# NATIONAL INFORMATICS STANDARDS for NURSES AND MIDWIVES

Australian Nursing and Midwifery Federation Standards funded by the Australian Government Department of Health and Ageing



#### NATIONAL INFORMATICS STANDARDS FOR NURSES AND MIDWIVES

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Assistance with the research component of this ANMF project was provided by a team from Queensland University of Technology (QUT).

The ANMF thanks the Project Advisory Committee and all those nurses and midwives who contributed to the research and development of these national informatics standards.

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## Foreword

The Australian Nursing and Midwifery Federation (ANMF) is delighted to be able to release the *National informatics standards for nurses and midwives* for the benefit of all nurses and midwives. These national Standards clearly articulate the standard of computer literacy, information literacy and information management required of all nurses and midwives, for practice.

The current minimum standards for registration as a registered nurse, midwife or enrolled nurse, do not specifically address the necessity for nurses or midwives to have basic informatics skills on completion of either undergraduate education (registered nurses and midwives) or vocational training (enrolled nurses). The findings of both a study undertaken by the then Australian Nursing Federation (ANF) in 2007, and this more recent project, highlighted the need for nurses and midwives to have informatics education and a standard for use of informatics in their practice.

The integration of informatics skills into nursing and midwifery practice is fundamental for nurses and midwives at all levels in the health and aged care systems. Attainment of these informatics standards by nurses and midwives will assist them in the delivery of safer, better integrated care, based on timely evidence, leading to positive health and aged care outcomes for the community.

This project was made possible by the generous contribution of many nurses and midwives across the country who participated in the underpinning research for the development of these national informatics standards.

We encourage all nurses and midwives to use these national Standards to ensure they are equipped to meet the information literacy and management demands of contemporary nursing and midwifery practice for the benefit of the Australian community.

Lee Thomas Federal Secretary Australian Nursing and Midwifery Federation

## **Glossary of Terms**

The terms in this glossary are key words used either in the introductory text or in the ANMF *National Informatics Standards for Nurses and Midwives.* 

**Cues** are key generic examples of competent performance. They are neither comprehensive nor exhaustive. Cues assist the assessor when using their professional judgement in assessing nursing practice; self-reflection; and, in curriculum development.<sup>1</sup>

**Competence** is the combination of knowledge, skills, attitudes, values and abilities that underpin effective performance in a profession. It encompasses confidence and capability.<sup>2</sup>

**Competent** is demonstrating the ability to apply the [informatics] standards at a level that is judged to be appropriate for the level of nurse or midwife being assessed.<sup>3</sup>

**Computer literacy** is the ability to transmit, investigate, share, and create knowledge, and critically reason with a computer.<sup>4</sup>

**Data analytics** is the science of examining raw data with the purpose of drawing conclusions about that information.<sup>5</sup>

**Electronic health record** is a computerised repository for a person's health information providing information to members of the health care team regarding a clinical encounter. Many systems can also provide decision support, quality assurance information and outcome data.<sup>6</sup>

**Enrolled Nurse** is a person who has completed the prescribed educational preparation, demonstrates competence for practise and is registered with the Nursing and Midwifery Board of Australia, under the National Law as an enrolled nurse in Australia. Enrolled nurses provide nursing care under the supervision of a registered nurse.<sup>7</sup>

**Ergonomics** is a scientific discipline devoted to the study of analysis of human work, especially as it is affected by individual anatomical, psychological, and other human characteristics.<sup>8</sup>

**Informatics** the discipline of science that investigates the structure and properties (not specific content) of scientific information, as well as the regularities of scientific information activity, its theory, history, methodology, and organisation.<sup>9</sup>

**Information Literacy** is an understanding and set of abilities enabling individuals to 'recognise when information is needed, and have the capacity to locate, evaluate, and use effectively the needed information.<sup>10</sup>

