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SPECIAL REPORT

DEVELOPMENT AND APPLICATION OF IMPLEMENTATION TOOLS FOR REHABILITATION GUIDELINES

Raija SIPILÄ, MD, PhD[1], Marja MIKKELSSON, MD, PhD[2], Mari HONKANEN, MSocSci[1], Antti MALMIVAARA, MD, PhD[1,3] and Jorma KOMULAINEN, MD, PhD[1]

From the [1]The Finnish Medical Society Duodecim, Current Care Guidelines, Helsinki, [2]Joint Authority for Päijät-Häme Health and Social Care, Lahti and [3]Centre for Health and Social Economics, National Institute for Health and Welfare, Helsinki, Finland

Objective: **To describe a project to develop guideline implementation tools (GItools) for rehabilitation guidelines, and a collaboration between a guideline producer and a healthcare organization to implement guidelines into care pathways.**

Design: **Descriptive case study.**

Methods: **A national guideline organization in Finland launched a 3-year project in 2015 to implement rehabilitation recommendations. Usability of the GItools was evaluated and improved, based on literature, workshops and surveys. An implementation plan guided the production of the GItools. An implementation plan was developed to integrate the shoulder disorders guideline into a care pathway at Päijät-Häme district rehabilitation unit. The implementation plan was produced in 3 facilitated workshops, which included brainstorming, snowballing, prioritizing and short lectures.**

Results: **Twenty implementation plans and 119 different GItools for 22 guidelines were developed. The GItools, in particular patient material, were perceived as useful for the facilitation of guideline implementation. Four seminars and 14 sessions of continuous medical education were arranged. A plan was developed and executed for the implementation of the shoulder disorders guideline.**

Conclusion: **It is feasible for a guideline producer to systematically include GItools into rehabilitation guidelines. This implementation project was an example of a successful collaboration between a guideline producer and a healthcare organization.**

Key words: rehabilitation; guideline adherence; implementation science.

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Correspondence address: Raija Sipilä, The Finnish Medical Society Duodecim, Current Care Guidelines, PO Box 713, FI-00101 Helsinki, Finland. E-mail: raija.sipila@duodecim.fi

LAY ABSTRACT

This article describes a 3-year project to develop tools to facilitate guideline implementation. The project targeted clinical practice guidelines related to rehabilitation. The article also describes the planning of a local implementation project in collaboration with a healthcare organization (Päijät-Häme district, rehabilitation unit) to put into practice the shoulder disorders guideline. First, the usability of available tools was evaluated and improved, based on literature, workshops and surveys. Twenty implementation plans for rehabilitation-related guidelines were produced. For each guideline, implementation objectives were defined. In total 119 implementation tools were produced for 22 guidelines. An implementation plan was developed to integrate the shoulder disorders guideline into a care pathway at Päijät-Häme. In conclusion, it is feasible for a guideline producer to systematically include implementation tools in rehabilitation guidelines. This implementation project was an example of a successful collaboration between a guideline producer and a healthcare organization.

The Institute of Medicine (IOM) defines clinical practice guidelines as "statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options" (1). Clinical guidelines usually include recommendations on diagnosis and treatment. In Finland, it has been acknowledged that national Current Care (CC) Guidelines do not systematically include rehabilitation. Therefore, in 2012 a 3-year project was launched to include rehabilitation into the CC Guidelines (1, 2).

Knowledge transfer is the continuum from evidence development (research) to active implementation of the new evidence in practice (3, 4). Different stakeholders are engaged during the process of knowledge transfer. The guidelines are a bridge between research findings and implementation. However, guideline recommendations do not translate into clinical practice without effort. Diffusion is the first step, during which active recipients search for the information they need. In the second step, dissemination, the message is tailored to meet the needs of the target group. The third step is to use active methods for implementation (Fig. 1).

