

# **The use of Electronic Medical Record Systems in General Hospitals in Israel: The Influence on Clinical Practice of Physicians and Nurses / Ofir Anna**

## **Abstract:**

This qualitative research studies the Electronic Medical Record (EMR); its implementation and implications on organizational processes and clinical work in a large Israeli teaching hospital. The research findings are based on the perceptions of physicians and nurses using the EMR system in their routine clinical work.

EMR is integrated in clinical work due to the rapid development of medical technologies in the areas of diagnosis, treatment and information management. This development has made easily accessible a multitude of professional data. This data, on the one hand, improves the work of medical professionals because of the availability of essential information, but, on the other hand, makes it hard to cope with data overload. Moreover, patient care is becoming increasingly complex and requires simultaneous involvement of various medical experts. This requires coordination and integration of many entities and multi-disciplinary staff members regarding the data flow, to ensure appropriate and qualitative therapeutic continuity.

The Electronic Medical Record (EMR) is an information technology tool that supports physicians and nurses in their organization of information and helps them use it more efficiently in their clinical work. It is computerized systems that allows medical staff to enter patient's details, test results, clinical status and follow-up assessments, view data inserted in real-time and save it. Findings of other studies conducted in this field indicate the advantages of using EMR, such as: improved quality of medical treatment and its results, reduced incidence of medical errors, prevention of complications, saved time, improved communication between medical staff members and heightened level of work satisfaction.

Despite the potential of this technology and its possible contribution to the improvement of the clinical performance, its integration and implementation in clinical settings faces obstacles. There is a gap between the many possibilities that EMR offers and its limited implementation by end-users. Despite the large investment

in development and implementation of the EMR, physicians and nurses do not maximize its use and potential in their clinical work.

In an attempt to explain this gap, the study aimed to reveal the extent of EMR use in clinical work by physicians and nurses and the factors motivating and hindering its use. We tested perceived usefulness of EMR in clinical work, factors influencing the implementation process and the implications of EMR use on clinician's work.

The research method of this study was based on a qualitative-constructive paradigm and used the strategy of instrumental case study which focused on EMR use by clinicians in a large Israeli hospital. The collection of data by this research method aimed to detect the factors motivating and hindering the use of EMR in the different stages of the implementation process and to define the implication of its use on the work patterns of physicians and nurses. This data collection was conducted by means of a semi-structured in-depth interview.

The survey, which was conducted as a complementary tool, was intended to examine the extent of EMR assistance to physicians and nurses in performing clinical tasks.

This data collection was performed according to a structured questionnaire.

The findings of the study are presented in a three-dimensional view which includes contextual organizational factors, EMR and medical staff interactions and interactions between patients and medical staff.

When analyzing the research environment, it becomes apparent that organization in question is orientated towards development of advanced medical technologies.

These are aimed at improving clinical outcomes and quality of care while taking into consideration cost benefit issues as well as time-savings factors. Furthermore, the medical system under investigation is of a complex nature, employing a high number of personnel who are involved in cutting-edge, real-time, clinical care while utilizing information technology intensively in a multi-channel manner. EMR is one of the technologies used by the organization and its employees to achieve the objective set by its management. Thus, it was designed to assist health-care personal in performing clinical activities, and in retrieving and sharing information.

Various factors were revealed relating to medical staff and EMR interaction. The results show higher contribution of EMR use in performance of tasks related to data retrieval and lesser contribution in tasks requiring data entry. The influencing factors

detected in this study refer to the ease of use and manner in which EMR is used by clinicians. Some of these factors support users in utilizing EMR functions and thus increase perceived usefulness as beneficial to clinical work.

According to physicians and nurses, there is a significant positive influence of EMR use on information management and its quality. However, clinicians are aware of the potential harm to information quality when it is not used correctly.

When looking at physician-nurse interactions and the implications of EMR use on clinical processes, we see improvement in communication and in online information flow. At the same time, nurses express some hesitation towards this improvement which changed their working habits and their presence in ward rounds and in personal communications that became extremely formalized and non-personal.

Additional results show that EMR use improves clinical work. According to most of the respondents, EMR has become their main source of patient information, has brought standardization to clinical work flow and documentation and has raised the level of accuracy and efficiency. In addition, it was found that EMR allows its users oversight and control over clinical and administrative process.

The results also reveal EMR's influence on time management. According to the respondents, there is a time-saving factor when referring to data retrieval, and a time-consuming factor when referring to data entry. Nurses claim that the time required to complete documentation tasks in a computerized system comes at the expense of personalized attention to patient and their families. Physicians claim that their clinical performance has become more efficient and is faster; especially during patient admission, diagnosis and in decision-making. In addition, it was found that EMR assists physicians and nurses in the field of risk management as a result of methodical and detailed documentation, printed medical orders and ongoing oversight.

This study holds theoretical and pragmatic implications. Theoretically, it examines the implementation process and use of information technology in clinical work and investigates the interaction between professionals and the information system. A model developed here focuses on characterizing the psychological and organizational process influencing clinical professionals when using an electronic information system in their management of clinical information. additionally, it presents the implementation process and use of a computerized information system by physicians

and nurses based within the context of mandatory organizational change. Finally, the study results might help in the identification of clinical areas in which the use of EMR could be optimally used. In this way, the future development of clinical information systems can be designed in way that would most effectively accommodate the informational needs of its users. This would increase their motivation to use and maximize the advantages of the computerized information system.

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