**Information and Communication Technologies (ICT)** is the technologies and platforms used in the generation, storage, retrieval, access, manipulation, and transmission of information in various scientific, technological, socio-economic, and political frameworks.<sup>11</sup> **Information Management** is the way in which an organisation plans, identifies, creates, receives, collects, organises, governs, secures, uses, controls, disseminates, exchanges, maintains, preserves and disposes of its information. It is also the means through which the organisation ensures that the value of that information is identified and exploited.<sup>12</sup>

**Information Technology (IT)** is a broad subject concerned with technology and other aspects of managing and processing information. In particular IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and retrieve information.<sup>13</sup>

**Interoperability** describes the extent to which systems and devices can exchange data, and interpret that shared data. For two systems to be interoperable, they must be able to exchange data and subsequently present that data such that it can be understood by a user.<sup>14</sup>

**Intranets** is the name given to a restricted-access network that works like the Web. Usually owned and managed by an organisation, the intranet enables that organisation to share its resources internally without confidential information being made available to everyone with Internet access.<sup>15</sup>

**HTML** is the common name for HyperText Markup Language, which is the standard markup language used to create web pages.

**Hypertext link** is an inserted link in a word or graphic that takes the user from one document to another document or website when the user clicks the word/image (hypertext).<sup>16</sup>

**Midwife** is a person who has completed the prescribed educational preparation, demonstrated competence for practice, and is registered with the Nursing and Midwifery Board of Australia, under the National Law, as a midwife. Includes eligible midwives and endorsed midwives.<sup>17</sup>

**Registered Nurse** is a person who has completed the prescribed educational preparation, demonstrated competence for practice, and is registered with the Nursing and Midwifery Board of Australia, under the National Law as a registered nurse. The term also includes nurse practitioners.<sup>18</sup>

URL address or Uniform Resource Locator, is the address of a Web page.<sup>19</sup>

**Interoperability** describes the extent to which systems and devices can exchange data, and interpret that shared data. For two systems to be interoperable, they must be able to exchange data and subsequently present that data such that it can be understood by a user.<sup>14</sup>

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1 Nursing and Midwifery Board of Australia (NMBA). August 2013. National competency standards for the registered nurse. (Rebranded to NMBA 2007; effective from July 2013). Available at:

http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Codes-Guidelines.aspx#dmf 2 Nursing and Midwifery Board of Australia (NMBA). July 2013. A national framework for the development of decision-making tools for nursing and midwifery practice. (Rebranded to NMBA 2007; effective from July 2013). Available at:

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4 Khosrow-Pour, M. 2013. 2nd Ed. Dictionary of Information Science and Technology. Volume 1. Information Resources Management Association, USA. Information Science Reference. p.184.

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6 Mosby's Medical Dictionary. 2013. 9th Ed. Elsevier Health Sciences. London.

7 NMBA. July 2013. Ibid.

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11 Khosrow-Pou. 2013. Ibid, p.476

12 Victorian Government. 2013. Information Management. Retrieved from: http://www.digital.vic.gov.au/policies-standards-guidelines/information-management/

13 Khosrow-Pour. 2013. Ibid. p.486

14 Healthcare Information and Management Systems Society (HIMSS). 2013. What is interoperability? http://www. himss.org/library/interoperability-standards/what-is

15 Adapted from Khosrow-Pour. 2013. Ibid. p.524

16 Khosrow-Pour. 2013. Ibid. p.447

17 NMBA. July 2013. Ibid.

18 Ibid.

19 Khosrow-Pour. 2013. Ibid. p.919

# Abbreviations

ANMF	Australian Nursing and Midwifery Federation
ANF	Australian Nursing Federation
EN	Enrolled Nurse
ІСТ	Information and Communication Technologies
іт	Information Technology
NMBA	Nursing and Midwifery Board of Australia
RN	Registered Nurse
QUT	Queensland University of Technology

## Introduction

The ANMF Policy Statement Information management and Information technology<sup>20</sup> states:

Resources should be provided to enable nurses, midwives and assistants in nursing and other health and aged care facility staff to understand the professional and legal implications of nursing and midwifery documentation and to develop the skills necessary for the best possible management of information systems.

