process:

“As part of your appraisal when you talk about what their [RN] goals are for that year, you talk about what QI roles they want to take on in the ward.” (SN)

3) Technical components of QI
Analysis suggested nearly all participants, 97 percent (n = 97), agreed on the importance of collecting and analysing data, while 67.7 percent (n = 67) agreed that they regularly critically appraised current literature to support QI.

Interestingly, the focus group considered the collation and analysis of data as potentially compromising patient care:

“You know, either we need the nurse or the clinician by the bedside taking care of the patient, or we need them doing the auditing and filling in the forms, but you can’t do both.” (SN).

Comparison of RN and SN responses showed SNs were marginally more likely to indicate they were allocated time to participate in QI.

SN participants were more likely to indicate that they critically appraised the literature and understood the importance of the collection and analysis of data. Open-ended question analysis supported these findings and suggested that all participants considered the availability of resources, particularly time, as factors affecting their ability to undertake data collection and critical appraisal of the literature.

4) Support to participate and implement QI change
Figure 8 shows the support avenues identified by the participants and how they were rated in terms of offering the participants support in implementing QI change:

In answers to open-ended questions, support of one sort or another was also identified as a key factor:

“. . . colleague and organisational support [are required]”. (RN)

“. . . good ward leadership and support from the team. Support from senior staff.” (SN)

Additionally, SN participants were more likely to identify the lack of support as a barrier to QI change implementation:

“I am unable to implement the change needed because managers above me restrict change, nursing leadership above me does not support change and does not understand the research.” (SN)

Focus group comments about support considered the type of change the nurses were supported in:

“think it [QI] has to be service specific. And the nurses . . . have to come up with the quality initiative that they think is right for their ward, or right for whatever type of nursing that they do. I think the problem with what happens in [this organisation] is that everything has to be organisational wide. And so . . . one ward may come up with a really great idea that works, and then people say, oh good, well let’s just roll that out everywhere.” (SN)

“It’s [QI] been a directive that’s come in, no consultation, no input to it. Blind to the actual people who have to implement it.” (RN)

5) Commitment to QI change
SN and RN participants varied in their perception of the commitment to change from the organisation’s CEO (see Figure 9, above). SN participants considered the CEO more committed to QI and nurse-led change than RN participants. This variance was also apparent in perceptions of the culture of the hospital regarding QI change and nurse-led change (see Figure 10, below).

Focus group comments touched on the timing of QI change:

“We have a lot of people that are thinking up different ideas about quality in the organisation. And all of them want to start the same thing at the same time. And so then, instead of actually implementing something and giving it a bit of time before starting the next thing, two weeks later there’s something else, and two weeks later there’s something else.” (SN)

“I guess from my perspective it’s about capacity to be able to absorb change. And it’s like all of the different things that are happening seem
to happen on an endless ongoing basis. And so for us to be able to adapt and take on new quality improvements, we actually need to have the time to breathe.” (SN)

The results presented many themes on how nurses perceived their involvement in QI change. All themes were interrelated and underpinning them were three key areas connecting them: the scope of nurse practice in relation to QI, the leadership required to empower QI change and the availability of resources to implement QI change.

DISCUSSION

Scope of nurses in relation to QI change

Study findings suggested ambivalence and a dissonance between agreeing to the need for QI change and putting it into action. Ninety-nine percent (n = 98) of participants agreed that QI change was relevant to their clinical area, and approximately 84 percent agreed they were able to identify areas for QI and share those ideas. Specific themes relating to the barriers to implementation of QI change (time, resources, communication and support) were reflected both singularly and collectively in open-ended question responses from both RN and SN participants.

Focus group analysis suggested that while the context was different for RNs and SNs (RN's participating in and assisting the SN to drive QI; SNs leading, setting expectations and managing teams), QI was considered part of the scope of both RN and SN roles. However the evident lack of engagement and ambivalence arose from nurses considering that QI was not a traditional part of their role, and thus they perceived it as additional to their role.

Ambivalence and dissonance are found in many areas. For example, while questionnaire and focus group participants were assured about their confidentiality, it would potentially be difficult to openly disagree with, or oppose, the principles of QI change, given that it is closely aligned with evidenced-based practice and the push to improve patient outcomes, which is prevalent in health care (Buckley, et al, 2003; Walsh et al, 2004)

Another issue evident in the study’s findings was the perceived difference between global and local concerns. A person will quickly and correctly agree that there needs to be widespread QI change across a whole organisation. However, the same person assumes that it is “the other department” that must change. It is important therefore for nurses to take ownership of their QI problems, rather than denying there is a problem (Walsh et al, 2004).

