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# Electronic Health Records from the Perspective of Nurses

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**ABSTRACT**

Since the time of Florence Nightingale, the founder of modern nursing, data obtained by nurses about patient diagnosis have become the most crucial source in planning care. These data have now been transferred to electronic media. Electronic health records have increased the quality and safety of care and helped establish accessible and holistic health records. In this process, while nurses try to adapt to the electronic health record system rapidly, they also experience work stress due to the complex workflow and time pressure. However, in the current period of rapid digitalization, nurse informaticists, with their increased skills and observation of user experiences, can be the key health personnel for every institution to develop and improve electronic health records.

**Keywords:** Nursing, Nursing Informaticists, Electronic Health Records

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## INTRODUCTION

Since the beginning of modern nursing, nursing data have been the most potent source for planning and improving the quality of care. Nurses have used the data obtained within the scope of their contemporary roles by transforming them into information. The need for the effective management of information in healthcare has led to the emergence of 'nursing informatics,' which integrates nursing science, computer science, and information science (Seçginli, 2022). This relatively new field, which has matured since the 1980s, is now defined as a "specialty that integrates nursing science with multiple information and analytical sciences to identify, define, manage and communicate data, information, knowledge, and wisdom in nursing practice" (ANA, 2014).

In healthcare institutions, it is imperative to access information promptly to increase the quality of services and financial efficiency. Information technologies have become the fastest way of rapidly accessing information in many areas, including healthcare. This transformation aims to improve communication between patients and nurses, share information based on automation, prevent medical errors, and increase evidence-based practices (HIMMS, 2018).

Electronic health records (EHRs) are defined as recorded patient data that is digitally stored, can be accessed by a large number of authorized users, and can be securely shared between parties (Hayrinen et al., 2008). In the current information and communication age, the use of EHRs is becoming increasingly widespread. It has been reported that in the USA, the rate of EHR use in hospitals is over 90%, and the rate of EHRs enriched with a decision support system has increased from 2 to 44% within the last decade (Henry et al., 2016). EHRs, especially those with comprehensive content, is now recognized as a method to reduce healthcare costs, increase efficiency, and optimize patient safety (Hessels et al., 2015; Walker-Czyz, 2016).

As the largest group employed in healthcare delivery settings, nurses are considered to be the absolute users of EHRs (IOM, 2010). The Institute of Medicine (IOM) underlines the importance of nursing in digital healthcare transformation, stating that nurses should interact with other healthcare professionals to redesign healthcare services. Nurses will be expected to interact with EHRs more frequently in the following years. According to IOM, almost all nursing practices will acquire a digital dimension in the future (IOM, 2010; IOM, 2011).

Currently, nurses use EHRs for documentation, medication management, clinical observation, and coordination of patient care (Kutney-Lee et al., 2019). In the literature, while some studies suggest that using EHRs provides safer and higher-quality care (Jarvis et al., 2013; Hessels et al., 2015), others indicate that some nurses consider the efficacy of this practice questionable in terms of improving patient care since it is time-consuming and complicates workflow (Howe et al., 2018; Kim et al., 2017). However, these negative views of nurses may be related to institutional factors and different characteristics of the clinical field. In Turkey, it has been stated that nurses' most frequently recorded data in EHRs are patients' vital signs and nursing observation notes (Erdat, 2020).

According to socio-technical theory, EHRs cannot be successfully designed or implemented without considering their suitability for nurses' use and existing care services, particularly the work environment (Carayon, 2012; Harrison et al., 2007). The results of studies on this subject also indicate that the lack of personnel compliance with EHR practices is one of the most likely causes of unfavorable outcomes related to record-keeping after login (Strudwick et al., 2016; Boonstra et al., 2014). Kutney-Lee et al. (2019) stated that nurses' increased use of EHRs improved the quality of care. In a study conducted at St. Joseph's Hospital in 2016, it was reported that nurses were able to adapt to technological innovations very quickly and provide individual-centered and high-quality nursing care. Using technologies reduced the associated cost and workload (Walker-Czyz, 2016). Consistent with these results, in another study, it was shown that using clinical decision support systems improved records on pressure ulcers and malnutrition, thus significantly reducing malnutrition rates (Fossum et al., 2011).

In healthcare, individuals and organizations need to acquire new skills and competencies to cope with the ever-changing and increasing digital developments (Gaskin and Skousen, 2016; Stevenson et al., 2010). The increasing use of information and communication technologies results in healthcare personnel continually gaining new skills and working under time pressure. However, increasing competence in using information technologies is not sufficient unless the technology works well (de Veer et al., 2011). While studies conducted in Texas and Norway showed that nurse satisfaction with EHRs was low

(Mcbride et al., 2017; Helleso and Sjetne, 2012), the most important determinant of satisfaction among nurses in Canada was reported to be the preferred working style, current practices, and professional values (Maillet et al., 2015). According to a study conducted by Vehko et al. (2019), the constant changes in and poor user-friendliness of EHRs create significant time pressure for nurses and become a source of psychological stress.

