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Abstract

Objective

This study aims to assess the use of Computer-based CDSS in supporting clinicians at CHUK in their clinical decision-making, identify barriers to its effective use, and provide recommendations for enhancing its utility.

Methods

A cross-sectional study design with a quantitative approach was used. Data were collected through structured questionnaires and analysed using STATA software V.17.

Results

Most clinicians reported to use Computer-based CDSS. The majority (75%) rated Computer-based CDSS as very effective in supporting diagnoses. All participants acknowledged its role in reducing medical errors. However, technical issues (65.3%) and system complexity (20.8%) were significant barriers to optimal CDSS use.

Conclusion

There is a high level of awareness and utilization of CPD Computer-based CDSS has significantly improved clinical decision-making and reduced errors.

Introduction

Worldwide the services and care given to the healthcare seekers have been improving since the evolution and integration of the advanced technologies in health sector. In Sub-Saharan Africa, as in other parts of the world, A computer-based CDSS as one of the evolving technology in healthcare setting is intended to improve healthcare delivery by enhancing medical decisions with targeted clinical knowledge, patient information, and other health related information however, it has been shown that approximated more than eight million people from low and medium-income countries die annually due to diagnosis error, poor healthcare quality and medical error.

In Rwanda, huge investments in the usage of health information technology especially technological supporting systems to medical practices to achieve quality healthcare, finding more personalized treatments, even though are more complex.

Study Subjects

Clinicians Comprise of Medical residents, General Practitioners, Specialists who use computer-based CDSS in CHUK who voluntarily accepted to take part in my study

Methodology

Study setting: CHUK

Study design: Cross-sectional quantitative study approach

Study population: Medical residents

General Practitioners, Specialists

Sampling Strategy: CHUK as public institution was selected purposely as one of high-level university teaching hospital.

Sample size: 72 participants

Data Collection Tool: Research questionnaire as data collection tool was used to gather all information related to the research objectives

Data Analysis: Quantitative data were analyzed using STATA software V.17

Inclusion Criteria: Clinicians that use computer based CDSS willing to participate in research

Exclusion Criteria: Clinicians who refused to consent

Challenge: Lack of the required number of clinicians (compared to the calculated sample size) due to their overload workload during the data collection

Limitation: The study was conducted on single selected institution, the results cannot be generalized to the entire country.

Results

Table1. Showing socio-demographic characteristics of participants

Variable N=72	Frequency (%)	n
Age category		
20-30	9 (12.5)	
31-40	34 (47.2)	
41-50	24 (33.3)	
51-60	5 (6.9)	
Gender		
Male	49 (68)	
Female	23 (32)	
Doctor Primary role		
Medical Residents	18 (25)	
General practitioners	9 (12.5)	
Specialists	45 (62.5)	

Table 2: Showing the utilization of Computer-based CDSS

Variable N=72	Frequency n (%)
Use of computer-based CDSS	
Yes	71 (98.6)
No	1 (1.4)
Frequency of computer-based CDSS Use	
Never	0 (0)
Sometimes	29 (40.3)
Always	43 (59.7)
Types of computer-based CDSS Functionality	
Multidrug interaction checker tool	18 (25)
Acuity assessment tool	11 (15.4)
Weight based dosing	5 (7)
Cardio-vascular risk estimator	8 (11.1)
Monitoring dialysis tool	4 (5.5)
Risk assessment tool	8 (11.1)
Blood glucose monitoring integration	4 (5.5)
Dietary recommendation tool	3 (4.2)
Automated eGFR calculation	7 (9.7)
Nephrotoxic drug alerts	4 (5.5)
Medical errors reduction	
No	0 (0)
Yes	72 (100)

Table 3: Barriers of Computer-based CDSS effectiveness

Variable N=72	Frequency n (%)
Computer-based CDSS user-friendliness	
Yes	72(100)
No	0(0)
Barriers of computer-based CDSS effectiveness	
Lack of training	10(13.9)
Technical issues	47(65.3)
System complexity	15(20.8)
Recommended improvement for computer-based CDSS effectiveness	
Better training programs	10(13.9)
Improved technical support	46(63.9)
Simplification of the system interface	16(22.2)

Conclusion

Clinicians working at CHUK use of computer-based CDSS with high adoption rates although the CDSS they use are not integrated into the OpenClinic, the EMR used at this hospital.

Effectiveness of computer based CDSS is currently limited by technical issues and system complexity for their optimal use.

Addressing these barriers through targeted improvements in technical support and system design is crucial to fully realize the potential of computer based CDSS in enhancing healthcare delivery.

Recommendations

- Implementation of comprehensive training programs for all users to ensure they are proficient in using computer-based CDSS
- The establishment of robust technical support systems to promptly address any technical issues encountered by users
- By implementing these recommendations, CHUK can overcome the current barriers to CDSS effectiveness and ensure that this technology continues to play a pivotal role in supporting clinical decision-making and improving patient care outcomes

Acknowledgements

UR & CEBE: for academic and financial support.
CHUK: to the administration for administrative support in data collection, and to respondents for their participation in this study.

Full article at: CEBE, September, 2024
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