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What is known about the role of external facilitators during the implementation of complex interventions in healthcare settings? A scoping review

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ABSTRACT

Objective To synthesise current knowledge about the role of external facilitators as an individual role during the implementation of complex interventions in healthcare settings.

Design A scoping review was conducted. We reviewed original studies (between 2000 and 2023) about implementing an evidence-based complex intervention in a healthcare setting using external facilitators to support the implementation process. An information specialist used the following databases for the search strategy: MEDLINE, CINAHL, APA PsycINFO, Academic Search Complete, EMBASE (Scopus), Business Source Complete and SocINDEX.

Results 36 reports were included for analysis, including 34 different complex interventions. We performed a mixed thematic analysis to synthesise the data. We identified two primary external facilitator roles: lead facilitator and process expert facilitator. Process expert external facilitators have specific responsibilities according to their role and expertise in supporting three main processes: clinical, change management and knowledge/research management.

Conclusions Future research should study processes supported by external facilitators and their relationship with facilitation strategies and implementation outcomes. Future systematic or realist reviews may also focus on outcomes and the effectiveness of external facilitation.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews standards as a checklist to report our study.
⇒ We performed a thematic analysis approach.
⇒ No formal assessment of study quality.
⇒ No study protocol registration.

INTRODUCTION

Complex interventions (CIs) involve several interacting components, multiple participants and complex behaviours and are sensitive to the local context.[1] CIs can also lead to numerous and variable outcomes, and the causal link between intervention and outcome is not readily apparent.[1–4] Many interventions in healthcare settings are considered complex.[1] As CIs are social, context-sensitive, dynamic and successful implementation require the capability of key actors to recreate these social dynamics in their setting, adapt the intervention and identify the key components for the intervention to be successful in their context.[5]

Facilitation is an active ingredient for implementing evidence-based CIs into practice.[6] As a process, facilitation is a set of strategies and actions supporting individuals and teams to adopt an innovation in a context of need for improvement.[7 8] Healthcare facilitation might contribute to implementation outcomes through various components, such as:

> (1) engagement of practitioners through priority and goal setting, (2) clarifying roles and responsibilities, (3) coalition-building across leaders and champions to help build organisational capacity for the effective innovation, (4) continuous problem-solving, strategic thinking and adaptation and (5) integration of innovation and facilitation components into the organisation and letting sites lead the implementation. (Kilbourne, 4).[9]

As a specific role, a facilitator enables stakeholders to implement change in their practice.[7 10 11] According to the Consolidated Framework for Implementation Research, implementation facilitators are 'individuals with subject matter expertise who assist,

coach or support implementation'.[12] Facilitators can be internal or external to the organisation, or a combination of both. Focusing on helping individuals and groups to improve the quality of care, external facilitators take on an 'outsider' role in adding a new perspective and questioning organisation rules and policies, as well as daily routines.[13] Using multiple strategies, external facilitators are implementation experts, and their specialised training provides guidance and interactive problem-solving to the individuals, teams and agencies in the change-making.[12 14 15]

A scoping review on the facilitation roles and characteristics associated with research use by healthcare professionals highlighted that external facilitators are essential in 'spanning' the boundaries between systems, translating knowledge and helping build relationships.[16] Some reviews explored the roles of facilitators regarding practice facilitation and provided a detailed description of their competencies, strategies and activities.[7 8 16 17] However, we still need to characterise the role of external facilitators in the context of CI implementation, as well as the processes/set of actions they support. This study aimed to synthesise current knowledge about the role of external facilitators during the implementation of CIs in healthcare settings.

METHODS

Research design

We conducted a scoping review using the methodology described by Arksey and O'Malley and adapted by Levac *et al*.[18 19] This scoping review methodology allows to query the literature for a broad research question. We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Extension for Scoping Reviews standards as a checklist to report all relevant information.[20] This scoping review was conducted in five stages.

Stage 1: identifying the research questions

Our primary research question was: What is known about the role of external facilitators in implementing CIs in healthcare settings? Subresearch questions were as follows:

- What are the population target and the goal of CIs using an external facilitator as an implementation strategy?
- What are the processes supported by external facilitators when implementing CIs?

Stage 2: identifying relevant studies

Search strategy

We searched the following databases: MEDLINE, CINAHL, APA PsycINFO, Academic Search Complete, EMBASE (Scopus), Business Source Complete and SocINDEX for articles published between 2000 and 2023, with the following three concepts: facilitation, CI and implementation. As an example, we used the following synonyms for the concept of facilitation: facilitator, 'knowledge broker', 'practice enhancement assistant', 'change agent', coach and 'social facilitation'. The search strategies, developed in consultation with an experienced medical librarian and adapted to each database, may be found in online supplemental appendix 1.

Stage 3: study selection process

Eligibility criteria

We selected studies if they were written in English or French and pertained to the implementation of an evidence-based CI in a healthcare setting supported by an external facilitator. Specifically, we referred to an implementation process as a 'deliberate effort to increase the impact and uptake of successfully tested innovation' (Skivington, p. 26). We considered that a facilitator was external when at least one actor from outside the organisation was involved in facilitating the CI implementation. The definition of CI was based on the guidance of the Medical Research Council:

> An intervention might be considered complex because of properties of the intervention itself, such as the number of components involved; the range of behaviours targeted; expertise and skills required by those delivering and receiving the intervention; the number of groups, settings, or levels targeted; or the permitted level of flexibility of the intervention or its components (Skivington,p. 2).

We excluded articles if they were (1) about a quality improvement initiative of a non-evidence-based CI, (2) not in a healthcare setting, (3) a conference abstract and (4) a study protocol not reporting any results or description of the facilitation intervention's development.

We used the Cochrane technology platform Covidence to manage duplicates, as well as the selection process. First, two reviewers (SO and GC) screened titles and abstracts in increments of 200 abstracts to test the clarity of eligibility criteria. A third reviewer, experienced with the scope of the review (AG), resolved any conflicts and discrepancies. This process helped clarify eligibility criteria among reviewers. For instance, authors would often not explicitly mention whether the intervention being implemented was complex, making it difficult for reviewers to evaluate this criterion. We concluded that the social nature of the intervention was the characteristic pertaining to complexity most easily identifiable in the abstract, that is, whether the intervention consists of multiple social behaviours (eg, care management and collaborative care) and requires the interaction of at least two actors. Additionally, few abstracts distinguish between external and internal facilitators. After screening the first 200 abstracts, we decided to include any abstract/record reporting the results of an implementation process or the development of an implementation support/facilitation intervention. Subsequently, SO and GC screened full texts for eligibility, and AG resolved any conflicts. A senior researcher (CH) was also consulted during the selection process to clarify the scope of the review.

Stage 4: charting the data

Three authors (SO, AG and CH) created and agreed on a data extraction form based on the Template for Intervention Description and Replication checklist.[21] This form included:

- Description of the study (author, year, country, design and objective).
- Description of the CI (name, aim, target population and providers).
- Description of the role of external facilitators (why, for who, by whom, when and activities).

Two authors (SO and GC) extracted the variables from each included article, and two additional authors (AD and ML) validated the extracted data. A fifth author (AG) resolved disagreements. We excluded articles lacking details about the role of external facilitators or a CI description.

Stage 5: collating, summarising and reporting the results

We conducted a thematic analysis based on Braun and Clarke's methodology to synthetise data related to the role of external facilitators with the NVivo software.[22] The Interactive Process Framework for the Implementation of Complex Interventions,[23] an adaptation of the Interactive Systems Framework,[24] was used to highlight processes supported by external facilitators. According to the Interactive Process Framework, three processes are in interaction when implementing a CI: knowledge (synthesis and transformation), practice support (team and individual) and practice delivery.[23] The first step of the analysis was done by two authors (AG and AD) as they got acquainted with the type of information available regarding the description of facilitation and of the role of the external facilitator (Braun and Clarke, 2006). The second step was to explore patterns with an inductive and a deductive approach by creating themes and charting data in a table and schema (eg, type of facilitation process and actors, the link between CI and type of facilitation).[22 25] Deductive themes were initially created according to the three processes described in the Interactive Process Framework. One author with experience in organisational change management (AD) conducted the second step of the thematic analysis and findings were discussed and validated with the first author (AG).

