



## NURSING INFORMATICS POSITION STATEMENT

3 April 2017, Version 9

### Support for Position

Nursing informatics has a unique leadership role to ensure a digitally enabled health system delivers on the promise of better health outcomes for Australians. Nursing is the largest single profession in the healthcare workforce and as such provides care to clients 24/7 and manages patient information continuously. To date, the investment in nursing informatics has not achieved the expected results and has not been able to establish the traction to take advantage of the benefits that nursing informatics offers. There is a clear need to identify areas in which action must be taken to ensure that nurses have the skillset to maximise the investment in nursing informatics and to ensure nursing informatics continues to evolve to meet the needs of the nursing community.

This position statement has been developed in response to the widespread implementation and adoption of digital health technologies throughout the healthcare sector and to recognise the pivotal role of nurses and midwives in the successful planning, implementation and ongoing use and management of such technologies. The nursing role in this context is Nursing Informatics. Nursing Informatics is defined as, "science and practice (that) integrates nursing, its information and knowledge, with management of information and communication technologies to promote the health of people, families, and communities worldwide".<sup>1</sup>

In collaboration with the Health Informatics Society of Australia (HISA) and Nursing Informatics Australia (NIA), the Australian College of Nursing (ACN) presents this Position Statement on the instrumental role of nurses in digitally transforming healthcare and the call to optimise the use of information and communications technology for the benefit of patient care.

### The partner organisations endorse the following Statements

1. A Nurse Executive within each organisation to have responsibility for nursing informatics. Preferably, this will be a designated senior Nurse Informatician, but may be in conjunction with other responsibilities in smaller organisations.
2. Nurses to be a collaborative partner in decision making at all stages of planning, policy development, design, implementation and ongoing management of digital technologies. This would include clinical, management, education and research representation as appropriate.
3. Nurse Informaticians to be actively involved in national, state and local dialogue on digital healthcare, provide direction and influence future strategy and investment decisions. Healthcare executives across public, private and government organisations to seek the contribution of nurses through their appointment to committees and leadership teams.

<sup>1</sup> International Medical Informatics Association Special Interest Group on Nursing Informatics 2009. The internationally agreed definition of nursing informatics. <https://www.amia.org/programs/working-groups/nursing-informatics> Accessed 16 Jan 2017



4. Commitment to developing and adhering to data standards and interoperability that will allow improved data integration, analysis and information sharing for the benefit of clinical care and patient outcomes.
5. Nurses will advocate for clients in relation to access to health information, privacy and use of their health information.
6. Education in nursing informatics is required in all nursing programs at undergraduate and postgraduate level.
7. Appropriate levels of informatics training be provided to all nursing staff when commencing employment and whenever new systems are introduced.
8. A minimum dataset on nursing informatics be collated and shared following open access principles.

## Background

Collecting and processing most patient data has historically been the responsibility of nursing staff and, even today, they rely primarily on labour-intensive methods to record, retrieve and manipulate information.<sup>2</sup> As the largest discipline within the healthcare workforce, nurses are major users of health information technology (HIT).<sup>3</sup> The importance of nursing staff's attitudes, therefore, cannot be underestimated, given that many HIT initiatives fail because of limited user acceptance among nursing personnel.<sup>4</sup>

With current commitment and enthusiasm in the healthcare sector to invest in clinical systems and rapidly move away from paper-based clinical documentation, practising clinicians – nurses specifically – must be utilised to take a leading role in digital healthcare to ensure technology is designed and used for the benefit of safe and high quality patient care.

## Issues

**Nursing informatics competencies are fundamental to nursing practice in all areas of nursing work, including direct patient care, administration and education.**

The integration of informatics skills into nursing and midwifery practice is fundamental at all levels for nurses and midwives in the health and aged care systems. For nursing, health information technologies fundamentally change the way in which “registered nurses plan, deliver, document and review clinical care”.<sup>5</sup> Nurses at all levels will be expected to use a “variety of technological tools and

<sup>2</sup> Kathleen M. Hunter and Carol J Bickford, 'The practice speciality of nursing informatics' in Virginia K. Saba and Kathleen A. McCormick (eds), *Essentials of nursing informatics* (McGraw-Hill Education International, 6<sup>th</sup> ed, 2015) 229-248.

<sup>3</sup> Seon Yoon Chung and Nancy Staggers, 'Measuring nursing informatics competencies of practicing nurses in Korea: nursing informatics competencies questionnaire' (2014) 32 (12) *CIN: Computers, Informatics, Nursing* 596.

