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Occupational therapist-led, team-based quality improvement (QI) on person-centered physical rehabilitation: participatory development of a theory- and evidence-based QI guide

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OCCUPATIONAL THERAPIST-LED, TEAM-BASED QUALITY IMPROVEMENT (QI) ON PERSON-CENTERED PHYSICAL REHABILITATION: PARTICIPATORY DEVELOPMENT OF A THEORY- AND EVIDENCE-BASED QI GUIDE

by

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ABSTRACT

Most physical rehabilitation services are not person-centered. Occupational therapy practitioners (OTPs) are vested in person-centered approaches, thereby they are optimally positioned to take leading roles in these quality improvement (QI) activities. Yet, there is a lack of OTPs-led QI activities on person-centered rehabilitation, and seminally, a lack of a QI guide informing these activities.

To shape the evidence- and theory-based QI guide, we engaged a small international sample (*n*= 8) of potential end-users, i.e., OTPs in practice or management roles. The process involved three rounds of mixed-methods surveys, which helped in the design, refinement, and preliminary evaluation of the QI guide.

Informed by theory, evidence and participants' feedback, the final guide followed a "why, what, and how" structure. Six out of the eight participants rated the QI guide as one they are "very likely" to use. Also, the median rated value of the guide was "9" in a

“0-10” scale. The QI was also well appraised by being an *all-in-one* resource to enable OTPs close the gap in person-centered rehabilitation practices and its improvement.

The final version of the QI guide is ready to use and freely available in the Open Science Framework platform: http://osf.io/xzgpe/.

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LIST OF ABBREVIATIONS

BU	Boston University
KT	Knowledge Translation
OT	Occupational Therapy
OTs	Occupational Therapists
OTPs	Occupational Therapy Practitioners
PCR	Person-Centered Rehabilitation
QI	Quality Improvement

CHAPTER ONE

Introduction

Person-centered care is a philosophy that aims to underpin the way health care and services are organized and delivered. This philosophy is focused on: meeting the person's values, preferences, and needs; the optimization of care the experiences; and the engagement of patients and their relatives into care, service delivery, or its improvement (Berwick, 2002, 2009; Entwistle & Watt, 2013). Person-centered care is not just about providing information to patients, or giving them whatever they ask for. It is rather about seeing and interacting with patients as singular and worthy persons, about showing respect, empathy, and compassion, and about seeking and putting the person’s perspectives at the center of care decisions - toward doing healthcare with the person rather for them (Berwick, 2002; Mead & Bower, 2000; Morgan & Yoder, 2012).

Person-centered care principles have been described in healthcare under different terminology, with some nuances that may apply. Typically, the term “patient-centeredness” or “patient-centred care” was historically used in the healthcare literature (Berwick, 2002, 2009; Mead & Bower, 2000). However, in the terminology, the word ‘patient’ has been increasingly replaced by ‘person’, to put a primacy on the human nature of the ‘persons’, beyond the unique characteristics (e.g., biological factors) of each ‘patient’ (Entwistle & Watt, 2013; Morgan & Yoder, 2012).

In the occupational therapy (OT) evidence-based literature, the term “client-centered care” has been frequently used. When compared to “patient-centered care”, client-centeredness reinforces the notion of a collaborative therapeutic process, respect for, and active participation of clients (Mroz et al., 2015). As this work aims to drive OT-led yet interprofessional improvements, we give preference to the use of the terms “person-centered care” or “person-centeredness”, unless otherwise required or specified (e.g., transcriptions of the OT literature). The meaning of “person-centered care”, albeit conceptually distinct from the outdated “patient-centered care” terminology, it is aligned with the traditional client-centered care principles prevalent in the OT field (Mroz et al., 2015). Hence, here the terms “person-centered” and “client-centered” are understood as conveying the same meaning.

In addition to a core dimension of quality of broad healthcare (Kogan et al., 2016; Santana et al., 2018; Scholl et al., 2014), the person-centered care philosophy has been gaining increased attention in particular in the context of physical rehabilitation (Jesus et al., 2016; Jesus & Hoenig, 2015). In addition to conceptual papers, Person-Centered Rehabilitation (PCR) topics, i.e., the application of person-centered care principles to adult physical rehabilitation contexts, have increasingly addressed by the evidence-based, peer-reviewed rehabilitation literature (Jesus et al., 2019).

Regarding specific professions, PCR practices are also increasingly relevant for rehabilitation professions such a physical therapy (Cheng et al., 2016; Jesus et al., 2019; Kittelson et al., 2019). However, person-centered care principles remain one cornerstone of the OT profession and for the practice of occupational therapists (OTs) and broadly occupational therapist practitioners (OTPs), which include occupational therapy assistants, for a very long time (Haywood et al., 2019; Jesus et al., 2019; Maitra &

Erway, 2006; Mroz et al., 2015; Rebeiro, 2000; K. R. Whalley Hammell, 2015). Currently, the OT process is defined as a “client-centered, collaborative approach to service delivery” (p. S2) (AOTA, 2017a). Similarly, the American Occupational Therapy Association’s (AOTA) Code of Ethics precludes person or client-centered values and principles, such as the respect for the autonomy and self-determination of clients (AOTA, 2015). Finally, being client-centered and excelling in collaborative practices are among the pillars for the development of the OT profession for the future (AOTA, 2017b). Hence, the past, the present, and the future of the OT profession seem greatly connected to person-centered care values and practices. The history, principles, skills, and experience of the OTPs can be instrumental to help advance person-centered care practices in interdisciplinary contexts, such as the adult physical rehabilitation settings.

All the buzz and relevance notwithstanding, the PCR approach to service delivery has been applied in daily practices much less than rhetoric suggests. Overall, this means that physical rehabilitation and OT services remain delivered in a service- or provider-centric manner all too often. Countless studies and published scholarly perspective have been published over the last decades that come to the same point (Guidetti et al., 2015; Gzil et al., 2007; Hammell, 2013b; Hiller et al., 2015; Leach et al., 2010; Leplege et al., 2007; Levack et al., 2011; Lloyd et al., 2018; Lloyd et al., 2014; Maitra & Erway, 2006; McPherson & Siegert, 2007; Moats, 2007; Rebeiro, 2000; Rosewilliam et al., 2011; Rosewilliam et al., 2016; Smit et al., 2018; Sumsion & Smyth, 2000) .

The pointed reasons for that suboptimal practice application are multiple. For example, practitioners can be caught in the conflict between the value of delivering a

PCR approach to care, or conforming to the biomedical paradigm prevalent within the culture of many healthcare organizations (Rosewilliam et al., 2016; Sumsion & Smyth, 2000). Also, there are increasing pressures for frontline practitioners to discharge patients fast, irrespective of needs, which can affect practitioners' capacity to deliver a PCR approach (Levack et al., 2011). Other organizational barriers for practitioners to deliver a PCR approach include high caseload, lack of time, understaffing, high staff turn-over, reimbursement based on procedures or visits, or narrow vision of outcomes on self-care activities (Gibson et al., 2019; Leach et al., 2010; Moore & Kaplan, 2018; van Seben et al., 2019).

Practitioners' factors also play a role. Without adequate training, rehabilitation practitioners tend to feel difficulty and discomfort in applying a person approach, sometimes with components, e.g., emotional support, collaborative decision-making, perceived as out of the scope of practice (Levack et al., 2011; Ylvisaker et al., 2008). Similarly, rehabilitation practitioners often lack the knowledge, confidence, or skills for applying a shared goal-setting approach, which can be one component of PCR approaches (Lloyd et al., 2014; Rose et al., 2017; Rose et al., 2019). Finally, towards questioning and changing one's own practices for higher person-centeredness, practitioners' misleading assumptions that their practices are already patient-centered have to be challenged first (Rosewilliam et al., 2016).

Quality Improvement (QI) journeys and activities are systematic, providers-led, and often continuous initiatives that aim to sustainably change healthcare delivery in a beneficial, tangible way (Bate P, 2008; Rubenstein et al., 2014). Developing and implementing QI journeys or activities is one means to improve the quality and value of rehabilitation care, including its person-centeredness (Jaffe et al., 2017; Jesus & Hoenig, 2015; Jesus et al., 2018; Leland et al., 2015; Ohtake et al., 2013). However, QI or implementation activities around person-centered care topics are not always effective as ambitioned. For instance, a 40% non-adherence was found on the implementation of a new PCR approach across wards, which illustrates the challenges of attaining wide-range changes in underlying organizational and professionals' care routines (Ekman et al., 2012). Also, the sustainment of PCR approaches can be complex since professionals recognize they easily fall back to old routines, after new PCR behaviors have been acquired (Smit et al., 2018).

Furthermore, to be effective, training or implementation approaches on improving person-centered rehabilitation need to engage the whole team, including medical doctors (Blickem & Priyadharshini, 2007) and not only target specific practitioners or professions alone (Smit et al., 2018). Indeed, it has been increasingly argued that PCR cannot be fully attained by single practitioners or professions (Ranner et al., 2016; Tistad et al., 2018), and that a more active involvement of health professional colleagues is required for a whole, team-based PCR approach and its improvement (Cheng et al., 2016; Papadimitriou & Cott, 2015).

Another problem with well-intended QI activities is that they often struggle to engage and effectively change practitioners' behaviors at the care frontline. This occurs especially in organization-wide QI programs that use a linear, top-down thinking and improvement approaches, e.g., not informed by complexity science, and that preclude a practitioners’ mindless adoption of new habit or practice - which often does not occur (Braithwaite, 2018; Greenhalgh & Papoutsi, 2019; Kitson et al., 2018; McHugh et al., 2018; Walsh et al., 2016).

Indeed, clinical leaders and frontline staff are the driving forces of healthcare delivery, develop the local culture of care, and hence are best positioned to lead context-sensitive, bottom-up, continuous QI approaches that are effective for their ‘own’ service units, should they be empowered to do so (Bethune et al., 2013; Jones et al., 2019; McHugh et al., 2018; O'Leary et al., 2019; Potts et al., 2016; Swanson & Pearlman, 2017; Walsh et al., 2016).

In shorth, QI work in healthcare is everyone’s job, and there is a need for creating space and for enabling the capability for healthcare professionals for developing these activities (Allwood et al., 2018; Massagli et al., 2018).

Despite the wide attention brought to QI in healthcare overall, QI education and training is only emerging in the physical rehabilitation literature (Jaffe et al., 2017; Massagli et al., 2018). Fully-fledged QI processes were found to be rare as well as sub-optimally executed or reported in the rehabilitation literature (Boak et al., 2017; Jesus et al., 2018).

For instance, from 2010 to 2016, only 59 explicit rehabilitation QI processes reached peer-reviewed, scientific publication - and those that did showed substantial gaps (Jesus et al., 2018). For example, about half of the 59 articles did not mention any model to guide the QI process, and only 7% reported the use of a behavioral change, uptake, or adult learning theory (Jesus et al., 2018). Overall, basic tenets and resources, including theoretical, from the QI science seem largely unheard, or at least under-used, by physical rehabilitation stakeholders.

The same seem to apply to the case of OTs. Other healthcare professionals, such as medical doctors, increasingly are being prepared to exert leading QI roles, e.g., within the residency curriculum and structured training programs (Bethune et al., 2013; Potts et al., 2016), Training programs also increasingly exist for many health professionals, from varying disciplines, to lead team-based QI activities within their units or settings (O'Leary et al., 2019). For rehabilitation professions or specialties e.g., physical therapists, rehabilitation nurses or physiatrists, QI education or performed QI activities have been increasingly observed (Boak et al., 2017; Del-Blanco-Muniz et al., 2018; Jesus et al., 2018; MA et al., 2016; Ohtake et al., 2013). However, in OT, QI education or training, as well as OTPs-led QI activities, remain essentially absent, at least in the peer-reviewed literature (Jesus et al., 2018; Sirkka et al., 2014).

This seemingly collective negligence in OT in the leading of QI activities and the development of this capacity, at least reported in the scientific literature, occurs at the backdrop of an increasing awareness that OTPs must assume leading roles, including in service development activities. The recent evidence-based literature has been advocating that OTPs might active agents for advancing the quality and value of care (DeJong, 2016; Lamb, 2019; Leland et al., 2015; Sirkka et al., 2014), prepared for assuming leadership roles in the health system’s value-chain (Case-Smith et al., 2014), be bold and actively push the wheel of innovation - with support from education and resources as appropriate (Lamb, 2019; Miller, 2018), and should be catalyzing changes in service delivery, including for improving PCR practices (Rafeedie et al., 2018),

Aligned with this perspective, the AOTA's OT Vision for 2025 looks at OTPs as "leaders" (i.e., influential in changing policies, environments, and complex systems) (AOTA, 2017b). At least with regards to exerting leading QI roles, this vision still seems to fall short in implementation.

So, there is a need to develop the capacity of OTs in frontline practice or service management roles to exert leading QI roles. For example, OTPs might be able to lead team-based, participatory, continuous QI activities in PCR matters, which are matters OTPs are historically quite vested (Leland et al., 2015; Mroz et al., 2015; Rafeedie et al., 2018). This requires, however, that OTs are provided resources to do.

A QI guide on PCR, in the form of an evidence- and theory-based knowledge translation (KT) tool, can be a way to foster the OTPs' capability to lead QI journeys or activities in their own settings. According to the Knowledge-to-Action Cycle (Bowen & Graham, 2013; Straus et al., 2009; Straus et al., 2011), knowledge tools or products refers to the last step in the 'knowledge creation' funnel that links to the 'action cycle'. A given tool can take on a wide variety of formats, ranging from clinically-centered (e.g., decision aids, clinical practice guidelines) to patient-oriented (e.g., mobile apps, videos), but also knowledge tools that support the implementation or improvement-oriented activities, such as QI or implementation guides, manuals, or toolkits (Anderson et al., 2019; Babatunde et al., 2017; Barac et al., 2014; Keddem et al., 2020; Wiechula et al., 2009; Yamada et al., 2015).

Knowledge translation concepts and activities have been increasingly relevant in the OT field (Bennett et al., 2018; Bennett et al., 2016; Burke & Gitlin, 2012; Ehde et al., 2013; Hitch, Lhuede, et al., 2019; Kitson et al., 2018; Metzler & Metz, 2010; Pellerin et al., 2019). However, one is not aware of a KT tool, for example QI guide, that would empower and enable OTPs to be leaders of QI activities on person-centered care for in inpatient physical rehabilitation contexts. This occurs even though it has been argued that OTPs might be well-positioned for and should take leading, interprofessional QI roles on person-centered for in inpatient physical rehabilitation contexts (Mroz et al., 2015; Rafeedie et al., 2018).

Finally, participatory development approaches have been increasingly embraced in the OT field (Hammel et al., 2015; Haywood et al., 2019; Turcotte et al., 2019), including toward building capacity towards KT among OT clinicians (Bennett et al., 2016). These approaches align with user-centered design principles increasingly used in the healthcare field to develop resources or tools that are friendly in used and tailored to users' specific needs and preferences (Brunner et al., 2017; Levac et al., 2015; Stevens et al., 2018; Walden et al., 2020). For example, KT resources targeting clinicians in the rehabilitation field have been recommended to be both evidence-based and user-centered content (Levac et al., 2015).

Within all the context previously described, in this doctoral project we aim to develop a user-centered as well as theory- and evidence-based QI guide enabling OTPs in the leading of interprofessional, team-based QI processes on adult-based PCR, within their 'own' inpatient physical rehabilitation settings (e.g., inpatient rehabilitation facilities, skilled rehabilitation nursing facilities).