To regroup and describe the type of study design and characteristics of the CIs, we used the approach described by Arksey and O'Malley[18] akin to a narrative review approach.[26] A summary of each study was also included in an Excel table.[18 26]

Patient and public involvement

None

RESULTS

We identified 4752 unique records (abstracts) for which 248 reports (full-text journal articles) were assessed for eligibility. We excluded 191 reports and reviewed 40 reports for data extraction eligibility. Ultimately, we included 36 reports for final analysis. Results are summarised in figure 1 according to the PRISMA 2020 statement guideline.[27]

Study characteristics

Online supplemental appendix 1, table 1 summarises the characteristics of each included study and their CIs. The included articles were published between 2008 and 2023. Most studies were conducted in the UK (n=11), the USA (n=9) and Canada (n=7). Overall, we identified three study designs: (1) developmental study (n=5), that is, describing the methods used to develop the facilitation intervention to support stakeholders implementing a CI in their context; (2) process evaluation study (n=27), sometimes embedded in a randomised controlled trial (n=15) and conducted using qualitative research (n=16) or mixed methods (n=11) and (3) outcome evaluation study of a facilitation intervention (n=2). Two studies concerned process and outcome evaluations.[28 29]

CIs' goals and target populations

We identified 34 CIs and classified them into two categories: (1) healthcare management interventions designed to improve the health of individuals living with specific health conditions/diseases or their caregivers (25/34) and (2) public health programmes designed to prevent disease or promote health among groups of populations at risk (6/31).

Healthcare management interventions targeted individual healthcare needs (eg, symptoms management, physical and occupational rehabilitation, and recovery) or the care trajectory/pathway (detection, assessment, care planning and referring) of people with specific health conditions: mental disorders such as depression, alcohol use disorders and primary psychosis[30–36]; stroke[37–43]; dementia[44–46]; cancer[28 29]; end of life or palliative care[47–50]; multiple chronic diseases[51 52]; asthma[53]; obesity[23]; long-term musculoskeletal pain[54]; lupus[55] and osteoarthritis.[56]

Public health programmes were specifically designed to prevent suicide among adults,[57] and substance use among adolescents,[58] as well as to promote physical activity among inactive patients,[59] positive parenting skills among families living in disadvantaged communities,[60] health for pregnant woman and their significant other[61] and well-being among older adults.[62]

The role of external facilitators

Online supplemental appendix 1, table 2 summarises the role of the external facilitators for each CI. We identified two primary external facilitator roles: the lead facilitator and the process expert facilitator.

The lead facilitator

Lead external facilitators were often responsible for managing relationships, recruiting organisations, training and supporting external facilitators who worked closely with internal facilitators and CI providers. Indeed, 18 CIs

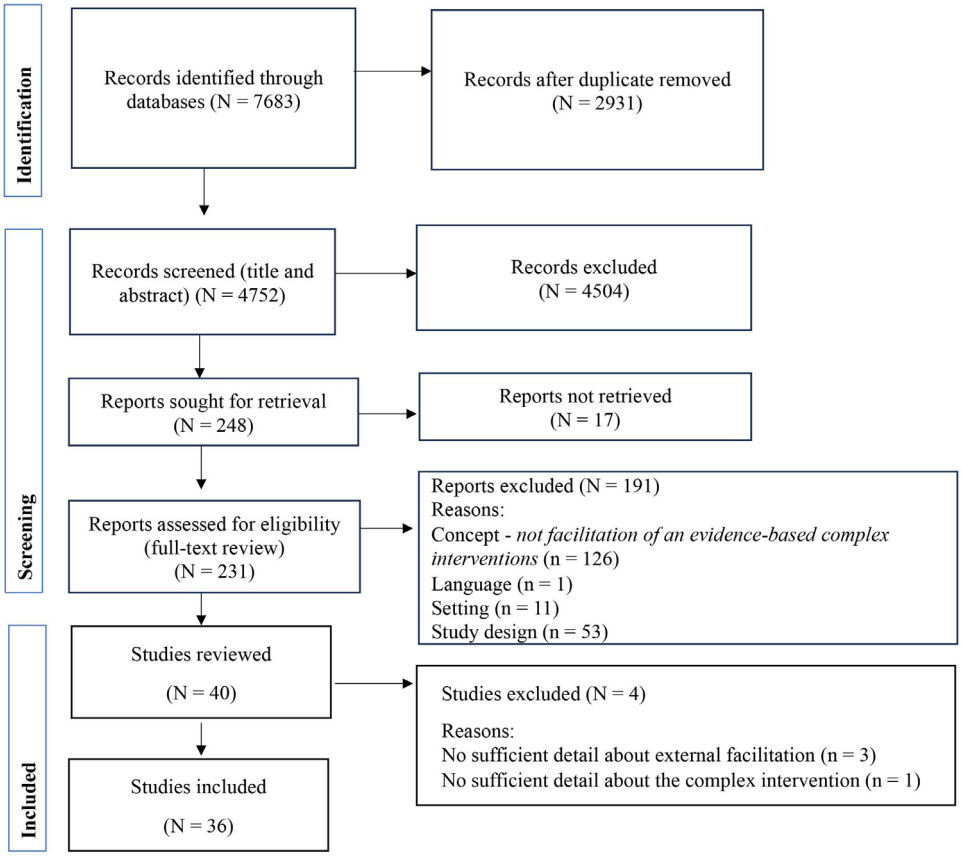

Figure 1 PRISMA flow chart. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

were implemented using the support of both internal and external facilitators. Research teams were often the external lead facilitators and the 'conductor' of the external facilitation process.[23 28 29 33 34 36–38 41 42 44 45 47 49–56 59 61 62] For instance, in a study on the implementation of an eHealth intervention for individuals with dementia:

> Four and a half full-time equivalent researchers worked part-time on the implementation of the partner in Balance project, recruiting organisations, providing technical and implementation support, managing relationships with organisations and the technology partner, planning and carrying out coach training and developing new content modules. (Christie, 5).

In the included studies, the lead facilitator often had an essential role in engaging key partners and stakeholders ethically and strategically. For instance, they were responsible for reaching agreements with managers and decision-makers. In a study on the support of managers in implementing a psychosocial intervention for dementia care, an organisation agreement was signed 'by senior management to indicate they agree with providing the resources for the IFs (internal facilitators) to fulfil their role, including time' (Kelley, p.3).

'Process expert' facilitators

In the included studies, 'process expert' facilitators, such as research staff, clinical champions, external change agents or advisory groups, had specific responsibilities according to their role and expertise in supporting three processes of the CI implementation: clinical care processes, change management processes and knowledge/research management processes.

External facilitators supported CI providers in adopting evidence-based behaviours/activities related to the CI's main goals and target population. Many studies used expert clinicians, such as 'clinical champions', to play the role of external facilitator to support the CI integration into the actual clinical care processes.[31 32 35 39–43 47 48 54 54 56 59 62] Specifically, expert clinicians provided training and coaching to improve the competency and skills of CI providers before and during the implementation. In a study to evaluate and support the implementation fidelity of a community exercise intervention, the authors described the role of the physical therapists as facilitators as follows:

> Two physical therapists with FAME (fitness and mobility exercise) experience facilitated a workshop which consisted of 3 hours of lectures, 3 hours of practical with three people with stroke and 2 hours of discussion and evaluation. (…) all fitness instructors who regularly delivered the FAME programme (…) participated in the workplace audit and coaching process […] facilitated by one of the physical therapy instructors who had delivered the day-long workshop (Bird, p. 3).

External facilitators often supported CI providers and the implementation team in planning, managing and monitoring the organisational change process according to the best practices in change management. In a study on implementing an evidence-based, person-centred approach to stroke rehabilitation, the authors detailed the role of implementation facilitators who:

> (…) met face-to-face with the clinical teams on a bi-weekly basis to support site-specific implementation and sustainability of CO-OP (the cognitive orientation to daily occupational performance approach). Teams at each site were asked to set implementation goals that made sense within their context, and the implementation facilitator used guided discovery to help teams develop, implement and check plans. (Hunt, p. 203).

External facilitators supporting the change process were often researchers or staff trained in quality improvement techniques. For instance, in a study to evaluate the implementation of a facilitation intervention to improve the care of patients with transient ischaemic attack, the 'EF (external facilitation) was provided by the PREVENT nurse trained in Lean Six Sigma methodology and quality management' (Damush, p. 324).

Finally, external facilitators were mostly research team members assisted by trained staff to support knowledge/research management processes. These external facilitators often led activities related to CI dissemination and the evaluation of the facilitation intervention. The external facilitators helped CI providers or local facilitators recruit participants, collect and analyse data. For example, in the context of a European suicide prevention programme evaluation, the evaluation process team trained local researchers to conduct interviews and focus groups in the participant's 'own language'.[57] In one study, a business model of the CI was developed in collaboration with a Knowledge Transfer office to ensure the sustainability of the CI implementation.[45]

DISCUSSION

Our review is the first to describe the role of external facilitators according to the processes they supported while implementing an evidence-based CI. In previous literature reviews on facilitation and implementation strategies, authors summarised the evidence by listing the various strategies and activities used by facilitators and implementation teams.[7 8 15 16 63] Our review goes further by distinguishing the lead facilitator role (relationship-building, project management) from the process expert facilitator (clinical care, change management, knowledge/research).

