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Policy Brief

IS AN ELECTRONIC HEALTH RECORDS [EHR] SYSTEM USER-FRIENDLY, USEFUL, AND REPLICABLE TO OUR RURAL HOSPITALS ?

ENHANCING RURAL HEALTHCARE

BACKGROUND

An Electronic Health Record (EHR) is the systematized collection of patient information and electronically stored health information in a digital format. EHRs are real-time, patient-centered records that make information available instantly and securely to authorized users.

An EHR system is being widely adopted in both private and government hospitals in Nepal. Nick Simons Institute (NSI) supported the implementation of an EHR pilot project in four government hospitals (Doti, Gulmi, Salyan, and Taplejung) in 2019/2020. NSI conducted a pre- and post-implementation survey of the EHR pilot project. This document provides a summary of the EHR project by drawing on the data analysis results and the experiences of the staff, Hospital Management Committee (HMC), and the software developer. This assessment was aimed to evaluate whether the EHR system was user-friendly, useful, and replicable in the future among the government hospitals in rural Nepal.

METHODS

A mixed-methods approach was used.

Quantitative Data
- A survey tool was adopted from the Evaluation of a Pilot EMR Project in St. John's, 2007.
- Altogether 51 hospital staff participated in pre-implementation while 44 participated in the post-implementation survey from 4 EHR piloted hospitals.
- Responses were measured using the Likert scale (1-Highly Disadvantageous, 2-Disadvantageous, 3-Neither, 4-Beneficial, and 5-Highly Beneficial).

Qualitative Data
- Focus Group Discussion
    - Hospital Staff: (n=4)
    - Software Developer: (n=1)
- Key informant interview-
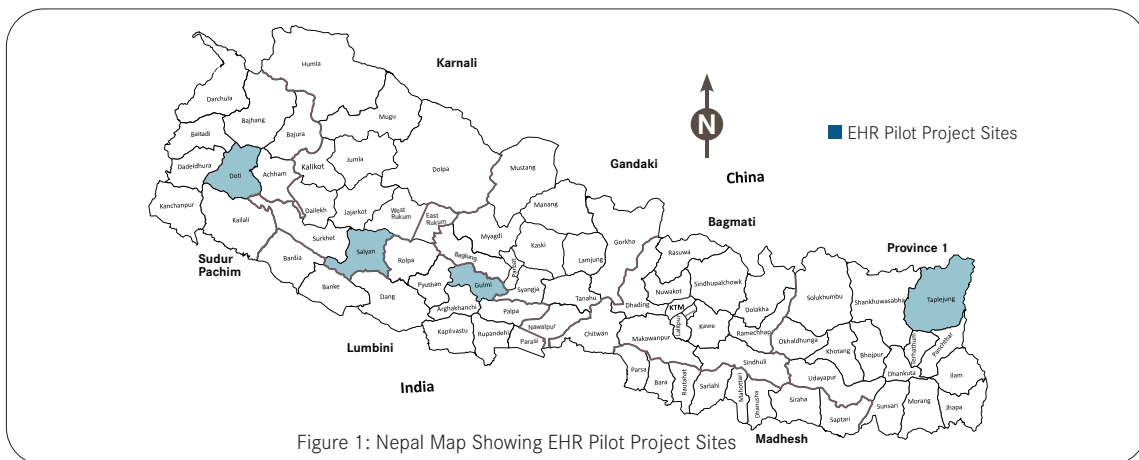   - Medical Superintendent (Me.Su.): (n=4)
    - HMC Chairperson (n=2)

Figure 1: Nepal Map Showing EHR Pilot Project Sites

RESULTS

		Staff Involved (Pre) (n=51) (%)	Staff Involved (Post) n=44 (%)
Position	Medical Doctor	11 (21)	11 (25)
	Other Clinical Staff	30 (59)	24 (55)
	Administrative Staff	10 (20)	9 (20)
Age	<35	38 (75)	33 (75)
	35-50	12 (24)	8 (18)
	>50	1(1)	3 (7)
Gender	Male	31(61)	30 (68)
	Female	20 (39)	14 (32)

Table 1: Characteristics of Hospital Staff involved in Survey (Pre and post EHR Implementation)

Baseline Information

- 22% (n=11) of the hospital staff were not computer trained at the baseline.
- 40 % (n=18) staff have been using a computer for patient registration and documenting patient information.

