Users Satisfaction with Electronic Health Records: Experience of the Rheumatology Department at CHU Ibn Rochd of Casablanca

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Abstract: The medical record plays a key role for patients care and monitoring. It is considered as an indicator of the quality of care. The adoption of electronic health records requires a real strategy of implementation and needs constant monitoring to improve its function. The aim of this study was to evaluate the users' satisfaction of electronic health records in the Rheumatology Department at the CHU Ibn Rochd of Casablanca. A descriptive cross-sectional study was carried out among all health professionals of the department to evaluate the satisfaction of the users in March 2022, after 18 months of using the electronic health records. The staff had an overall satisfaction of 96%, 84% felt that it improved the traceability of data, 88% found that it allowed easy access to patient data and 80% admitted that it improved the feeling of professionalism and was a teaching tool. Despite some constraints expressed by the department's staff, the overall high satisfaction and contributions of the electronic health records indicate that this experience holds promise for widespread implementation throughout the entire university hospital via the Hospital Information System.

1 INTRODUCTION

The Electronic Health Record (EHR) is a key element in the quality of care. It allows easy acess to the patient's medical history, performed examinations, and prescribed treatments, thus promoting the continuity of care (Bourdillon, 2006). It is a central element in the care process and its evolution, reflecting the broader evolution of medical practice (Bourdillon, 2006).

The Rheumatology Department of the Ibn Rochd University Hospital has been engaged in the experience of implementing the EHR within its care units since July 2020.

This work aims to study the satisfaction of EHR users in their daily practice.

2 MATERIALS AND METHODS

2.1 Study Type

A descriptive cross-sectional study was conducted among all healthcare staff in the Rheumatology Department of Ibn Rochd University Hospital in March 2022.

2.2 Inclusion and Exclusion Criteria

2.2.1 Inclusion Criteria

All the staff working in the Rheumatology Department of CHU Ibn Rochd who have used the EHR in 2021.

2.2.2 Exclusion Criteria

No exclusion criteria have been identified/selected.

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2.3 Data Collection

Data collection was conducted using a self-administered anonymous questionnaire, completed through two methods:

- An electronic questionnaire via Google Forms sent to all resident doctors and interns in the department.
- A paper questionnaire for the department's secretaries.

The questionnaire (see Appendix) was developed based on two user satisfaction questionnaires regarding EHR found in the literature (Liu et al., 2013), translated into French using 'Deepl'. It consists of four parts:

- Sociodemographic criteria
- Questions regarding professional practice and computer use
- Evaluation of EHR satisfaction using a five-level Likert scale (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree) concerning overall satisfaction, EHR use, use of structured forms, technical and time-related aspects, impact on the doctor-patient relationship, and patient safety
- Feedback and secondary use

The questionnaire also includes an open-ended question to gather comments from users about their experience with the EHR.

2.4 Data Analysis

A descriptive analysis of the data was conducted. Quantitative variables (age, years of practice) were represented by mean and standard deviation, as well as minimum and maximum values. Qualitative variables were presented by the count and percentage of their categories.

The percentage of agreement was calculated as the sum of the percentage of users responding with agree and strongly agree.

3 RESULTS

3.1 User Characteristics

Twenty-six users responded to our EHR user satisfaction survey (60% of the personnel in the Rheumatology Department, constituting 100% of EHR users).

3.1.1 Age of Participants

The average age of the users was 30.5 years with a standard deviation of 5 years. The minimum age was 26 years and the maximum was 49 years.

3.1.2 Sex of Participants

Ninety-two percent of the participants were females, while 8% were males.

3.1.3 Profile of Participants

There were 22 physicians (85%) and 4 (15%) secretaries who participated in the study.

3.1.4 Seniority of Participants

The average seniority of the EHR users who responded to our satisfaction survey was 3 years with a standard deviation of 2.5 years. The minimum seniority was 9 months, and the maximum was 9 years.

3.1.5 Computer Usage Level

Out of the EHR users, 14 individuals (54%) had an average level of computer usage, 9 (34.6%) had a basic level, and 3 (11.5%) had a high level of computer usage.

3.1.6 Duration of EHR Usage

Two individuals (8%) have been using HER for less than 3 months, 1 individual (4%) between 3 and 6 months, 5 individuals (18%) between 6 months and 1 year, while 18 individuals (69%) have been using EHR for more than one year.

3.2 User Satisfaction

The results of user satisfaction survey are presented in Table 1.

Twenty-five users (96%) are generally satisfied, among which 8 (32%) are highly satisfied. Twenty-one users (84%) believe that the computerized patient file allows for better traceability. Nineteen users (86%) confirm that semi-structured forms are suitable for the specialty. However, 25% still prefer writing on paper, and 46% prefer free text. This preference is explained by the physicians' need to compose paragraphs in certain sections.

Table 1: User satisfaction with the EHR in the Rheumatology Department of the Ibn Rochd University Hospital in Casablanca.