Development of appropriate information technology competence to meet the *National informatics standards for nurses and midwives* should be an integral part of all nursing and midwifery education.

Electronic communication technologies are increasingly the commonest mode for transfer of information across health and aged care settings. These technologies can improve care delivery through their benefits to nurses and midwives, such as: access to timely information; easy sharing of clinical data and investigative results; integration of health information across care settings; access to individual health records (for example, Personally Controlled Electronic Health Records); real time workforce data; on-line continuing professional development; ready availability of research to support evidence-based practice; interactive rostering systems; education program scheduling; access to updated organisational policies and procedures, as well as policy and position statements of professional and industrial organisations.

It is fundamental that informatics skills be integrated into nursing and midwifery practice at all levels, for nurses and midwives working in the health and aged care systems. The attainment of these informatics standards will assist nurses and midwives in the delivery of safer, better integrated and evidence-based care, resulting in positive health and aged care outcomes for the community.

## Background

A major study undertaken by the then Australian Nursing Federation in 2007 revealed that over 85% of nurses and midwives at that time used a computer for some aspect of their work.<sup>21</sup> Rapid growth of electronic media in health and aged care settings requires that all nurses and midwives must be proficient in the use of computers and the management of information technology. In particular, they should understand the importance and use of clinical information systems in their practice, as well as have skills in the manipulation of data to support safe and informed practice.

20 Australian Nursing and Midwifery Federation. *Policy Statement: Information management and information technology*. Reviewed and re-endorsed June 2011. Available at: http://anmf.org.au/pages/anmf-policies

<sup>21</sup> Australian Nursing Federation. 2007. *Nurses and information technology*. Available at: http://anmf.org.au/pages/it-project

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, to assist in the delivery of safer, better integrated care, with positive effects on patient outcomes. To date, there has been no measure by which nurses and midwives could assess their competence in information technology and information management systems.

With funds provided by the then Australian Government Department of Health and Ageing, the Australian Nursing Federation (now Australian Nursing and Midwifery Federation – ANMF) undertook a project to develop national informatics standards for the nursing and midwifery professions. Assistance with the research component of this ANMF project was provided by a team from Queensland University of Technology (QUT).

The project aim was to develop informatics standards for nurses and midwives which could facilitate on-going development of skilled, capable and informed nursing and midwifery workforces, able to use the tools technology provides, to deliver safer, better integrated care due to timely information.

The resultant *National informatics standards for nurses and midwives* were developed following a review of the literature and data derived from focus groups of nurses and midwives, responses to an on-line survey, as well as interviews with individual nurses and midwives. Draft standards were reviewed by the nurses and midwives participating in these activities, key stakeholders and expert nurse and midwife informaticians, with the final version of the standards reflecting their feedback. These standards are for all registered nurses, midwives and enrolled nurses.

To practice, nurses and midwives must meet the Nursing and Midwifery Board of Australia's (NMBA) national standards for practice for registered nurses, midwives and enrolled nurses. The standards in use up to 2015 had not addressed the necessity for nurses or midwives to have informatics skills in either undergraduate education or vocational training. Fortunately, revised practice standards for registered nurses, midwives and enrolled nurses will include core tenets of the ANMF national informatics standards to address the required standard for practice for nurses and midwives in informatics. As the NMBA practice standards form the basis for curriculum development for beginning level education for nurses and midwives, a national approach to integration of informatics competence development for all nurses and midwives into nursing and midwifery curricula (higher education and vocational education nursing and midwifery programs) will be assured.

## **National Informatics Standards for Nursing and Midwifery**

The ANMF's project confirmed the importance of informatics in nursing and midwifery practice and identified key areas to focus on for development of competence. The standards to follow provide a measure by which all registered nurses, midwives and enrolled nurses can assess their competence in information technology and information management systems.

The ANMF *National Informatics Standards for Nursing and Midwifery* will be a valuable tool for all nurses and midwives to use in conjunction with the NMBA standards for practice for registered nurses, midwives and enrolled nurses.

