What is needed to implement a web-based audit and feedback intervention with outreach visits to improve care quality: A concept mapping study among cardiac rehabilitation teams

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ABSTRACT

Introduction: Evidence on successful quality improvement (QI) in health care requires quantitative information from randomized clinical trials (RCTs) on the effectiveness of QI interventions, but also qualitative information from professionals to understand factors influencing QI implementation.
Objective: Using a structured qualitative approach, concept mapping, this study determines factors identified by cardiac rehabilitation (CR) teams on what is needed to successfully implement a web-based audit and feedback (A&F) intervention with outreach visits to improve the quality of CR care.
Methods: Participants included 49 CR professionals from 18 Dutch CR centres who had worked with the A&F system during a RCT. In three focus group sessions participants formulated statements on factors needed to implement QI successfully. Subsequently, participants rated all statements for importance and feasibility and grouped them thematically. Multi dimensional scaling was used to produce a final concept map.
Results: Forty-two unique statements were formulated and grouped into five thematic clusters in the concept map. The cluster with the highest importance was QI team commitment, followed by organisational readiness, presence of an adequate A&F system, access to an external quality assessor, and future use and functionalities of the A&F system.
Conclusion: Concept mapping appeared efficient and useful to understand contextual factors influencing QI implementation as perceived by healthcare teams. While presence of a web-based A&F system and external quality assessor were seen as instrumental for gaining insight into performance and formulating QI actions, QI team commitment and organisational readiness were perceived as essential to actually implement and carry out these actions. These two sociotechnical factors should be taken into account when implementing and evaluating the success of QI implementations in future research.

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1. Introduction

There is persistent room for quality improvement (QI) in health care, but the complexity of health care systems makes it difficult to achieve change [1]. The field of cardiac rehabilitation (CR), a multidisciplinary therapy to support patients with cardiovascular disease in restoring their physical and psychosocial condition [2], also faces challenges in improving care quality. The efficacy of CR has been studied in at least 47 separate randomized controlled trials [3,4] and in a population based cohort study showing a substantial survival benefit [5]. Despite this documented efficacy, CR is still not implemented in a standardized way [6,7] and CR uptake remains low [8,9]. Example challenges for QI in the field of CR are a lack of awareness of CR benefits among consultant cardiologists, limited use of CR performance measures, and limitations in capacity, and reimbursement constraints [10].

A common approach to changing complex health systems is systematic QI, which focuses on improving a system's underlying processes rather than on correcting mistakes of individuals.

It relies on data from professionals' own setting and encourages them to work in multidisciplinary QI teams [11]. Data about the organisation's performance should guide them in improving their practice by the Plan-Do-Study-Act (PDSA) cycle, which is part of the Model for Improvement [11]. Within the Plan and the Study steps in the PDSA cycle, audit and feedback (A&F) is a crucial element. A&F consists of providing health care professionals with an objective summary of their clinical performance over a specified period of time [12]. Clinical performance is typically measured by a set of quality indicators derived from clinical guidelines or expert opinion, each indicator representing a quality aspect of care. A&F interventions assume that professionals are prompted to plan QI actions for their practice when observing a discrepancy between their own performance and a target (e.g. national or benchmark) value [13]. A recent Cochrane review concluded that A&F interventions may be more effective when they include both an action plan and explicit goals [12]. Furthermore, the effect of indicator-based performance feedback is likely to be stronger when it is combined with educational meetings, directed towards actively involving professionals in the improvement process [12]. Through such meetings, professionals can be supported to use presented feedback to select targets for improvement and to plan concrete actions.

Many current QI interventions are based on the PDSA cycle and use A&F, often complemented with other elements, to implement QI in different health care settings [14,15]. We developed a multifaceted A&F intervention for the field of CR that both incorporates successful characteristics described in the literature [12,14,16–18] and also specifically addresses multidisciplinary teams rather than individual professionals only [19,20].