The 'lead facilitator' role was implicitly described in all retrieved studies, even though they play an essential role in the research project management and in supporting process expert facilitators. The role of the lead external facilitator in implementation research appears to be similar to that of a 'project manager'.[64] In their study on the role of external facilitators in supporting the implementation of a change process in primary care settings, Lessard *et al* highlighted that project management was one field of expertise of external facilitators.[52] Furthermore, the lead external facilitator is also essential in developing and sustaining partnerships. Indeed, engaging stakeholders and developing relationships are core activities in implementation research,[12 65] programme evaluation[66] and a key role of project managers.[64 67] Building a coalition across leaders and champions is also described as a component of healthcare facilitation.[9] All included articles were conducted in the context of a research project, explaining why lead facilitators were primarily researchers. Considering the importance of relational/partnership-building for the success of an implementation study and CI sustainability, there is a need to develop knowledge regarding best partnership practices and to promote these best practices among implementation researchers.

In coherence with the Interactive Process Framework for the Implementation of Complex Intervention,[23] expert facilitators may contribute to managing and developing knowledge using research activities through the research process and to support adoption of best practices using clinical supervision and quality improvement activities through clinical and change management processes. Indeed, research staff, clinical champions/experts and change agents are three actors frequently involved in an implementation team.[12] Those results are similar to the scoping review of Cranley *et al* on the role of the facilitator in the context of practice facilitation.[16] However, research facilitators and clinical facilitators were identified as an internal facilitator role.[16] In the context of an implementation study, research and clinical expertise are specific to CIs characteristics and are not necessarily available in the implementation context for the study duration. In the articles included in this scoping review, external facilitators worked closely with internal facilitators to support and spread expertise among individuals in the implementation context. Ensuring the scaling up and sustainability of CIs requires various and sometimes specialised expertise, highlighting the relevance of developing strategies for helping healthcare stakeholders to access the necessary expertise to improve care or implement CIs. These strategies should aim to continuously support healthcare providers and managers through knowledge/research management, change management and clinical support/supervision processes concerning evidence-based CIs and the needs of the target population.

From a practical perspective, the results of our review can help healthcare organisations or clinical teams think about the human resources needed to manage a CI implementation project successfully: (1) a lead facilitator (an expert in the CI and implementation processes) for managing the initiative, building relationships among a variety of partners, and guiding external and internal facilitators; (2) clinical experts or clinical supervisors

responsible for facilitating the integration of best clinical practices into the actual clinical process by offering training and coaching to clinical providers and sometimes patients; (3) change management experts or change agents for the planning and monitoring of the change and the coaching of the implementation team and (4) knowledge management experts or research staff for managing the research process and developing scientific knowledge for CI sustainability. Indeed, our results show that members of the research team sometimes facilitated the research process itself and the organisational change process. Depending on their expertise, the research team sometimes played the role of clinical supervisors as well. The external facilitation model or team configuration will depend on the partners' needs and evaluation goals.

Limitations

Some limitations of our review need to be highlighted. First, there is a possibility that we have missed some relevant articles due to the lack of definition standard for facilitation and CI, allowing a bias of interpretation for study selection. To minimise this bias, we selected data progressively and had numerous discussions to ensure all team members involved in the selection process shared the same understanding of these concepts. We also developed a search strategy with an experienced medical librarian adapted for different databases, enabling an exhaustive and comprehensive literature review. Second, we did not include grey literature, which resulted in an over-representation of researchers as external facilitators while including public health agency reports on CI implementation would have emphasised professional backgrounds or positions other than academic researchers as lead external facilitators. Third, most included studies described activities conducted by external and internal facilitators, but the descriptions provided strongly differ among articles. This heterogeneity in the level of information regarding facilitation strategies and the role of external facilitation created a challenge in analysing the evidence.

Recommendation for facilitation strategies reporting

The reporting of the role of external facilitators was often included within the text of the included articles (eg, in the background, method and results sections) but displayed no consistency. To standardise the reporting of facilitation strategies when disseminating the results of implementation studies, it might be relevant that authors document strategies and activities of external facilitators according to the facilitated processes or the set of actions to facilitate: care delivery (eg, clinical supervision, training and educational material), change management (eg, needs assessment, audit and feedback, plan-do-study-act cycles) and knowledge management process (eg, research training, data collection and analysis support, dissemination strategies). Guidelines for naming, defining and operationalising implementation strategies provided by Proctor *et al* and Powell *et al* may help to improve the clarity, relevance and comprehensiveness of implementation strategies.[68 69] Using these guidelines to describe facilitation/implementation strategies according to the supported processes may contribute to developing knowledge regarding the operationalisation of CI in healthcare settings. Authors should also explicitly present the governance structure and the role of the lead facilitator so knowledge of relationship/partnership-building best practices in the field of implementation science could be improved.

CONCLUSION

This scoping review provides knowledge about the role of external facilitators during the implementation of a CI from a systemic perspective by focusing on processes supported by facilitators. However, those processes, characterised by organisational human behaviours, need to be better understood to more easily translate research evidence and CI into actual practice. Future research should explore the link between processes supported by external facilitators, facilitation strategies/activities and implementation outcomes. Future systematic or realist reviews may also focus on outcomes and the effectiveness of external facilitation. A better understanding of the mechanisms of external facilitation and its impact will contribute to building a learning healthcare system and improve the integration of evidence-based intervention into practices.

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Appendix 1: Search strategy

Source	Search strategy	Results
MEDLINE Date of search: 2023-12-22	((TI (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*") OR AB (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*")) OR ((MH "Social Facilitation"))) AND ((TI ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)) OR AB ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*))) OR ((MH "Organizational Innovation")))	2 756
CINAHL Date of search: 2023-12-22	(TI (Facilitat* OR ("Knowledge broker*) OR " AND Practice AND enhancement AND assistant* AND " OR " AND Change AND agent* AND " OR " AND Coach* AND ") OR AB (Facilitat* OR " AND Knowledge AND broker*)) OR "Practice enhancement assistant*" OR "Change agent*" OR "Coach*") AND ((TI ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)) OR AB ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*))) OR (MH "Organizational Change"))	1 558
APA PsycINFO Date of search: 2023-12-22	(TI (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*") OR AB (Facilitat* OR ("Knowledge broker*) OR " AND Practice AND enhancement AND assistant* AND " OR " AND Change AND agent* AND " OR " AND coach*))) AND ((TI ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)) OR AB ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*))) OR (MA "Innovation"))	939
Embase (Scopus) Date of search: 2023-12-22	(TITLE-ABS-KEY ((complex W/2 intervention*) OR (health W/2 innovation*)) AND TITLE-ABS-KEY (facilitat*)) AND NOT INDEX (medline)	652

Academic Search Complete Date of search: 2023-12-22	((TI (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*") OR AB (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*")) OR (DE Facilitators)) AND (TI ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)) OR AB ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)))	1074
Business Source Complete Date of search: 2023-12-22	(TI (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*") OR AB (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*")) AND (TI ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)) OR AB ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)))	588
SocINDEX Date of search: 2023-12-22	(TI (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*") OR AB (Facilitat* OR "Knowledge broker*" OR "Practice enhancement assistant*" OR "Change agent*" OR "coach*")) AND (TI ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)) OR AB ((Complex N2 intervention*) OR (health* N2 Innovation*) OR (organi?ation* N2 innovation*)))	107

Table 1. Study and Complex Interventions Characteristics

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
Allen 2019	Canada	'to gain a cross-site understanding about the state of CO-OP adoption since the end of the KT support' 'to develop recommendations from the perspective of allied health knowledge users, working in interprofessional teams, to facilitate implementation of a complex, collaborative intervention that incorporates SDM'	**Process Evaluation** – Qualitative research	Cognitive Orientation to daily Occupational Performance (CO-OP)	'CO-OP is an effective, cognitive strategy-based treatment approach that aligns with Canadian Stroke Best Practice Recommendations. […] a person-centered, collaborative approach wherein the patients' self-selected functional goals are the focus of treatment.'	Patients with cognitive impairments following a stroke	Interprofessional care team working in inpatient rehabilitation hospital stroke units
Bareil 2015	Canada	'The goal of this participatory action research study was to better understand the driving forces during the early stage of the implementation process of a community-driven and patient-focused program in primary care titled 'TRANSforming InTerprofessional cardiovascular disease prevention in primary care' (TRANSIT)	**Process Evaluation** - Qualitative research (Participatory action research)	The TRANSIT program	'Implementing interprofessional collaborative practices in primary care to improve cardiovascular disease (CVD) prevention in patients with multimorbid chronic diseases.'	Patients with multimorbid chronic diseases	Primary healthcare teams working with patients suffering from multi-morbid chronic diseases (family physicians, nurses care manager, nutritionist, pharmacist, kinesiologist)
Basinska 2022	Switzerland	"To evaluate the implementation of three intervention elements from the intervention users' perspective across 11 NHs."	**Process Evaluation** Convergent mixed methods	1. The STOP&WATCH 2. ISBAR (Introduction, Situation, Background, Assessment, Recommendation) 3. INTERCARE nurse (coaching nurse)	Reduce unplanned hospitalizations from Swiss nursing homes.	Nursing Homes Residents and Care workers (Registered nurses, licensed practical	Registered nurses, licensed practical nurses, and nurse aids