## **The Standards**

### **Domain 1: Computer Literacy**

Applies knowledge and skills in computer basics for effective use of information and communication technologies.

#### **Domain 2: Information Literacy**

Uses fundamental knowledge and skills to identify, locate, access, evaluate and apply information

#### **Domain 3: Information Management**

Uses knowledge and skills to ensure safe, legal and ethical management of health information for professional practice and lifelong learning, appropriate to context of practice.

## **Computer Literacy**

**Standard 1** Demonstrates knowledge and skills in computer basics.

## **Information Literacy**

Standard 2	Effectively and efficiently identifies and finds information to support evidence-based practice.
Standard 3	Critically evaluates information gathered.
Standard 4	Manages information collected or generated.

## **Information Management**

Standard 5	Demonstrates collection, use and management of data and information to support decision-making in practice.
Standard 6	Demonstrates understanding of the purpose, basic structures, use and storage of electronic health records.
Standard 7	Understands the concepts, scope and practice of a variety of information and communication technologies that support health and aged care.
Standard 8	Complies with the legal and regulatory requirements, and ethical principles, for all uses of information and communication technologies used in nursing and midwifery practice.
Standard 9	Demonstrates the ability to use information communication technologies to promote safe, effective use of information to support nursing and midwifery practice.
Standard 10	Demonstrates the ability to include research, evidence-based practice and quality improvements in supporting the use of information and communication technologies.

## NATIONAL INFORMATICS STANDARDS FOR NURSES AND MIDWIVES

## Domain 1: Computer Literacy\*

Applies knowledge and skills in computer basics for effective use of information and communication technologies\*.

#### Standard 1

Demonstrates knowledge and skills in computer basics

Cue	5 <sup>*</sup>
1.1	Understands concepts of Information and Communication Technologies (ICT)
1.2	Understands the basic concepts of computers, electronic devices, operating systems, intranets, hardware, software and peripheral devices.
1.3	<ul> <li>Knows how to use and manage ICT relevant to practice, effectively and efficiently, such as:</li> <li>computer/s or electronic device/s</li> <li>the World Wide Web</li> <li>electronic communication</li> <li>electronic file management</li> <li>word processing</li> <li>spreadsheets</li> <li>databases presentation software</li> </ul>
1.4	Considers ergonomics and workstation safety
* See	e Glossary of Terms

## **Domain 2: Information Literacy\***

Uses fundamental knowledge and skills to identify, locate, access, evaluate and apply information.

#### Standard 2

Effectively and efficiently identifies and finds information to support evidence-based practice

Cues	
2.1	Uses basic on-line searching options and Internet terminology, for example: website, HTML*, home page, hypertext link*, bookmark, URL address*
2.2	Constructs and implements effective on-line literature and resource search strategies which include scholarly literature and websites
2.3	Uses appropriate services to retrieve information needed, for example; library resources, professional associations, community resources, relevant experts and practitioners
2.4	Keeps up to date with information sources, information technologies, tools for accessing information and investigative methods
* See Glossary of Terms	

## Standard 3

Critically evaluates information gathered

Cues	
3.1	<ul> <li>Defines and applies criteria for evaluating information</li> <li>examines and compares information from various sources to critically evaluate reliability, currency, validity, accuracy, authority, timeliness, and point of view or bias</li> <li>recognises the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information</li> </ul>

Manages information collected or generated

Cues	5
4.1	Records and organises information and its sources using information management* tools
4.3	Demonstrates an understanding of intellectual property, copyright and fair use of copyrighted material
4.4	Considers cultural, ethical, and socioeconomic issues related to access to, and use of, information
4.5	Manages information legally and respectfully
* See	e Glossary of Terms

Reference: Bundy, A. (Ed.). 2004. 2nd Ed. *Australian and New Zealand Information Literacy Framework: Principles, standards and practice*. Used with permission from the Australian and New Zealand Institute for Information Literacy.

## **Domain 3: Information Management**

Uses knowledge and skills to ensure safe, legal and ethical management of health information for professional practice and lifelong learning, appropriate to context of practice.