The timely and accurate recording of patient data in EHRs by nurses is essential in determining the physical, psychological, and sociocultural needs of the patient and helping create an appropriate care plan (Sahney and Sharma, 2018). Ensuring that all patient records are quickly and holistically accessible allows nurses to assess patients and prepare a more comprehensive care plan suitable for their needs (Yılmaz, 2014). In a study by Öztürk et al. (2022), 86% of nurses stated that computer-based care plans positively affected the quality of care. In another study, Demiray and Babaoğlu (2021) determined that nursing diagnoses in the system may be insufficient when changes occur in patients' conditions, and a system allowing for manual entries into the system might be effective in resolving this problem and providing personalized care. In the same study, it was stated that the use of EHRs by nurses not only improved patient outcomes but also facilitated their implementation of the care plan (Demiray and Babaoğlu, 2021). Such computer-based maintenance plans can also be used as a learning tool that guides nursing practices. In addition, there is a need to use a classification system that facilitates communication in planning care based on a common language in EHRs. When developing such software, institutions should include nursing classification systems in this process (Tastan et al., 2014).

In addition to planning care, EHRs are also crucial in providing data to conduct research and creating a legal source by documenting the care and treatment applied in a healthcare institution (Sahney and Sharma, 2018). Nurses perform large data entries into EHRs in their specific areas. Using a common language in the electronic environment is essential to ensure that the data entered are of national and international value and can be used for future research purposes (Jacquemard et al., 2020). Most of the 'big data' recorded on EHRs include the subjective and objective assessment of nurses. Nurses must access EHRs representing large databases to identify general problems and plan a

research process based on these problems (Kaplan, 2021). From this point of view, within the scope of the researcher role, nurses can retrospectively benefit from these data in developing their profession and revealing evidence of the care provided (Gedük, 2018; Persell et al., 2018; Tubbs-Coley et al., 2019).

Using information technologies, nurses can perform various roles, such as counseling and education, as well as providing higher-quality individualized nursing care (Machon et al., 2020). In this regard, it is recommended that nursing informatics systems, including EHRs, should be included in the curriculum starting from undergraduate nursing education (Konukbay et al., 2020). However, student nurses currently need access to EHRs in practice (Kaplan, 2021), which may result in inadequacies related to EHRs at the beginning of their professional lives.

The use of technologies in nursing practices has brought along a process of change, trusting essential responsibilities to nursing preceptors and leaders, including training, regulating the number of nurses, and allowing them to feel self-confident about using technologies. Nurse preceptors and leaders also need to research technologies adopted in other disciplines to increase their efficiency in the care environment (Cloyd and Thompson, 2020).

The success of an EHR depends on how usable software is for healthcare professionals, and there is a need for a comprehensive usability assessment before the system can be successfully implemented. However, not all nurses have the knowledge and skills necessary to perform extensive usability testing; therefore, as healthcare-related technology and software become more specialized, usability assessments should be conducted for EHRs under the guidance of nurse informaticists (Rojas and Seckman, 2014).

Fundamental changes that have occurred in nursing practice with the introduction of health informatics have increased the interest of nurses in the field of informatics (ANA, 2008). The evaluation of the usability of software by nurses will not only demonstrate the extent to which it meets user needs efficiently and effectively but also reveal whether this system helps reduce errors and improve the quality of care. A study on this subject showed that the involvement of nurses in the project process while structuring EHRs increased patient satisfaction, patient outcomes, and nurse productivity (de Sousa et al., 2012). From this point of view, well-designed EHRs developed under the guid-

ance of nurse informaticists by taking into account expectations, technological advances, and software complexity can benefit all outputs.

### CONCLUSION

As essential stakeholders of healthcare services, nurses are expected to provide personalized, high-quality, and safe care by keeping pace with the astonishing speed of technological advances. While trying to adapt to this process quickly, nurses must also increase their competence in using information technologies. In addition, nurses should remain loyal to their professional principles and values. EHRs not only represent the ethical recording of many care practices performed by nurses in the clinical field but also reduce the workload and increase the reliability of records. As one of the most important stakeholders of this process, nurses should also assume roles that will contribute to improving and developing the systems used. From this perspective, it seems that the time has come for nurses to evolve from passive users to active creators of EHRs.

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**Authorship Contribution Statement:**

**PD:** The original idea/conceptualization, reviewing, writing-original draft; **GA:** Research, writing-original draft, reviewing and editing; **SB:** Writing-original draft, reading and editing; **ÖE:** Writing- original draft, reading and editing; **AK:** Research, Reviewing and editing; **EY:** Research, Reviewing and editing.

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