

The development and evaluation of a nursing information system in hospital of Ministry of Public Health Thailand setting.

Health information systems (HIS) are now widely used in modern health care organizations. Many of them rely on information technology to provide quality services to their patients. For this reason, the Thai Ministry of Health has set an agenda for health through its sustainable development goals. It is clear that in order to achieve the goals, reliable data is needed to grasp the scope of the task at hand and make informed decisions about health priorities and resource allocation to achieve the most efficient and effective outcomes. (Ministry of Public Health Thailand, 2020).

Studies conducted in Indonesian hospitals found that nursing reports are a routine process for which nurses spend about 37% of their total working time. Half of all nurses have to stay at work for 1-2 hours longer after the end of their shift because they have to complete the nursing report. (Rachmawaty, 2015). This approach has several disadvantages including wasted time, disruption of patient care, medical errors, compromised patient safety, faded and illegible manual documentation processes, high staff turnover, legal problems, etc. (Akhu-Zaheya, Al-Maaitah and Bany, 2018). Therefore, nursing information systems (NIS) are crucial to collect and generate quality data to enhance knowledge, build better health information systems in the future and ensure that there are efficient NIS.

Nursing is one of the most important health care services and represents the largest end-user group for HIS. The computerized NIS is a component of HIS that addresses nursing issues and assists nurses in their daily work. (Lingamallu and Nayakvadi, 2017). Nursing organizations have been established in many hospitals to support their main tasks such as planning, implementation, ward management, program monitoring, nursing documentation based on the nursing process, and overall quality assurance and improvement of all aspects of nursing care. (Liao, Chiu and Tsai, 2020). Thus, the development and evaluation of this system helps nurses to provide better care to patients and facilitates access to health care information, avoidance of duplicate documentation, and better compliance with legal standards and principles.

In Thailand, there are few studies that address these difficulties. Those that have been conducted have primarily focused on the development and certain evaluation criteria such as the impact on nursing documentation and the structural requirements of nursing data management in the computer system. (Samadbeik, Shahrokhi, Saremian, Garavand and

Birjandi, 2017). Nurses' experiences on the impact of NIS on the efficiency of nursing service. (Shojaei and Baniasadi, 2020). However, none of these studies address the evolution and changes in information processing in nursing since the introduction of computerized NIS. Therefore, the major challenge of this study is to design, develop, and evaluate a NIS that encompasses all nursing activities, as well as to determine its key data elements and the validity of the corresponding values.

This effort becomes the focus of developing an information system by presenting the nursing information system available at the nursing service in accordance with the nurse's job description. If this problem can be solved, the development of an integrated nursing information system is obviously an important strategy that will enable the nurse to manage the complex nursing data and documents.

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