<sup>4</sup> Elizabeth Sassen, 'Love, hate or indifference: how nurses really feel about the electronic health record system' (2009) 27 (5) *CIN: Computers, Informatics, Nursing* 281.

<sup>5</sup> Institute of Medicine. *The future of nursing: Leading change, advancing health*. National Academies Press: Washington, DC, 2010.



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complex information management systems that require skills in analysis and synthesis to improve the quality and effectiveness of care".<sup>6</sup>

The current post electronic health record (EHR) era<sup>7</sup> has fuelled three major trends: the connected age; transformation of the health care delivery system and the engaged patient. In terms of the next generation of informatics competencies for practicing nurses there is a need for nurses to be equipped with health information literacy in the connected care arena. Nurses will need to use digital tools to communicate with an inter-professional team as well as interact with patients, families and caregivers via virtual visits, patient portals, social media and even personal robotic assistants. In this context, nurses will need to be able to maintain a sense of presence and caring in virtual patient visits and through various digital media. With the growing volume of data that information systems can aggregate, nurses will need data analytics and data visualisation competencies.<sup>8</sup>

The first set of Australian informatics competencies for nurses was released through the Australian and Nursing and Midwifery Federation National Informatics Standards for Nurses and Midwives in early 2016.<sup>9</sup> Nursing is leading the health workforce in the integration of informatics in undergraduate education. In 2012 the ANMAC accreditation was revised to include informatics education to be included in all Australian undergraduate nursing courses (ANMAC 2012 document). 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.<sup>10</sup>

Sewell and Thede<sup>11</sup> 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.

A skilled informatics workforce is required in Australia in the next decade, given the substantial State and Federal government investment in electronic health information systems.<sup>12</sup>

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<sup>6</sup> Institute of Medicine. The future of nursing: Leading change, advancing health. National Academies Press: Washington, DC, 2010.

<sup>7</sup> The post EHR commenced from 2010,

<sup>8</sup> Skiba Diane J, 'Nursing informatics education: from automation to connected care' in Murphy et al (Eds) *Forecasting Informatics Competencies for Nurses in the Future of Connected Health*, (2017) 9-19

<sup>9</sup> ANMF (2015) National Informatics Standards for Nurses and Midwives, Available:

[http://anmf.org.au/documents/National\\_Informatics\\_Standards\\_For\\_Nurses\\_And\\_Midwives](http://anmf.org.au/documents/National_Informatics_Standards_For_Nurses_And_Midwives). (Accessed 16.03.2017)

<sup>10</sup> Cummings E, Shin EH, Mather C, Hovenga E. (2016) Embedding nursing informatics education into an Australian undergraduate nursing degree, *Studies in Health Technology and Informatics*, **225** pp. 329-333. doi:10.3233/978-1-61499-658-3-329 ISSN 0926-9630 (2016).

<sup>11</sup> Jeanne Sewell and Linda Thede, *Informatics and nursing: opportunities and challenges*, (Wolters Kluwer Health, 4th ed, 2013).

<sup>12</sup> Jen Bichel-Findlay, Cathy Doran, Louise Schaper and Lis Herbert, 'Nursing and informatics: a transformational synergy' (2016) article in press.



## **Nurses are leading the way in health informatics and their informatics competencies must be utilised to contribute to health and healthcare in a connected world**

Nursing informatics essentially dates back to Florence Nightingale, who realised not only the importance of data and its relationship to patient outcomes and quality nursing care, but also how data could promote innovation in health service delivery<sup>13</sup>. In the late 1980s it came into its own as a discipline of nursing that intended to address the better use of data and information for the improvement of patient care.

In a study undertaken by the Australian Nursing Federation in 2007, over 85% of nurses and midwives at the time used a computer for some aspect of their work.<sup>14</sup> It is likely that now ten years on, computer usage has reached saturation point. Against this backdrop, 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 and meet healthcare demands.<sup>15</sup> Evidence-based practice will become the norm for nursing and will replace the mentality of 'we've always done it this way'.

We are past the tipping point of technological transformation and nurses must adapt, optimise and be more sophisticated in our stewardship of these new tools. Nursing informatics leadership will frame measures of success in terms of whether patients were more engaged in their care; were there fewer adverse events and readmissions, for example.<sup>16</sup> The challenge for the modern nurse in a digitally enabled healthcare setting will be to reframe how technology and the information it generates delivers the highest quality and best value care for patients.