This can be related to a psychological condition identified as “data denial” (Kenney, 2008). When data shows that a department’s performance is good, the credit for the hard work that was required for those outcomes is taken by those involved. This ends with a potential result of satisfaction and comfort that involvement in QI change has paid off and there is no urgency to keep improving. However, when the data shows poor performance, the blame is attributed to uncontrollable factors, such as budget, acuity, environment, government and organisational agendas. The result is potential paralysis and hopelessness. Data denial has the potential to drive health care professionals to inaction: nothing needs to be done if the data shows good performance and nothing can be done if the data shows poor performance (Currie & Watterson, 2007; van Dam, Oreg & Schyns, 2008).

For the ambivalence of actioning QI change – whatever the cause – to be overcome, QI must be owned, and, in the nursing context, become part of a nurse’s professional identity. While QI features in the Nursing Council of New Zealand (Nursing Council) scope of practice and competency 4.3 – “participates in quality improvement activities to monitor and improve standards of nursing” – (Nursing Council, 2007), there is a need to fully integrate this into all aspects of nurses’ professional identity – into vision and values at national level and into professional development, job descriptions and vision at local level.

The target areas for QI change are often nursing-sensitive (e.g. pressure ulcers, falls prevention, infection control and patient deterioration prevention), which affects how nurses own the process (West, Clews & Taylor, 2010). One method of profiling nursing involvement in QI change and ensuring ownership is to use specific nurse-owned patient safety indicators. These provide nurses with the accountability, responsibility and, more importantly, the authority to lead and action the changes required to improve patient outcomes. Nursing-sensitive quality indicators have the potential to claim back the future of nursing, profiling the importance of nursing’s involvement in QI change (Gallagher & Powell, 2003; Maben & Griffiths, 2008).

One challenge for nursing’s involvement in QI change is how the change is measured. Measurement allows a transparent view of the effectiveness of nursing in improving patient outcomes (Covell, 2009) and is one method of empowering nurses to promote nursing’s involvement in QI change. A potential area for up-skilling nurse leaders is the accurate measurement and interpretation of findings. Measurement will promote a greater interface with QI facilitators to improve understanding, and subsequently improve nursing’s contribution to QI change, while also defining the roles of nurse leaders and QI facilitators.

Leadership to empower nurses’ involvement

The role of leadership is to present, empower and facilitate QI change in a manner that is perceived as challenging (resulting in increased job satisfaction), as opposed to threatening, which has the potential to result in increased distress in the work place and absenteeism (Kuokkanen et al, 2009).

Clinical leadership

Clinical leadership underpins the successful facilitation of change in health care, lifts the overall performance of health care organisations and is central to the 2009 New Zealand Ministry of Health Meeting the Challenge report (Ministerial Review Group, 2009; Mountford & Webb, 2009). The foundation of clinical leadership is the collaboration between clinicians and managers, to create effective partnerships that form the basis of informed, evidenced-based decisions for the patient and direction for health care.

Professor of surgery Lord Darzi stated: “If clinicians are to be held to account for the quality outcomes of the care that they deliver, then they can reasonably expect that they will have the powers to affect those outcomes. This means they must be empowered to set the direction for the services they deliver, to make decisions on resources, and to make decisions on people.” (Brown et al, 2009).

The Meeting the Challenge report also suggests that the New Zealand public health system struggles to sustain itself, and emphasises the need to promote greater clinical leadership and engagement of clinicians in decision-making (Ministerial Review Group, 2009). A limitation of the report is the lack of definition of clinician. Assumptions may suggest clinician refers only to doctors, and excludes nurses and allied health staff. For nursing to be acknowledged, the definition of clinician, in the context of clinical leadership, must explicitly include nursing.

Organisational leadership

Findings suggested a lack of organisational leadership resulted in a lack of communication about QI initiatives, potential competition between various QI initiatives led by different parts of the QI unit, and
ultimately a disorganised approach. An organisational responsibility to QI change requires leadership that will ensure a systematic approach to its implementation, ensuring full engagement of nurses, and organisational leadership training that must include how middle managers empower nurses (J. Gray, personal communication, July 2010; Powell et al, 2009). The findings suggested nurses have knowledge and understanding of QI change, but need organisational commitment and support within a culture that promotes nurse-led QI change. All participants felt that the availability of resources, in particular time, education and training, was vital to allow them to undertake data collection, critically appraise literature and implement QI change.