To do so, we aim to:

1. Synthesize and integrate the evidence, theory, and resources of the QI and implementation science and PCR literature to develop a fully-fledged yet simple guide enabling OTPs-led QI journeys on PCR.

2. Within a user-centered, participatory development, we aim to turn the QI guide responsive to, i.e., shaped by the design preferences and perspectives of a sample of potential end-users - that is OTPs in frontline practice or service management roles.

Of note, beyond planning, in this doctoral project we did complete these tasks: the QI guide here developed is part of this thesis — Appendix A.

Chapter one conclusion

Person-centeredness is increasingly seen as a key dimension of the quality of health care. Hence, the application and improvement of person-centered care is increasingly required in service organization and service delivery practices, including in physical rehabilitation. However, countless reports point out that physical rehabilitation services are often provider-centered, not person-centered.

One way to change this is through frontline-led QI activities. By the historical principles and skills set, OTs are optimally positioned to promote service-level changes toward an increased person-centeredness of physical rehabilitation services. Also, the development of the OTs capacity to take on these and other leading roles has been increasingly advocated within the profession. However, to exert these roles, OTs need to be equipped with the resources from the QI and implementation science, applicable to the optimization of PCR.

In the absence of a KT tool (e.g., guide, manual, toolkit) that could fill into that gap, here we aim to develop a QI guide that can enable and empower OTs in the leading of interprofessional QI journeys in the inpatient physical rehabilitation services they belong to. To do so, we synthesize the applicable theory, evidence, and resources as well have engaged into a participatory, user-centered development process with a sample of potential end-users. This process has been completed and the resultant QI guide in presented here (Appendix A).

CHAPTER TWO

In this chapter of the doctoral project, the problem statement is first introduced; next, an explanatory model of the problem will be followed by an investigation of how well the evidence supports the explanatory model of the problem. This last section entails a subsection for each of the possible determinants used in the explanatory model of the problem.

The problem statement

Person-centered care revolves around the need for treating persons with compassion and respect, putting persons at the center of the healthcare decisions, and developing services and care responsive to the person's preferences, experience, and circumstances (American Geriatrics Society Expert Panel on Person-Centered Care, 2016; Cott, 2008; Jesus TS, 2016; Scholl I, 2014). Person-centered care principles are being increasingly advocated for guiding the organization and delivery of services. This occurs in healthcare overall (American Geriatrics Society Expert Panel on Person-Centered Care, 2016; Bokhour et al., 2018; Constand MK, 2014; Cosgrove DM, 2013; Kogan AC, 2016; Scholl I, 2014) as well as both in physical rehabilitation and OT services (Cheng et al., 2016; Heinemann et al., 2016; Jesus TS, 2016, 2019; Jesus TS, 2015; Leplege et al., 2007; McPherson K, 2015; Mroz TM, 2015; Terry & Kayes, 2020;

Yun & Choi, 2019)

However, the problem is that inpatient physical rehabilitation services are often appraised to be provider-centric, or not person-centered as much as they could and should be. This has been vastly supported by both the empirical and conceptual literature (Cott, 2008; Cott et al., 2007; Gzil et al., 2007; Hammell, 2013a, 2013b; Hiller et al., 2015; Leach et al., 2010; Leplege et al., 2007; Levack et al., 2011; Lloyd et al., 2018; Lloyd et al., 2014; McPherson K, 2015; McPherson & Siegert, 2007; Moats, 2007; Rosewilliam et al., 2011; Rosewilliam et al., 2016; Smit et al., 2018; Karen R. Whalley Hammell, 2015). For example, numerous empirical studies have been showing that practitioners, including OTPs, perceive their care as being more person-centered than their clients do (Cameron et al., 2018; Maitra & Erway, 2006; Rose et al., 2017; Rosewilliam S, 2016; Sugavanam T, 2013). Similarly, numerous scholars have been pointing for the lack of person-centered care approaches in practice (Cott, 2008; Cott et al., 2007; Gzil et al., 2007; Hammell, 2013a, 2013b; McPherson K, 2015; Karen R. Whalley Hammell, 2015).

Explanatory model of the problem

Figure 1 articulates our explanatory model of the problem. According to the Figure, the problem stated previously can arise from multiple reasons. These reasons are synthesized next.

First, some literature points out that physical rehabilitation practices remain provider-centered all too often because of the lack of frontline practitioners’ capability to deliver a person-centered care approach. This includes the knowledge, skills, motivation, habits, and/or confidence to deliver or improve the person-centeredness of services and care (Cameron et al., 2018; M. Flink et al., 2016; Rosewilliam S, 2016; Sirkka et al., 2014). On the one hand, there is evidence pointing out that practitioners' capability to deliver a person-centered care approach is missing or suboptimal (Levack et al., 2011; Rose et al., 2017; Rosewilliam et al., 2011; Rosewilliam et al., 2016). On the other hand, there is evidence showing that this capability can been improved by (i.e., benefited from) in-service training, implementation, or QI work (Eriksson et al., 2020; M. Flink et al., 2016; Kontos et al., 2012), which highlight that there are improvement margins on professionals' capability to deliver a person-centered care approach. Translated into a proposition, we hypothesize that if physical rehabilitation practitioners lack the capability to deliver a PCR, then practitioners may need or benefit from continuous education, in-service training, implementation, QI, or other service development activities that address professionals' capability to deliver and improve person-centered services and care. Second, macrosystem variables, including organizational culture, policies, and practices (e.g. organizational support for QI programs on person-centered care), are likely to affect, either hinder or facilitate, the delivery or improvement of person-centered care. These policies and practices can support frontline practitioners to be enabled, empowered, required to, and rewarded by the delivery of person-centered care or overall its improvement (Birken et al., 2017; Bokhour et al., 2018; Jesus & Hoenig, 2015; McGilton et al., 2013; Mills et al., 2019; Sabus & Spake, 2018). Similarly, microsystem variables (e.g. unit's physical space, teamwork) can impact on person-centered care, either directly

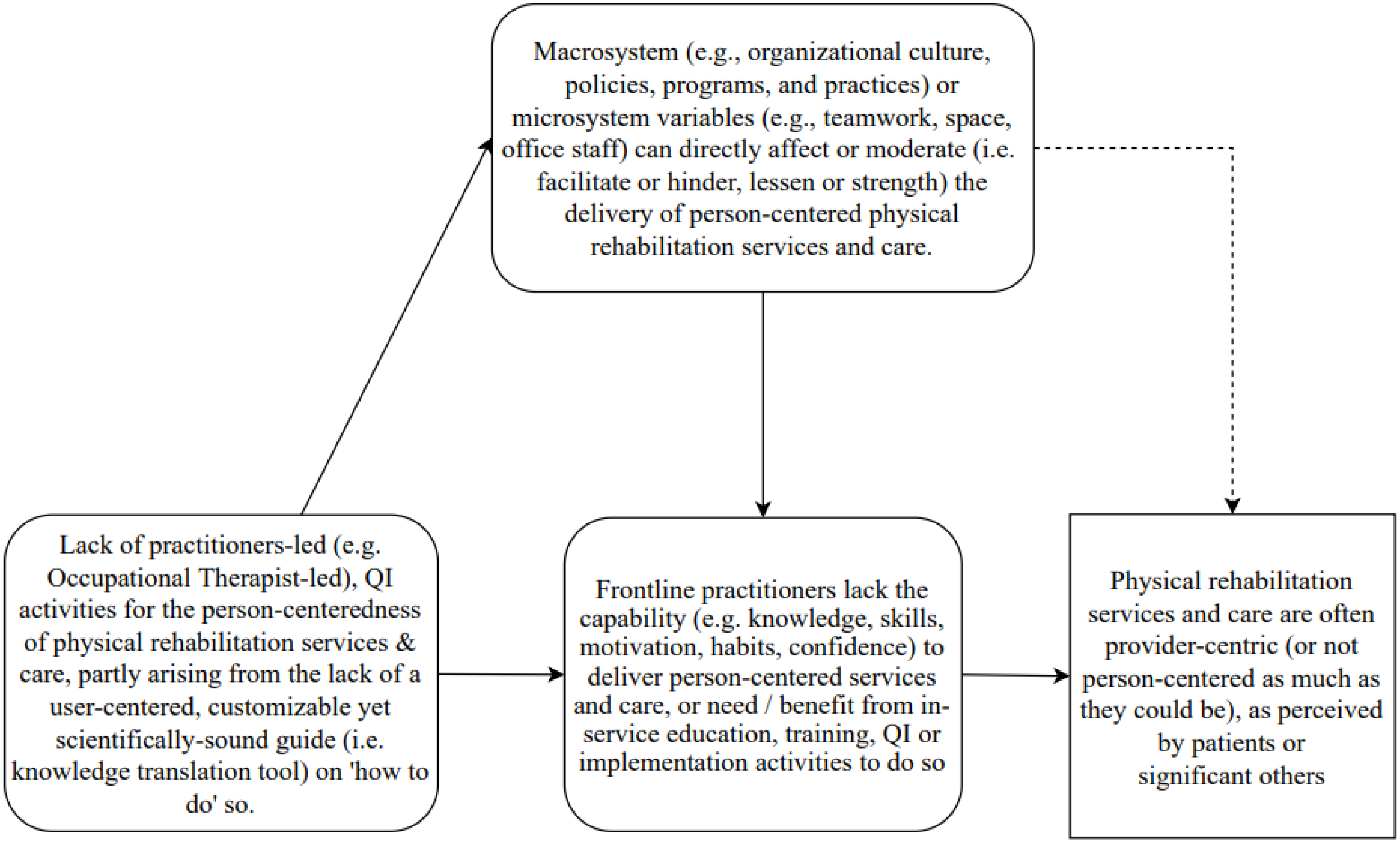


Figure 1: How physical rehabilitation services and care remain provider-centric all too often.

affecting the patient experience or the practitioners' ability to cooperate with one another and holistically addressing the patient needs and preferences (Burau et al., 2017; Jesus & Hoenig, 2015; Körner et al., 2017; Papadimitriou & Cott, 2015; Zimmermann et al., 2014).

Hence, we hypothesize that *if* there are micro- or macro-system factors affecting person-centered care in physical rehabilitation and that *if* they are identified and optimized, *then* the practitioners' capability and organizational capacity to deliver and improve person-centered care can be systematically reinforced.

Finally, using QI and implementation science lens (Jabbal, 2017; Massagli et al., 2018; Mills et al., 2018; Reed, Green, et al., 2019; Reed, Howe, et al., 2019), we understand that locally-relevant, practitioners-led QI work can change the practitioners' capability, the related organizational capacity, and the actual delivery of a person-centered physical rehabilitation.

For many reasons, including historical and competency-related ones, OTPs can be in a suitable position to lead or catalyze person-centered care improvements for the inpatient physical rehabilitation settings they work for (Lamb, 2019; Mroz TM, 2015; Rafeedie et al., 2018). However, OTPs may need the support from a pragmatic, theory-based and science-based QI guide (i.e., a knowledge translation tool) on how to do so (Bennett et al., 2018; Bennett et al., 2016; Berwick, 2002; Hitch, Pepin, et al., 2019; Levac et al., 2015; Majid et al., 2018; Pellerin et al., 2019; Reed, Howe, et al., 2019). Arguably, QI and implementation science knowledge and competencies are still not mainstream in the portfolio of competencies of an OT – and of many rehabilitation practitioners alike (Boak et al., 2017; Del-Blanco-Muniz et al., 2018; Jesus et al., 2018; Ohtake et al., 2013; Sirkka et al., 2014).

Hence, we hypothesize that a QI guide that aims to empower and enable OTs and broader OTPs in the leading of interprofessional QI journeys for person-centered care in physical rehabilitation settings does not exist. *If* it would exist, *then* OTPs could rely on it and more often assume key, leading roles for the continuous improvement of person-centered care in inpatient physical rehabilitation settings.

How well does the evidence support the explanatory model of the problem?

For each of the hypotheses previously described, we developed comprehensive searches in PubMed and CINAHL (using indexation capabilities and published search filters) as well as imported recent references from a recent scoping review of person-centeredness in the adult physical rehabilitation (Jesus et al., 2019). The details of each search are altogether provided in the **Appendix B**. The summary Tables with the extracted methods and applicable findings, from each of the four systematic searches, are provided respectively in the **Appendices C, D, E** and **F.**

Overall, we have found substantial support for both the problem statement and the explanatory model, as synthesized next.

Evidence on the problem statement:

From this search, eight articles were finally selected, based on the scope (e.g., person-centered care), context (e.g., physical rehabilitation settings), methods (e.g., preference given to systematic reviews of empirical studies), and year of publication (e.g., preference given to recent publications).

Four of the eight studies finally selected were systematic reviews. These addressed: clients' care experiences (Lloyd et al., 2018); person-centered care and outcomes (Yun & Choi, 2019); person-centered goal-setting (Rosewilliam et al., 2011); and shared decision-making (Rose et al., 2017). Four recent studies, other than the systematic reviews, also were included. These included: two qualitative studies on goal-setting (Lisa J. Cameron et al., 2018; van Seben et al., 2019); one quantitative study on person-centered care (Zimmermann et al., 2014); and a feasibility study of a new person-centered approach (Smit et al., 2018). The key applicable findings are synthesized below.

Among the systematic reviews, we found that goal setting and decision making is often therapist-led, for example illustrated by the use of a priori lists of 'privileged' goals, ignoring patient-stated goals or initially limiting its scope (Rose et al., 2017). Similarly, a perceptual gap was found between patients and staff, with practitioners reporting adopting a person-centered approach and patients being frustrated with the minimal involvement (Rose et al., 2017). The findings of other systematic reviews were aligned with these results. For instance, another systematic review found that person-centered interventions in the literature only address a tiny fraction of the desirable attributes of person-centeredness (Yun & Choi, 2019). Another review similarly found that goal setting is often practitioners-led – rather than person-centered, and that the patients wanted more individualized approaches than those that being given to them (Lloyd et al., 2018). One last systematic review found that less than 25% of patients participated in goal-setting, although practitioners perceive their practice as person-centered (Rosewilliam et al., 2011).

Among the original research studies, one qualitative study found that follow-up care was pre-determined by the service (e.g., to enabling discharge, performing self-care, and reviewing medication) and that patient's own goals were not possibly listened to or attended (van Seben et al., 2019). Another qualitative investigation found that patients often were not invited to goal setting, their views were simply ignored, and that in over than two-thirds of the goal setting interviews the clinician made no attempt to formulate an explicit goal statement with the patient (Cameron et al., 2018). In turn, one cross-sectional, multi-setting quantitative study found considerable differences between rehabilitation centers in patients' opportunity to participate in treatment planning; these practice variations highlight room for improvements (Zimmermann et al., 2014). Finally, within a feasibility study of a new person-centered intervention, care goals were found to remain professionals-led; indeed, professionals acknowledged that the person-centered approach being implemented differed from their conventional way of working, and that even after the implementation intervention they easily got back to old routines - even though patients stated they wanted goals to be discussed with them (Smit et al., 2018).

Lack of practitioners' capability

Regarding the literature support for the proposition of the lack of practitioners' capability for the delivery of person-centered care, seven articles were finally included. Among them, two (including a systematic review) were also instrumental for supporting the problem statement above (Rose et al., 2017; Smit et al., 2018). The five other articles were: a systematic review on barriers and facilitators for the rehabilitation goal-setting (Plant et al., 2016); a qualitative study on the training physical therapists in person-centered care (Lawford et al., 2018), an evaluation study on the training of OTs for the delivering of client-centered care (Maria Flink et al., 2016), an evaluation of an organization-wide educational and KT intervention (Kontos et al., 2012), and a qualitative study on person-centered goal-setting and what factors influence this practice (Rosewilliam et al., 2016). The findings of these studies support the hypothesized proposition, as detailed next.