Impact on Medicine and Health Care	Pre [Mean Score]	Post [Mean Score]	t	p-value
Cost of health care	4.10	4.14	-0.2174	0.8284
Clinician autonomy	4.11	4.38	-1.4296	0.1567
Interaction within health care team	4.43	4.28	0.8960	0.3727
Management of medical/ethical problems	4.28	4.43	-0.8249	0.4117
Enjoyment of the practice of medicine	4.18	4.37	-1.0729	0.2862
CME and Research	4.66	4.42	2.0772	0.0407*
Self-image of clinicians	4.81	4.32	0.6931	0.4899
The humanness of the practice of medicines	4.30	4.23	0.3692	0.7128
Account Management and transparency	4.67	4.54	0.8594	0.3927
Generating data (Health Insurance Scheme)	4.60	4.25	2.3213	0.023*
Rapport between clinician and patients	4.00	4.10	-0.4145	0.6795
Personal and Professional Privacy	4.16	4.40	-1.1485	0.2537
Clinician access to up-to-date knowledge	4.54	4.46	0.5711	0.5693
Patient's satisfaction with the quality of care they received	4.10	4.36	-1.3831	0.1700
MDGP; ability to manage more complex problems	4.33	4.14	0.9826	0.3287
Medicine and equipment readiness	4.41	4.30	0.6262	0.5327
Overall Impact on Medicine and Health Care	**4.35**	**4.32**	0.3235	0.7475

Table 2: Pre/Post Staff Perceptions on Impact of Computers on Medicine and Healthcare

- The overall mean was 4.35 and 4.32 before and after the implementation of EHR respectively suggesting a positive attitude towards computers' impact on healthcare.
- More than 50% of statements were rated lower in the post-implementation survey.
- Impact of computers on, 'CME and Research', and 'Generating data (Health Insurance Scheme' is statistically significant (p<0.0407, P<0.023).
- No significant difference (t=0.3235, p>0.747) between participants' perceived overall impact before implementation and satisfaction after EHR implementation.

Overall Assessment of the EHR Implementation [N=44]	Mean	SD
EHR is successfully implemented.	3.43	1.087
Technical problems have been resolved satisfactorily	3.25	1.081
I can get timely assistance if I encounter a problem	3.43	1.043
*I have to wait too long for the EHR system to update data or change the screen	2.41	1.041
*I need additional training to become proficient with the EHR system	1.64	0.917
EHR system will improve the way this office works	**4.11**	**0.920**
EHR system will improve the client care provided by this hospital	**4.16**	**0.745**

Table 3: Overall of EHR Implementation (Post Implementation Survey)

Indicates item was reverse coded.

- The highest rating (4.16) was for the statement, 'EHR system will improve the client care provided by this hospital' and the lowest rating (1.64) was for 'I need additional training to become proficient with the EHR system'.
- The overall calculation of the mean score of all seven statements is 3.20 (SD=0.444) indicating participants' general agreement on the success of the EHR Program.

BENEFITS OF EHR

- The transition from paper to computer is difficult but beneficial to use
- High reputation while using computer
- Increased transparency

"It gives a better readable prescription than a handwritten on" - MDGP

"When we have the computer on our desk, people think we are competent, our morale has gone up, it is like pride" - Staff

"Everything is computerized these days. EHR controls the irregularity and increases the financial transparency" - HMC Chairperson

CHALLENGES

- EHR System was not integrated for MCH, FP, and store [stock management]
- Difficult to use the system in OPD, ER, and IPD
- Unmatched format- Double work
- Retention of staff
- Infrastructure/logistic

"The main problem is the format. It is different from the government's format. And we need to re-enter the data. It has doubled the workload. We have not been able to obtain the required reports". – Staff

"Frequent transfers and staff turnover were faced; new staff may have a hard time to get used to it" – Me.Su.

"Due to old and scattered infrastructure and mouse cutting the wires, which create the problem of connection".— Software Developer/Implementer

KEY FINDINGS

- Strong level of satisfaction of hospital staff with the EHR system.
- The EHR system was functional in majority of the departments except MCH, FP and store.
- Duplication with Electronic Recording Management Information System (e-LMIS) and Health Management Information System (HMIS).
- Irregularities would expect to be addressed and controlled by the EHR system.
- EHR is not completely paperless as presumed.
- A reliable internet connection, power supply/ backup, infrastructure, networking, and computer literacy of staff were key challenges in most cases.
- Having EHR technical staff in the hospital is effective to operate the system without interruption.

RECOMMENDATIONS

- It would be better to conduct regular technical support and monitoring to operate the system effectively.
- The Government should integrate and align all related software and programs such as HMIS, DHIS 2, and the e-LMIS together to reduce the duplications.
- Staff training must focus not only on how to use the system but also on making users understand the significance of using EHR and its benefits such as improved governance, care coordination, digital recording, and research/evaluation.

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