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
						nurses, and nurse aids)	
Beighton 2015	UK	'The aim of this paper is to provide an additional layer of evaluation by exploring the views of the practice nurses, focusing upon the perceived enablers and barriers to delivering the complex physical activity (PA) interventions, identifying the benefits they gained as practitioners from participating in the trial and their evaluation of the acceptability of the intervention for use within routine PA consultations in a GP setting.'	**Process Evaluation** - Qualitative research embedded in a RCT	PACE-Lift and PACE-UP	PACE-Lift: 'To determine if an intervention based on pedometer and accelerometer feedback combined with practice nurse PA consultations in primary care is effective in helping people aged 60–74 years to increase their PA levels over a 3 month period and to maintain any increase over a year.' PACE-UP: 'To determine whether inactive patients aged 45–74 years can increase their PA by being given a pedometer with a diary and written guidelines and whether additional individual, tailored, support from a practice nurse increases any benefits over a 3 month period. […]'	Inactive patients	Practice Nurses
Berry 2021	UK	'[…] we describe our experiences as researchers in overseeing the delivery of a complex intervention within a pragmatic RCT. In describing our experiences, we aim to highlight to other researchers the challenges that	**Process Evaluation** - Qualitative research embedded in a RCT	The Journeying through Dementia intervention	'[…] to promote independence, self-efficacy, and continued participation in life by people with mild dementia. It involved 12 weekly, 2h facilitated groups	Patients living with mild dementia	'Staff within the local services, who delivers intervention in the community (either healthcare support workers or assistant

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
		can present in implementing and evaluating complex interventions within the context of pragmatic RCTs'			with 8−12 participants with dementia delivered in a community venue as well as four one-to-one sessions ideally with the same facilitator for individual goal setting […]'		psychologists who were not registered health or social care professionals)'
Bird 2020	Canada	'[…] to evaluate implementation fidelity of a complex multi-component community-based exercise program using a framework adapted from the Template for Intervention Description and Replication (TIDier) checklist that we embedded in a training program built on the TIDier framework when we ran it for the first time.'	**Process Evaluation** - Mixed methods	Fitness and Mobility Exercise (FAME)	'The FAME exercise program is a community-based circuit style exercise program for stroke, which has established efficacy. It consists of warm up, exercise stations to improve balance, functional strength and fitness, followed by a cool down stretch session and it's given here to people after stroke.'	Patients after stroke	Fitness instructor
Byng 2008	UK	'This paper builds a picture of how the intervention, as a whole, had its effects and how the process evaluation adds meaning to the results of the trial'	**Process Evaluation** -Mixed methods embedded in a RCT	The Mental Health Link intervention	'[…] to improve the care of patients with long-term mental illness (LTMI), looked after by family doctors (general practitioners) working in primary health care teams (PHCTs) and community mental health workers working in community mental health teams (CMHTs).	Patients with long-term mental illness	'Family doctors (general practitioners) working in primary health care teams (PHCTs) and community mental health workers working in community mental health teams (CMHTs)'
Cannon 2019	United States	'This paper describes the influence of an implementation support intervention—Getting to Outcomes (GTO)— on a wide range of implementation barriers and facilitators	**Process Evaluation** – Qualitative research embedded in a RCT	CHOICE program	Substance use prevention program run in low-resource community-based settings (boys and girls club).	Middle-school youth	Community-based practitioners (Boys & Girls Club – nonprofit organization)

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
		in low-resourced, community-based settings that are responsible for delivering an evidence-based program to prevent substance use.'					
Chlan 2021	United States	'[…] to describe: (1) the iterative development and implementation of protocols for intervention fidelity monitoring, (2) pilot testing of the fidelity monitoring plan, (3) the identification of interventionist training deficiencies, and (4) opportunities to enhance protocol rigor for a cancer symptom management intervention delivered through the electronic health record (EHR) patient portal and telephone as part of a complex, multi-component pragmatic clinical trial.'	**Process and Outcome Evaluation** – Mixed methods embedded in a RCT	E2C2 intervention	The intervention is a remotely delivered cancer symptom monitoring and management system. 'The intervention focuses on symptoms that are common among individuals with cancer including sleep disturbance, pain, anxiety, depression, and low energy (fatigue) (SPADE) as well as physical function.'	Citizen living with cancer or survivors of cancer	Registered nurse symptom care manager (RN SCM)
Christie 2020	Netherlands, Germany and Belgium	'The specific objectives of this study were to (1) formulate evidence-based implementation strategies, (2) develop a sustainable business model, and (3) integrate these elements into an implementation plan.'	**Developmental Study** – (Case control study)	Partner in Balance (An evidence-based eHealth intervention)	'Partner in Balance is a web-based tool to support the caregivers of people with dementia at home, which is applied in a 'blended' 8-week eHealth intervention'	Caregivers of people with dementia	Coaches from health care organizations (e.g., dementia case management organizations)
Clarke 2013	UK	'[…] examine how the intervention was implemented to effect practice change within stroke unit environments, how practitioners were engaged in the work of delivering the LSCTC, and how they in-volved caregivers in the program.'	**Process Evaluation** – Qualitative research embedded in a RCT	London Stroke Training Course (LSCTC)	The intervention—a training program targeted at caregivers of stroke survivors**,** [...] was intended to be delivered by MDT members within stroke units to secure positive outcomes for patients and their caregivers. It was expected that caregiver training will	Caregivers of stroke survivors	Multidisciplinary Teams (Stroke Units)

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
					contribute to the work of rehabilitation.'		
Connolly 2020	United States	'1) examine internal facilitator's (IF) use of i-PARIHS facilitation skills, from the external facilitator's (EF) perspectives; 2) identify additional attributes of IFs not encompassed within i-PARIHS skills; and 3) investigate the relative contributions of IFs and EFs during implementation, to better understand sustainability of implementation processes.'	**Process Evaluation** – Qualitative research embedded in a trial	Collaborative Chronic care model (CCM)	The CCM is an evidence-based approach to structuring care for chronic conditions including mental health disorders	Patients with mental health disorders	Interdisciplinary teams within general mental health clinic
Craig 2017	Australia	'[…] To describe the development of an implementation intervention for the T3 Trial (Triage, Treatment and Transfer of patients with stroke in emergency departments (EDs) using theory to recommend behavior change techniques (BCTs) and drawing on the research evidence base and practical issues of feasibility and acceptability.'	**Developmental Study** 'A stepped method for developing complex interventions'	T3 trial clinical intervention	A care bundle of clinical protocols for Triage, Treatment and Transfer of patients with stroke in emergency departments (EDs) 'The T3Trial is a prospective, multi-centre, parallel group, blinded, cluster randomised trial that aimed to evaluate the effectiveness of an implementation intervention to improve the triage, treatment and transfer of stroke patients from ED to stroke units on 90-day outcomes and in-hospital processes of care.'	Patients with stroke	Healthcare professionals working in Emergency Department
Craven 2021	UK	This study aimed to explore mentors' roles in supporting OTs (Occupational therapists) with intervention delivery and fidelity, and to describe factors	**Process Evaluation**-	RE-Turn to work After stroKE (RETAKE) Trial	The RETAKE trial aims to determine whether providing early stroke-specialist vocational rehabilitation plus	Patients after stroke	Occupational therapists

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
		affecting the mentoring process and intervention delivery of a complex vocational rehabilitation (VR) intervention to stroke survivors.	Mixed methods embedded in a RCT		usual NHS (National Health Service) rehabilitation is more clinically and cost-effective for supporting post-stroke return to work than usual care (UC) alone'		
Damush 2021	United States	'The specific aim of this evaluation was to examine the effect of the implementation strategy bundle on implementation success. We hypothesized that clinical teams which en-gaged in the implementation strategies and locally adapted the PREVENT program components would realize the greatest implementation success.'	**Outcome Evaluation** – Stepped-wedge implementation trial evaluated with mixed methods	PREVENT	'The Protocol guided Rapid Evaluation of Veterans Experiencing New Transient Neurologic Symptoms (PREVENT) program was designed to address systemic barriers to providing timely guideline-concordant care for patients with transient ischemic attack (TIA)'	Veterans Experiencing New Transient Neurologic Symptoms / patients with transient ischemic attack (TIA)	Health professionals' teams working with veteran's patients experiencing new transient neurological symptoms in emergency department
Diffin 2018	UK	'to explore, at scale, the process of implementation of the CSNAT intervention for carers in routine practice'	**Process Evaluation** – Qualitative research	The Carer Support Needs Assessment Tool (CSNAT)	The Carer Support Needs Assessment Tool (CSNAT) intervention, a person-centered process of carer assessment and support	Informal (Friends, Family) carers within palliative care	CSNAT Champions (practitioners from palliative/end of life care organizations such as nurse, social worker, occupational therapists, etc.)
Harris 2013	Germany, Hungary, Ireland, and Portugal	'1. To identify the organizational and partnership structures which underpin early implementation activity. 2. Explore the mechanisms of engagement that promote active participation and collaboration in early phases of implementation.'	**Process Evaluation** – Qualitative research	Optimized Suicide Prevention and Implementation in Europe: OSPI-Europe	'OSPI implemented five levels of suicide prevention interventions in Germany, Hungary, Ireland and Portugal, with a control and intervention site in each country.'	Citizen at risk of depression or suicide and their families	1) Professionals working in community settings who may come into contact with depressed and/or suicidal persons "such as teachers, members of the police force, social workers, etc.");