The actual implementation (4–6) of guidelines ideally happens within healthcare organizations, because success is dependent on the context; there are local barriers and facilitators for change. Guideline developers, however, can facilitate adaptation. One method is to develop guideline implementation tools (GItools). GItools can be categorized into patient support (information and guideline summaries in lay language, self-management support), clinician

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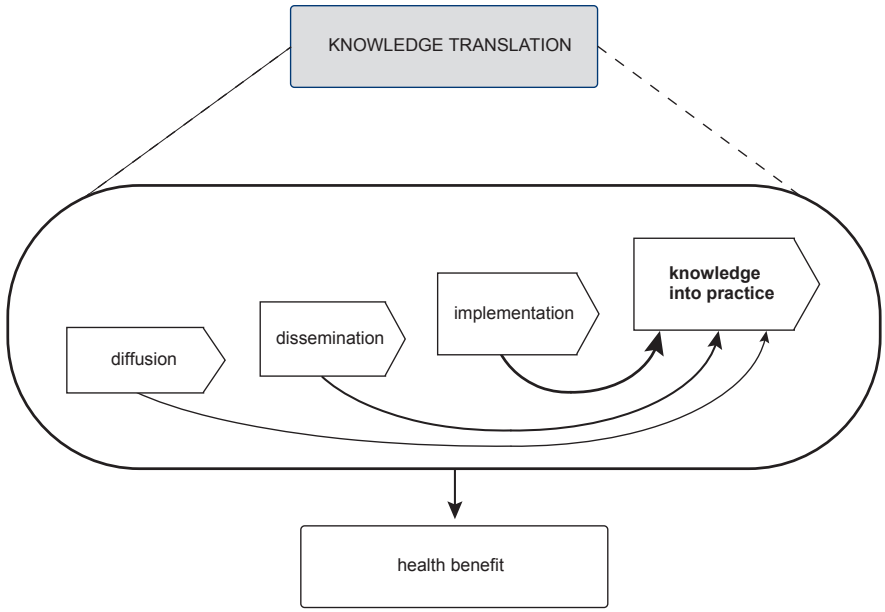

Fig. 1. Components of knowledge translation. Copyright: The Finnish Medical Society Duodecim.

support (guideline summaries, algorithms, forms or checklists), implementation support (training material, other resources), and evaluation support (audit tools, other measures) (7). Desirable features for GItools have been surveyed (8).

CC Guidelines have previously included GItools, but the development of these tools has been based more on the resources available than on the needs of healthcare providers or patients. An implementation strategy for CC Guidelines was formulated in order to make implementation activities more structured and target-oriented. Implementation was made more structured by recognizing up to 5 of the most important recommendations to be implemented when there was new evidence or a known evidence-practice gap. Based on these implementation aims, an implementation plan was made for each guideline. The plan included the GItools to be developed, communication activities, and possible educational efforts.

As rehabilitation was embedded into the guidelines, a new 3-year project for the implementation of rehabilitation recommendations was launched at the beginning of 2015. The aims of the project were to develop and publish GItools for rehabilitation guidelines, as well as to implement guidelines for seamless care pathways, and thus improve the health of the population. The current article describes the GItools, how those tools were evaluated by healthcare professionals, and the implementation of a seamless pathway.

METHODS

For this project, guideline topics were specifically selected to include diseases that significantly decrease patients' ability to function and work (musculoskeletal system, depression, and neurological diseases). The project was divided into 2 sections. The first section, targeted at healthcare professionals, was composed mainly of the development of GItools and arrangement of educational seminars. The second section targeted healthcare organizations. Thus, organizational partners were sought to plan actual implementation activities.

GItools and educational activities

A clinician summary and a plain language summary for patients were compiled for each CC Guideline. Optional GItools included press releases, slide presentations, clinical algorithms, performance measures, resources for patients and caregivers (information, self-management resources), as well as resource-planning guides. During the project GItools were selected for each guideline based on the implementation aims. Rehabilitation was emphasized, if relevant for the guideline topic, and described in an implementation plan. In addition, podcasts on clinician summaries and videos were added to the GItools repertoire. Videos consisted of short lectures, interviews or demonstrations of rehabilitation methods.