## **Not enough nurses are included in all stages of health information technology – from design and planning to implementation and evaluation**

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.<sup>17</sup> As the largest group of users of systems, when nurses are not engaged in design and procurement processes, they frequently find themselves working with systems that fail to meet clinical needs and are subsequently compelled to find workarounds to maintain patient safety to compensate for system flaws or even failed implementations.<sup>18</sup> Currently, nurses are not sufficiently

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<sup>13</sup> McBride AB 2006 Informatics and the future of nursing practice. In Weaver CA, Delaney CW, Weber P and Carr RL (Eds). Nursing and informatics for the 21st century: An international look at practice, trends, and the future, 2nd ed. Healthcare Information and Management Systems Society: Chicago, IL, pp 5-12

<sup>14</sup> Australian Nursing Federation. 2007. Nurses and information technology. Available at: <http://anmf.org.au/pages/it-project>

<sup>15</sup> Cooper A, Hamer S (2012) Strategic leadership skills for nursing informatics. Nursing Times; 108:20, 25-26

<sup>16</sup> Wachter R. 2016. *Making IT Work: Harnessing the Power of Health Information Technology to Improve Care in England*. Report of the National Advisory Group on Health Information Technology in England.

<sup>17</sup> Remus S. The big data revolution: opportunities for chief nurse executives, Can J Nurs Leadersh. 2016;28(4):18-28.

<sup>18</sup> Remus S., Kennedy MA. Innovation in transformative nursing leadership: nursing informatics competencies and roles, Can J Nurs Leadersh. 2012;25(4):14-26



informed about information technology health initiatives and poorly consulted about implementation of these initiatives.

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 from the neonatal intensive care environment to residential aged care facilities.<sup>19, 20, 21</sup>

### **Nurse leaders need to be empowered to influence decisions in relation to the right technological changes for improved and more efficient patient-centred care.**

The challenge for the modern nurse leader is to convince executives 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.

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.<sup>22</sup> Nursing informatics leadership can then frame measures of success in terms of whether patients were more engaged in their care and whether there are fewer adverse events and readmissions.<sup>23</sup> For instance, gerontological 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.<sup>24</sup>

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 HIT initiatives. Communicating these advances to executives will assist in adoption of the most suitable technology.<sup>25</sup> Leadership for 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.<sup>26</sup>

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<sup>19</sup> Moen A. A nursing perspective to design and implementation of electronic patient record systems. 2003.

<http://www.sciencedirect.com/science/article/pii/S153204640300100X>

<sup>20</sup> G. Ewing, Y. Freer, R. Logie, J. Hunter, N. McIntosh, S. Rudkin, L. Ferouson. Role and experience determine decision support interface requirements in a neonatal intensive care unit environment.

<sup>21</sup> Bowles K, Dykes, P, Demiris G. 2015. The Use of Health Information Technology to Improve Care and Outcomes for Older Adults. *Res Gerontol Nurs*. 2015 Jan-Feb; 8(1): 5–10. doi: [10.3928/19404921-20121222-01](https://doi.org/10.3928/19404921-20121222-01)

<sup>22</sup> McGonigle D, Mastrian K. 2015. Data mining as a research tool. In McGonigle D & Mastrian K (eds) *Nursing informatics and the foundation of knowledge*, 3<sup>rd</sup> edn. Jones & Bartlett Learning. Burlington, Massachusetts, PP421-434

<sup>23</sup> Wachter R. 2016. *Making IT Work: Harnessing the Power of Health Information Technology to Improve Care in England*. Report of the National Advisory Group on Health Information Technology in England.

<sup>24</sup> McFadden KL, Stock GN, Gowen CR. Leadership, safety climate, and continuous quality improvement: Impact on process quality and patient safety. *Health Care Management Review*, Feb. 2014;21

<sup>25</sup> Westra L, et al. Big data science: A literature review of nursing research exemplars. 2016.