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
							2) health professional in primary care.
Hockley 2019	UK	'This paper offers a framework for the cross-cultural development and support necessary to implement a complex palliative care intervention in nursing homes'	**Developmental study**	PACE Steps to Success program	'The PACE Steps to Success program is a complex educational and development intervention to improve palliative care in nursing homes.'	Staff working in nursing home (nurses and care assistants) and providing palliative care	'Country trainers' (nurses, physicians, psychologists, social worker, sociologist)
Hunt 2021	Canada	'The aims of the current study were: 1) to gain cross-site understanding about the intervention implementation; and 2) to identify key implementation successes and challenges, and related themes across sites.'	**Process Evaluation** – Qualitative research embedded in a RCT	CO-OP approach (the cognitive orientation to daily occupational performance [CO-OP] approach)	'[…] an evidence-based, person-centered, metacognitive approach to stroke rehabilitation. The CO-OP approach focuses on the person's goals and results in improved performance of activities that are most meaningful to them.'	Patients with stroke	Interprofessional care team working in inpatient rehabilitation hospital stroke units
Karabukayeva 2022	USA	"To identify factors that might prompt organizations to choose different numbers and types of implementation strategies."	**Process evaluation** – Mixed methods	Share decision making aid (DA)	"To educate lupus patients abouttheir treatment options and help them engage in more shared decision making with their physicians."	Patient with Lupus	Rheumatology clinic personnel (e.g. physicians, pharmacists, clinic managers, nurses, medical assistants)
Kelley 2020	UK	'[…] to explore what features and actions of managers lend support to complex intervention delivery in care home settings, and what factors affect their ability to offer this support.'	**Process Evaluation** – Qualitative research embedded in a RCT	Dementia Care Mapping™ (DCM)	[…] a psychosocial intervention that aims to improve care practices for people living with dementia**.** It is an observational tool set within a practice development process, to support staff members working in care settings to record and	People living with dementia	Staff members working with people living with dementia in care home

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
					understand experiences of care for people living with dementia, and to use this as a basis for person-centered care planning.'		
Leamy 2014	Canada	'To investigate staff and trainer perspectives on the barriers and facilitators to implementing a complex intervention to help staff support the recovery of service users with a primary diagnosis of psychosis in community mental health teams.'	**Process Evaluation** – Qualitative research embedded in a RCT	REFOCUS intervention	'The 12 month, team-level intervention was delivered to healthcare professionals who all provide care co-ordination (Recovery, Psychosis and Forensic teams). The intervention was designed to change mental healthcare practice from the bottom-up, i.e. at both a practitioner and team level, rather than from a top-down, organisational level. '	Service users with primary diagnosis of psychosis	Practitioner and team level in mental health for service users with primary diagnosis of psychosis, in community mental health teams
Lessard 2016	Canada	'The overall purpose of this study is to enhance our under-standing of the roles exercised by EFs and IFTs to support practice change implementation in organizational contexts. More specifically, this qualitative research is guided by the following objectives: 1) identifying and analyzing the facilitation roles undertaken by EFs and IFTs during the implementation of TRANSIT 2) examining the dynamics of facilitation between EFs, IFTs, family medicine groups, and other change actors'	**Process Evaluation** – Qualitative research	Transforming Inter professional Cardiovascular Prevention in Primary Care (TRANSIT)	'[…] Improve cardiovascular prevention in primary care patients suffering from multi-morbid chronic disease.'	Patients suffering from multi-morbid chronic diseases	Primary healthcare teams working with patients suffering from multi-morbid chronic diseases (family physicians, nurses care manager, nutritionist, pharmacist, kinesiologist)

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
Ludden 2019	United States	To compare three dissemination approaches for implementing an asthma shared decision-making (SDM) intervention into primary care practices.	**Outcome Evaluation** – RCT and a stepped-wedge implementation trial with mixed methos	'The facilitator-led approach is an evidence-based implementation method utilizing a 12-week rollout to fully support adoption of the SDM toolkit into practices and ongoing episodic needs-based contact including a refresher session after one year to support continued implementation […]'	'The primary outcome of the study was patients' perceptions of having shared in the treatment decision at an asthma visit in the active dissemination arms. Secondary outcomes were health outcomes for patients with asthma, including ED utilization, hospitalizations, oral steroid prescriptions, and one or more of these three "markers" of exacerbation for all three arms [5,8,26–28]. We hypothesized that practices receiving the facilitator-led dissemination approach would have a greater percentage of patients reporting having equally shared in the treatment decision about their asthma care with their provider than patients in the traditional lunch-and-learn practices.'	Patients with asthma	Nonphysician providers, such as nurses or other clinical staff functioning as health coaches in primary care practices
Luig 2018	Canada	'This article uses the example of the '5As Team' randomized control trial to explore implementation strategies to promote knowledge transfer, capacity building, and practice integration, and their interaction within the context of an inter disciplinary primary care team.'	**Process Evaluation** – Qualitative research embedded in a RCT	5As Team (5AsT)	'[…] to change the behavior of health professionals and the organization of care to improve care for obesity in primary care.'	Patients visiting in primary care with obesity	Interdisciplinary primary care team (mental health workers, registered dieticians, registered nurses or practitioners)

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
Mancini 2009	United States	'[…] identified barriers and facilitators to the high-fidelity implementation of assertive community treatment.'	**Process Evaluation** – Mixed methods	Assertive community treatment	'The assertive community treat-ment model is specifically designed for persons with severe mental illness who have a recent history of psychi-atric hospitalizations, criminal justice involvement, homelessness, or sub-stance abuse. The model is based on a team approach, a low staff-to-client ratio, and the delivery of a compre-hensive package of services to clients in the community.'	Adults with severe mental illness who have a recent history of psychiatric hospitalizatio ns, criminal justice involvement, homelessness or substance abuse in the community	A group of providers functions as a team, rather than as individual clinicians; team members know and work with all clients assigned to them. The team includes at least a psychiatrist, a nurse, a substance abuse treatment specialist, and another clinician with experience treating persons with severe mental illness. Their services are provided in the community
Mars 2013	UK	'The aim of this study was to (1) demonstrate the development and testing of tools and procedures designed to monitor and assess the integrity of a complex intervention for chronic pain (COping with persistent Pain, Effectiveness Research into Self-management (COPERS) course); and (2) make recommendations based on our experiences.'	**Developmental study and process evaluation-** Quantitative research 'Fidelity assessment of a two-arm randomized controlled trial intervention'	COping with persistent Pain, Effectiveness Research into Self-management (COPERS)	'It is a self-management course aimed at enabling participants living with long-term musculoskeletal pain to improve the quality of their live.'	People living with long-term musculoskele tal pain	Specifically trained facilitators, one a healthcare professional and another a lay facilitator with experience of living with long-term pain
Mathias 2022	India	'To assess the feasibility, acceptability, and relevance of the Parwarish, a positive parenting intervention adapted	**Process Evaluation**-Mixed methods	Parwarish	'Parwarish seeks to reduce harsh parenting and violence within families through new	Parents and adolescents from	'Pairs of community facilitators with the following criteria for

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
		from PLH-Teens in three diverse settings in India.'			attitudes and skill building between parents and adolescents.'	disadvantage communities	facilitation selection: 1) **Parents of adolescents** who were resident in the target community. 2) Represent an equal mix of genders willing to work as a pair in facilitation (over half of facilitators worked as a married couple). 3) Trusted and accepted as a leader by the community. 4) Effective communicators. 5) Had at least passed class 10th and were fluent in the local dialect or language.'
Novick 2015	United States	'To describe perceived barriers and facilitators to implementing and sustaining Centering Pregnancy Plus (CPþ)'	**Process Evaluation**- Qualitative research embedded in a RCT	Centering pregnancy Plus (CP+)	Aim at producing positive perinatal outcomes with group prenatal care.	Pregnant woman and their significant others	'pre-natal health care provider and another staff member (clinician, nurse, medical assistant, or community health worker)'
Porcheret 2014	UK	'Our case study comprises a description of the systematic selection and use of models to inform development of a behaviour change intervention designed to change GP clinical practice during consultations with patients with OA.' 'One component of implementing the	**Developmental study**	Managing Osteoarthritis in Consultations (MOSAICS)	'The intervention was an evidence-based service for people who were 45 years or older presenting to the practice with a peripheral joint problem […], designed to provide: i) relevant written	Adult 45 + living with osteoarthritis (joint problem)	General physicians