**Time attributed to participate in QI change**

Findings showed the conflict nurses experienced with increasing demands from the acuity and turnover of patients on the one hand, and the organisational expectation for nurses to participate in QI change on the other. A consequence of nurses' involvement in QI change, also evident in other research, was less patient contact. QI requires nurses to spend time in less traditional nursing activities – such as auditing and attending meetings – taking nursing hours away from the patient (International Council of Nurses, 2009; Maben & Griffiths, 2008).

For nurses to contribute and attain the goals of the Meeting the Challenge report, greater involvement in clinical leadership and engagement in decision-making is required. The previously discussed nurse-sensitive indicators could be used to measure the effectiveness of nurses taking additional time to be involved in QI change and clinical leadership (Gallagher & Powell, 2003).

**Education and training to undertake QI change**

Findings showed the vast majority of participants (97 percent) agreed with the importance of collecting and analysing data, while almost 68 percent (n = 67) agreed that they regularly critically appraised the current literature to support QI. Of all study participants, some 36 percent said they had completed a post-graduate qualification (about 20 percent of RN participants and 84 percent of SNs).

For nurses to fulfil the Nursing Council competency requiring participation in QI to improve nursing standards, they must have the skills and training to do so (Valentine, 2001). Most of the literature suggests participation in QI change requires both university education and continuous training on the tools and techniques for change (Koh et al, 2008; Redfern & Christian, 2003; Simpson & Doig, 2007). The evidence shows a significant positive link between the percentage of nurses with a bachelor degree and the incidence of deaths related to health care (Covell, 2009; Kane et al, 2007). In addition, various studies suggest nurses who have completed university post-graduate education to masters level exceed other academic-level trained nurses in the area of research application, and as such, contribute to improved patient outcomes (Currie & Watterson, 2007; Koh et al, 2008).

The positive link between nurses' post-graduate education and training, and positive patient outcomes, suggests investment in nurses' education and continuing professional development is likely to financially benefit organisations. This is due to the reduced cost of adverse events, improved patient outcomes and retention of educated and experienced nurses (Covell, 2009).

A model that connects university-based education and continuous training is one of practice-based mentors, who help transfer knowledge and coach nurses in the practical application of QI change techniques (Koh et al, 2008; Redfern & Christian, 2003; Simpson & Doig, 2007). The role of mentor – its value being noted by mentors and mentees (Andrews & Wallis, 1999) – requires specific skills in coaching and mentoring and extensive experience of the implementation of change.

The nursing workforce is contracting at a time when demand for health care is increasing. Therefore, it is debatable whether the profession would be able to provide such mentors. Current roles within nursing, such as nurse educators, nurse specialists and charge nurses, potentially already have the remit for coaching and mentoring QI change. The evolution of these roles has seen them diverted away from clinical work to a more operational focus, meeting the needs of the organisation but not necessarily the needs of nursing and of patients.

**STUDY LIMITATIONS**

This study was conducted in only one New Zealand hospital. However the authors suggest the hospital has many similarities with other hospitals, not only in New Zealand, but in other countries, where health care reform and QI change are priorities. However further research is needed to understand the experiences of nurses working across the health sector, not just in hospitals.

The questionnaires provided data about nurses' perspectives on QI change. Further research, involving observation of nurses at work, would be useful, to determine how the working environment affects their ability to engage in QI change and how much it does so.

**CONCLUSION**

For the nursing sector to contribute more to QI change, QI needs to be embedded throughout the professional identity of the nursing sector. A whole-sector approach is needed, due to globalisation and the diversity of the current and future nursing workforces.

Nurse-sensitive domains give nursing back the responsibility, accountability and authority to act to improve patient outcomes; however, involvement requires time. Nurses also need to be allocated the time to specifically engage in QI change and clinical leadership. Organisationally, this must be factored into nurse-patient ratios and job descriptions. Nursing must take responsibility to profile its contributions to QI change and improved patient outcomes. Also, both the nursing sector and health care organisations must work to strengthen nurses' involvement in clinical leadership, via the expectations of government, organisational and professional bodies.

Lastly, mentorship of nurses, connecting university-based education and ongoing clinical-based training, will help improve patient outcomes, and the retention of educated and experienced nurses, and have a financial benefit for health care providers. Health care organisations should consider partnerships with education providers to provide the QI change education, training and mentoring that nurses require.

**REFERENCES**


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