One of the systematic reviews found that rehabilitation practitioners feel they do not have the necessary skills and confidence to involve patients in a patient-centered, shared decision-making (Rose et al., 2017). The other systematic review found that practitioners had concerns about their ability to manage less realistic expectations; on the contrary, when staff was confident, encouraging, and capable in individualizing a goal-setting approach, their practices came as more person-centered (Plant et al., 2016).

In a training study involving physical therapists, as the training unfolded, the therapists realized their previous practices were not person-centered as they thought they would (Lawford et al., 2018). Indeed, they found the training was initially overwhelming and further acknowledged that changing habits was tough; yet, as the training evolved, they progressively felt more confident, attuned with the approach, and able to integrate the approach into their daily practices (Lawford et al., 2018). Of note, one trainee did not believe the approach suited his personality, and explicitly mentioned that he did not intend to use it in everyday practices (Lawford et al., 2018). This elucidates on the importance of individuals’ assumptions and attitudes toward person-centered care and how can this be relevant to the implementation of the approach, or lack thereof – beyond knowledge or skills.

In the study with OTs, the training in client-centeredness improved documentation practices on person-centered care items compared to OTs in a control group (Maria Flink et al., 2016); however, it should be noted that improved documentation does not necessarily equate to improved person-centeredness as experienced by clients.

In the evaluation of an improvement intervention across professionals of an organization, a creative, research-based educational drama (i.e., a KT initiative) was implemented as a form of in-service training and showed improvements in: avoiding medical jargon, appreciation for clients’ emotional expression needs, involvement of family, and the avoidance of work-related discussions with colleagues in the client’s presence (Kontos et al., 2012). These gains elucidate that there are improvement margins in the practitioners’ capability to deliver a person-centered care approach.

Finally, in a qualitative study person-centered goal-setting and of what factors influence that approach, it was found that professionals perceived that they did understand patient-centered principles and that the patients' goals were considered and actually discussed in team meetings; however, the researchers' ethnographical observations were contrary to this practitioners' perception and detected that goal-setting approaches had incongruencies with person-centered care principles as well as that dysfunctional therapeutic relationships occurred all too often (Rosewilliam et al., 2016). More aligned with researchers' observations, professionals expressed that they lacked the capacity (e.g., strategies, tools) to implement person-centered approaches in everyday practices (Rosewilliam et al., 2016).

Macro- or micro-system variables

From the systematic search in this problem statement, a total of seven studies were selected. Overall, these supported the influence of macro-systems (i.e., organizational) and micro-system (i.e., service-unit) variables on person-centered care in physical rehabilitation contexts. This includes three articles previously selected to address the previous statements. Two of them were systematic reviews (Plant et al., 2016; Rose et al., 2017), and one a qualitative study of patient-centered goal-setting (van Seben et al., 2019). The four other studies were: a cluster-randomized controlled study to evaluate the effect of team coaching on person-centered care (Körner et al., 2017); a multiple case-study (four case studies) on teamwork and person-centered care (Papadimitriou & Cott, 2015); a qualitative study on the introduction of new, person-centered interprofessional teams (Burau et al., 2017); and a quasi-experimental study on an organizationally-supported patient-centered rehabilitation model for people with hip fracture and cognitive impairment (McGilton et al., 2013).

One of the systematic reviews found that organizational barriers to person-centered goal-setting include lack of staff's time and staff turn-over - requiring constant training and support for new staff, dysfunctional team meetings, and competing priorities such as organizational pressure to provide hands-on therapy (Plant et al., 2016). The other systematic review found that varying shift patterns prevented certain staff from attending goal-setting meetings; in turn, the staff attending the meeting often did not know the patient well enough. When rehabilitation assistants, who had deeper bond with patients, attended meetings, patients felt more confident to express their opinions (Rose et al., 2017).

The cluster trial found that the team coaching intervention marginally improved certain dimensions of teamwork and showed no gains on person-centered care; hence, interventions that target only teamwork may not result, per se, into improved person-centeredness (Körner et al., 2017).

By its turn, the article providing four case studies on teamwork and person-centered care found that inter-professional teamwork, often when care was delivered within the same physical space, can help promote a person-centered practice, through a facilitated exchange of information and care coordination among practitioners delivering care to the same patient; however, the authors warn that practitioners can still coordinate care to achieve professionals-led goals (Papadimitriou & Cott, 2015). The study found that working in shared spaces can enhance communication and cooperation on the spot, while inter-professional assessment forms and formal positions (e.g. client-centered facilitators, goal coordinators) facilitated inter-professional communication, teamwork and client-centeredness; on the contrary, discharge-oriented reimbursement schemas were perceived as a barrier to person-centeredness (Papadimitriou & Cott, 2015).

The qualitative study on the introduction of new, person-centered interprofessional teams found that a service extension to a home-based care added imperatives for interprofessional teamwork in Denmark (Burau et al., 2017); yet, the Danish health system had long tradition of integrated service provision, therefore the findings might be interpreted as context-sensitive (Burau et al., 2017).

Finally, the quasi-experimental study on a patient-centered rehabilitation model, targeting people with hip fracture and cognitive impairment, found that the organization-wide person-centered program achieved non-inferiority outcomes in relation to usual care for people with cognitive impairments. Hence, this vulnerable population with cognitive impairments, which was otherwise unserved by hip fracture rehabilitation programs, was with this program equitably served by a hip-fracture rehabilitation program, and in a tailored, person-centered way (McGilton et al., 2013).

Altogether the evidence points for an influence of macro-systema and micro-systems variables (e.g., person-centered care culture; specific person-centered care programs supported at the organizational level; interprofessional assessment forms, and shared physical spaces) can facilitate person-centered care, while some other variables (e.g., staff’s turnover, restrained focus on hands-on therapy, dysfunctional team meetings, staff attending person-centered team meetings that often did not know the patient well enough, discharge-oriented reimbursement schemas) can have a detrimental effect.

OTs-led QI on person-centeredness and a guide on it

No publication was found that fully met the criteria of OT-led QI initiative on person-centeredness, either in healthcare overall or in inpatient physical rehabilitation settings. Moreover, no paper was found to provide a theory- and evidence-based guide (e.g., a KT tool) on how to do so. Hence, the hypothesis that these resources are absence in the literature is supported by the literature search — see search report in the **Appendix B**, specifically the search # 4.

However, as documented in the **Appendix F**, 10 partly related papers, either empirical or conceptual, emerged as relevant from the literature search.

Although relevant, these papers were only partly related with issue and research searched. This means that the related papers involved OT practitioners as participants but were not led by them, addressed related settings (e.g., home-based geriatric care), provided no empirical data (e.g., perspective papers on the rationale for OTs to lead person-centered care changes), and/or addressed activities that are similar although not identical to QI. Examples of the latter include KT, implementation activities, or actual research, not QI activities or QI research.

Overall, the studies or reports that were found were led by researchers or research-practice partnerships, focused on the use, adoption, or implementation of research-based knowledge, and/or in the production of new or generalizable knowledge. In turn, QI journeys and initiatives are led by local service providers – although possibly supported by researchers, driven by local data, are typically more iterative than protocol-based research, are not necessarily focused on implementing a research-tested approach, and emphasize local service improvements, not new and generalizable knowledge (Reed, Green, et al., 2019; Rubenstein et al., 2014).

In short, QI is providers-led and focuses on the systematic, data-based assessment and improvement of local services and care. Yet, these activities can partly overlap (e.g., the implementation of a new evidence-based practice can be part of a given QI activity) and both involve changed processes or structures for improved patient experiences and outcomes (Reed, Green, et al., 2019).

Hence, these activities (and the ten related papers) can provide some valuable hints for design of a guide enabling OTPs-led QI journeys on person-centered care in adult-based inpatient physical rehabilitation context - especially in the context of the lack of more specific evidence.

These 10 papers, and the appliable evidence and insights extracted from them, are synthesized in the following section.

Previous attempts to address the problem

As noted above, we were unable to find OT-led QI journeys or activities for the enhancement of person-centered care or a guide enabling OTPs to do so - either in healthcare contexts overall, or in inpatient physical rehabilitation contexts. In this context, one needs to rely on related activities (e.g., KT), related roles of the participants (e.g., involving OTs but not OTs-led), related settings (e.g., home-based geriatric care), capacity-building activities within an OT department (not interprofessional, service-unit developments or capacity building), and/or perspectives or review papers beyond empirical ones.

The 10 papers that were partly related to and informative for the development of the QI were a:

1. Systematic review on the determinants of KT in OT practices (Pellerin et al., 2019);
2. Pre-post evaluation study developing KT capacity amongst an OT department of a large healthcare organization (Eames et al., 2018);
3. Mixed-methods study of OTs' perceptions about implementing a client-centered intervention in the context of a randomized controlled trial (Eriksson et al., 2020);
4. Qualitative descriptive study of Swedish OTs' perceptions of the implementation of occupation-focused and client-centered practices based on the Occupational Therapy Intervention Process Model (Sirkka et al., 2014);
5. Multi-stakeholders' refinement of a tool for facilitating person-centered care in home-based geriatric care (not inpatient physical rehabilitation) (Miller et al., 2019);

6. Qualitative multiple-case design on the implementation of interprofessional, person-centered, early-discharge care teams that included OTs (Burau et al., 2017);
7. Qualitative evaluation of a research-based, educational drama to teach client-centered care principles to brain injury rehabilitation staff in inpatient neurorehabilitation units (Kontos et al., 2012);
8. Narrative review on transformational leadership with OTs as target audience (Phipps, 2015);
9. Perspective paper on the intersection of client-centeredness, OT, and health reforms (Mroz et al., 2015); and
10. Perspective paper on OTs as needed catalysts of a client-centered change in skilled nursing facilities (SNFs), a setting where inpatient physical rehabilitation occurs (Rafeedie et al., 2018).

Using extracted content from these 10 papers (see the **Appendix F** for the underlying summary table), we will provide below: a 1) Narrative synthesis of the key applicable messages from each included paper; and then a 2) Integrative, thematic synthesis of factors that can act either as ‘enablers’ or ‘barriers’ of related activities.

The second, thematic synthesis is built over the first, yet both sections together (i.e., the paper-by-paper synthesis and then and integrative, thematic synthesis) can be informative for the design of the QI guide.

Narrative synthesis of the applicable messages per included paper

The key features or take-away messages from of each of the ten included papers are provided next.

In the systematic review of the determinants of KT in OT practices (Pellerin et al., 2019), the organizational context was found to be a key determinant, specifically for a learning climate that reflects team collaboration, managerial support, and availability of time and opportunities to practice and reflect on KT; similarly, therapists' beliefs and readiness to change were found to foster greater commitment toward an evidence-based practice change (Pellerin et al., 2019).

In the pre-post evaluation study developing KT capacity amongst OTs of a large healthcare organization (Eames et al., 2018), a multifaceted knowledge translation capacity-building intervention, informed by a previous questionnaire on barriers and enablers, produced an increased adherence to recommended clinical practices. The intervention involved mentorship and a collaborative team learning of KT processes, amid a systematic development approach embedded within existing structures and workloads. Time constrains applied, especially for the initial, time-consuming stages, but were overcome by ongoing commitment, organizational support, and locally tailored strategies. As reported by the study, the six more effective capacity-building strategies included: OTs working as a team, having a dedicated staff member with KT responsibilities, developing mentoring meetings, having training sessions, having department leader support, and learning about KT over time. The process of using the approach along with other practice demands was deemed to take a quite long time (e.g., several months), until the approach became familiar and easier to use. Besides, practitioners with little experience with the approach may feel that additional training is required.

In mixed-methods study of OT's perceptions of implementing a client-centered intervention (Eriksson et al., 2020), most therapists found the new intervention useful. Yet, the OTs felt they needed time and opportunities to effectively implement the new approach. OTs have appreciated the opportunity to discuss related articles in workshops, but they felt they needed space and room for discussions and reflections over time so they could integrate the new approach or evidence into the previous experience and knowledge. Overall, the OTs perceived that the enablers of the approach were: collegial exchanges during workshops on the person-centered care approach, dialog and support from colleagues, and managerial/supervisor support for service development projects. OTs also found that the close collaboration between OTs and researchers facilitated the implementation, and that suitable structures and supportive organizations acted as facilitators — and should be promoted if not already in place. As barriers to the implementation, OTs identified that if the approach has too much of a structure, it can be perceived as too controlling and limiting. Also, if extensive and with various components, it can be time-consuming. Finally, without opportunity for clarification, including over time, the approach can be mistrusted, and in some parts perceived as vague 4.The qualitative study of Swedish OTs’ perceptions of the implementation of an occupation-focused and client-centered practices based on the Occupational Therapy

Intervention Process Model (Sirkka et al., 2014), collegial discussions and individual reflections were found as key for a sustained practice change. These discussions challenged taken-for-granted thinking, which ultimately led to a more person-centered and occupation-focused reasoning. Over time, there was a need for repetitive critical reflection on issues that arose in daily practice. Interestingly, OTs established a culture where improvement work became part of their daily practice. Finally, from the perspectives provided, the authors advocate that a flexible, adaptable model of improvement work is likely required, as external conditions shift across locations and over time.

The multi-stakeholders' refinement of a tool for facilitating person-centered care in home-based geriatric care (Miller et al., 2019) involved the use of a typical QI methodology: a Plan, Do, Study, Act (PDSA) cycle. The methodology was successfully implemented and involved the engagement of OTs and other frontline practitioners, yet the process was not led by OTs. The tool refinement occurred prior to a province-wide implementation. This article emphasized the need to consider revisions in a new or person-centered approach or tool before it could be spread to other units. A second PDSA cycle has been implemented to facilitate the spread of the intervention to other units in the province, and the implementation strategies for enabling this spread of the tool include: a 'train the trainer' webinar, coaching techniques on the why (e.g., the mutual benefits) of the approach, and a specific training program for supervisors to coach frontline personnel, which for example includes strategies for optimizing person-centered care and the use of the tool.

The qualitative multiple-case design study on the introduction of interprofessional, person-centered, early-discharge care teams found that professional groups, OTs and other frontline professionals emerged as key players driving person-centered care and interprofessional working in stroke rehabilitation in Denmark (Burau et al., 2017). Within a framework of a micro-level health workforce governance, the study found that interprofessional teamworking, holistic care, acting both independently and on the behalf of the teams when the care is delivered to patients, and awareness of own professional strengths and shortcomings are strategies integral to a person-centered interprofessional practice. Home-based care added imperatives for interprofessional working in Denmark, yet the Danish system as a long tradition of both integrated and interprofessional service provision and governance.

In the qualitative evaluation study to assess a research-based drama teaching staff of neurorehabilitation units about client-centered brain injury (Kontos et al., 2012), it was found that suboptimal patterns of interactions with clients existed and that they can be improved with this arts-based KT and educational intervention. The intervention was based on research with survivors of traumatic brain injury, their families, and healthcare practitioners concerning experiences with the health care system, and day-to-day challenges and coping strategies. Specifically, this research-based drama showed it could, from the practitioners' perspectives, promote the avoidance of medical jargon to improve clients' understanding and participation in treatment, the appreciation for clients' needs for emotional expression and sexual intimacy, the involvement of family caregivers, and the avoidance of informal or work-related discussions with colleagues in the presence of a client. The drama scenes sometimes reminded what professionals once have learned but which was erased in practice, which in turn reminds the need to continuously reinforce person-centered care practices.