One national and 4 regional continuous medical education (CME) events are arranged annually in Finland. For these events, CC Guideline working groups offered CME sessions on guideline topics relevant to rehabilitation according to the implementation plan. In addition, separate yearly rehabilitation seminars were planned.

In order to facilitate shared decision-making, the content of guideline patient summaries was revised. Literature and other guideline organizations' patient summaries were reviewed, and opinions of the CC website (https://www.kaypahoito.fi/) users

Table I. Guideline implementation tools (GItools) developed during the project. All included rehabilitation-related themes

GItool	Description of the tool	Number of tools developed
Patient summary	A plain language short version of the guideline	15
Slide presentation	A set of slides that can be used by healthcare professionals to learn and to educate others	15
Video	Short lectures or demonstration of rehabilitation methods	9
Diagram	Interactive or plain flow charts on diagnostics, treatment or rehabilitation	6
Clinical pathway	Flow charts on treatment and rehabilitation pathways. Does not include work tasks of different professionals	5
Podcasts	Podcasts on clinician or patient summaries	3
Other web materials	Information for patients and their carers, self-management support, influence of the disease according to ICF framework	44
Performance measures	Descriptions of recommended performance measures	22

ICF: International Classification of Functioning, Disability and Health.

were surveyed with a questionnaire. The new patient summary model was tested in a workshop with civic organizations. Based on the literature, questionnaire results and workshop, self-care and rehabilitation were set as permanent subtopics for the patient versions. Self-care was emphasized in particular.

As part of the project evaluation a web survey was compiled for the CC website users. The aim was to gather opinions on and experiences of the GItools. The survey was open for 6 weeks from late 2017 to early 2018. It was sent to rehabilitation seminar participants and linked to the CC website to be viewed by users of the site. The survey questions were rated on the Likert scale from 1 (negative) to 5 (positive).

Implementation of seamless care pathways

This article describes in detail a project that was carried out with an organizational partner. The project was launched in June 2016 in Päijät-Häme, a district with a population of 213,000 inhabitants. The rehabilitation unit operates in both primary and specialized healthcare. Implementation of the Current Care guideline on the shoulder tendon disorders was selected because there was interest in integrating the rehabilitation system at every primary healthcare centre in the area and to strengthen the care pathway according to the recently published CC Guideline.

First, a co-operation agreement was settled on in June 2016 by the delegates from the Finnish Medical Society Duodecim and from the administration of Päijät-Häme primary healthcare, specialized healthcare, and the rehabilitation unit. One follow-up meeting was organized (November 2016). A group consisting of 6 professionals from the health district and a facilitator from CC (RS) was set up to plan the implementation project.

The implementation plan was developed during 3 workshops facilitated by RS. Methods such as brainstorming, discussion, snowballing, prioritizing and short lectures were used. First, the objectives for change were identified, prioritized and categorized. In the second phase, the target groups for each aim, barriers to and facilitators of change, as well as possible means (interventions) to drive change, were identified. In the third phase, interventions were selected, areas of responsibility and roles were designated, and schedule was decided. If you prefer finalized, it is suitable for us.

RESULTS

GItools and educational activities

During the project, 22 rehabilitation-related new or updated guidelines were published. For 20 of these, an implementation plan was recorded. Various web materials, as well as patient summaries, slide presentations and videos including rehabilitation-related materials, were developed and published (Table I).

The GItools comprised evaluation of rehabilitation needs and methods, including medical as well as vocational rehabilitation. Many of them included information on the ability to function and ability to work, psychosocial treatment and psychotherapies, non-pharmacological treatment, patient self-care guidance, as well as lifestyle changes. Some GItools included information on rehabilitation plans, therapeutic exercises, the different roles of healthcare professionals, group coaching on coping with disability and rehabilitation organizers.