#### **Standard 5**

Demonstrates collection, use and management of data and information to support decisionmaking in practice

Cue	S
5.1	Understands the concept of information management
5.2	Recognises the difference between data and information and how both can be used to support practice
5.3	Identifies purposes, benefits and potential risks of aggregating clinical data
5.4	Demonstrates ability to manage access to electronic health data and information
5.5	Demonstrates ability to communicate electronically with other health care professionals using networks, intranets, and internet
5.6	Understands importance of data and information to support and to advance nursing and midwifery practice
5.7	Understands decision support systems and their application to practice
5.8	Understands that measuring the relationship between nursing and midwifery care and health outcomes has the ability to influence health policy, health budgets, practice, research and education
5.9	Advocates for use of innovative information and communication technologies to support nursing and midwifery practice and quality health outcomes

Demonstrates understanding of the purpose, basic structures, use and storage of electronic health records and personally controlled health records

Cue	Cues		
6.1	Understands data storage methods including formats and movement of data and information		
6.2	Understands the impact of information management on clinical workflows		
6.3	Understands the basis and application of coding systems, classifications, terminologies and languages that support the use of information and communication systems in nursing and midwifery practice		
6.4	Complies with national standards for the use of information and communication technologies in health and nursing and midwifery systems		
6.5	Understands the importance of data quality, analysis and presentation to quality control and validation of information		
6.6	Communicates and collaborates with key stakeholders relating to the collection, use and management of electronic health data and information		

#### Standard 7

Understands the concepts, scope and practice of a variety of information and communication technologies that support health and aged care

Cues		
7.1	Understands basic informatics terminology such as data, information, knowledge, hardware, software, computer, networks, information systems, and information systems management	
7.2	Understands the importance of interoperability* of systems and communication	
7.3	Understands the importance of data analytics* and the impact on care delivery	
7.4	Promotes awareness and education on collection, use and management of health data, information sharing and information access	
7.5	Demonstrates use of a variety of information and communication technologies that support safe, quality nursing and midwifery practice	
*See G	Glossary of Terms	

Complies with the legal and regulatory requirements, and ethical principles, for all uses of information and communication technologies used in nursing and midwifery practice

Cues	
8.1	Understands the legal and regulatory requirements, and ethical issues, related to the use of electronic data and health/aged care information
8.2	Uses electronic health data and information legally and ethically
8.3	Describes individuals' rights related to use of their electronic health information and health/aged care records
8.4	Identifies basic measures for electronic health data and information security and data disposal
8.5	Complies with privacy laws, confidentiality, security principles, legislation, governance and ownership of data when accessing electronic health data and information systems
8.6	Works within national legislation, policies and standards for electronic health information systems
8.7	Reports illegal practices or unprofessional conduct
8.8	Advocates for the protection and rights of persons receiving care, healthcare providers and organisations

Demonstrates the ability to use information communication technologies to promote safe effective use of information to support nursing and midwifery practice

Cues	
9.1	Integrates and uses electronic communication competently
9.2	Presents data and information clearly and accurately
9.3	Adheres to requirements for documentation
9.4	Demonstrates ability to create reports
9.5	Demonstrates ability to use information and communication technologies for the provision of education and information
9.6	Understands strengths and weaknesses of information and communication technologies
9.7	Ensures usage of information and communication technologies supports practice

## Standard 10

Demonstrates the ability to include research, evidence-based practice and quality improvements in supporting the use of information and communication technologies

Cues		
10.1	Undertakes regular literature searches to inform nursing and midwifery practice	
10.2	Advocates for innovation, quality improvement, research and evidence based practice using information and communication technologies to support practice	
10.3	Uses research to guide practice in the use of information and communication technologies that support nursing and midwifery practice	
10.4	Promotes involvement of nurses and midwives in design, implementation and evaluation of information and communication technologies that support nursing and midwifery practice	

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## **Appendix A**

## **Members of the Project Advisory Committee**

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