In the narrative review of the literature informing OTs on transformational leadership (Phipps, 2015), it was emphasized that, unlike managers, leaders (in formal position or not) tend to: have a long-term focus, inspire, and empower (not control), clear the path for staff to solve problems (not about solving problems themselves), and tend to focus on human factors more than structures or systems. The article elaborates on the inspirational and enabling characteristics of a transformative and visionary leadership which OTs should increasingly take. Also, it points out that the type of leadership tasks (e.g., facilitation of client-centered and culturally competent practice, working inter-professionally) can be carried out by anyone, with no need to have the formal authority or managerial roles. Finally, it is ascertained that the features promoted by a visionary and transformational leadership are: inspirational motivation, shared vision (clearly communicated through stakeholder groups, tailored as required), intellectual stimulation, independent thinking, promotion of continuous improvement and critical reflection, challenging the process, enabling others, creativity, and finally tailored mentorship and support for helping every member achieving their vision.

In the perspective paper on the intersection of client-centeredness with health reforms (Mroz et al., 2015), it is noted that OTs might be leaders of interdisciplinary improvement activities for person-centered care, because of their seminal knowledge and practice experience with the approach, including on collaborative goal-setting, the support for the person, and the understanding of greater contexts that affect the person. OTs need to clearly articulate how their knowledge and skills foster person-centered care can be useful, in a language or terminology that is not profession-specific - and which could resonate with other practitioners, as well. According to the authors' perspective, person-centeredness can be a matter for interprofessional training and development which OTs might actively promote.

In another perspective paper focused on SNFs (Rafeedie et al., 2018), it is noted that OTs should be the catalyst (i.e., inspirational and operational leaders) for cultural change, challenging themselves, and others to provide more patient-centered care in SNFs, with potential benefits for career satisfaction too. It is advocated that OTs can rely on the profession's principles of client-centered care and facilitation of individual choice to develop these catalyzing roles. This can imply activating change agency in other practitioners, and finally restructuring organizational silos and separate workings spaces, which are possible improvement activities.

Thematic synthesis of the 'enablers' or 'barriers' to related activities

Through an integrative, thematic synthesis of the information above, here we provide lessons and implications for the design of the QI guide. That information is organized around 'enablers' to be fostered, and the 'barriers' to be mitigated or overcome through related interventions. Both types of information can be instrumental for the design of the QI guide. Here, the 'enablers' include effective characteristics and determinants of related interventions, or facilitators in the surrounding context. In turn, the ‘barriers’ include any contextual factors that may hinder the implementation, effectiveness, or sustainment of related interventions, which may require action toward mitigation, reduction or elimination of these barriers.

Identified enablers of activities related to QI and/or person-centered care targeting or involving OTs have been varied.

For instance, effective interventions have created space for collective, collegial discussions, exchanges, and reflections (e.g., during workshops, involving dialog and support from colleagues (Eriksson et al., 2020)). By doing so, the changing process or a person-centered care approach can be incorporated into the clinician’s previous experience and knowledge in a mentor- or peer-supported way (Eames et al., 2018; Eriksson et al., 2020; Pellerin et al., 2019). Within this rationale, a collaborative team learning climate can be created over time, and especially so when directly supported and overseen by expert mentorship (Eames et al., 2018; Pellerin et al., 2019).

Furthermore, collective exchanges among peers or triggered by mentors can foster individual reflections (e.g. on issues that arise in daily practice), challenge basic assumptions or taken-for-granted thinking, and become key elements for a sustained practice change, either for the development of evidence-based (Eames et al., 2018) or person-centered practices (Eriksson et al., 2020). For that to occur, it may be important to have a dedicated, expert staff member available to provide tailored support and mentorship to staff, including through monthly mentoring meetings (Eames et al., 2018).

In turn, an inspirational, visionary and transformational leadership may be required to support meaningful improvements in service delivery (Phipps, 2015). These leadership and mentorship roles can be carried out by anyone willing and capable, with no need to have the formal authority or managerial roles (Phipps, 2015). For the issue of person-centered care, such leadership may be taken over by OTs, who are positioned to be leaders of interdisciplinary improvement activities for person-centered care. OTs may be able to instill a person-centered culture of care, because of their seminal knowledge and practice experience with the approach (Mroz et al., 2015; Rafeedie et al., 2018). Indeed, OTs are positioned not only to challenging themselves but also others (e.g., through interprofessional training and development) to optimize a patient-centered care (Mroz et al., 2015; Rafeedie et al., 2018). The leadership approach to these developments should focus on human factors, the empowerment of others (not their control), the ability critically reflect and to develop and communicate a shared vision, and focus on enabling the capacity of others to solve problems by themselves (Phipps, 2015).

Beyond the needed space for participatory developments, collegial exchanges, and reflective workshops, also time and opportunities need to be afforded for any new practices to be incorporated as a routine, sustained practice (Eames et al., 2018; Eriksson et al., 2020; Pellerin et al., 2019; Sirkka et al., 2014). Sometimes, providers essentially needed the opportunity to remind, reacquire, or reapply what they once have learned, but for a myriad of reasons left unpracticed (Kontos et al., 2012). Furthermore, QI work has been experienced not as a one-off activity but as a long-term journey, whereby OTs as a group can establish a culture where improvement work became an integrated part of their practice (Sirkka et al., 2014).

Furthermore, toward enabling sustained change, improvement activities (e.g. using Plan, Do, Study, Act (PDSA) cycles (Miller et al., 2019)) may rely on a champion and/or mentor(s) with whom any involved practitioner can talk about the various activities (Eames et al., 2018). Practice development techniques can also focus the why of the person-centered approach, the mutual benefits for providers and clients on their use, and further optimized by the share of information, tools, or strategies for the enhancement of person-centered care (Miller et al., 2019).

The experiences of the clients and practitioners can also be harnessed to inform educational or improvement interventions on person-centered services and care. For instance, collected knowledge of the clients' and practitioners' experiences through brain injury rehabilitation and the clients' experiences of living with a brain injury informed an arts-based KT intervention that showed numerous improvements in person-centeredness. These included, for example, the recognition of the need for a more genuine emotional timbre during therapy (e.g., acknowledging sadness, mood variability, or motivational struggles) rather than a generalized cheerfulness (Kontos et al., 2012).

Also in preparation or informing the improvement work, perceived facilitators or barriers to the implementation, from the perspective of providers, can be initially and continuously collected as one means to inform the development and success of an multifaceted capacity-building and service development intervention; such an intervention did enhance the capacity for OTs to employ a more evidence-based practice pattern (Eames et al., 2018). Moreover, therapists' or overall practitioners' beliefs and readiness to embrace a new or change practices (e.g. beliefs on the potential benefits for career satisfaction (Rafeedie et al., 2018)) can foster a greater commitment to practice change; hence, it is key to assess the beliefs and foster the readiness to secure an ongoing commitment and engagement of frontline professionals with the improvement activities (Eames et al., 2018; Pellerin et al., 2019).

With regards to uncertainties, it is also important to consider that many external aspects that affected OTs and their improvement work shift from local to local and over time; this means that not all components and timelines of an intervention can be fully planned ahead, and that it is important to have a flexible, locally-tailored improvement model - because conditions change even within the same setting over time (Eames et al., 2018; Sirkka et al., 2014).

The reviewed evidence also highlights that a person-centered approach may be emphasized at the interdisciplinary team level, with a teamworking approach that reinforces holistic care, the awareness of own professional strengths and shortcomings, and the capacity of practitioners to act both independently and on the behalf of the teams, so that clients can experience a whole-team, interprofessional person-centered care approach (Burau et al., 2017). However, this can be easier in context where integrated service provision and interprofessional collaboration refer to the cultural norm (Burau et al., 2017).

In turn, managers, department leaders, or supervisors need to support service development projects and act as key facilitators for the effectiveness of improvement endeavors involving OTs (Eames et al., 2018; Eriksson et al., 2020; Pellerin et al., 2019). Most notably, a macro-level or managerial support was perceived as a key facilitation of the accommodation of the new approach into the existing structures and workloads, for sustained and long-term changes to occur (Eames et al., 2018). A close collaboration with researchers, when the improvement activities are research-related, also acted as a facilitator of an improved endeavor (Eriksson et al., 2020).

Finally, if a scale-up is ambitioned, i.e., toward widely implementing a person-centered approach also elsewhere, these activities may benefit from a ‘train the trainer’ webinar, coaching techniques on the why and mutual benefits of the approach, and from a specific training program for supervisors to coach frontline personnel (Miller et al., 2019).

Apart from enablers, It is important to understand the enablers or facilitators of improvement or service development activities involving OTs - so these factors can be identified, used, and optimized in practice contexts. However, it is also important to understand potential barriers – so they can be addressed, prevented, and accounted for in both the design and delivery of QI interventions.

Among the proxy evidence reviewed, one had found that practitioners highlight that sometimes confidentiality and full attention to the person is complex in open spaces such as large or crowded therapy rooms (Kontos et al., 2012), which may require either lay-out changes or accommodations to avoid negative impacts in the delivery of person-centered care. Restructuring organizational silos and separate workings spaces can be, therefore, one way to promote person-centered care (Kontos et al., 2012; Rafeedie et al., 2018). Besides, person-centered approaches to care, especially those with extensive and has various components, can be perceived as time-consuming to learn to use (Eriksson et al., 2020). Similarly, if the approach has too much of a structure, it can be perceived by frontline providers as too controlling and limiting (Eriksson et al., 2020). To overcome the complexity in the implementation of person-centered care approaches, opportunities for clarification and feedback might be created, for the introduced approached to be operationalized and implemented in practice as well as for not being perceived as vague (Eriksson et al., 2020).

The corollary may be that it is important not to design or implement too many or too complex components of a person-centered approach, for a reduced time frame, and especially not within a rigid structure. Hence, flexible developments and QI resources may be required.

Perceived ambiguities regarding the person-centered approach can also pose barriers to its implementation. For example, avoiding medical jargon can be part of a person-centered approach, yet the use of medical jargon in care interactions is sometimes perceived by practitioners as fulfilling the need to be formal and concise, and as means to conceal person-sensitive information in public places (Kontos et al., 2012). So, it seems important to emphasize approaches to the improvement of person-centered care with a reflective, participatory, and anti-reductionist nature - that embraces uncertainties, ambiguities, and contextualized applications rather than rigid scripts.

Finally, frontline practitioners can be just overwhelmed by the multiple tasks and responsibilities they assume in everyday practices to further accommodate any QI work. Indeed, the studies reviewed highlighted that managing KT activities and direct clinical contact at the same time can be challenging and time-consuming and, by the same token, the process of using a new approach along with practice demands can take a quite long time (e.g. several months), until the approach becomes familiar and easier to use, while providers with little experience with the approach may feel that additional training is required (Eames et al., 2018). Overall, these as well as any other, unanticipated hurdles may be expected and well as openly assessed, discussed, and addressed, both a priori in plans and then alongside the conduct of the improvement itself. These features might be reflected in the design and content of the QI guide one aims to develop.

Chapter two conclusion

This chapter elaborated on the problem statement, on a subsequent explanatory model, and on the evidence that supported each component of that model.

Overall, the problem is that inpatient physical rehabilitation services are often appraised as not person-centered as much as they could and should be. This is vastly supported by both the empirical and conceptual literature. Among the systematic searches conducted, eight articles were mapped that provided key, recent empirical support for that statement, including four systematic reviews. The explanatory model elaborated explored the reasons (i.e., determinants) for this problem statement.

First, it was hypothesized that there was the lack of frontline practitioners' capability to deliver a person-centered care approach. Through systematic searches, seven empirical articles, from diverse methodologies, including two systematic reviews supported the inclusion of this determinant. Overall, the evidence pointed for a all too often suboptimal practitioners' knowledge, skills, motivation, habits, and/or confidence to deliver person-centered care approaches, including a patient-centered goal-setting and shared decision-making. Also, there was experimental evidence showing that these capabilities and practices can be improved by training, education, or KT approaches.

Second, macrosystem variables such organizational culture, policies, and practices (e.g., operational support for QI projects or programs on person-centered care) are likely to hinder or facilitate the frontline delivery of PCR or its improvement. Similarly, microsystem variables (e.g., unit's physical space, teamwork) can also impact on person-centered care, either directly affecting the patient experience with care or indirectly through affecting practitioners' ability to deliver a PCR and cooperate with other practitioners to meaningfully address the patient needs and preferences. A total of seven articles, including two systematic reviews, empirically supported the impact of macro- and/or micro-system variables in the delivery of PCR. The research showed that both interprofessional teamwork and organizational support to patient-centered rehabilitation models of care can contribute to improved person-centered care practices. On the other hand, staff's turnover, excessive focus on hands-on therapy, dysfunctional team meetings, staff attending person-centered team meetings when they do not know the patient well enough, discharge-oriented reimbursement schemas are among the factors that can have a detrimental effect.

Finally, while frontline OTs may or should lead interprofessional QI journeys toward a continuous improvement of PCR, they may need the support from a pragmatic, theory-based and science-based QI guide (i.e., a KT tool) on how to do so. Yet, we hypothesize there are neither such OT-led QI initiatives nor KT resources are available from the literature. Indeed, the systematic searches found no paper that fully met the criteria of OT-led QI initiative on person-centeredness. Moreover, no paper was found to provide a theory- and evidence-based guide (e.g., a KT tool) on how to do so. Hence, the hypothesis that these resources are absence in the literature were supported. Nonetheless, we found ten partly related papers, either empirical or conceptual, that involved OT practitioners as participants (but were not led by them), addressed related settings (e.g., home-based geriatric care), provided no empirical data, and/or addressed activities that are similar - although not identical to QI - such KT capacity building, implementation activities, or actual research.

The key, applicable findings or take-ways of these partly related empirical articles and scholarly perspectives were synthesized in this chapter - first in a narrative and then in thematic way, as a means to inform the development of the QI guide.

CHAPTER THREE

In this doctoral project, we developed a QI guide, i.e., an evidence-based and theory-based as well as user-centered KT tool. This means that in addition to grounded on applicable theory and evidence, the tool was subject to a participatory development. This process was aimed at turning the tool relevant and acceptable from the perspective of potential end-users. These refer to OTs in frontline practice or service management roles.

The resultant QI guide has been completed and is presented later in the **Appendix A**. The guide includes design features and refinements that were made in response to initial preferences and formative feedback provided by a sample of eight OTs, who kindly took part in the participatory development of this guide.

In this chapter, we outline: 1) the methods that were used for the development and refinement of the QI guide, 2) a synthesis of the initial and formative feedback received and resultant implications for the guide, and the 3) of final evaluation and future directions.

Methods used for the development and refinement of the QI guide

We followed a three-pronged approach for the development and refinement of the QI guide. First, key theories were used to build the approach to the QI guide. Second, related evidence also was used to inform the guide’s development, including on the directions or resources provided. Finally, a participatory development (see **Appendices G, H, I, J**, and **K** for the surveys used, recruitment information sheet, and the consent form) took place to shape the structure and refine the contents of the guide toward accommodating end-users' stated preferences.

Use of key theories to inform the guide's development

The QI guide aims to be an informed by key theories as well as by any related evidence, part of which reviewed in the preceding chapter.

With regards to theory, the initial structure proposed for the guide was informed by Adult Learning Theory, or Andragogy (Knowles et al., 2020). For example, the theory posits that adult learning requires internal motivation and readiness, is self-directed, problem-oriented, and accounts for the person's previous experience. Therefore, according to the theory, educational activities or tools such as the QI guide need to promote the understanding of the "why", "what", and "how" of the subject being learned.

