NURSING INFORMATICS

POSITION STATEMENT

6 August 2017

Australian College of Nursing

HISA
AUSTRALIA'S DIGITAL HEALTH COMMUNITY

Nursing Informatics
Australia

SUPPORT FOR POSITION

This position statement has been developed to recognise the pivotal role of nurses in the widespread implementation and adoption of digital health technologies throughout the healthcare sector for the primary purpose of improving safety and quality of patient care. The successful planning, implementation, management and sustainability of such technologies cannot be achieved without the unique contribution of nurses.

Nursing informatics is a distinct specialty within nursing. With a history dating back 25 years[5, 15] nursing informatics has defined its practice as "the specialty that integrates nursing science with multiple information and analytical sciences to identify, define, manage, and communicate data, information, knowledge, and wisdom in nursing practice. Nursing informatics supports nurses, consumers, patients, the inter-professional healthcare team, and other stakeholders in their decision making in all roles and settings to achieve desired outcomes. This support is accomplished through the use of information structures, information processes, and information technology"[31]. In addition, this support will be strengthened by a critical mass of specialist nursing informaticians who will build digital health capacity amongst the nursing workforce. All nurses must have some knowledge of nursing informatics to deliver healthcare in the digital age.

The Health Informatics Society of Australia (HISA), Nursing Informatics Australia (NIA) and the Australian College of Nursing (ACN) have partnered to develop this Position Statement. This Position Statement advocates for the instrumental role of nurses in digitally transforming healthcare and makes the call to optimise the use of information and technology to enable better patient care.

Nursing informatics has a unique leadership role to ensure a digitally enabled health system delivers on the promise of better health outcomes for all Australians. Nursing is the largest single profession in the healthcare workforce and provides continuous care to patients during inpatient stays and to consumers within community and primary healthcare settings. The role of nurses in the digital environment has the potential to not only deliver improvements in efficiency and patient outcomes, but also to facilitate improved consumer and clinician experience. There is a clear need to identify areas in which action must be taken to ensure that nurse informatics leaders are acknowledged and recognised for their enabling role and to ensure nursing continues to evolve to meet the needs of the broader community who trust nurses to deliver safe, high quality care.

POSITION STATEMENT

The partner organisations endorse the following elements of the Position Statement.

1. **Informatics education for nurses is essential:** Education in nursing informatics is essential in all undergraduate and postgraduate nursing programs. Moreover, the workplace must provide education in health informatics to all nursing staff not only at induction but as part of continuous learning.

2. **Nurse Informaticians to be engaged in strategy and investment decisions:** Nurse Informaticians must participate in national, state and local dialogue on digital healthcare to influence and direct future strategy and investment decisions in the interest of patient focused care and improved health outcomes.

3. **Informatics teams with strong nursing presence:** Organisations, irrespective of size or setting, transitioning to digital health records to have an appropriately sized team responsible for informatics and nursing engagement that can facilitate partnerships with other disciplines and function as strong advocates for consumers. The team will be primarily responsible for embedding change into clinical workflow as well as provide governance oversight. This is to safeguard effective adoption and optimisation of clinical information systems.

4. **Executive Nursing Informatics roles:** Digital health requires Chief Nursing Information Officers (CNIO) or equivalent Nurse Executive Informatics role to lead the transformation required in the nursing workforce.

5. **Clinical informaticians and specifically nurses are vital to information system governance:** Nurses as users of clinical information systems must be involved in all stages of decision-making from initial planning and procurement through to implementation and ongoing management of clinical information technologies.

6. **Nurse informatics standards of practice upheld:** Nurse Informaticians ensure professional standards[23] and contemporary scope of practice requirements are incorporated and delivered within all clinical information systems. Nurses must meet ethical and professional standards of practice and promote a collaborative and inclusive role for patients when making healthcare decisions and when managing patient information.

7. **Nurse informaticians champion data quality standards and interoperability:** Nurse informaticians insist on the adoption of nationally agreed nursing data standards, data quality standards and interoperability that allows the exchange of clinical information meaningfully across healthcare systems for improved data integration, information sharing, performance monitoring, data analytics, patient safety and quality.

NURSING INFORMATICS POSITION ELEMENTS

The Health Informatics Society of Australia (HISA), Nursing Informatics Australia (NIA) and the Australian College of Nursing (ACN) advocate for the instrumental role of nurses in digitally transforming healthcare.

