

The Roles and Functions of Informatics Nurse Specialists in Taiwan

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Abstract. During the modernization process in hospitals, information technology is an important indicator. “Informatics nurses” play a critical role in hospitals and clinics. In Taiwan, the certification system of informatics nurses just recently began in 2016. The development of certificated personnel results from students who have graduated with a university degree in nursing and have taken classes in informatics, as well as nurses who have been trained in informatics at clinics and hospitals, and the establishment of a national nursing informatics association. Clinically, the main responsibilities of Informatics Nurse Specialists are system analysis, training, problem solving, data analysis, and communication. In Taiwan, as of September 2016, only 48 informatics nurses have been certified. They are working either in hospitals or at universities.

Keywords. nursing informatics, informatics nurse specialist, certification of informatics nurse specialist

1. Introduction

The development of information technology has changed the world and allowed the innovation of nursing care services. In recent years, the development of nursing informatics in Taiwan has been catching up with international trends and has been regarded positively by the international nursing informatics community. The integration of information technology into the medical care system has created the new nursing role of “informatics nurse.” Although the certification system and job description for these nurses have become increasingly comprehensive in many countries, Taiwan remains in an early developmental stage in these regards [1]. The Taiwan Nursing Informatics Association (TNIA) clearly articulates the role, responsibilities, and job descriptions and defines the training requirements and certification system.

This paper introduces the functions and professional growth of informatics nurses and introduces the framework for a certification system, which gives medical and paramedical staff a better understanding of informatics nursing and helps them to recognize the important role played by informatics nurses in the healthcare industry.

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2. Evolution of the roles and functions of informatics nurses

The roles and functions of informatics nurses have become increasingly more important in the modernization of hospitals. The evolution of nursing informatics in Taiwan has led to both independent roles and coordinating roles for informatics nurses.

The functions of the independent role are:

- a. Conducting system and workflow analysis
- b. Operating system implementation and system evaluation
- c. Planning of user education and training
- d. Compiling work manuals
- e. Updating relevant knowledge and skills
- f. Solving problems
- g. Applying information technology to nursing
- h. Conducting data analysis and information analysis
- i. Message processing and information integration
- j. Facilitating communication and coordination
- k. Providing user support and consulting

The functions of the coordinating role are:

- a. Nursing care quality control. This includes evaluating system functions, evaluating problem-solving ability and efficacy, improving patient safety and care quality, and monitoring the legality and integrity of patient information.
- b. Education, training, and consulting. This refers to assisting clinicians in maintaining or improving job readiness.
- c. Improving the professional ability of nurses and providing education through analysis, planning, or continuing education.
- d. Communication and coordination. This refers to linking the individual networks of the units in a healthcare team to achieve coordination and integration of professional work content.
- e. Innovation and development, particularly research in the areas of clinical care guidelines and informatics nursing [2].

3. Nursing informatics education and training

As for the education and training of informatics nurses in Taiwan, some universities offer courses which introduce concepts in nursing informatics within their general nursing programs. With the growing importance of the role of information technology, some universities now require these courses to be taken so that nursing students can fully understand nursing informatics prior to graduation. Some two-year community colleges also offer nursing informatics programs. These courses comply with the two-year community college nursing program curriculum set forth by the Taiwan Ministry of Education. These programs comprise 72 credits in general education and nursing, including 20 credits in required nursing informatics courses such as computer hardware, computer software, database applications, nursing informatics development and status, project design, information ethics and safety, healthcare information, and practicum in nursing informatics. The programs provide students with the necessary knowledge and skills required by informatics nurses [3].

Some universities have established graduate programs in nursing informatics, which provide a platform for nursing professionals who are interested in this career path. In addition, some schools offer nursing informatics courses through their in-service and continuing education departments, providing currently employed nurses with continued training to improve their skills in informatics. [1]

Lastly, professional associations such as the Taiwan Association for Medical Informatics (TAMI) and Taiwan Nursing Informatics Association (TNIA) annually offer courses in practical or applied nursing informatics to assist in the education and training of healthcare informatics professionals in Taiwan.

Currently, most medium-size and large Taiwanese hospitals have established nursing informatics committees to promote and develop work in this field. Some hospitals employ one to three full-time or dedicated informatics nurses to assist in promoting nursing that integrates information technology. Hospitals that value nursing informatics development also generally have both nurses and committees to promote clinical care information systems.

4. Certification of Informatics Nurses

According to a 2010 survey compiled by the Taiwan Nursing Informatics Association (TNIA), 3.1% of clinical healthcare workers expect informatics nurses to have a degree from a community college, 56.8% expect nurses to have a bachelor's degree, and 38.7% expect a master's degree. The same survey showed that 6.2% of respondents expect informatics nurses to have less than three years of clinical experience, 50.6% expect four to six years of clinical experience, and 37.5% expect more than seven years of clinical experience. Regarding the professional training received by informatics nurses, 15.6% of respondents felt that it should be provided by bachelor's degree programs, 20.6% felt that it should be provided by master's degree programs, and 25.8% felt that it should be offered by professional nursing associations, such as the TNIA [2].

Based on the survey results, in 2014, TNIA undertook drafting the certification pre-requisites and qualifications for informatics nurses and informatics nurse specialists [4]. Informatics nurses must be licensed registered nurses and members of TNIA, they must have a bachelor's degree in nursing, they must have two or more years of clinical nursing experience and at least one year of practical experience in informatics, and they must have taken at least 30 hours of informatics courses during the past three years, including least 15 hours in courses which are offered by TNIA.

Certifications are awarded after a review of qualifications or after passing a written exam. Certified informatics nurses who receive an additional 10 hours of informatics training within two years may receive certification as informatics nurse specialists after a review of qualifications or after passing a written exam. The informatics nurse specialist certification is valid for a period of five years, and 60 hours of continuing education in informatics is required to renew the certification [5]. [Table 1]

The Taiwan Nursing Informatics Association began accepting certification applications in February 2015 [5]. As of September 2016, 48 certifications have been awarded, signaling a new milestone in the evolution of the role of informatics nurses in Taiwan.

Table 1 The basic requirements for Informatics Nurses and Specialists in Taiwan, 2015[5]

Requirements	Informatics Nurses (IN)	Informatics Nurse Specialist (INS)
Certification organization	TNIA	TNIA
Academic degree	Bachelor degree	Bachelor degree
Training hours	at least 30 hours during the last three years	at least 10 hours during the last two years
Clinical nursing experience	at least three years	at least three years
Practical experience	at least one year	at least one year
Method of certification	Paper-based exam & qualification	Paper-based exam & qualification
Period of validity	---	five years

Note : Each applicant must be a registered nurse and a member of TNIA.

Also, in order to be an informatics nurse specialist, a nurse must already be certified in informatics nursing.

5. Conclusion

The development of nursing informatics is a current trend. Over the last 5 years, information technology has made rapid progress in Taiwan. The Taiwan government strongly encourages innovation of medical information. The hospital accreditation committee emphasizes the application of medical information more and more. Thus, hospitals of all sizes are eager to develop medical information systems. As a result, informatics nurses have to continuously learn about information technology as well as nursing knowledge and skills to help hospitals and nursing professionals be ready for the new era of medical information technology in the 21st century.

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