According to this, we did plan to use a "why", "what", and "how" structure which provides the three core sections of the QI guide. Moreover, as the potential end-users are skilled professionals, with valuable experiences – inclusively of the unique service-delivery context, we aimed to provide a QI guide that would foster a supported and self-directed QI journey that is adaptive and amenable to be locally tailored rather standardized.

Hence, the QI guide was designed to ‘guide’ and facilitate, not to dictate. It aims to provide directions and possible resources that can be used, on a discretionary basis, to identify and solve problems in a self-directed and context-sensitive way. For instance, the action model we provide in the ‘how’ section of the (e.g., see the QI guide in the **Appendix A**) emphasizes action-oriented tasks to be performed. However, within such a tasks-approach, one does not require methods to be used to accomplish the designed tasks. Methods, tools, or resources to do so are provided in separate, supportive tables for a discretionary use. This means that the OTs will be empowered and enabled to exert their own, adaptive QI journeys on person-centered care for their own service and set of circumstances.

The previously described information follows current main tenets of the improvement science. Although there are guidance to be provided in how to conduct a QI journey or activity – and methods that can be used to do so (as we do supply), it has been increasingly emphasized the need to be pragmatic and account for the variables of the context (Nilsen & Bernhardsson, 2019; Rapport & Braithwaite, 2018; Rapport et al., 2018). Overall, each QI journey is unique, and the guidance needs to be adaptable.

Similarly, the theory of ‘complex adaptive systems’, increasingly embraced by the improvement science, emphasizes that each macro- or micro-system has its own and mutually-influenced dynamics as well as reacts in different ways – sometimes unpredictable ways - to the same stimulus (Braithwaite et al., 2018; Holden, 2005; McDaniel et al., 2009; Plsek & Greenhalgh, 2001). In this context, our option was to provide directions primarily in the form or tasks or ‘simple rules’, not in the form of a detailed manual of procedures. Of note, ‘simple rules’ refer to action-oriented guidance that accounts for the theory of ‘complex adaptive systems’ toward providing principles-based and action-oriented directions (Anthony et al., 2018; Nurjono et al., 2018; Reed et al., 2018; Reed, Howe, et al., 2019). These should not prescriptive, over-detailed or refer to cumbersome plans, but rather should provide the needed latitude, adaptability, and responsiveness in the local application of the guidance.

Although for simplicity, the action model in the ‘how’ section of QI guide is organized by streams, aligned with the theory of ‘complex adaptive systems’ we also emphasize the very inter-dynamic nature between the tasks and streams, over and beyond any presumed linearity. Also, one emphasizes that it is up to the OT leading the journey to identify the best course of action at each time, within the context of the guidance and resources provided, and based on the knowledge of the local context.

It is worth-mentioning that by promoting locally-adaptive and relatively simple guidance, the QI guide can also be more likely diffused and used in OT-led service improvement practices. The Roger’s ‘diffusion of innovations’ theory (Rogers, 2003) highlights that innovations perceived as being ‘complex’ and not ‘compatible’ to be implemented in the local contexts are less likely implemented. The provision of flexible guidance adds to the adaptability and compatibility of the approach with the local context. In turn, the restriction of 20 pages for text of the QI guide (i.e., excluding supportive tables or references) is an example of a design feature that can turn the reading and application of this guide less ‘complex’ in the context of busy practices.

Overall, the guidance provided in the QI guide, and particularly in its ‘how’ section, was designed to be action-oriented (e.g., not too vague) but also not cumbersome, prescriptive, limiting, or too complex to apply. The need for a careful balance is aligned with evidence reviewed in the chapter 2 (Eriksson et al., 2020).

Finally, in addition to the theoretical perspectives and implications provided above, other widely-used and often meta-aggregative frameworks from the improvement and implementation science also were used to inform the design of the QI guide. The **Appendix L** provides a detailed account of which frameworks were used, their main characteristics, and how they have informed the action model within the “how” section of the QI guide. That action model was labelled as the “IMProvements in Person-Centered Rehabilitation: an ACTion model for QI journeys (PCR-ImpAct)”

The content of the **Appendix L** was stored in the Open Science Framework, an open-access and freely accessible repositorium of the research data. The content can be accessed through the following link: https://osf.io/s839u/, and that link was provided in the QI Guide, as well.

Of note, meta-aggregative frameworks considered, such as the Consolidated Framework for Implementation Research and the Behaviour Change Wheel, include features from other related models or theories. These were preferred because they provide a wider coverage without adding unnecessary complexity. For example, a recent scoping review identified as much as 159 theories, models, or frameworks in the broader field of KT, most of them with a limited use (Strifler et al., 2018).

Hence, to avoid a complex navigation of end-users across multiple and sometimes competing theories, models, or frameworks, we relied mostly in widely used and aggregative ones.

Finally, there are related theories that have generated traction in the literature but were not explicitly included in the guide, both for parsimony and scope. Examples of these frameworks not included are: the Promoting Action on Research Implementation in Health Services (PARIHS) framework (Harvey & Kitson, 2016); the nonadoption, abandonment, scale-up, spread, and sustainability (NASS) framework (Greenhalgh & Abimbola, 2019; Greenhalgh et al., 2017), and the Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) (Glasgow et al., 2019). These were, respectively, focused on the alignment of implementation contexts and the strength of evidence, the implementation of technologies, and on the evaluation of implementation activities. As these activities only partly related with the scope of QI and person-centered care, and in the face of the used and often meta-aggregative alternatives, these models were not explicitly considered.

Related evidence used to inform the guide's development

As shown in the Chapter 2, we were unable to find direct evidence on which features of OT-led QI activities on person-centered rehabilitation are effective, more effective, or for whom. Indeed, through the systematic searches carried out for the purpose, we were not able to locate any report of an OT-led, interprofessional QI activity on person-centered care in physical rehabilitation contexts, although we could locate scholarly perspectives arguing on the rationale for and value of doing so (Mroz et al., 2015; Rafeedie et al., 2018). Nonetheless, as shown in the previous chapter, published scholarly perspectives (Mroz et al., 2015; Phipps, 2015; Rafeedie et al., 2018), as well as on empirical evidence on related KT or improvement activities (Burau et al., 2017; Eames et al., 2018; Eriksson et al., 2020; Kontos et al., 2012; Miller et al., 2019; Pellerin et al., 2019; Sirkka et al., 2014) had direct application in the contents or design of the QI guide.

This is explicitly depicted in the QI guide itself, notably in its Table 1 – see the **Appendix A,** for that specific table.

Other types of evidence identified and synthesized in the chapter 2, other types of which include evidence used to support the formulation of the problem statement and its key determinants on an explanatory model. The information coming from these articles also was used in the QI guide.

For example, articles on the issue of team functioning in physical rehabilitation contexts and how these teamwork issues can affect person-centered care (Körner et al., 2017; Papadimitriou & Cott, 2015) were identified and synthesized in the chapter 2. These articles were among the many items included in the large table 2 of the QI guide – see **Appendix A**. The same applies to other resources outlined in the chapter 2 (McGilton et al., 2013; Rose et al., 2017), which are also part of table 2 of the QI guide - see for example, the row “A” (Shared decision-making models and resources (Rose et al., 2017)), in the row “L” (Design of a whole new person-centered care program or service (McGilton et al., 2013)). Overall, this table, which is part of the QI guide, contains several examples of tools, methods, and approaches used in the improvement of PCR, as organized by topic. These are key resources OTs can rely on and select, in a discretionary basis, for their QI activities for PCR, and that came from the systematic searches conducted in the development of the chapter 2.

For another part of the QI guide, notably the 'why' section, we also relied on numerous empirical and conceptual references that were used both in the chapter 1 and 2. Indeed, the introduction of the doctoral project (in the chapter 1) as well as the problem statement and most of its explanatory model (in the chapter 2) address the gap that OTPs might be able to fulfil with the QI guide. In the 'why' section of the QI guide, we provide the respective in-text citations and bibliographic references.

Finally, for the 'what' section of the QI guide, that is the section detailing what person-centered care means in the concept and practice of adult physical rehabilitation, we rather relied on a gold-standard source. Indeed, an interprofessional model of person-centered rehabilitation was recently published in Archives of Physical & Medicine Rehabilitation, based on a large scoping review and thematic analysis of the person-centered rehabilitation literature (Jesus et al., 2021). This model on person-centered rehabilitation was built over a comprehensive and up-to-date review of over than 100 rehabilitation-specific references.

As a form of disclosure, the student is the first yet not the sole author of that work, which was multi-year project with previous publications conducted alongside scholars with a significant track record of in this field (Jesus et al., 2016; Jesus et al., 2019). In the QI guide, for parsimony and given that the guide is a KT tool, we provide only a simplified synthesis of that model, yet using the overall same structure and main contents of the originally published model. The full model, preprint version, which includes the complex net of in-text citations, was uploaded to the Open Science Framework and its link (https://osf.io/xzgpe/) provided in the QI guide. For those without access to the journal's content, this link provides an access to the preprint and non-type set version of the article. Readers of the QI guide can use this link to spot on the bibliographic support for each content of that section, if they want to, given that the subsections follow the same structure.

In synthesis, we used empirical references and published scholarly perspectives that we have used in the chapter 1 and chapter 2 of this doctoral project, the latter arising from systematic searches. Many of them were also used for the "why" section of the QI guide, and for parts of the "how" section. In turn, for the "what" section, we relied on a gold-standard knowledge synthesis, notably a recently published scoping review and model that provides an interprofessional framework for person-centered adult-based physical rehabilitation.

Finally, some of the resources provided in the Table 2 of the QI guide came from additional sources and target searches. Indeed, there was a need to supply OTs with a comprehensive set of planning, assessment, analytical, or improvement-oriented resources. These resources were not necessarily from the physical rehabilitation or occupational therapy literature, and also could come from the improvement and implementation science. Toward identifying these additional resources, we begin to search key websites, such as the ones of The Institute of Healthcare Improvement, the UK-based The Health Foundation, the US Agency for Healthcare Research and Quality, the Picker Institute, and the Institute for Patient and Family-Centered Care. Of note, in the table 2 of the QI guide (“R” row), we provide the links for these websites for OTs to consult and search for themselves for any additional or updated resources. Here, over the results of these searches, we further developed snowballing searches (e.g., author-tracking, citation-tracking, scanning references lists). Lastly, a few theoretical or analytical resources included in the table 2 of the QI guide come from the bibliography of the courses of the post-professional Occupational Therapy Doctorate of the Boston University: theoretical models, readability formulas, or the logic model as a tool – see rows “C” “R”, “S” and “W” of the table 2 of the QI guide, in the **Appendix A.**

Participatory Development Process

In addition to being informed by related theory and evidence, the QI guide was informed by a participatory development process, which has been completed. The Boston University’s Charles River Campus Institutional Review Board issued, in March 2020 - a priori of the study’s conduct, a letter of Exempt (see **Annexure 2**) for the submitted study protocol, which referred to the participatory development process of the QI guide.

This participatory development envisioned a user-centered design of the QI guide. The evolving process was responsive to initial and formative mixed-methods feedback and improvement suggestions. The participants in the process also provided a final quantitative evaluation of the perceived value and adequacy of the refined version of the QI guide. The participants in this process, throughout its 3 stages, were a sample (n= 8) of potential end-users: OTs in practice roles either frontline practitioners and/or with service management responsibilities.

The participatory development process entailed three mixed-methods web-based surveys. The 1st survey (**Appendix G**), received before completing the first draft of the guide, was aimed at collecting both quantitative and qualitative perspectives on preference-sensitive design features, including among possibilities. The 2nd survey (**Appendix H**) was aimed at collecting quantitative and qualitative formative feedback over the first draft of the QI guide. In this survey, feedback was asked on issues such a clarity, value, or usefulness, as well as open-ended qualitative feedback to inform user-centered refinements in the guide. Finally, the 3rd survey (**Appendix I**) was aimed at providing a final, evaluative feedback of the refined guide. The survey was used to provide a quantitative evaluation of the anticipated value and acceptability of the guide – into a single Likert-type rating. Also, the survey contained an assessment of the likelihood of guide's use by the participant as well as the likelihood of its recommended use to colleagues.

The eligibility of the OTs to be participants on this process was defined as it follows. The inclusion criteria entailed being OTs in practice for >4 years or having management roles is inpatient rehabilitation settings (e.g., inpatient rehabilitation facilities, skilled nursing facilities). OTs could not be included if they work in facilities that predominantly treat non-adult populations (<18 yeas) or had any affairs (e.g., student, faculty, fieldwork supervision) with the BU.

The recruitment process occurred from a snowballing procedure, expanding from the researchers' network. Indeed, the investigators sent a recruitment information sheet (**Appendix J**) to people they know (i.e., part of their network). This was not for them to be enrolled but for them to kindly send the sheets out (e.g., email it) to other people they know about and may be eligible and interested. There were no country restrictions. Any eligible persons contacted though this snowballing mechanism could express their interest in participating to the principal investigator through an email contact available in the sheet.

The principal investigator should then formally contact by email, the first persons showing interest in participating, until a maximum of 12 are engaged. In the late 2020, the informed consent **Appendix K**, couple with the 1st survey, were sent for eight OTs, i.e., all of those that showed interest to take part and met the eligibility criteria. Indeed, the recruitment procedure occurred during the COVID-19 pandemic, albeit planned before, and those times became especially complex for OTs in frontline practice or management roles to have time or headroom for participation in volunteer projects like this. In the given context, and provided that one did not compromise on the lack of formal relationships of the participants with BU (which could be a source of bias), we proceeded with a total eight OT participants. The same eight participants remained in the study throughout the three surveys, i.e., no dropouts.

Initial and formative feedback and implications for the guide

In this section, after a brief description of the demographic of the participants, we provide a synthesis of the results of the 1st and 2nd surveys, along with the resultant implication for the design or reshape of the Qi guide

Participants' demographics

From the total of eight participants, all women, we had four participants from the different states of the United States (two from Florida, one from Colorado, one from Arizona, and 1 from Texas), two from the Netherlands, and 1 from Denmark. This provided exposition to different legal, organizational, cultural, supply, and practice contexts. For example, Denmark is the country with the greatest ratio of OTs per population size in the world (Jesus et al., 2020; World Federation of Occupational Therapists, 2020), and most health care is publicly funded, unlike in the US or the Netherlands. For the OT participants, the median number of years of OT practice was 11 (mean 11.4), the median age was 35 (mean 36.6), and three of out of the eight participants had formal service management roles.

Survey 1 - results and design implications

Among the 11 items of the 1st survey **(Appendix H)**, which provide possible, preference-sensitive design features for the guide's structure and content, 5 items stood out with mean, median, and mode values all with an agreement rate equal to "8" or above (0-10 scale). Moreover, all of these items - except the first one - had mode values of "10" out of 10. These items relate with the:

- "Why", "what" and "how" structure for the guide (item #1)
- Less than 20 pages for the guide (item #2)
- Provision of links to external resources (along with a brief synthesis) for them to be consulted, selected and/or used in a discretionary way (item #4).
- Guide designed to be applied customized way (i.e., providing options for being applied in a context-sensitive manner) (item # 7).
- An action model with a visual map of which QI steps can be taken (item # 8)

Qualitative comments, beyond the ratings, were helpful in determining the 'must-have' components for the QI guide. For example, regarding one of items above (item # 4)., one of the participants stated that "[*I*] *love having links so that I can choose what to delve into further*" (participant # 2). Referring to the same item, another participant simply wrote that "*discretionary is key*" (participant # 4).