Item	Question	Number of Agreements	Percentage of Agreement
Satisfaction	Generally satisfied	25	96
	Favorable opinion of colleagues	19	76
	Prefers writing on paper	7	25
Benefits	Improves healthcare provision	17	68
	Allows better traceability	21	84
	Reduces medical errors	9	44
	Enables tracking of laboratory results	19	78
	Enables good communication / coordination	16	64
	Rapidly accessible patient history	23	88
	Sense of professionalism	20	80
	Represents a teaching tool	16	80
Structure	Forms adapted to the specialty	19	86
	Prefers free text	11	46
Technical and Practical Aspects	Consumes more time than paper forms	12	48
	Increases workload	13	52
	Available technical support	10	40
	Frequent breakdowns	7	28
Patient Safety	Compromises patient safety	5	20

Sixteen users (64%) find that the EHR enables good communication and coordination among healthcare professionals within the department, as there is no sharing with other departments or at the hospital level.

3.3 Feedback Meeting Assistance

Eight individuals (32%) assisted once to a feedback meeting, while 1 individual (4%) assisted twice or more. Sixteen individuals (64%) never assisted to a feedback meeting.

3.4 Feedback from Hierarchical Superiors

Fifteen (60%) of the users received feedback from hierarchical superiors or colleagues after feedback meetings.

3.5 Participation in Scientific Works

Twenty-four percent of the users participated in scientific works issued from EHR, while 76% did not participate in such works.

3.6 User Comments

Here are the user comments:

- Generalize the experience to all departments.
- Automatically record summaries/reports.
- Free up Wi-Fi for the use of other work-related applications.
- Schedule multiple appointments for the same patient on the same day.
- Increase the internet connection speed.
- Manage system failures.
- Educate patients about the system: explaining that looking at the screen is simply the doctor reviewing their medical record. Many patients quickly feel that the doctor is paying more attention to the screen.
- Avoid requiring identification for each session closure (after a certain period of time).

4 DISCUSSION

This study confirms statements regarding the satisfaction of the Rheumatology Department staff with the EHR and its contributions to continuity of care. Indeed, after 18 months of EHR use, the Rheumatology Department staff reports an overall satisfaction rate of 96% and believes that the EHR has contributed to better data traceability (84% of users), easy access to patient data (88% of users), and improved professionalism (80% of users). These findings are consistent with the literature: Alex G and Paul Cohen reported in 2006 on the Valaisan EHR user satisfaction evaluation that 70% of users positively assessed the EHR effect on patient information accessibility and improvement in communication among healthcare professionals

(Gnaegi et al., 2006). These results are also consistent with other studies in the literature (Liu et al., 2013)

Regarding medical data structuring, the staff appreciates the use of semi-structured reports, finding them suitable for the Rheumatology specialty (86% of users) and considering them as a teaching tool (80% of users).

However, there are several challenges and discomforts related to EHR use. Our survey showed that 25% of the individuals prefer writing on paper, 48% feel that the EHR increases workload and consumes more time compared to paper patient records, 46% prefer free-text format for clinical descriptions in their reports, 28% report frequent network-related issues accessing the EHR, 20% believe that EHR compromises patient safety.

Among the major challenges in EHR adoption is data quality and the percentage of missing data, making its exploitation difficult and sometimes inefficient (Ta & Weng, 2019). The Rheumatology Department staff is aware of the importance of data quality in terms of traceability and completeness, as well as the significance of data structuring. A policy focusing on supervising data completeness and quality, as well as adopting coding data standards, will be implemented after fostering a culture of digitizing care practices.

These challenges and discomforts in EHR user satisfaction are commonly reported in literature. Various explaining factors include user's personal characteristics, organizational aspects of the system (user involvement in the project, sustainable communication), and the quality and continuous presence of technical support (Frisina et al., 2022; Janett & Yeracaris, 2020; Kalankesh et al., 2020; Williams et al., 2019).

Regarding future perspectives for the Rheumatology EHR, the transition to an interoperable Hospital Information System (HIS) represents the next step of medical records computerization process. The Rheumatology Department staff, following their local EHR experience, is looking forward to extending the EHR to the entire university hospital, and to integrating it into the new HIS recently adopted by Ibn Rochd University Hospital in 2021. Sharing data across different clinical services and existing information systems aims at providing better multidisciplinary patient care within the university hospital and its affiliated hospitals.

Moreover, the EHR allows easy storage and access to thousands of patient records, facilitating case studies spanning several years. Secondary use of this data is a secondary goal for the Rheumatology Department professors and residents, allowing them to assess their practice and contribute to scientific research.

5 CONCLUSIONS

The local experience of EHR in the Rheumatology Department at CHU Ibn Rochd of Casablanca shows the great benefits for health professionals as well as for the patients quality of care and follow-up. Despite the constraints and discomfort expressed by the department's staff, the overall high satisfaction and contributions of the EHR in providing easy access to patient data, along with its increasing adoption over time, indicate that this experience holds promise for widespread implementation throughout the entire university hospital via the Hospital Information System.

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