Nursing informatics education in nursing programs and workplaces

Nursing engagement to improve clinical workflow and governance oversight

To lead the transformation required in the nursing workforce

INFORMATICS EDUCATION FOR NURSES IS ESSENTIAL

STRONG NURSING PRESENCE IN INFORMATICS TEAMS

EXECUTIVE NURSING INFORMATICS ROLES

Nurses as clinical information system users involved in planning and decision-making

CHAMPION DATA QUALITY AND INTEROPERABILITY

INFORMATION SYSTEM GOVERNANCE

Enforce standards and interoperability that ensures meaningful information exchange

STANDARDS OF PRACTICE

NURSE INFORMATICIANS ENGAGED IN STRATEGY

Promote a collaborative and inclusive role when managing health information

Participate in national, state and local dialogue on digital healthcare

Nurse informatics leaders must be recognised for their enabling role, and nurses must evolve to meet the needs of the broader community who entrust them to deliver safe, high quality care in a 21st century digital healthcare system.

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WHY THIS POSITION STATEMENT IS IMPORTANT

Uniquely positioned, and contributing over half of the health and aged care workforce, the nursing profession provides invaluable insights into how healthcare funds may be most effectively utilised. The nursing workforce is highly educated, flexible, fiscally accountable and responsive to patient and community needs. Nurses are highly regarded and trusted. They utilise public confidence to guide consumer experience, enhance primary health care capacity and reach, and have the greatest impact on the success or failure of health and aged care reform[3].

As advocates for patients, their families and the community, nurses have long championed health care reform that leads to improved quality and access[25]. Nurses successfully plan, implement and evaluate a wide range of initiatives aimed at improving health outcomes, patient satisfaction and the more effective utilisation of scarce resources. Nurses rise to challenges when their patients and communities have needed them, demonstrating a unique ability to understand the health care system within the context of their patient's needs, and in doing so are highly respected as health and aged care reform leaders[3].

As the largest discipline within the healthcare workforce, nurses are major users of health information technology (HIT)[7]. The importance of nurse's attitudes to electronic patient records, therefore, cannot be underestimated[28]. There can be a gap between electronic medical record (EMR) pre-implementation expectations and the lived experience post-implementation. In a study that explored nurses' perceptions of their electronic medical record five years post-implementation it was found that while an overall positive attitude remained, correlations were found between computers increasing nursing time on specific tasks and workload due to cumbersome processes and workarounds. On reflection, nurses perceived that with greater clinical decision support, workload would ease. This expectation was primarily due to the power of EMRs to quickly compile data and propose advice at the point of care[13]. Therefore, usability of systems, their alignment to workflow and meeting information needs are key considerations for successfully designing and implementing EMRs. Moreover, adoption of nursing data standards nationally would enhance the user experience further through data analytics capability that could surface the evidence base for best practice in clinical care.

While the Australian healthcare system is the envy of many countries, in recent years, levels of improvement in health system performance have remained static and it may be argued, have plateaued. With strong commitment and enthusiasm to invest in clinical systems and rapidly move away from paper-based clinical documentation there is an expectation that improved information management capability and data analytics will break through existing health system performance thresholds. However, technology alone will not achieve results.

A 'build (implement) it and they will come' mindset without clinician involvement has not been successful. New digital solutions and products are flourishing in the marketplace in an almost uncontrolled manner. Without opportunity for co-design with healthcare providers the unintended consequence of further fragmentation of information and services, as well as adverse events are likely to arise. Practising clinicians

– nurses specifically – must be enabled to take a leading role in digital healthcare to ensure technology is designed and used effectively. Nurses must ensure that technology does not get in the way of patient care, but rather enhances capacity to deliver better, safer care.

This nursing informatics position statement is a call to action for nurses to lead in decision-making as well as to partner; to obtain the knowledge and experience to act as knowledge brokers and to transform services and empower patients in self-care. The opportunities driven by expertise in nursing informatics that also underpin this position statement are outlined in the following.

RATIONALE FOR ELEMENTS

INFORMATICS EDUCATION FOR NURSES IS ESSENTIAL

As informatics becomes more integral to the practice of healthcare so too does the requirement to embed the informatics credential within formal programs of nursing education. In 2014, the Australian Nursing and Midwifery Accreditation Council (ANMAC) revised its accreditation criteria to include education in health informatics and health technology in all Australian undergraduate nursing courses. As a result of this change universities have integrated informatics into their curricula and commenced the development of courses for nurse educators in nurse informatics[9]. Subsequently, the first set of Australian informatics standards of practice for nurses was released through the Australian and Nursing and Midwifery Federation National Informatics Standards for Nurses and Midwives in early 2016[4]. With such endorsement, a skilled nursing informatics workforce is within reach.

> **Element 1:** *Education in nursing informatics is essential in all undergraduate and postgraduate nursing programs. Moreover, the workplace must provide education in health informatics to all nursing staff not only at induction but as part of continuous learning.*

NURSE INFORMATICIANS ENGAGE IN STRATEGY

Nurses are change agents and deserve representation at decision making levels regardless of healthcare organisation or setting. Nurse informaticians have advocated for the need for all nursing leaders to become knowledgeable and engaged in setting the direction for informatics in the profession.