Once provided, it is anticipated that these links to existing resources can be of value for some users. When not of interest, these can be easily bypassed by those without an interest in a particular link or resource. Overall, as long as a given resource is provided for optional consultations, users can make their own and informed choice to make use of it or not. According to this preference, we did apply this design feature in the QI guide for example with the provision of a multi-plane table (table 2 of the QI guide) with supportive resources

On the other pole, a survey item that scored poorly (e.g., mode of 5 our 10) was the number six, related to the use of theory and evidence content in an integrated manner instead of being provided into separate or standalone sections. One participant for example stated that "*would prefer this to be linked in separate section*" (participant # 2). Overall, the participants seemed hesitant about the value fully integration of theory and knowledge and would appreciate a certain level of differentiation. In the QI guide, one for example provided separate supportive tables for the theory and evidence supporting the design of a model for action. Another item that was not amongst the most highly rated was the one (# 11) related with the presentation of ethical dilemmas as ones means to trigger reflection. One of the participants noted that "*ethical dilemmas do not necessarily trigger reflection*" but essentially "start a conversation", yet also noted that "*ethics should be reinforced as a key concept*" (participant # 4). Aligned with this perspective, one rather embeds the ethical dimensions of providing person-centered care especially in the "why" section of the guide, not in the form of ethical dilemmas as a form clarification for concept not as a (possibly incomplete) method for the improvement of person-centered care. Finally, among the items that did not have the greatest scores was inclusion of a two-page executive summary, which one participant explicitly commented as "not overly important” (participant #2). Nonetheless, we provide a brief introduction to contextualize and orient the reader.

Other comments provided important nuances to the quantitative ratings toward informing our design decisions. For instance, one participant stated that “*when I am using a guide, I am generally looking for something very concise and easy to use*” (participant # 2), which is aligned to other remark that “*clear concise information with examples would be ideal*” (participant # 6). Then, in a conditional way, another participant noted that “*only 20 pages if all the background theory is included*” (participant # 7). From the combination of these statements, one understood that beyond the structure and elements provided, one of the key issues is the need for the QI guide to be both comprehensive and concise at the same time. Therefore, one kept the text component of the guide within a 20-page limit, but provided additional resources (e.g., supportive tables) for discretionary use.

Moreover, as one participant made it clear “*examples in both written and diagram form will be helpful to break up detailed content*” (participant # 6). Hence, right from the first draft of the QI guide we provided information in different but inter-linked formats. This included action model with a visual map that also had links to external, theoretical, and evidence-based resources for consultation.

Finally, another participant highlighted the need for the guide to provided resources applicable to specific patient populations, such as in the “*use alternative form of communication*” for people with “*aphasia*”. Hence, we included literature-based resources on the topic. The table 2 of the QI guide provides resources on the category

“Person-centered care approaches adapted to clients with cognitive or communication impairments” That was one among the 23 different categories of supplementary resources provided in that supportive table of the QI guide.

Survey 2 - findings and resultant guide refinements

In the **Table 1,** we provide a statistical summary of the participants’ rates (0-10) for the 2nd survey items on issues of perceived clarity, value, and usefulness, including of its main sections and supportive resources. In the table, we use three different types of central measures. The median is a most appropriate central measure for *n*< 30, and ours is *n*= 8. Yet, we also provide mean and mode values to understand the influence of the greater and lower magnitude of the values as well as the most frequent rating value.

Table 1: Statistical summary of the participants’ rates for the 2nd, formative survey (*n*= 8).

#	Items	Mean	Median	Mode
1	The clarity of its structure	8.1	9	10
2	The clarity of the content	7.8	8	8
3	The adequacy of the length	7.5	9	9
4	The value of the Why section	8.4	8	8
5	The value of the What Section	8.0	9	9
6	The value of the How section	8.6	9	10
7	The value of the guide as a whole	7.9	9	9
8	The usefulness of the supportive tables with resources	8.1	9	10
9	The overall relevancy - as a tool empowering and enabling OTs aiming to lead QI journeys on person-centered rehabilitation	8.0	9	10

In the **Table 1**, one observes that every item had median values of 8 and above, four of which with mode value of 10: items # 1 (on the clarity of the guide's structure), item # 6 (value of the "how" section), item # 8 (usefulness of the supportive tables with resources), and item #9 (overall relevancy of the guide). The means of the item # 3, on the adequacy of the length, was influenced by an outlier rate (i.e., rated as "1" by one participant), which commented that the guide was too long.

Indeed, in addition to the quantitative ratings, participants had the opportunity to comment on each of their rates and to provide improvement suggestions on each item in particular or for the overall guide.

Among specific improvement suggestions, we have received comments on a few grammatical corrections needed and the restructure of few sentences to add clarity. It was also suggested the inclusion of an initial table of contents, which was not part of the initial draft. Other recommendations included the need to provide an initial overview of the model described in the "what" section and the benefit of turning the acronym of the action model in the "how" section simpler and more intuitive. Finally, there were comments on the concept of physical rehabilitation, which can be understood in different ways by different people – including across countries, that made one realize we did not provide a glossary of key terms.

According to these suggestions and rationale, we have performed the following list of changes from the first draft of the QI guide to its last refined version:

- A Table of Contents was included

- An overview of the Person-Centered Rehabilitation Model (“what” section) was introduced before the details of its components.
- Grammatical corrections and sentence reframing were performed according to the suggestions.
- The acronym of the action model in the “how” section was simplified.
- A glossary of key terms (e.g., our working definition of “physical rehabilitation”) was added as a supplementary information, to avoid diverse understandings of the concepts addressed, including across national contexts.

Finally, to reduce the length of the QI guide and its support materials, one supportive table (i.e., the **Table 1** in this chapter) was removed from the guide itself, yet we provided a web-based link for it to be easily accessed. The other supportive Tables were qualitatively appraised by the participants as of great value. Finally, we have condensed all the supplementary material (e.g., supportive tables) into one attached file, also with a table of contents for its own.

Of note, we also received improvement suggestions related with turning the QI guide into a web-based platform or App, with multimodal communication. This could also turn the content more user-friendly and reduce any concerns about length. While doing that falls outside of the scope of this project (i.e., it ends with a written manual), this suggestion in one to stick in mind for further concerted developments, including digital ones, with a potential to be funded – see funding plan chapter.

Finally, even at the first draft, the QI guide was substantially well praised by many of the participants, as evident in the following remarks:

- "*Good explanation of the role of OT, but also of the team*" – participant # 1, The Netherlands.
- "*I found the guide very interesting and the value to having something like this available to therapists*" – participant # 2, USA, Florida.

- "*Overall, I think the PCR model and the PCR-ImpACT are extremely valuable for OTs. Resources like this among our profession tend to be limited. It again can add value to our work and to our role in the rehabilitation process. There is also a convenience of having all these resources available in one place*". And "*I have not seen anything like this geared toward inpatient rehabilitation before*"– participant # 3, USA, Colorado.
- "*The model seems generally well-described, well-argued and well-constructed*" - participant # 4, Denmark.
- "*Overall, very good. Is apparent that much time, effort, and planning went into this tool. This has much potential!*" - participant # 5, The Netherlands.
- "*Overall, I feel the content is good*" – participant # 6, USA, Florida.
- "*Very comprehensive and good graphics*" – participant # 7, USA, Arizona.
- "*The models are comprehensive and having all the resources in one place provides a great value*" – participant # 7, USA, Texas.

Survey 3 - final appraisal and likelihood of use or recommended use

The final survey initially consisted of a single item on the overall value and adequacy of the guide, on a “0” to “10” scale. In this item, the ratings from the participants ranged from “8” to “10”, which the median, average and mode value being all equal to “9”. In marketing principles applied to healthcare (Alismail et al., 2020; A. Boissy, 2020), it has been assumed that scores of “9” to “10” refers to promoters of the product or service, and with these regards six out of the eight participants rated the guide as “9” or greater – i.e., can be active promoter of the QI guide.

As complementary data, and in a scale from “1” to “4”, in which “1” referred to not at all, “2” to possibly “3” to likely, and “4” very likely – either to a) use or b) recommend the use of the guide to a colleague, we got the following results:

- Six out of eight participants rated that they were ‘very likely’ to ‘use’ to guide, one rated as ‘likely’ and another as ‘possibly’.
- Five out of eight participants rated that they were ‘very likely’ to ‘recommend’ the use of the guide to a colleague, two rated as ‘likely’ and another as ‘possibly’. The person who rated this category differently commented that she usually prefers to use something before being willing to recommending it.

Finally, one can mention that some of participants have actively mentioned – without any trigger question – that they were willing to participate in any further advances or research regarding the tool development and implementation.

Chapter three conclusion

Provided the QI guide has been developed (presented in the **Appendix A**), in this chapter we reported the methods – including the participatory development methods - that were used to build and refine the QI guide. Then, we reported a synthesis of the initial design preferences from the sample of eight potential end-users, the formative feedback received from them over an initial draft of the guide as well as the resultant implications for the guide's refinement. Lastly, we provided a final evaluation of QI guide through the perceived value, likelihood of use and likelihood of recommendation from the sample of potential, coupled with future directions.

Overall, the initial input on the preference-sensitive design features helped to develop an initial draft of the guide that more closely matched users' preferences. Then, the formative feedback was instrumental to inform precise refinements in the guide. Finally, the QI guide – in the initial draft and especially in its refined version - has been well praised by quantitative ratings (e.g., often appraised as very likely to be used or recommend its use to colleagues).

Opportunities for further developments building digital, web- or app-based interactive access solutions with a user-centered access to the components of the QI guide and possibly other resources, altogether comprising a comprehensive yet user-friendly toolkit of QI measurement and improvement solutions on PCR – at the distance of the fingertips or the mouse's click.

CHAPTER FOUR

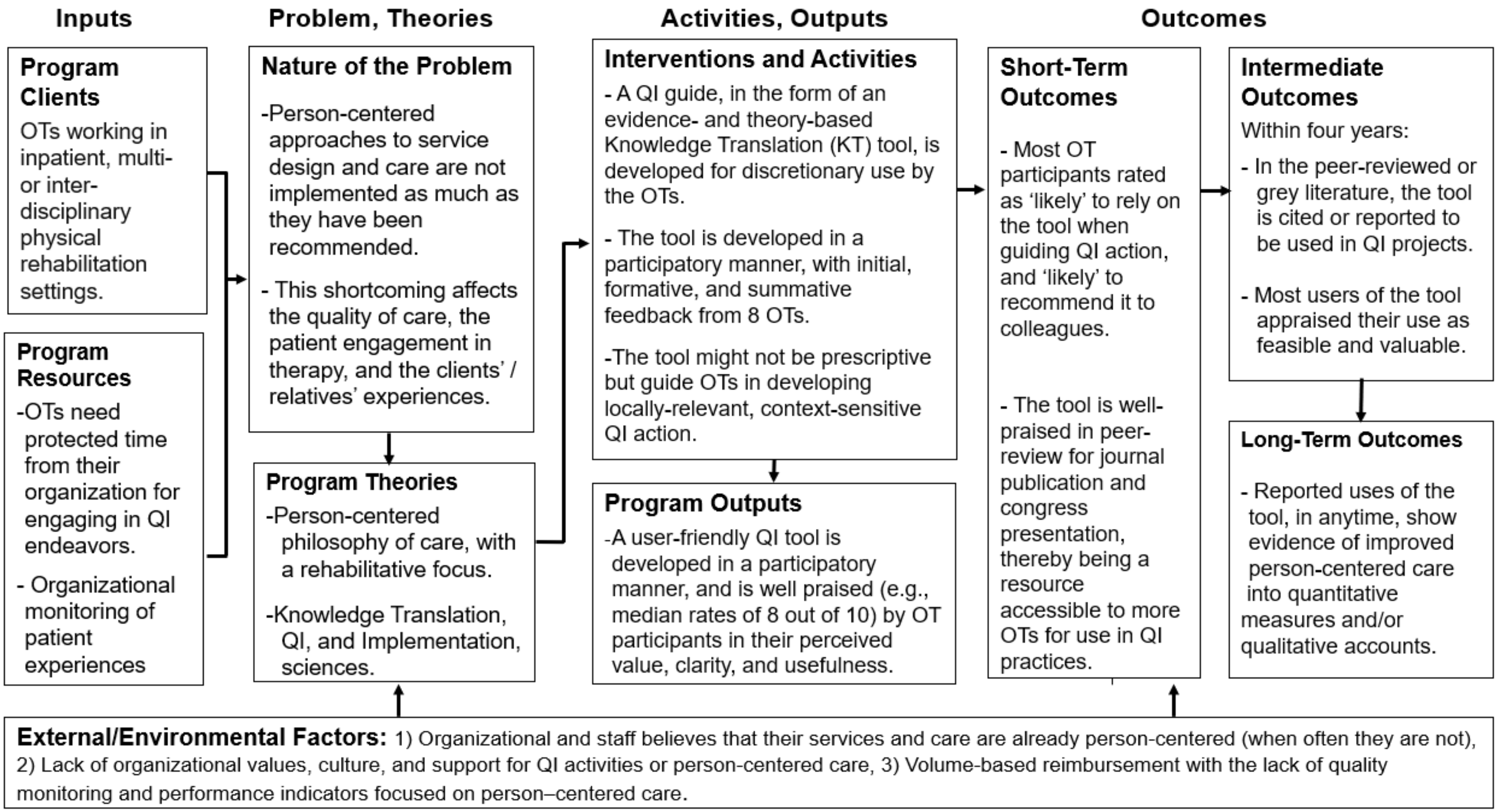
Introduction to the evaluation plan

The QI guide, which is the end-product of this project, has been completed, is provided in the **Appendix A**, and its participatory development included an evaluation by the eight potential end-users. The evaluation also included the potential end-users' appraisal of the likelihood of QI guide's use in their own practices as well as the likelihood of its recommended use to colleagues. Hence, part of the evaluation of the QI guide has been completed and analyzed in the previous chapter. These developments notwithstanding, here we provide a full evaluation plan, including the evaluation elements that have been conducted. This evaluation plan is represented in a logic model of this program provided below in the **Figure 2**. The simplified version is this plan provided in the **Figure 3**.

These figures include the program output as well as the short, intermediate, and long-term outcomes. The part of the evaluation plan that has been completed is up to the first short-term outcome of the logic model.

Finally, it should be noted that the QI guide is here framed as an evidence- and theory-informed KT tool, subject to a participatory development toward becoming user-centered. Therefore, this program falls in the realm of participatory intervention designs, KT, and implementation science, which means that measurement of KT endeavors includes procedures for the analysis of practitioners' use or likely use of evidence–based knowledge, tools, or innovations.

Figure 2: Evaluation Plan of the QI guide enabling Occupational Therapists in the leading of interprofessional Quality Improvement (QI) journeys for an increased person-centeredness of adult-based, inpatient physical rehabilitation care.



Inputs

Program Clients

OTs working in inpatient, multi- or inter-disciplinary physical rehabilitation settings.

Program Resources

-OTs need protected time from their organization for engaging in QI endeavors.

- Organizational monitoring of patient experiences

Problem, Theories

Nature of the Problem

-Person-centered approaches to service design and care are not implemented as much as they have been recommended.

- This shortcoming affects the quality of care, the patient engagement in therapy, and the clients' / relatives' experiences.

Program Theories

-Person-centered philosophy of care, with a rehabilitative focus.

-Knowledge Translation, QI, and Implementation, sciences.

Activities, Outputs

Interventions and Activities

- A QI guide, in the form of an evidence- and theory-based Knowledge Translation (KT) tool, is developed for discretionary use by the OTs.