To gain insight in the effectiveness of QI interventions we need evidence from randomized clinical trials (RCTs). However, many context specific factors may influence the uptake of interventions in daily practice, and information on these factors is usually not provided by an RCT [21]. Yet, information on such contextual factors, e.g. organisation-professional processes such as culture and workflow, is essential both to interpret RCT results and to facilitate future implementation of a QI intervention. Commonly used qualitative research methods (e.g. individual or focus group interviews and observations) can provide these insights. A systematic review has identified contextual factors that influenced QI success in health care [22]. The authors conclude that leadership from top management, organisational culture, data infrastructure and information systems, and years involved in QI efforts are important to QI success. However most qualitative studies typically involve only a limited group of respondents and requires sufficient study time and high resources (e.g. to collect, analyse and report on data) [23].

Concept mapping [24,25] is a research methodology that overcomes some of these drawbacks. This mixed-methods approach collects qualitative data from larger groups of stakeholders with different content expertise or interests in a certain domain. The generated ideas are analysed and structured by statistical techniques to represent them visually on maps [26]. As the method is designed to investigate ideas from larger groups of participants in an efficient way and short time frame, we assumed this method can be appropriate to evaluate QI interventions. The aim of this study was to determine factors identified by CR teams on what is needed to successfully implement a web-based A&F intervention with outreach visits to improve the quality of CR care in the Netherlands.

2. Background

2.1. Clinical setting: improving CR in the Netherlands

CR programmes offer a cost-effective, multidisciplinary, comprehensive approach to address cardiovascular risk factors, regain physical capacity, improve psychosocial condition, and achieve lifestyle changes [2,4,27]. CR is offered by multidisciplinary teams which generally include a cardiologist, specialized nurses (of whom one acts as rehabilitation coordinator), physical therapists, a psychologist, dietician and social worker. A recent meta-analysis of RCTs shows evidence of the effectiveness of CR with regard to mortality and cardiac events (relative-risk reduction: 21–47%) [28].

To improve CR services we previously developed and evaluated an electronic patient record (EPR) with clinical decision support (CDS) facilities [29]. We found that CDS considerably improved the concordance of CR teams' clinical decisions with prevailing clinical practice guidelines. However, the trial also revealed persisting organisational barriers to full guideline implementation [29]. The CDS was not effective when changes were required that users considered beyond their own tasks and responsibilities (e.g. related to lack of time, reimbursement or capacity). Therefore we hypothesized that guideline implementation with CDS might be more powerful if used in conjunction with other interventions directed at the decision-making processes at the organisational level [19]. As systematic QI is increasingly used to achieve changes at this level in health care, we developed a multifaceted QI intervention including a web-based A&F system with outreach visits [19,20].

2.2. The QI intervention: a web-based A&F system with outreach visits

The web-based A&F system, called CARDSS Online, was designed in 2011 for CR centres in the Netherlands that were using an EPR with CDS [20]. Centres that started to use the system (n = 18) all participated in the CARDSS-II RCT [19,30]. This RCT evaluated the effect of system use in combination with educational outreach visits on clinical performance between July 2012 and December 2014 [19]. Currently we are analysing the RCT results on improved professional performance (change in performance in eleven care processes and six patient outcomes and on guideline concordance for the four main CR therapies).

The system was designed to be primarily employed during four quarterly outreach visits within the RCT period. During the visits an external quality assessor (MvEV) met the centre's local QI team to support them continuing all steps of the PDSA cycle. Each QI team consisted of at least the coordinating nurse, a caregiver from one other discipline, a cardiologist, and the centre's manager. The system supports (i) monitoring of indicator-based performance, (ii) selecting aspects of care that need improvement, (iii) developing a QI plan, and (iv) periodically adjusting the plan [20]. During the visits the quality assessor actively engaged the team in the QI effort by means of the system, without them needing to have extensive knowledge of the underlying concepts on systematic QI.

3. Methods

Concept mapping is a structured qualitative research method that is used to collect, aggregate and analyse ideas from different individuals, with respect to a certain focus question. The method results in a graphical map, called 'concept map', that displays interrelationships between ideas expressed by participants [24,25]. We followed the five steps of the structured group conceptualization method as described by Trochim and Kane [24,25] (see Fig. 1).