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
		MOSAICS trial intervention was to enhance the consultation behaviour of the GPs delivering the trial intervention. This behaviour concerned diagnosis and initial management in line with the NICE OA Guideline […]'			information for patients, ii) support for patients to undertake muscle strengthening exercises,increase physical activity and, if applicable, lose weight, and iii) advice to patients on the appropriate use of analgesia'		
Raphaelis 2020	Austria	'Specific aims of the study were to (1) describe recruitment and characteris-tics of the target population (Reach); (2) to report on overall effectiveness of the intervention (Effectiveness) and (3) which elements of implementation may play a role on the effectiveness of the intervention (Implemen-tation).'	**Process and Outcome Evaluation** - Quantitative research (Randomized controlled trial)	EvANtiPain	'Pain self-management support intervention that reduces barriers and thus changes pain self-management-related behavior leading to a reduction of pain interference with daily activities' (For oncology patients)	Patients with cancer-related pain	Nurses working in hospital providing care for patients with cancer ('more than 2 years of experience with oncology patients, were skilled according to the ward nurses and agreed to participate in the study')
Shidhaye 2019	India	'The aims of this paper are: (a) to provide quantitative measures of outputs related to implementation processes; (b) to describe the role of con-textual factors that facilitated and impeded implementation processes; and (c) to discuss what has been learned from the MHCP implementation.'	**Process Evaluation** – Mixed methods	The program for improving mental health care (PRIME) - comprehensive mental healthcare plan (MHCP) […]'	'The primary outcomes of PRIME were to improve demand for mental health services at the population/community level, reduce the'missed opportunity' at the health-facility level by improving detection of depression and AUD and provide evidence-based ser-vices to individuals with priority mental disorders (depression,AUD and psychosis)'	Patients with depression, alcohol use disorder, and psychosis	Mental health case managers, medical officers, and community health workers

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
Silies 2022	Germany	"Objectives of the process evaluation were to determine: [1] whether the intervention was implemented as planned, [2] which change mechanisms were observed, [3] whether targeted process outcomes were achieved and [4] in which way contextual factors influenced the implementation process"	**Process Evaluation** Mixed methods approach embedded in a RCT	Advance care planning in care dependent community-dwelling older persons (STADPLAN)	Train nurses to discuss advance care planning (medical care that are coherent with values, goals, and preferences)	Patients had to be at least 60 years old and care-dependent classified by the German statutory health insurance.	Nurse facilitators (nurses in home care services)
Sprange 2021	UK	'This paper describes the fidelity assessment conducted for the Lifestyle Matters study and presents the findings from analysis of facilitator training and supervision, intervention delivery and receipt.'	**Process Evaluation** – Mixed methods embedded in a RCT	Lifestyle Matters	'The Lifestyle Matters intervention was designed to assist older people to improve and sustain mental well-being through participation in meaningful activity. The aim is to enable participants to engage in both new and neglected activities through a mix of facilitated group meetings and individual sessions.'	Community living older adults (65+)	Facilitators from a healthcare or social care professional background
Svenningsson 2019	Sweden	'The aim of the present study was to evaluate the process of implementing care managers in collaborative care for patients with depression in Swedish primary health care in the PRIM-CARE RCT'	**Process Evaluation**- Qualitative research embedded in a RCT	PRIM-CARE RCT	'To increase accessibility and continuity in care for people with depression in primary care'	People with depression or depressive symptoms	Staff of primary care centers: registered nurses working as care managers and general physicians
Whitley 2009	United States	'[…] to examine which factors, promote or hinder successful implementation of illness management and recovery […] in various community mental health centers	**Process Evaluation**- Mixed methods	Illness and recovery management program	'The intervention program is providing psychoeducation to improve understanding about mental illness and treatment. Important aspects of the	People with severe mental illness	Community mental health care teams

Study				**Complex intervention (CI)**			
Author date	**Country**	**Study Aim/objective**	**Study design**	**CI Name**	**CI Aim**	**Target population**	**Providers**
		across the United States over a two-year period'			program are the emphases on helping clients set personally meaningful goals for recovery and a strong therapeutic alliance aimed at achieving these goals.'		

Table 2. Description of the role of external facilitators for each complex intervention

CI name (Author date)	**Whom play the role of external facilitators**	**For whom**	**Supported processes**	**Example of external facilitation activities**
Cognitive Orientation to daily Occupational Performance (CO-OP) (Allen 2019, Hunt 2021)	CO-OP KT research team members Co-op expert-level facilitators	CI providers (Interprofessional teams of stroke rehabilitation clinicians: nurses, occupational therapists, physical therapists, speech language pathologists, and other disciplines)	Clinical care (practice delivery) Change management Knowledge/research management	"Included a 2-day training workshop with interprofessional teams […] to establish the theory and application of the CO-OP Approach in clinical practice" "The implementation facilitators visited each site six times, and provided off-site telephone and email support between visits." "Focus group was held to determine the state of CO-OP adoption approximately 3 months after the implementation support period had ended."
The TRANSIT program to prevent cardiovascular disease (Bareil 2015, Lessard 2016)	A clinical nurse with a master's degree in health administration and a pharmacist with broad experience in project management Research team members (n = 2)	CI providers (Interprofessional facilitation teams including at least one physician, one nurse, one pharmacist, one nutritionist, kinesiologist, or psychologist)	Clinical care (practice delivery) Change management Knowledge/research management	"[…] researchers (CB and JG) provided EFs with training on facilitation, change management, project management, PDSA methodology, interprofessional collaboration, primary care services in clinics, Chronic CareModel, and the TRANSIT program."
The STOP&WATCH; ISBAR (Introduction, Situation, Background, Assessment, Recommendation);INTER CARE nurse (coaching nurse) (Basinska 2022)	Research team members	Clinical supervisors (INTERCARE nurses are trained registered nurses with at least 3 years' nursing home (NH) experience are recruited and employed by each NH to deliver at least 24 h/week on-site clinical care, coaching and support per 80 beds)	Change management Knowledge/research management	"Bi-monthly implementation meetings (2h) between the nursing home leadership and the research group to support and reflect on the intervention elements' implementation, and to provide information."

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
		Managers (Nursing directors)		
PACE-Lift and PACE-UP to improve physical activities (Beighton 2015)	2 national trainers with practice nurse training experience/Behaviour change technique experts Research team members	CI Providers (12 practice nurses)	Clinical care (practice delivery) Knowledge/research management	"Nurses were in regular email contact with research assistants, and a sample of their consultations were audio-recorded to allow individual feedback from the BCT trainer."
The Journeying through Dementia intervention (Berry 2021)	Senior professionals act as supervisors for the local staff Research team members (Clinical psychologists with experience of both delivering and supervising)	CI providers (69 staff members within the local services)	Clinical care (practice delivery) Knowledge/research management	"One hour weekly supervision" "Provide feedback by email to the 13 sites during the implementation"
Fitness and Mobility Exercise (FAME) for patients after stroke (Bird 2020)	2 Physical therapists	CI Providers (Fitness instructors who had to deliver the FAME program. They had experience in delivery of group classes of older adults but had no experience with stroke)	Clinical care (practice delivery)	"The content of each coaching session was determined by the workplace audit which took place a week before each of the coaching sessions."
The Mental Health Link intervention (Byng 2008)	Mental Health Link Facilitators ([…] actual work of the facilitator was designed to be explicitly flexible, responding to the context of primary care, specialist teams and health needs, but encouraging both	CI providers (General practitioners working in primary health care teams (PHCTs) and community mental health workers working in community mental health teams (CMHTs))	Clinical care (practice delivery) Change management	"Delivery of organizational change was dependent on three fixed components: training of facilitators, a toolkit and small financial incentives. The toolkit included: a guide through a series of meetings attended by representatives of both teams and service users; instructions for creating registers, carrying out audits and assessing educational needs; and a flexible template for a written shared