- The tool is developed in a participatory manner, with initial, formative, and summative feedback from 8 OTs.

-The tool might not be prescriptive but guide OTs in developing locally-relevant, context-sensitive QI action.

Program Outputs

-A user-friendly QI tool is developed in a participatory manner, and is well praised (e.g., median rates of 8 out of 10) by OT participants in their perceived value, clarity, and usefulness.

Outcomes

Short-Term Outcomes

- Most OT participants rated as 'likely' to rely on the tool when guiding QI action, and 'likely' to recommend it to colleagues.

- The tool is well-praised in peer-review for journal publication and congress presentation, thereby being a resource accessible to more OTs for use in QI practices.

Intermediate Outcomes

Within four years:

- In the peer-reviewed or grey literature, the tool is cited or reported to be used in QI projects.

- Most users of the tool appraised their use as feasible and valuable.

Long-Term Outcomes

- Reported uses of the tool, in anytime, show evidence of improved person-centered care into quantitative measures and/or qualitative accounts.

External/Environmental Factors: 1) Organizational and staff believes that their services and care are already person-centered (when often they are not), 2) Lack of organizational values, culture, and support for QI activities or person-centered care, 3) Volume-based reimbursement with the lack of quality monitoring and performance indicators focused on person–centered care.

Figure 3: Simplified version of the evaluation Plan of the QI guide enabling Occupational Therapists in the leading of interprofessional Quality Improvement (QI) journeys for an increased person-centeredness of adult-based, inpatient physical rehabilitation care.

Clients Resources	Clients: OTs have protected time for QI endeavors. Resources: Organizational capacity to developing and monitoring person-centered care (e.g., collecting and analysing patient surveys or qualitative perspectives).
Interventions Activities	A QI guide, in the form of a Knowledge Translation (KT) tool, is developed for discretionary use by the OTs. Participatory development process: initial, formative, and summative feedback from 8 OTs (end-users). The tool might not be prescriptive but guide OTs in developing locally-relevant, context-sensitive, and adaptive QI journeys or activities.
Program Outputs	A KT, user-friendly tool is developed in a participatory manner, and is well praised (median rates of 8 out of 10) by participants in perceived value, clarity and usefulness.
Short-Term Outcomes	Most OT participants rate as likely or very likely the chance to use the tool in guiding QI action, and likely or very likely to recommend it to colleagues. The tool is well-praised in peer-review for journal publication and congress presentation, thereby being a resource accessible to more OTs for use in QI practices.
Intermediate Outcomes	Within four years: - In the peer-reviewed or grey literature, the tool is cited or reported to be used in QI projects. - Users of the tool rated their use as feasible and valuable.
Long-Term Outcomes	Reported uses of the tool, in any time, show evidence of improved person-centered care in quantitative measures (such as the Client-Centered Rehabilitation Questionnaire) and/or qualitative accounts.

Overview of the evaluation plan

This evaluation plan focuses on outputs and outcomes such as having a guide developed in a participatory and user-centered manner (e.g., with design and content shaped by end-users' perspectives) and appraised by potential end-users as: relevant and usable, likely implementable into own practices, and likely recommended to colleagues.

Furthermore, the evaluation plan focuses on whether and how much the guide is accepted for wide-scale dissemination channels and therefore widely accessible through a broader target audience, which is a condition for other KT outcomes.

Finally, the evaluation plan focuses on whether and how the QI guide is actually used in practice contexts, in this case merely with a dissemination strategy, i.e., without further support from complementary assessment and implementation strategies. For instance, a recent project has mapped as many as 73 implementation strategies (Powell et al., 2015; Waltz et al., 2015). Here, we essentially used two of them. Specifically, we 1) developed educational materials (e.g., manuals and other supporting materials in ways that make it easier for stakeholders to learn about learn how to deliver the innovative approach), and plan 2) to distribute educational materials, i.e., the QI guide, through making it available electronically, free of charge, and disseminated through scientific journal and major conference channels.

Finally, we plan to measure the pragmatic (i.e., real-world) effectiveness of the used strategies through the systematically assessment of the reported uses and reported results of its use in regular practice contexts.

Detailed description of the program and its evaluation plan

To inform the development of the first draft of the QI guide, the participatory development process contained an initial form of data collection. Indeed, input was collected from the OT participants to inform key design features for the guide (e.g., desirable length, preferred structure), before it is developed. That was done with a first online survey containing pre-defined Likert-question as well as an open text box for qualitative comments or design suggestions.

Then, over a first draft of the QI guide, the OT participants provided a form a formative evaluation, which was aimed at informing refinements to be made in both the structure and contents the authors have provided in the draft QI guide. This feedback came from a second online survey in which OT participants provided quantitative, Likert-type feedback on the perceived clarity, value, and usefulness of the guide as a whole and of specific sections or components of it. Additionally, in this formative evaluation of the guide's development, OTs also had speech to provide a qualitative appraisal and improvement suggestions for specific components or the guide as a whole.

After that, as a form of summative evaluation of the perceived value and expected usability of QI guide, a third online survey was carried out with the OT participants. In this last survey, the participants had the opportunity to quantitatively and qualitatively appraise the final, i.e., refined, guide. Once again, they did it so regarding the perceived clarity, value, and usefulness which were rated, but also rated and had the opportunity to comment on whether they were 'likely' to rely on the tool when wanting to develop QI action on person-centered rehabilitation topics, and whether they were ‘likely’ to recommend the guide to colleagues.

In order to be accessible to and thereby possibly used by additional OTs in their own QI practices, the QI guide needs to be further disseminated. For instance, it may need to be well-praised by scientific peer-review processes, and then be accepted for wider dissemination through scientific journal publication and congress presentation. In addition to turning the QI guide accessible to more potential end-users — which is a seminal dissemination and KT outcome per se, the ability to be accepted by scientific peer-review processes also provide a form of scientific evaluation of the merits of QI guide, including of the underlying knowledge synthesis as well as of the used resources. The chapter 6 provides further details on the dissemination plan and activities

For the assessment of intermediate outcomes, and with a focus on the practice use (i.e., uptake) it has been generating with the dissemination strategies alone, one could measure how many times, within four years, the tool is cited or reported to be used in QI projects in the scientific (i.e., peer-reviewed) or grey literature. With those reported uses as data, it can be ascertained whether most OT users of the guide in practice contexts appraised its use as feasible and valuable. Such an assessment could additionally determine whether additional implementation strategies (e.g., any of the 71 remaining (Powell et al., 2015; Waltz et al., 2015)), have been used to support the implementation of guide — including each ones, in which combinations, and how acceptable and feasible was the use of the QI under which implementation circumstances.

Finally, for the long-term outcomes, we understand that the use of the tool should result into a sizable, tangible effect in patient experience or person-centered rehabilitation questionnaires, such as on the but not limited to the Client-Centered Rehabilitation Questionnaire (Cott et al., 2006). For example, to appraise the reported effects of the use of the QI guide in practice contexts, a mixed-methods systematic review of the use of the guide can be employed as one means can measure the reported uses of the tool and whether they show evidence of improved person-centered care into quantitative measures and/or qualitative accounts. Indeed, especially for the concepts of person-centered care, patient experiences and their improvement, the notion of ‘data’ needs to go beyond survey ratings and accommodate different type of qualitative experience-based data and other accounts which can be at least as much valuable as quantitative assessments (Locock et al., 2020). Lastly, it should be noted that the QI guide itself provides guidance for the measurement of QI activities, through Plan-Do-Study-Act cycles, and provides tools and approaches from the literature that can be used for that. Hence, an effective implementation would necessarily reflect an assessment of the effect of QI activities.

Methods for data analysis

For the participatory development stages, which already took place, quantitative data was summarized with descriptive statistics of central tendency (mean, median, and mode), yet with a focus on the median due the low number of participants (n= 8). Although we sometimes have used cut-offs points, for example using the value “8” in the “0” to “10” scale, this was not necessarily a deterministic approach as the overall combination of these measures and the qualitative accounts were the one that, altogether, helped to inform decisions (e.g., on the design preferences) or evaluative summaries (e.g., on usefulness of the guide or likelihood of a recommendation to a colleague). In short, descriptive statistics and any cut-offs were not applied blindly but rather within an integrative convergent synthesis with the qualitative data. Indeed, integrative convergent synthesis approaches have been amongst the most frequently used to analyze mixed-methods data (Gough, 2015; Hong et al., 2017).

Regarding the qualitative data per se, a conventional type of content analysis, as reported in the literature (Hsieh & Shannon, 2005), was applied to analyze the initial qualitative input that came in the formative and summative form of the guide's evaluation.

For the evaluation of the intermediate outcomes, which involve reported uses of the QI guide in the literature, it can be tracked the citation of the QI guide (e.g., its peer-reviewed publication) in the scientific or grey literature which reports to QI activities led by OTs. Searches in scientific databases (PubMed, Scopus, Web of Science) or using associated citation analysis tool (e.g., SciVal), can be used for these purposes, coupled with keyword searches in broader search engines (e.g., google).

Finally, on the long-term outcomes, QI activities that reported the use of the tool should also report data on the impact or perceived impact of the guide's use, for example in terms of the practitioners' perspective (e.g., process evaluation of the relevancy and feasibility of the use of the tool) or the client's perspective (e.g., on the impact experienced in terms of the person-centeredness of care received). For example, for the assessment the impact on the client's perspective, a pre- and post- application of the Client-Centered Rehabilitation Questionnaire (Cott, Teare, McGilton, & Lineker, 2006) or in a patient experience measure (McMurray, McNeil, Gordon, Elliott, & Stolee, 2019) can be used to assess the impact on clients.

A form of systematic review of the impact of the use of the tool can be carried out. A review of the effectiveness of the use of the QI guide would be either a mixed-methods systematic review (Stern et al., 2020) or a systematic realist review approach (Pawson et al., 2005). The latter could analyze which features of the QI guide, or their combinations – including as mixed with other implementation strategies, have resulted in the best outcomes, under which circumstances (Iezadi et al., 2020; Mogre et al., 2014; Pawson et al., 2005; Wong et al., 2013). Indeed, realist reviews synthesize what works, for whom, and which contexts. For these reasons, they have been used in the QI field (Coles et al., 2017; Jones et al., 2015), and can be relevant in the assessment of the impact of the QI guide, including for determining the mechanisms of that impact.

In the ideal conditions, and for quality monitoring purposes, the inpatient rehabilitation settings would routinely measure the client's perspective on person-centered care and/or the patient experience, for all their clients. Hence, this would allow to have an historical track record of the scores of each setting on these measures, which would then be compared to record of scores on the same measures for the same settings after a QI activity or overall QI journey based on the QI guide.

With a sufficient number of data points (i.e., scores) before and after the QI activity, and displayed over time (e.g., with follow-up), an interrupted time-series approach could be one of those developed for the statistical analysis of that information, as a means to ascertain whether there was a significant change in the score trend. This research method is typically used to assess the impact of QI activities and processes, as it focus on measuring consistent service developments over time after a significative event (e.g. a QI activity), in the context of the variability in practices and outcomes that can occur out of controlled environments of randomized controlled trials (Hategeka et al., 2020; Penfold & Zhang, 2013). Therefore, if one would test the effectiveness of the application of the QI guide, one could use this interrupted time-series design and analytical approach.

By doing so, and for the statistical analysis, Segmented Regressions can be employed, using advanced statistical software, for example the SPSS® (IBM®). Overall, an interrupted time series requires developing two segments with regression analyses: the first is the one that represents the trend of the data points before the QI intervention, and the second is the one that represents the trends of the data points after the QI intervention. As each segment has its own slope and intercept, the two segmented regression models are compared to derive the effects and understand whether the trend after the intervention is significantly different from the trend before the intervention.

Chapter four conclusion

As part of the participatory development of the QI guide, a sample of eight potential end-users already provided an evaluation of the perceived value of the guide, which included an appraisal of the likelihood of QI guide's use in their own practices as well as the likelihood of its recommended use to colleagues. Hence, part of the evaluation of the QI guide has been completed and presented in the previous chapter. Nonetheless, here we present a full evaluation plan with additional outcomes to be measured, along with possible methods to do so.

The additional short-term outcome included is focused on the acceptance for a peer-review journal publication and for a congress presentation, toward disseminating of the guide through more OTs and OTPs overall - for possible use in QI practices. The intermediate outcomes include the practice uses of the guide in QI projects as reported through the peer-reviewed or grey literature as well as included any appraisal of the tool's use in terms of its feasibility and value in the practice application. Finally, as long-term outcome, one considered the uses of the tool in terms of reported evidence of improved person-centered care in quantitative measures (such as the Client-Centered Rehabilitation Questionnaire) and/or qualitative accounts. One could develop either mixed-methods systematic reviews or realist reviews to appraise the pragmatic impact of the use of the QI guide in real-practice environments. Qualitative analytical methods (e.g., content analysis) as well as quantitative analytical methods (e.g., interrupted time series) can be used to appraise or synthesize the real-world impact that QI activities based in the QI guide may have on patient-centered outcomes measures.

CHAPTER FIVE

This chapter addresses the funding plan, which has a few particularities — due to the fact that such a part of the evaluation plan has been carried out, but also due the special context of the student — who has secured a 2-year post-doctoral fellowship in rehabilitation health services research with funding application activities being included for this scope of action. Hence, after a further “contextualization” of these details, one elaborates into “funding options” for the period after that fellowship — focusing on QI, Knowledge Translation (KT), and implementation research on person-centeredness.

Contextualization of the funding requirements

The primary output of this doctoral project, i.e., the QI guide that was subject to a participatory development, already has been developed, appraised by potential end-users, and it is now ready to be disseminated as an users-centered KT tool, i.e., as a guide or educational manual built out of a synthesis of applicable theory and evidence as well as stated users’ preferences. As the participatory development activities have been completed, there are no remaining requirement for its funding.

By the same token, finding requirements for completing the evaluation plan (see chapter 4) are limited and in some cases none. For instance, an unaccomplished short-term outcome of this KT tool is a dissemination-related tool (i.e., to turn the QI guide known by and accessible to more OTs for possible use in QI practices, which would imply that the guide becomes well-praised in peer-review and reaches journal publication and/or a large congress presentation). With these regards, one of the dissemination venues is the 2022 congress of the World Federation of Occupational Therapists (see the chapter 6 on the dissemination plan and the submitted communication proposal). However, if this communication is accepted, this will not imply travel, accommodation, or attendee fees. All of these will be covered by a sponsorship of the World Federation of Occupational Therapists (WFOT), related to the student's design, conduct and presentation of another research project developed under the umbrella of the World Federation of Occupational Therapists.

Moreover, there are scientific journals which publish papers at no cost for the authors, hence funding may not be a requirement for this task, as well. Citation analyses are relatively simple and inexpensive to conduct, should one have library access to the used databases. Finally, systematic reviews or realist reviews are typically funded when commissioned or when part of (e.g., initial steps) larger, multi-stage and sometimes multi-component research projects. Hence, a specific funding application for its conduct may not be the most feasible, and its conduct should be designed to lag (i.e., provide enough time for the practice use of the guide).

Contextualization of the student's funding context

As important contextual information, the student has secured a post-doctoral fellowship in rehabilitation health services research, funded by the US National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) and administered through the Institute of Public Health and Medicine from the Northwestern University. This will provide the student with the following 2 years of protected time for research time in the Northwestern University and Shirley Ryan Ability Lab, formerly the Rehabilitation Institute of Chicago, i.e., a state-of-the-art translational rehabilitation research hospital which has been consecutively named as the top rehabilitation hospital in the US. The fellowship also included mentored research by leading rehabilitation health services research experts - including measurement and improvement experts. Coupled with the currently sponsored research for the World Federation of Occupational Therapists and current co-investigator roles on a funded research project (Pilot Research Grant - Duke Global Health Institute, see CV), there is no further cap space in terms of allowed time during the next two years for accommodating funded research projects framed out of the fellowship context.