Among the 50 responses to the questionnaire, these GItools were perceived to be quite good for facilitating guideline implementation (mean 3.6–4.1 on a scale from 1 to 5 for various GItools). Furthermore, it was perceived that the GItools should be included in the

Table II. Healthcare professionals' perceived usefulness of certain GItools and view as to whether the GItool should be produced in the future (Likert scale 1 (negative) – 5 (positive)). Number of answers 50

	Does the tool facilitate implementation of the guideline? Mean value	Should these GItools be included in the guidelines? Mean value
Interactive flow chart	3.6	4.0
Clinical pathway	3.8	4.0
Flow chart	3.7	3.9
Performance measure	3.5	3.9
Slide presentation	3.8	4.0
Information for patients and carers	4.1	4.4
Patient summary	3.9	4.3
Disease-specific ICF framework table	3.5	3.8
Video	3.5	3.8

ICF: International Classification of Functioning, Disability and Health.

Table III. Example of the description of the implementation objectives

Principal objectives	Who has to change practice?	Expected change in practice	Barriers to change	How to put the change into practice
Rehabilitation				
To ensure the timely, systematic, and progressive and long enough therapeutic exercise (minimum 3 months) in degenerative tendon problems	Patient	Engage to self-care and rehabilitation	Lack of motivation Laziness Pain Lack of coaching	Leaflet to patients Active follow-up of response to exercise Good pain treatment Possibility to contact professionals easily
	Physiotherapists	Guide self-care methods to patient Organize follow-up of self-care	Lack of knowledge Lack of resources	Group interventions (group exercise for patients with musculoskeletal problems, individualized exercise in small groups) Multiprofessional education
	Physicians	Understand the meaning of rehabilitation Refer to physiotherapist timely Guide patients to self-care methods	Attitudes Lack of knowledge Lack of knowledge of local care pathway Lack of co-operation	To make an agreement on work distribution between physicians and physiotherapists Multiprofessional education
Engagement of patients in self-care	Patients	Is responsible for rehabilitation and self-care	Attitudes Lack of motivation Laziness Pain Contradictory counselling	Leaflet to patients Active follow-up methods Good pain treatment Possibilities to contact and ask advice easily
	Professionals: physiotherapists or physicians	Guide patients to self-care methods and make an agreement with patient how to carry the programme out Organize follow-up of self-care	Lack of knowledge Abilities to motivate Hurry Structures and procedures	To make an agreement about work distribution between physicians and physiotherapists, and about procedures Multiprofessional education

guidelines (mean 3.8–4.4) (Table II). Patient material was rated as the most useful tool.

A total of 4 educational seminars were arranged during the project, with 610 professionals attending. The first, entitled "From patient to a rehabilitee – from rehabilitee to coping with the illness" explored prevention of youth marginalization, rehabilitation of musculoskeletal disorders and the organization of rehabilitation. The topics of the other seminar were cardiac rehabilitation, treatment and rehabilitation of ADHD (Attention-deficit hyperactivity disorder) and hip fracture. In addition, 2,156 professionals attended 14 CME sessions arranged as part of CME events.

Feedback from participants was mainly positive regarding the usefulness of topics and the content of the 4 seminars arranged during the project. On a scale from 1 (disagree) to 5 (agree), the mean value for the majority of lectures was greater than 4.

Implementation of seamless care pathways

The group that prepared the implementation of the CC guideline on shoulder tendon disorders held 5 meetings between June 2016 and March 2017. The group identified important objectives of change and how these aims could be put into practice. They divided the aims into 4 categories: diagnostics, pain treatment, rehabilitation, and the care pathway. In addition, the aims were prioritized.

