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Barriers and facilitators towards the integration of clinical decision support systems using Electronic Heath Records in cardiovascular care: a mixed methods systematic review protocol

Sallam, S[1]; Cebulla, A[2]; Balasubramanian, M[3].

Corresponding author:
Madhan Balasubramanian

madhan.balasubramanian@flinders.edu.au

Author Affiliation:
Flinders University.

ADMINISTRATIVE INFORMATION

Support - NA.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 31 October 2023 and was last updated on 31 October 2023.

INTRODUCTION

Review question / Objective To examine the barriers and facilitators towards the integration of clinical decision support systems (CDSS) using Electronic Health Records (EHRs) for cardiovascular care. By synthesising available evidence, we identify the benefits and limitations of this integration strategy, contributing to the improvement of cardiovascular care practices.

Rationale Clinical decision support systems (CDSS) are computer-based tools designed to assist healthcare professionals and provide real-time, evidence-based recommendations, knowledge, alerts, and reminders to aid in making immediate decisions on issues such as disease prevention, screening, diagnosis, treatment, and follow-up at the point of care. CDSS can be used in different healthcare settings, such as hospitals, clinics, and primary care facilities. It can also be used as a possible solution to many challenges and obstacles in the healthcare domain.

There is an abundance of research that focuses explicitly on cardiovascular care in the context of improving prevention, diagnosis, treatment, and management of cardiovascular diseases. With and without explicitly considering CDSS and EHRs integration, the intersection of these two areas of cardiovascular care still needs to be explored. The gap can be further emphasised by considering the specific context of integrating CDSS with EHRs. This integration involves technical, organisational, and human factors that can influence its successful implementation and utilisation.

Furthermore, with a specific emphasis on enhancing and improving cardiovascular care practice, this review has the potential to highlight areas for development of tailored strategies that

enhance the effectiveness and acceptance of CDSS in cardiovascular care. By exploring the barriers and facilitators faced, this review can contribute to optimising its use, ultimately leading to improve patient outcomes, reduce medical errors, and enhance healthcare delivery in managing cardiovascular diseases.

Condition being studied Cardiovascular diseases (CVDs) remain a major cause of mortality worldwide. CVDs encompass a group of disorders affecting the heart and blood vessels. There are several types of heart-related diseases that fall under the umbrella of CVDs, including coronary heart disease, stroke, heart failure, atrial fibrillation, chronic kidney disease, heart valve diseases, aortic syndromes, and dementia. CVDs collectively are the number one cause of death globally. Despite improvements in awareness, prevention, and treatment, CVDs continue to be a significant public health concern and major contributor to mortality rates. Ongoing research and focus is needed to further understand CVDs and develop improved prevention and treatment approaches. This review examines the use of decision support systems in electronic health records for the prevention and management of CVDs.

METHODS

Search strategy We will be using four databases to perform the literature search which are MEDLINE (Ovid), CINAHL (EBSCO), Scopus and Web of Science. The complete search strategy for MEDLINE (Ovid). Search keywords: barriers and facilitators, cardiovascular care, clinical decision support system, Electronic Health Records, patient outcome. A detailed search strategy has been prepared, and the protocol for this systematic review is being prepared for BMC Systematic Review Journal.

Participant or population Patients with cardiovascular diseases in primary, secondary or tertiary care.

Intervention Use of clinical decision support systems in electronic health records.

Comparator NA.

Study designs to be included Both qualitative and quantitative studies are to be included.

Eligibility criteria This review will focus on papers that refer to CDSS and EHRs that used in cardiovascular care. Studies that identify barriers or facilitators to the use of a CDSS in cardiovascular care in all settings.Studies that evaluate CDSS and provides recommendation for prevention and management. Papers published in languages other than English, opinion pieces, editorials case reports and study protocols are excluded.

Information sources MEDLINE (Ovid), CINAHL (EBSCO), Scopus and Web of Science.

Main outcome(s) NA.

Additional outcome(s) NA.

Data management Data for the review will be stored in Mendeley. All stages of the screening, full text review and data extraction will be done using Covidence Systematic Review software.

Quality assessment / Risk of bias analysis Selected studies following the full text review will be assessed for quality based on the Cochrane's risk of bias tool.

Strategy of data synthesis A data extraction table is prepared to guide data synthesis. We follow a convergent mixed methods review approach, where both quantitative and qualitative data are brought together in a narrative manner to answer the review question.

Subgroup analysis NA.

Sensitivity analysis NA.

Language restriction English language.

Country(ies) involved Samah Sallam (1, 4); Andreas Cebulla (3); Madhan Balasubramanian (1, 3) - see below for affiliations.

Other relevant information
1 College of Business Government and Law, Flinders University, Adelaide.
2 Australian Industrial Transformation Institute, College of Business Government and Law, Flinders University, Adelaide.
3 Menzies Centre for Health Policy and Economics, School of Public Health, Faculty of Medicine and Health, The University of Sydney.
4 Management Information Systems Department, College of Business Administration (CBA), Jazan University.

Keywords barriers, facilitators, cardiovascular care, clinical decision support system, electronic health records, patient outcome.

Dissemination plans The protocol is being prepared for submission to BMC Systematic Reviews. The full review will be published in a Q1 journal, following the completion.

Contributions of each author

Author 1 - Samah Sallam - Samah Sallam is a PhD candidate at Flinders University. This review is part of her PhD work, and she is the lead author. Samah wrote the first draft of the proposal, which was revised by all authors. She also drafted the search strategy and protocol in consultation with her supervisors.
Email: sall0029@flinders.edu.au
Author 2 - Andreas Cebulla - Associate Professor Andreas Cebulla supervised this work of the PhD Candidate, Samah Sallam He contributed to the design and development of the protocol and revision of the drafts.
Email: andreas.cebulla@flinders.edu.au
Author 3 - Madhan Balasubramanian - Dr Madhan Balasubramanian supervised this work of the PhD Candidate, Samah Sallam. He contributed to the design and development of the protocol and revision of the drafts.
Email: madhan.balasubramanian@flinders.edu.au