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
	teams to develop shared care in line with the proposed model.")			care agreement between providers, detailing allocation of responsibilities and protocols for formal communication."
CHOICE program (Cannon 2019)	Master's level TA (technical assistance) provider (Provide facilitation according to the GTO manuals [facilitation intervention], offer support on-site, by phone or email during and before the intervention)	CI providers (Community-based practitioners) Manager (Site leader (Boys & Girls Club leader) who supervised the CHOICE implementers)	Clinical care (practice delivery) Change management	" GTO manuals, training, and onsite technical assistance to help practitioners complete implementation best practices specified by GTO (intervention) (i.e., GTO steps). During the first year, technical assistance providers helped the intervention group adopt, plan, and deliver CHOICE, and then evaluate and make quality improvements to CHOICE implementation using feedback reports summarizing their data."
Enhanced, EHR-facilitated Cancer Symptom (E2C2) Pragmatic Clinical Trial (Chlan 2021)	Research team members ("A PhD prepared nurse co-investigator, have the role of fidelity auditor. Monitoring the delivery of the intervention protocol. And a research team co-investigator who audit the calls between registered nurse symptom care manager and patients.")	CI providers (Registered nurse symptom care manager [RN SCM])	Clinical care (practice delivery) Knowledge/research management	" The first part of the E2C2 fidelity monitoring plan is focused on training activities for any nurse recruited for the RN SCM role. This includes formal training in institutional research practices, such as human subjects training; review of the trial protocol, which provides a detailed overview of the study approach, the evidence behind the intervention, and the research methods; and attendance at training sessions developed for the clinical champions in each of the medical oncology trial settings."
Partner in Balance (An evidence-based eHealth intervention) (Christie 2020)	Research team members and the Partner in Balance implementation team	CI providers (Partner in Balance coaches - clinicians)	Clinical care (practice delivery) Knowledge/Research management	"The coaches are required to take part in a 2-hour Partner in Balance training course, were the intervention is presented and the coaches take part in various teaching exercise."
London Stroke Training Course (LSCTC) (Clarke 2013)	Original LSCTC staff (clinical experts who trained the change champions)	CI providers (Change champions from a multidisciplinary team: Senior, experienced therapists and	Clinical care (practice delivery)	" To prepare teams to deliver the LSCTC in 18 intervention units across four regions two full-day workshops were held (one month apart) for two or three representatives from each unit. These MDT members volunteered to undertake initial training

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
		nurses with the necessary skills to deliver caregiver training)		and then cascade training to MDT members in their own units."
Collaborative Chronic care model (CCM) (Connolly 2020)	3 research team members with expertise in the CCM and had completed a structured intensive facilitation training (health services researchers, health systems engineer, clinical psychologist, psychiatrist)	11 internal facilitators (site treatment team member) and CI providers (interdisciplinary treatment team within the general mental health clinic in medic)	Clinical care (care delivery) Change management Knowledge/research management	" At each site, EFs completed a pre-site visit assessment; a 1.5-day kickoff site visit; 6 months of weekly video conferences or phone calls with the treatment team and IF; weekly individual meetings and ad hoc communications with the IF; and 6 months of step-down facilitation activities on an as-needed basis. EFs guided the implementation process with a structured workbook aligned with the elements of the CCM, allowing IFs to engage in assessment and undertake process redesign based on goals identified within their team (e.g., to increase patient involvement during treatment planning; to improve communication with other clinics)."
T3 (Triage, treatment, and transfer of patient with stroke in emergency) trial clinical intervention (Craig 2017)	Research team members	Senior healthcare professionals working in emergency or in stroke units (clinical experts)	Change management Knowledge/research management	" One barrier and enabler multidisciplinary workshop (1-h duration) was conducted at each of the thirteen T3Trial for 2 months. The workshop participants were asked to nominate specific barriers for each of the behaviours and specific enablers and strategies that could be used to overcome the barriers. Thirteen workshops were conducted with 105 staff from 13 hospitals. Workshop group size ranged from minimum of five participants to maximum of 11 participants."
RE-Turn to work After stroKE (RETAKE) Trial (Craven 2021)	6 mentors (experts with substantial experience delivering VR to stroke and/or acquired brain injury patients) Research team members	CI providers (41 occupational therapists) Mentors	Clinical care (practice delivery) Knowledge/research management	"All mentors received training in the RETAKE mentoring process, potential sources of contamination between trial arms and how to reduce contamination risks, and how to use teleconferencing to deliver mentoring." "Following initial intervention training, monthly group mentoring sessions are provided for all OTs

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
				via teleconference or Microsoft Teams. Attendees at each session included a mentor and OTs across two trial sites. Following each session, mentors completed an electronic mentoring record recording date and duration of the session, OT attendance (including reasons for non-attendance), issues and actions relating to RETAKE OTs, clinical matters, implementation of the intervention, and trial process issues. OTs could contact their mentors via phone, text or email for ad-hoc support outside of sessions; mentors recorded ad-hoc conversations via mentoring records or emails."
PREVENT (The Protocol guided Rapid Evaluation of Veterans Experiencing New Transient Neurologic Symptoms) (Damush 2021)	the PREVENT nurse trained in Lean Six Sigma methodology and quality management	CI providers (Multidisciplinary staff members) Facility QI teams and champions (staff from neurology, nursing, pharmacy, and systems redesign)	Clinical care (practice delivery) Change management	"The site team members, and especially the champions, regularly contacted the EF who provided information, support, and encouragement across a broad range of topics." "The EF also worked with teams to implement a patient identification tool to identify patients with TIA who were cared for in the ED or in patient setting. This tool was used at some sites to prospectively ensure that patients received needed elements of care and at other sites to retrospectively identify opportunities for improvement. Given that many of the champions were clinicians without prior QI experience, the EF was able to help connect clinicians with local clinical informatics staff to implement the patient identification tool."
The Carer Support Needs Assessment Tool (CSNAT) (Diffin 2018)	External facilitators (EFs) who were members of the CSNAT team	CI providers (Site champions/internal facilitators: clinical nurse specialists, social workers, head of overall	Clinical care (practice delivery) Change management	" EFs support IFs with the following activities: Reflection on their organisation's ethos or mission statement (often highlights they ae are there for the carers/family/friends of the patient); Considering

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
	Research team members	service/managers, senior hospice at home practitioner, occupational therapist, carer support lead)	Knowledge/research management	how they currently became aware of carer support needs; Planning for how they could use the CSNAT intervention in their individual practice; Making an initial 'implementation plan' for their service to include thinking about how to use the intervention within the service, where to record data on carers, format of CSNAT documentation, and how they could deliver training to and support their colleagues."
Optimized Suicide Prevention and Implementation in Europe: OSPI-Europe (Harris 2013)	Research team members (Process evaluation team)	CI providers (health care professionals) Local advisory groups (n=4) (Internal facilitator) Local researchers (Internal facilitator)	Clinical care (practice delivery) Change management Knowledge/research management	"[…] the suicide awareness and prevention training provided by OSPI includes a 'train the trainer' component. This involves providing training to key professionals that they can then roll out more widely within their respective organisations."
PACE Steps to Success program (Hockley 2019)	16 country trainers International experts (had diverse professional backgrounds including seven nurses, four physicians, three psychologists, one social worker and one sociologist) Research team members (leaders)	PACE coordinators: qualified nurses senior care assistants (trained by country trainers) who facilitate in-house and coordinate the local implementation of the intervention. Country trainers trained by international experts (CI providers)	Clinical care (practice delivery) Knowlegde/research management	"Examples of high level support and facilitation included: monthly internet-based international groups for country trainers and mentorship from national research leaders. Country trainers then supported the nursing home PACE coordinators by visiting each nursing home every 7–10 days"
Share decision making aid (DA) for patient with Lupus (Karabukayeva 2022)	Research team members	CI providers (Rheumatology clinic personnel including clinic managers)	Clinical care (practice delivery) Knowledge/research management	"All clinics used standardized implementation strategies that were provided uniformly by the research team (e.g., training on use of DA, designation of a clinic champion and refresher training course)"

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
Dementia Care Mapping™ (DCM) (Kelley 2020)	6 team of external DCM expert mappers Research team members	CI providers/mappers (staff members working with people living with dementia in home care) Care home managers	Clinical care (practice delivery) Knowledge/research management	"Each expert mapper provided practical support to mappers in several homes, in person and via email/telephone, to support standardised implementation across intervention homes. Further implementation support included the provision of standardised paperwork and reporting templates, sending text message reminders and paperwork ahead of each cycle, and ongoing telephone support from a DCM intervention lead."
REFOCUS (Recovery, Psychosis and Forensic teams) Intervention (Leamy 2014)	Personal recovery trainers	CI providers (Practitioner and team level in mental health) and managers Service users	Clinical care (practice delivery)	"[…] separate information sessions for staff and service users; personal recovery training (10.5 hours); coaching and working practice training (14.5 hours); team manager reflection sessions focused on team culture (3 hours externally facilitated by the Personal Recovery trainer); and whole team reflection sessions (3 hours externally facilitated)"
Asthma shared decision-making (SMD) (Ludden 2019)	Research team member (a trained facilitator)	CI providers (A core team, typically consisting of a provider champion, practice manager, health coach, nurse(s), and registration staff."	Clinical care (practice delivery) Change management Knowledge/research management	"Each week a trained facilitator from the research team held hour long meetings at the practice" "With a new training topic each week including: asthma SDM toolkit training, asthma appropriate care and action plans, population management, logistics of scheduling, and patient recruitment. The facilitator assisted the practice in adapting the toolkit into a version that suited their specific needs." "Debriefing, trouble shooting and feedback"
5As Team (5AsT) (Luig 2018)	Research team members (Interdisciplinary researchers including family medicine, obesity experts, epidemiology, anthropology, public health,	Clinical champion (a front-line PCN dietician) Primary care network clinician trained in practice facilitation	Clinical care (practice delivery) Change management	"Intervention team providers received a 6-month intervention cocreated with the PCN Primary Care Network based on their self-assessed needs. The intervention included biweekly interactive lectures on topics identified by participants, followed by