Progressive, systematic, timely, and sufficiently long-lasting therapeutic exercise period for patients with shoulder tendon problems was identified as the most important implementation theme. Engagement of patients with self-care was perceived as another important rehabilitation-related implementation aim. The group defined the aims in a table, including target group, barriers and facilitators, and possible means (interventions) to drive change. As an example, Table III

Table IV. Agreed actions to implement the Current Care Guideline on shoulder tendon problems

What to be done	Who is responsible?	Schedule	Present state
Model of care for working aged patients with musculoskeletal diseases	Chief of physiotherapy Chief of rehabilitation	Starting in Spring 2017, ready in 2018	Underway
Agreement and documentation of work distribution between physicians and physiotherapists, and of procedures	Physiotherapist and physician from the primary healthcare named by the group responsible for implementation	Spring 2017	Done
Planning and starting the group physiotherapy	Chief of physiotherapy	Spring 2017	Done
Education in multiprofessional small groups addressed to primary care physicians and physiotherapists	Chief of rehabilitation Specialist in orthopaedic surgery Physiotherapists from primary care	Autumn 2017 to Spring 2018	Done
Agreement and documentation of how to consult	Chief of rehabilitation Specialist in orthopaedic surgery Representative of primary healthcare	Spring 2017	Underway
Leaflet for patients about self-care	Physiotherapist Chief of rehabilitation	Spring and Autumn 2017	Underway

shows the rehabilitation-related objectives for change. The implementation plan template is shown in Appendix SI[1]. The group decided on the steps, responsibilities, and timetable for implementation, and how to follow and measure change. Table IV shows the agreed actions.

The new generic model of care for patients with musculoskeletal diseases was developed and published on the CC website (https://www.kaypahoito.fi/). Materials for patients and the education were produced. Four different multidisciplinary education sessions were organized between October 2017 and February 2018, with an orthopaedic surgeon, a physiatrist, 2 physiotherapists and a facilitator acting as instructors. Each session included lectures, as well as hands-on education on diagnostic tests and therapeutic exercises in which a physician and a physiotherapist worked as a pair. The generic model of care for patients with musculoskeletal diseases was introduced. In addition, self-care instructions were gathered and tips for motivating the patients were shared. There were 74 participants, 40 of whom were physicians and 34 were physiotherapists. An electronic feedback questionnaire was sent to the participants after the sessions; however, only 27% responded. The majority of respondents found the sessions useful. Respondents also stated that they were committed to changing their behaviour concerning shoulder tendon disorders. Respondents expressed gratitude specifically for the hands-on sessions on diagnostics and exercises.

An important part of implementation is to follow how change occurs. The group described the objectives of change and possible measures for change. For example, to measure the objective "timely given, systematically and progressively executed and long enough therapeutic exercises in degenerative tendon problems", the following measures were identified: exercise groups established (yes/no), number of participants, time on "waiting list", Western Ontario rotator cuff -index in use, number of sick-leave days due to shoulder problems, and electronic training diary in use (yes/no). However, the group recognized several barriers to the use of these measures. For example, problems in obtaining reports from electronic health records were found to be an important barrier.

DISCUSSION

Based on our experience, it is feasible for a guideline producer to achieve systematic inclusion of rehabilitation into guidelines and thereafter into GItools. We successfully forged co-operation between a guideline producer and a healthcare organization in a local implementation project, although some difficulties occurred in following the scheduled timetable.

This project lacks data on the effectiveness of our GItools. Based on the questionnaire, however, the GItools, particularly the patient versions and information for patients, were well received and considered useful. According to a Cochrane Review, a GItool developed by the guideline producers may moderately increase adherence to the guidelines (9). However, there was a limited number of randomized controlled trials (RCTs), and there was variation in the clinical conditions, types of healthcare professionals included in the studies, types of behaviour targeted, and the GItools. Due to this heterogeneity, it was not possible for the Cochrane Review to draw conclusions about the comparative effectiveness of GItools.

Implementation interventions are often complex. Theory-based careful planning is therefore crucial, particularly with complex interventions, such as implementation of seamless care pathways (5). To plan the implementation project we used a similar theory-based structured approach as that used by French et al. (10). This process began with asking the question "Who needs to do what differently?", followed by barrier identification, selection of intervention components and planning of evaluation. The last additional step was the planning of responsibilities and drafting a schedule. Implementation at the local level facilitates the identification of aims and barriers, and offers expertise on facilities and resources (4, 6, 11, 12).