[http://www.nursingoutlook.org/article/S0029-6554\(16\)30396-7/abstract](http://www.nursingoutlook.org/article/S0029-6554(16)30396-7/abstract)

<sup>26</sup> Abbott P and Coenen A. 2008. *Leadership for 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*. [http://nursing.ahmu.edu.cn/swygt/upload/editorfiles/2012.2.29\\_13.59.20\\_1560.pdf](http://nursing.ahmu.edu.cn/swygt/upload/editorfiles/2012.2.29_13.59.20_1560.pdf)



**Nurses are proponents of structural change at national, organisational and individual levels to ensure commitment to data standards and interoperability that enables improved data integration and analyses, as well as information sharing.**

The National Informatics Standards for Nurses and Midwives 2015,<sup>27</sup> articulate nursing commitment to data standards and interoperability and yet this remains an ongoing issue and barrier to information sharing.

Data standards are the principal informatics component necessary for information flow in a national health information infrastructure.<sup>28</sup> 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 (internet of things) that are all connected. Teams will also work across organisational boundaries. Practically, this means that nurses will be members of different teams at the same time. This notion of teamwork contrasts with what is typically recognised as teams in organisations, departments and units. Teams of the future will challenge the way communication currently occurs within teams as well as the way information is exchanged. Nurse informaticians will play a key role in the support and development of these emerging virtual and 'temporary' teams around patients.<sup>29</sup>

**Nurses have been under-represented on Government agency decision-making bodies which prevents the Government from understanding how nursing informatics provides solutions to systemic health issues.**

Nurses are well placed to lead reform throughout all levels of the health and aged care system. However, their representation on key advisory and decision making bodies is disappointingly low across in all states and territories. 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.

Including informaticians on Government decision-making bodies will enable them to deliver "clear and insightful leadership of eHealth programs within the health sector."<sup>30</sup> 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.<sup>31</sup>

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<sup>27</sup> Australian Nursing and Midwifery Federation (2015). National Informatics Standards for Nurses and Midwives. Australian Government Department of Health and Ageing.

[http://anmf.org.au/documents/National\\_Informatics\\_Standards\\_For\\_Nurses\\_And\\_Midwives.pdf](http://anmf.org.au/documents/National_Informatics_Standards_For_Nurses_And_Midwives.pdf)

<sup>28</sup> Patient Safety: Achieving a New Standard of Care. 2004. The National Academies Press. Chapter 4: Health Care Standards. <https://www.nap.edu/read/10863/chapter/7>

<sup>29</sup> Nagle Lynn M, Sermeus, W, Junger A, 'Evolving role of the nursing informatics specialist'. In Forecasting Informatics Competencies for nurses in the future of connected Health. J Murpy et al (Eds) (2017) 212- 221

<sup>30</sup> Health Informatics Society of Australia, A vision for an Australian Healthcare system transformed by health informatics, November 2007. Victoria

<sup>31</sup> HISA ibid



## About the Collaborating Partners



### THE AUSTRALIAN COLLEGE OF NURSING (ACN) IS ADVANCING NURSE LEADERSHIP TO ENHANCE HEALTH AND AGED CARE

The **Australian College of Nursing (ACN)** is a professional nursing membership-organisation, open to nurses in all settings and at every stage of their career. In addition to being the *Australian member* of the **International Council of Nurses**, we are also an authorised higher education provider and registered training organisation and we specialise in online postgraduate, professional development and training courses for registered and enrolled nurses.

*"The Australian College of Nursing (ACN) is the preeminent and national leader of the nursing profession"*. ACN's intent is to enhance health care by advancing nurse leadership. It does this by developing and nurturing the leadership skills and expertise of nurses. Through its membership and education services, and leadership development program, ACN encourages and supports nurses at every level to develop their leadership skills and competency in order to make a strong contribution to policy by providing their professional, economic and health perspectives.



The Health Informatics Society of Australia (HISA) is Australia's leading professional organisation for the digital health community. Members from the whole health spectrum from clinicians to academics, researchers and vendors are committed to transforming healthcare through information and technology. With corporate collaboration, university support and industry connections - members everywhere have opportunities for education, certification and networking at State events and premier conferences. [www.hisa.org.au](http://www.hisa.org.au)



**Nursing Informatics Australia (NIA)** is the pre-eminent group of **nursing** informaticians in **Australia**. NIA membership is open to all registered **nurses** and registered midwives. This HISA SIG is a good reference point to learn about the developments in **Nursing Informatics** both nationally and internationally. NIA aims to promote nursing informatics priorities such as appropriate language, education and ongoing research. It engenders nursing and midwifery to embrace information and communication technologies, and establishes strong foundations for taking these developments forward. It also ensures nursing and midwifery has the data and resources to continue to provide evidence-based, quality, cost-effective and outcome-driven care for patients and clients into the future.