Nurses are well placed to lead reform throughout all levels of the health and aged care system. However, nurse representation on key advisory and decision-making bodies has been lacking. This is an area that needs addressing in the immediate future. Nurse informaticians have the experience and knowledge to benefit these decision-making bodies, particularly with regard to ensuring the right technological changes are made for improved and more efficient patient-centred care. More nurses need to be included in these processes representing a range of nursing specialities.

Including nurse informaticians on government decision-making bodies will enable them to deliver "clear and insightful leadership of e-health programs within the health sector"[14]. Informaticians have a good understanding of how programs should be structured and funded to avoid the cultural and operational complexities that can plague such programs[14].

Element 2: *Nurse Informaticians must participate in national, state and local dialogue on digital healthcare to influence and direct future strategy and investment decisions in the interest of patient focused care and improved health outcomes.*

STRONG NURSING PRESENCE IN INFORMATICS TEAMS

Nurses leading the way in health informatics must be enabled to contribute to healthcare in a connected world. Nurses are ideally positioned to lead the charge to transform clinical environments through their in-depth knowledge of healthcare, their core role within the care team and their experience with clinical information systems. Nursing informatics is not solely the province of specialists. All nurses must integrate information and information technology into routine practice and embrace opportunities to manage care in new ways to meet healthcare demands[8]. Evidence-based practice is the gold standard for clinical practice and yet we know from the National Academy of Medicine in the USA, there is on average a 17-year gap between the publication of research outcomes to those findings being put into practice. Other challenges include creating pragmatic mechanisms for distilling meaningful information from the sheer volume of research being generated to support health professionals to keep up to date[10, 19]. With digital platforms now all-pervasive, nurses must adapt, optimise and be more sophisticated in their stewardship of these new tools.

Nursing informatics leadership is expected to frame measures of success in terms of whether patients were more engaged in their care and whether there were fewer adverse events and readmissions, for example[32]. One challenge will be to reframe the way in which technology and the information it generates helps in the delivery of the highest quality and best value care for patients[32]. For instance, aged care nurses have had great success in promoting improvements in nursing sensitive measures such as patient falls by modelling adoption and use of electronic health records and by leading quality improvement efforts that engage both senior leadership and front-line nursing staff[32]. Nurses must be engaged if health care reform enabled by technology is to successfully engage consumers and other disciplines as partners in healthcare.

Element 3: *Organisations, irrespective of size or setting, transitioning to digital health records to have an appropriately sized team responsible for informatics and nursing engagement that can facilitate partnerships with other disciplines and function as strong advocates for consumers. The team will be primarily responsible for business as usual activity and ongoing governance processes associated with the effective adoption of clinical information systems.*

EXECUTIVE NURSING INFORMATICS ROLES

Nurse leaders to influence decisions relative to the right technological changes for improved and more efficient patient-centred care. As strong proponents of evidence based practice, nursing informatics leaders need to work together to build a suite of successful case studies where nurse scientists have demonstrated the positive impact of health information technology (HIT) initiatives. Communicating these advances will assist in adoption of the most suitable technology[33].

Leadership for the strategic use of ICT and informatics in nursing, and strategic partnerships to support mutual enhancement of ICT is an important strategy for the promotion of global health[1]. The International Council of Nurses realises that nurses will need to better understand the global health discourse and shape and reshape conversations at multiple levels (i.e. intrapersonal, interpersonal, organisational, and sociocultural) to inform world views and promote behaviour change in favour of healthcare reform that will lead to health for all[25].

With implementation of nursing modules within EMR systems, advocacy for a C-suite role, the Chief Nursing Information(-ics) Officer, alongside the more common Chief Medical Information(-ics) Officer is emerging. This is in recognition of the discipline-specific change management that needs to occur with nurses regarding optimising the use of clinical information systems as a component of their workflow as well as safeguarding a strong influencing role for nurses in shaping new technology and models of service delivery. Furthermore, the Institute of Medicine has reiterated that healthcare reform cannot take place without strong leadership from within the ranks of nurses who constitute the largest occupational group of the healthcare workforce[16].

Element 4: *Digital health requires Chief Nursing Information Officers (CNIO) or equivalent Nurse Executive Informatics role to lead the transformation required in the nursing workforce.*

INFORMATION SYSTEM GOVERNANCE

More nurses to be engaged in all stages of health information technology – from design and planning to implementation and evaluation. Nurses are often the first and last point of contact with a patient and therefore often hold the first and last opportunity to prevent an error. This makes the nurse an important asset in ensuring clinical information systems do not unintentionally harm patients[12]. The challenge for nurse leaders is to select the best IT solution that delivers the highest quality and best value care for patients, reduces operational costs, and is easy to use by nursing staff.