Based on our analysis of aims and barriers, we chose a multifaceted intervention. Although there is no solid evidence that multifaceted interventions are more effective than single ones, multifaceted interventions allow targeting several barriers and persons at different stage of change at the same time (11). Intervention components consisted of using the services of opinion leaders, interprofessional mixed educational sessions, and dissemination of guideline-based materials. These intervention components have proven to have a small-to-moderate effect on guideline implementation.

Educational meetings alone, or combined with other interventions, can improve professional practice and healthcare outcomes for patients. However, educational meetings should not be used alone when the aim is to change complex behaviour. When using educational interventions, mixed interactive and didactic education meetings are the most effective educational interventions, although the effect is small-to-moderate (13). Studies have shown variable effects for interprofessional education interventions. It may be beneficial to include attendees from a single organization. According to our feedback the attendees felt that the presence of both physicians and physiotherapists was

[1]http://www.medicaljournals.se/jrm/content/?doi=10.2340/16501977-2597

an advantage, and provided the opportunity to get to know each other. In addition, the interactive part of sessions was acknowledged. Interventions may have a different effect on different professionals. There is a lack of evidence on whether any single active knowledge transfer intervention improves the knowledge of physiotherapists, but there is strong evidence to suggest that an active multi-component knowledge transfer intervention leads physiotherapists to change their practice behaviour, compared with passive dissemination (14).

The use of opinion leaders alone or in combination with other interventions may successfully promote evidence-based practice, but effectiveness varies between studies (15). These results are based on heterogeneous studies that differ in terms of the type of intervention included, the setting and outcomes measured. In most of the studies the role of the opinion leader was not clearly described, and it is therefore not possible to determine the best way to optimize the effectiveness of opinion leaders.

Commitment from management is essential for successful implementation (16, 17). One of the reasons for piloting this project in Päijät-Häme was, that primary and specialized healthcare, including rehabilitation, were parts of the same organization, so it was easy to obtain commitment to the project from administration and management. However, the fusion of 3 different primary healthcare organizations and specialized healthcare into a single large organization was carried out in 2017. This resulted in difficulties in keeping to the planned timetable. In addition, a new electronic health record system caused several problems in clinical work. Professionals (both physiotherapists and physicians) had multiple new factors to adapt to. This may have disadvantaged the implementation of the CC Guideline on shoulder tendon disorders. On the other hand, the new organization enhanced the possibilities of uniting care pathways, as all physiotherapists were under the same management. Bekkering et al. found, in 2003 in a study of physiotherapy guidelines on low back pain, that the most important discrepancies between current practice and recommendations of guidelines were problems in co-operation between referring physician and physiotherapists, and knowledge or skills of the physiotherapists. In order to create permanent change in how shoulder tendon disorders are rehabilitated, more extensive education of physiotherapists on musculoskeletal diseases may be needed. This was started in 2018 and continued up to the Spring of 2019. In addition to good co-operation with physicians, who should refer patients to physiotherapy when needed, a seamless shoulder tendon disorder care pathway requires knowledge and commitment from other professionals, such as nurses who conduct the triage of patients when patients contact healthcare.

The current study has several limitations. It is a case study, a description of our project. The implementation of rehabilitation of shoulder tendon problems in Päijät-Häme district is continuing and the final results are not yet available.

Implementation of rehabilitation has distinctive features. A multidisciplinary team includes several professionals and the process may take place at one or multiple levels, as well as in different organizations. Rehabilitation is often a long process, but it is dependent on the right timing, good collaboration, continuing assessment and evaluation, clear goals and commitment from the rehabilitee. It is essential to understand that implementation of rehabilitation is not easy, and requires enough time. There is limited evidence to recommend one knowledge translation strategy over another among allied health professions (19), working together for a common goal. However, it is evident that RCTs will never be able to produce evidence of effectiveness of implementation for different rehabilitation contexts. Therefore observational effectiveness data from clinical registers, including electronic health records, will also be needed (20, 21). High competence of staff and the use of the best available scientific evidence will probably lead to the best implementation results in a particular clinical and organizational context.

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