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
	organization clinical and executive management, and a front-line dietician). Graphic Designer (co-creation of tools) Expert speakers (clinical experts)	CI providers (Interdisciplinary care team: 7 mental health care workers, 7 registered dieticians, and 15 registered nurses or nurse practitioners)	Knowledge/research management	facilitated learning collaborative sessions where team members shared best practices, considered logistic and clinical challenges, and created individual practice improvement goals."
Assertive community treatment model for persons with severe mental illness who have a recent history of psychiatric hospitalizations, criminal justice involvement, homelessness, or sub-stance abuse (Mancini 2009)	Consultant-trainers (offers extensive training in the field for the team)	CI providers (The team includes at least a psychiatrist, a nurse, a substance abuse treatment specialist, and another clinician with experience treating persons with severe mental illness)	Clinical care (practice delivery)	"Each program was assigned a consultant-trainer. In the first year, teams received intensive two-day training, monthly on-site visits, and periodic communication by e-mail and phone from the consultant-trainer. The consultant-trainer made less frequent visits and contacts in the second year, and the consultation was gradually phased out between months 18 and 24."
COping with persistent Pain, Effectiveness Research into Self-management (COPERS) (Mars 2013)	Research team members	CI providers (Trained facilitators, one a healthcare professional and another a lay facilitator with experience of living with long-term pain)	Clinical care (practice delivery) Knowledge/research management	"The course manual outlines the informational content of this component, as well as the structure, sequence, timing and mode of delivery of the various elements to be used by the facilitators."
Parwarish for reducing harsh parenting and violence within parents and adolescents from disadvantage communities (Mathias 2022)	Trainers from parenting for lifelong health (PHL)-Teens South Africa Research team members and implementation team /Emmanuel hospital association (EHA) community health and development programme team	Local coach (A coach was appointed and trained for each location and took responsibility for recruiting facilitators as well as training and coaching facilitators) CI providers/Community facilitators (Facilitated 14 Parwarish modules with groups	Clinical care (practice delivery) Knowledge/research management	"Trainers from PLH-Teens South Africa facilitated a 10-day course for Parwarish facilitators and a 3-day training for coaches […]." "A fort nightly coach- the- coaches meeting was led online with someone from PLH- Teens South Africa."

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
		of parents and teens with meetings of 1.5-2 hours and encouraged participants to complete the weekly activity to try at home, for example, family eats dinner together) Project officer ([…] at each research location, responsible for research components of the project and supported baseline and endline data collection as well as monitoring and evaluation of Parwarish sessions with other EHA community coordinators in the team")		
Centering pregnancy Plus (CP+) (Norvick 2015)	Research team members (research staff actively engaged in implementation across all sites)	Champion program cooordinators ("They "proselytized" about CP+, promoted teamwork, facilitated groups, lobbied administrators for funds, and wrote grants and received funding.") CI providers (14 clinical site staff: 2 administrators, 4 obstetricians, 3 nurse midwives, 1 registered nurse, 3 social workers, and 1 dietician. Six of them facilitated the intervention CP+ groups)	Clinical care (practice delivery) Change management Knowledge/research management	"In phase 1, immediate implementation sites received CP+ training workshops, some consultation, in-services, and grand rounds, and some material resources over approximately three months (implementation support); support from study staff to the immediate implementation sites was substantially decreased in phase 2 and consisted of limited ongoing consultation (minimal implementation support)." .

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
Managing Osteoarthritis in Consultations (MOSAICS) (Porcheret 2014)	Academic rheumathologist who led and interactive session (clinical expert) Research team members and educational advisors Workshop facilitators (experienced GP educators/opinion leaders who delivered the behaviour change intervention at general practices premises in four sessions)	CI providers ("[..] all the GPs, practices nurses, and administrative staff working in the four practices randomised to the intervention arm of the MOSAICS study") Practice advisory groups ("[..] consisting of GP with research or teaching roles and one consisting of members of the primary healthcare team in a local general practice, they gave feedback and were consultant")	Clinical care (practice delivery) Change management Knowledge/research management	Analysis of performance, target group and setting: "The advisory groups […] were asked about: i) their current management of OA, ii) their awareness of, and agreement with, the NICE OA Guideline, and iii) any gaps perceived between their current practice and that recommended by NICE and in the model consultation. In addition, they were asked to suggest which barriers and/or incentives might be relevant to implementing the model consultation in practice." Development, testing, and execution of the implementation plan and its evaluation: "All the GPs, practices nurses, and administrative staff working in the four practices randomized to the intervention arm of the MOSAICS study, were invited to attend the training sessions […]."
EvANtiPain - self-management support intervention for oncology patients (Raphaelis 2020)	Research team member	CI providers (35 intervention nurses were trained within 19 training sessions)	Clinical care (practice delivery) Knowledge/research management	"For training, each designated intervention nurse received a 1.5-h training session, detailed teaching materials and a case-based coaching throughout the study by the last author." "Patient cases were reviewed randomly at each ward after implementation to check for protocol adherence. If deviations from protocols were found, they were taken as cases during the coaching sessions"
The program for improving mental health care (PRIME) - comprehensive mental healthcare plan (MHCP) for patients with depression, alcohol use	Research team members (The PRIME team including data manager, programme coordinator, clinical psychologist, programme director, principal investigator)	CI providers (The mental health case managers, medical officers, community health workers)	Clinical care (practice delivery) Change management Knowledge/research management	"The PRIME MHCP was developed using a thorough situational analysis to understand the local context, theory of change workshops to map the outcomes framework for integration of mental health in primary care […]"

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
disorder and psychosis (Shidhaye 2019)	Community advisory board/external change agents ("[…]to engage community representatives and leaders. The overall objective was to take their advice about various PRIME activities, especially community processes to improve acceptability of PRIME interventions")			"Case managers were trained for 9 days on Healthy Activity Programme (HAP), Counselling for Alcohol Problems (CAP), the counselling relationship and psychoeducation (for psychosis). In addition to these training days, additional support was provided by the programme coordinator and the clinical psychologist. They conducted weekly supervision, 2 days quarterly refresher-training sessions and facility-based supervision."
Advance care planning in care dependent community-dwelling older persons (STADPLAN) (Silies 2022)	Research team members and trainers	CI providers (Nurse facilitators)	Clinical care (practice delivery) Knowledge/research management	"2-day educational program: Day 1: ACP basics, aim of the ACP conversations, practical training of the conversation setting and topic guide; Day 2: Reflection on experiences and refresher training with case examples." "In the planning of the process evaluation, we defined the expertise and mode of collaboration between the study centres with main responsibility for process evaluation and intervention development respectively."
Lifestyle Matters for community living older adults (Sprange 2021)	Research team members Supervisors (2 experienced occupational therapists)	CI providers (4 facilitators from a healthcare or social care professional background.) Supervisors	Clinical care (practice delivery) Knowledge/research management	"The research team members, trained the facilitators and supervisors in a 2-day intensive training course, assure that they are equip to deliver the intervention." "A protocol was created to enable provision of consistent and appropriate supervision across and within sites. Regular one-to-one supervision was recommended on a weekly basis at a mutually convenient time and place, preferably face-to-face but with distance supervision being an option if appropriate. Joint supervision was also deemed

CI name (Author date)	Whom play the role of external facilitators	For whom	Supported processes	Example of external facilitation activities
				acceptable if the individual supervisory needs of facilitators had been met."
PRIM-CARE RCT for people with depression or depressive symptoms (Svenningsson 2019)	Research team members (Different professional background, prepared to provide support to the facilitators and primary care centers during the entire intervention period) Four specially trained research nurses acted as facilitators for care managers	CI providers (11 care managers, and 29 general practitioners, working at the intervention site) Facilitators Primary care clinic (PCC) managers	Clinical care (practice delivery) Knowledge/research management	"Initially, the research team visited every intervention PCC to inform the PCC manager, staff and the assigned care manager about the study and the care manager function and to discuss any issue." "The GPs, employed by the PCCs, were invited to a one-day session as part of their duties and the care managers were invited to a three-day training session before the start of the intervention." "Peer support meetings were offered to all care managers every second month. These support meetings provided opportunities to meet and discuss their experiences of care management and for jointly developing the care."
Illness and recovery management program for people with severe mental illness (Whitley 2009)	Research team members (Supervised researcher/implementation monitor and central coordinating center) Consultant trainer	CI providers (Employee of community mental health centers)	Clinical care (practice delivery) Knowledge/research management	"The first year involved the delivery of training by a consultant trainer, who conducted an initial one- or two-day workshop, followed by further training and consultation as requested." "Standardized instructions […] regarding systematic observation of implementation efforts were designed and distributed by a central coordinating center (Dartmouth Psychiatric Research Center) to ensure rigor and comparability across sites. Each site had a supervised researcher (an implementation monitor) who functioned as an independent observer of implementation, documenting the process both qualitatively and quantitatively."