

## How Health Information Tools Help Nursing: International Perspectives from Five Countries

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### Abstract

*This presentation will be in a workshop format with a panel of presenters representing five countries. All speakers will address the question of how are health information tools helping the profession of nursing, thereby giving an international perspective, before inviting the audience to discuss and share their views.*

*Health information tools are numerous, yet little consideration is sometimes given as to how these tools help nursing. Nursing, in this context includes the nurses at the bedside or nurses who work directly with individuals, families or communities, as well as nursing administration, management, research and education. The panel will describe how health information tools help nursing using numerous examples and the following five point framework: Access to evidence-based resources; improved communication; monitoring of patients; improved safety and increased efficiency.*

### Keywords:

Internationality; safety; nursing practice

### Introduction

There are many health information tools available but how these tools help nursing is not often addressed. Nursing, in this sense includes the nurses at the bedside or nurses who work directly with people, as well as any area where nursing is involved, which includes nursing administration, management, research and education. This is in keeping with the International Medical Informatics Association - Nursing Informatics Special Interest Group (IMIA-NI) definition of nursing informatics that states "Nursing Informatics science and practice integrates nursing, its information and knowledge and their management with information and communication technologies to promote the health of people, families and communities world wide" [1].

Quinn suggests that health information tools can help nurses in five different ways [2]. The first way is by supporting quick and easy access to evidence-based resources. Secondly by improved communication via mobile, instant messaging, email and via video-conferencing either with patients and other health professionals. Next by making it easier to monitor patients as health information tools includes devices such as those that take a blood pressure electronically, or measure blood glucose levels. Health information tools can improve safety as when the nurse has a unique login a chain of evidence is established. For example, electronic charting can indicate when data or information has been added to an electronic health record (EHR) and by whom. Finally, health information tools can

increase nurses' efficiency when information is collected once, used multiple times, and is readily available when it is needed, including at the point of care. Furthermore, time saved through using health information tools can result in extra time to spend with patients [2]. These five aspects will now be explored in greater depth.

### Access to evidence-based resources

Health information tools, either as stand-alone tools, or embedded into clinical systems, can support easy access to evidence-based resources. Supporting access to evidence often starts with asking a question therefore commencing a search of available resources, including clinical databases and health information portals. Then the nurse needs to be able to differentiate between different sources to establish which are most credible. Finally an analysis of evidence is needed to determine if the evidence located is relevant and appropriate for the question being asked and for the context. If access to evidence-based resources is embedded within a clinical system then some of these steps may have occurred so that the nurse just needs to highlight or activate a link to locate pre-selected information about a specific topic. This means the nurse can locate information and evidence to support best practice in a timely manner at the point of care.

### Improved communication

Communication can be improved by health information tools in many ways, varying from mobile phones, instant messaging, email and via video-conferencing. With the global increase in internet access and access via smart phones more wide spread affordable communication is possible [3]. Communication and interaction mediated by information and communication technologies (ICT) can be either with patients and/or other health professionals [4]. When the communication involves care at a distance the term telehealth is often used. Additionally, health information tools can provide a mechanism for patients to provide their health professionals with information and for sharing information with family, friends, and other patients [4]. Furthermore, as Lavin, Harper, and Barr note inter-professional communication can be improved by having nursing documentation within an EHR as this allows information to be available for all health professionals [5].

## Monitoring patients

Monitoring is the observation of the state of a person and their health condition over time. Using health information tools for monitoring includes the use of devices such as those that measure blood pressure, temperature and other physiological parameters. While these are predominantly found in hospitals, their miniaturisation has meant that nurses working in community settings are able to take devices with them when seeing patients. Also because of the ease of their use, patients and their families living in the community are also able to use many health information tools. For example, glucometers are portable and easy to use for measuring blood glucose levels. Although it can be beneficial for patients to be actively involved in managing their health through self-monitoring, ICT can provide the means to share this data thereby allowing partnership between a patient and their nurse, as well as other health professionals. When this monitoring occurs remotely it is often called tele-monitoring, as is a further example of telehealth.

## Improved safety

Improving patient safety is a key benefit of implementing health information tools in healthcare. The ways safety can be affected are myriad, and only a few are indicated here. For example, electronic documentation is more legible, therefore potentially reducing errors. When the nurse and other health professionals have a unique login an audit trail can be created indicating when data or information has been added to, or accessed within a clinical system or electronic health record (EHR) and by whom. Therefore electronic systems, if designed and maintained can lead to more secure patient information. Once data is available electronically then the data can be searched and presented in different ways. Data entered numerically can be charted and presented graphically so trends are more easily visualised which may result in earlier intervention, improving patient safety. Furthermore, information can be readily stored and retrieved for future use, so data collected once can be available, when and where it is needed.

## Increased efficiency

Health information tools can increase nurses' efficiency when information is collected once, used multiple times, and is readily available when it is needed, including at the point of care. Improved documentation and communication between health professionals can reduce the time nurses spend on these aspects therefore releasing time for other aspects of nursing care provision. In addition to increasing efficiency health information tools, including EHR, can provide the additional benefits of improving safety and quality of care [6]. An EHR can improve care coordination through sharing of information [4]. Efficiency gains for nurses from EHR usage can be achieved but may be dependent on the EHR supporting nursing workflow and practices [5]. This highlights the need for nurses to be actively involved in system design so a nursing perspective is included in any clinical system.

## Discussion

A 2017 overview of systematic reviews was conducted to identify the influence of ICT on nursing care [7]. Many themes were found in the systematic review and these are reflected in

the five point framework based on the work of Quinn [2] used above. Overall the driver for using health information tools in nursing is to support quality, safe patient-centred care [4,7]. While the use of ICTs by nurses impacts on practice, knowing that safer, higher quality care can be achieved is sufficient impetus to embrace technology use. However, recognising the multiple benefits of health information tools in nursing reinforces the need for nurses to develop their informatics skills, including how to integrate ICT use with clinical practice.

## The Panel

### Michelle Honey

Dr Michelle Honey has been a nursing informatics leader in New Zealand since the early 1990s. She is currently co-chair of the IMIA-NI Education Working Group and represents New Zealand on the Technology Informatics Guiding Education Reform (TIGER) International Committee.

### Elizabeth Cummings

Associate Professor Elizabeth Cummings has been involved in health informatics for 20 years and coordinates the ehealth degrees at the University of Tasmania. She is currently the Deputy Chair of Nursing Informatics Australia and the Australian representative on IMIA-NI.

### Sayonara de Fatima Barbosa

Sayonara is Associate Professor for the Nursing Department in the Graduate Program in Nursing and Post-Graduate Program in Health Informatics at the Federal University of Santa Catarina in southern Brazil. She is a member of the Editorial Board of the International Journal of Health Informatics and Vice-Chair of the Nursing Informatics Special Interest Group of the International Medical Informatics Association (IMIA-NI).

### Joy Lee

Dr Joy Lee is a nursing informatics leader in Cheng General Hospital in Taiwan. She is currently the president of Taiwan Nursing Informatics Association.

### Diane J. Skiba

Professor Skiba has been teaching nurses about informatics since 1982. She is currently the Chair, IMIA Nursing Informatics Special Interest Group and was one of founding members of TIGER initiative. She is currently the Informatics Specialty Director at the University of Colorado.

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