With many organisations investing in clinical information systems, nurses must be given an active role in contributing to requirements gathering, evaluation, design and ultimately selection of clinical systems[26]. As the largest group of system users, when nurses are not engaged in design and procurement processes, they frequently find themselves working with systems that fail to meet their clinical needs and are subsequently

compelled to find workarounds to maintain patient safety to compensate for system flaws or even failed implementations[27].

Nurses are well positioned to work through all stages of the health information technology lifecycle and make a positive impact on patient care across the spectrum of settings and contexts such as, acute, subacute, non-acute, palliative, rural/remote, public, private, community and so on[6, 11, 21].

Element 5: *Nurses as users of clinical information systems must be involved in all stages of decision-making from initial planning and procurement through to implementation and ongoing management of clinical information technologies.*

STANDARDS OF PRACTICE

Nursing informatics standards of practice must be leveraged in all areas of nursing work. Whether nurses are involved in direct patient care, administration, research or education, the use of information technology to support decision making is an essential competency of healthcare in the 21st century[18]. For nursing, health information technologies fundamentally change the way in which "nurses plan, deliver, document and review clinical care. Nurses at all levels must have the skills in analysis and data synthesis to effectively use technology to improve the quality and effectiveness of care"[16].

In terms of a capability development journey, Sewell and Thede[29] identify four levels of informatics competencies for nurses: the beginning nurse who possesses basic information management and computer skills; the experienced nurse who is highly skilled in using information management and technology to support major areas of practice such as making judgements on trends and patterns and suggesting improvement in nursing systems; the informatics nurse specialist who integrates and applies information, computer and nursing sciences; and the informatics innovator who conducts informatics research and generates informatics theory. For aspiring nurse informaticians, recent findings from a Brazilian study suggest that the two standout informatics capabilities are: literacy and information management. In this study, the Technology Informatics Guiding Education Reforms (TIGER) initiative was put to the test to evaluate which of the informatics capabilities were essential to decision making in nursing management. It was found that information literacy competencies were essential to evidence-based practice while information management competencies were more essential to nurse roles with decision-making responsibilities[18].

With current state and federal government investment in electronic patient records three major trends are observed: the connected age; transformation of the health care delivery system and the engaged patient. In terms of the next generation of informatics practice standards there is a need for nurses to be technology and information literate in the connected care arena. Nurses need to use digital tools to communicate with an inter-professional team as well as interact with patients, families and caregivers via technologies including virtual visits, patient portals, social media and personal robotic assistants, to name some. In this context, nurses need to maintain a sense of presence and caring in virtual patient visits and through various digital

media. Moreover, with the growing volume of data that information systems can aggregate, nurses need data analytics and data visualisation capabilities[30].

> **Element 6:** *Nurse Informaticians ensure professional standards[23] and contemporary scope of practice requirements are incorporated and delivered within all clinical information systems. Nurses must meet ethical and professional standards of practice and promote a collaborative and inclusive role for patients when making healthcare decisions and when managing patient information.*

CHAMPION DATA QUALITY AND INTEROPERABILITY

Nurses must champion and navigate through the barriers to improved data integration and analyses as well as information sharing. Data standards are the principal informatics component necessary for information flow in a national health information infrastructure[2]. This is an issue that is debated often but without resolution despite the existence of enabling technology.

The National Informatics Standards for Nurses and Midwives 2015[4], articulate nursing commitment to data standards, interoperability and nursing clinical domain models[17, 20, 24]. Supported by these Standards, nurses can act with confidence and advocate strongly for information sharing.

Efforts to promote interoperability and data sharing are essential for a spectrum of reasons ranging from individual self-care through to managing population health and research into specific health problems. Clinical practice in the future will include inter-professional teams, patients and their relatives and a wide range of virtual devices that are all connected. Teams will need to work across organisational boundaries.

Practically, this means that nurses will be members of different teams at the same time. This new notion of teamwork contrasts with what is typically recognised as teams in organisational settings. Teams of the future in healthcare will challenge the way communication currently occurs within teams as well as the way information is exchanged, because consumers/patients will be equal players in any team. Nurse informaticians are instrumental in supporting and developing these emerging virtual and 'temporary' teams around patients[22]. This type of clinical environment will be without bricks and mortar, more fluid and virtual and more successful in achieving improved health outcomes. The glue that ultimately binds this new context for healthcare will be shared information.

> **Element 7:** *Nurse informaticians insist on the adoption of nationally agreed nursing data standards, data quality standards and interoperability that allows the exchange of clinical information meaningfully across healthcare systems for improved data integration, information sharing, performance monitoring, data analytics, patient safety and quality.*

SUGGESTED RESOURCES

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