Not the least, the fellowship activities will be directed to and culminate with the submission of an external research funding proposal. As the subject of that fellowship will be overall in building measurement and improvement capacity on person-centered aspects of service and care, including patient experiences, here we take the opportunity to articulate funding options for these further, probably multi-component and multi-stage funding proposals, out of the seminal QI guide here developed, or part of its components here organized.

Below, we delve into related options for funding application that could be used in two years and for the scope of the KT and QI activities on rehabilitation person-centeredness.

Suitable funding options

Among the NIDILRR funding programs, which are specific for disability and rehabilitation research, the Switzer Research Fellowship Program is the one that could best match the student's career development plan and allows for development in the intended scope of action.

Specifically, the Switzer Research Fellow Program is a one-year funding program with an award ceiling of $80,000 dollars (US$) and award floor of $70,000 dollars (US$). It is designed for individual researchers with relevant training and experience. The program aims to build research capacity by supporting highly qualified individuals to perform research on rehabilitation, independent living, and other experiences and outcomes of individuals with disabilities. The program includes two types of Fellowships: Merit Fellowships and Distinguished Fellowships. The Merit Fellowships are awarded to individuals in earlier stages of their research careers yet either with advanced professional training or experience in independent study in an area that is directly pertinent to disability and rehabilitation. In turn, the Distinguished Fellowships requires the individual to have seven or more years of research experience in subject areas, methods, or techniques relevant to disability and rehabilitation research, as well as a doctorate or other terminal degree or comparable academic qualifications. Here, the student can be eligible for either type. Currently, the student has 7 years of post-doctoral experience, and a track record of over 40 scholarly publications, most of which as first and corresponding author. For the Distinguished Fellowship, the application would be stronger after the 2-year post-doctoral fellowship at Northwestern University.

One example of a recent Switzer Research Fellow, in 2015, is the one of Dr. Alex Wong, an OT and once a postdoctoral fellow in the same position the student is now taking (then Assistant Professor of OT in the Washington University, and now Research Scientist and Associate Professor, Physical Medicine & Rehabilitation and Medical Social Sciences, Northwestern University). Dr. Wong was awarded with a grant for the investigation into the impact of patient engagement on outcomes of individuals with spinal cord injury at one-year post-injury. The student may, for example, apply with a project focused on investigating the impact of a coaching approach (Körner et al., 2018; Körner et al., 2017) supporting OTs or other frontline improvement champions wishing to apply the QI guide and achieve measurable improvement in rehabilitation person-centeredness and patient experiences.

Furthermore, it should be noted that the NIDILRR has other funding programs such as Field-Initiated Projects (FIP) Program, which fund larger and longer projects, and can be taken either as an alternative or as a subsequent funding solution after a successful completion of the Switzer Research Fellowship. The FIP program has an award ceiling of $200,000 dollars and addresses investigator-initiated research (typical FIP awards are three years in duration) intended to supplement NIDILRRs agency-directed research portfolio. These projects generate new knowledge through research or development on a smaller scale relative to the larger and center-based grants. This program can be, for example, suitable to test the implementation of the QI guide with a tailored mix of other improvement, implementation and scale-up strategies (Locock et al., 2020; Powell et al., 2015; Waltz et al., 2015), such as train-the-trainer activities, building cross-institutional learning collaboratives, audit and feedback, providing clinicians with a relay of real-time, digital and actionable data on the patient experiences, among others. Eligible applicants for this funding scheme are institutions of higher education, nonprofit organizations, and other organizations and/or agencies, hence an application here would be institutional.

Finally, the Disability and Rehabilitation Research Projects (DRRP) Program, the larger grant program of the NIDILRR has an award ceiling of $500,000 dollars for five-years projects and addresses the plan and conduct of research, demonstration projects, training, and related activities, including international activities, to develop methods, procedures, and rehabilitation technology that ultimately benefits individuals with disabilities. While unlikely to be the first option for further development in the measurement, QI and KT approaches (toward enhanced person-centeredness and optimized patient experiences through the rehabilitative journeys), this program can provide a funding opportunity toward translating any pilot acquired knowledge (obtained in a few settings, under funding support and protected conditions) into sustainable and spreadable KT and QI solutions and resources. It should be noted that this grant type includes a Knowledge Translation Program which fund conducting research activities to further understand factors influencing the KT process in disability and rehabilitation, to conduct research syntheses in areas where there is sufficient body of knowledge and value to stakeholders, the production of informational products and promote their use, and the contribution to the development of standards and infrastructure of KT in Disability and Rehabilitation.

For example, that program recently funded, at the student's post-doctoral site, a KT research program for the systematic development of materials and resources for patients' clinicians aimed at improving the use of standardized assessments in routine practice. This funding leverages the Rehabilitation Measures Database, developed under previous NIDILRR funding, as a KT resource to provide clinicians with summaries of assessment instruments. A similar multi-stage funding and development strategies can be developed on the scope of building resources and a user-friendly, web-based toolkit for the systematic measurement and improvement of rehabilitation person-centeredness and patient care experiences.

Finally, it should be noted that patient experiences with care have been important and increasingly monitored, for example through the surveys of the "Consumer Assessment of Healthcare Providers and Systems", which is program of the agency for Healthcare Research and Quality, with impact on the levels of patient reimbursement from Medicare, for example. This happens in addition to the impact on reputation, patient complaints, net promoter score, and patient recommendations for service providers which optimal or suboptimal patient experience have, which also have financial impacts for healthcare organizations (A. R. Boissy, 2020). Hence, large healthcare delivery institutions increasingly develop a strategic focus on improving the patient experience of care, and have deployed internal programs, board positions (e.g., Chief Experience Officer, for example at the Cleveland Clinic) and earmarked funds for the systematic monitoring and development of the patient experience of care (Bayer et al., 2021; A. R. Boissy, 2020).

The above means that large and/or innovation-oriented healthcare delivery organizations can also be a source of funding for approaches toward facilitation of the systematic measurement, improvement, and implementation of person-centered care approaches toward optimized patient experiences. Among them, for example, the Veterans Health Administration has been internally funding and scaling up activities toward a transformational change for person-centered care, notably through the Chicago's hub and using scientists with both Veterans Health Administration's and Northwestern University's affiliation (Bokhour et al., 2018). This can be another funding venue to be explored, and with scalable potential across a large health system. This may apply to other providers and providers networks, as well.

On another type of federal funding sources and mechanisms that could be relevant, the National Institutes of Health - National Center for Medical Rehabilitation Research (NCMRR) has one of its research priorities on “Person-Centered Measures, Real-World Outcomes”. NCMRR aims to develop scalable strategies and technologies to monitor person-centered outcomes, and one of the research program areas is on “Health Services Research”, which focuses on development, assessment, and impact of rehabilitation services. The different types of funding mechanisms from the National Institutes of Health apply (R Series for research project, P series research programs, etc) can also be used as an alternative for the same type of development processes noted above, even though most of these funds typically have a more clinical than health services research orientation. Of note, Career Development Awards from the National Institutes of Health that are awarded directly to individual researchers (e.g., K series) require US citizenship or permanent residency, which the student does not have, hence this type of grant mechanism — unlike the Switzer Fellowship — is out of reach.

The US Agency for Healthcare Research and Quality, which is more directly focused on health services delivery research and QI research, also has its own standard funding mechanisms, similar in structure to those of the National Institutes of Health, in addition to Funding Opportunity Announcements. Among the latter, and with an expiration date of July 18, 2024, there is for example an open funding opportunity announcement titled “Using Innovative Digital Healthcare Solutions to Improve Quality at the Point of Care (R21/R33 - Clinical Trial Optional)”, whose goal is to improve the quality of healthcare services delivery at the point of care and may include the use of Patient-Centered Digital Healthcare Technology (PC-DHT) as one type of Innovative Digital Healthcare Solutions. PC-DHT is used to capture patient-generated data, provide timely health information to inform decisions, and facilitate shared decision-making among patients and providers, which is an important component of person-centered care. Possibly an integrated, real-time (A. R. Boissy, 2020), digital-based system for the measurement, delivery, and improvement of person-centered rehabilitation and patient experience could be developed and entail elements of the QI guide embedded into that digital-based system that could be used by both patients and clinicians alike.

For funding specific to occupational therapy, the American Occupational Therapy Foundation (AOTF), most notably through the Health Services Research Grants, could also be a venue for funding of a further study of OT-led implementation of the QI guide. However, one should note that the website of the foundation has not been accessible (i.e., blocked) from outside of the US, hence one cannot delve into further details by the time the doctoral project was written. Other funding schemas from AOTF can also be considered once one could have access to the information.

Finally, on a smaller scale, in May 2021, the WFOT released the Call for Applications for the WFOT Thelma Cardwell Foundation Award for Research 2022, with a deadline to receive applications by 29 October 2021. The Thelma Cardwell Award is a competitive pilot research project award that funds small-scale feasibility program that can build and/or strengthen research capacity in Occupational Therapy. The maximum funding amount is $5.500 (US dollars), and calls typically exist every two years. The project applying to these funds must be an original idea, focused on one of the WFOT's research priorities such as evidence-based practice and knowledge translation, technology and occupational therapy; or occupational therapy professional issues, among others. The projects should be written with a maximum of two years of time. The funding can be used for human resources support, equipment, supplies, participation compensation, or technical assistance for an approved project.

Within this context, one could apply to such an award with a proposal of a small-scale feasibility study on the development of a web- and/or app-based version of the QI guide which should be made available also to a small sample of interested end-users for an appraised experience of navigating, learning from, and on using the web- or app-based version of the QI guide. In addition to the conversion of the contents of the existing guide, multi-modal communication forms (e.g., videos, interviews with experts and frontline practitioners) could be additionally provided as different types of learning and engaging materials. The bulk of funding would be for the technical assistance required to build a web-based and app-based application. Yet, as timeline for the application and execution of this award partly overlaps with the student's post-doctoral fellowship, this is any other grant/award application in the same conditions needs to be discussed, planned with, and approved by the fellowship mentors. An alternative would be to pursue this funding mechanisms in the next round, i.e., in the 2023's call.

Chapter five conclusion

As the QI guide has been developed and initially assessed during this doctoral project, with no funding requirements, there is no designated budget and funding plan for this purpose. Similarly, the remaining elements of the evaluation plan do not require specific budgets or funding mechanisms for being implemented, as planned.

Moreover, during the next two years, the student will be under a federally post-doctoral fellowship program - with own scientific and grant seeking requirements. The fellowship will broadly address the scope of the measurement and improvement of person-centered rehabilitation. Hence, this chapter was focused on exploring funding opportunities and possibilities mostly for being either sought or executed in a timeline no sooner than two years from this point on. The research possibilities explored were, therefore, for the most part related with external funding opportunities, which align with the expectations for grant seeking from the upcoming fellowship. The opportunities explored included small, medium and large-scale funding mechanisms, often of federal scope, that can be applied to different stages of fund seeking activities.

Finally, depending on the scale and source of funding, the funding proposals may not focus exclusively to further advance the QI guide or its presentation format, but on a broader KT approach which could additionally entail the application of active implementation strategies or the development of a more comprehensive toolkit of measurement and improvement resources on person-centered rehabilitation.

CHAPTER SIX

The dissemination plan is address in the chapter. In this doctoral project, we have used a knowledge synthesis approach and participatory process to develop a theory- and evidence-informed as well as user-centered QI guide enabling occupational therapy (OT)-led QI practices on Person-Centered Rehabilitation (PCR), in adult-based inpatient physical rehabilitation contexts.

The Dissemination Plan is crucial for this QI guide, as a Knowledge Translation (KT) tool. It cannot reach its goal of being influential in OT-led QI activities if it does not reach the target audience as potential end-users. While further developments such as the translation of the manual into web-based or app-based applications can turn the guide more intuitive and user-friendly, especially as part of a toolkit with related measurement and improvement resources, the QI guide can be useful in its current form as an educational manual. Hence, the QI tool in its current form is ready for dissemination.

Dissemination goals

Through the dissemination of QI guide, one hopes to achieve the following long-term goal:

- To enable theory- and evidence-informed OT-led QI processes on PCR that systematically improve the person-centeredness of adult-based inpatient physical rehabilitation services, as measured through the client’s voice.

For that to occur, a needed short-term goal can be articulated as it follows:

- The QI guide will be known, available, and accessible for use by frontline OTs, across national contexts.

Target audiences

In this context, the primary target audience are OTs with practice or management roles in adult-based inpatient physical rehabilitation services. The secondary target audience are OTs in general, including those working in other practice contexts or in academia, as well as broader physical rehabilitation stakeholders (e.g., health systems or services' administrators). OTs can also help disseminate the QI guide through their extended networks or through their academic activities, and non-OT stakeholders such a health services' administrators may help disseminate the QI guide thorough the OTs of their own organizations and/or recommend, endorse, or require its use for guiding QI activities, either ongoing or initiating.

Key messages by target audience

In terms of key messages, the ones for the primary target audience are as it follows:

- Delivering person-centered care and services is not optional, but a quality requirement. In addition to 'doing' care, frontline practitioners, including OTs, are increasingly required to develop systematic, effective QI activities within their service units, including adult-based inpatient rehabilitation services.

- By historical principles and skills, OTs are optimally positioned to drive QI activities on PCR, including in physical rehabilitation contexts. However, they need to rely on existing QI and PCR knowledge to do so. The QI guide being disseminated is freely accessible, and provides a relatively simple yet comprehensive synthesis of knowledge, translated into guidance for action. The QI guide also provide links to diverse external resources that OTs can use, in a discretionary way, for their locally tailored QI practices.
- Finally, the QI guide was subject to a participatory development process with a sample of eight OTs in frontline care delivery and/or service management roles, which helped to shape the structure and contents of the guide. The final QI guide was well praised overall, with every participant rating it as ‘likely’ or ‘very likely’ the possibility to use the guide to inform own QI practices and ‘likely’ or ‘very likely’ to recommend it to colleagues.

Additional key messages OTs overall are as it follows:

- The QI guide is a science-based KT product, i.e., based on a synthesis of evidence and theory, and was shaped by end-users’ preferences through a participatory development process.

- OTs in practice and service management roles in inpatient physical rehabilitation contexts might lead QI processes on PCR, yet they may need to be provided with a science-based guidance to do so. Hence, one can facilitate the spread of this freely available resource, e.g., the web link to it, for any colleagues possibly interested.

For OT academics in particular, one can add the following:

- Competencies for OT students and professionals to develop QI activities are increasingly required. The QI guide as a whole or specific resources within it, can be useful to drive either professional- or student-led QI activities, e.g., in fieldwork placements or as part of capstone work.

Finally, for health systems' or services' administrators in particular, one should emphasize that:

- Developing QI activities toward optimizing patient experiences and person-centered care is a quality requirement and increasingly part of organizational strategies.
- Specifically, this strategy can increase the quality of service, build cultures of improvement and of person-centeredness, and finally build reputation, drive costumers' loyalty and acquisition, and financial stability as a result.

- The science-based and user-centered QI guide being disseminated was designed to guide service-wide QI processes on PCR as led by frontline or service management OTs — whose professional principles have been historically aligned with person-centered care tenets.

With the messages previously described, it is always important to provide a direct, web-based link to the QI guide as well as to this doctoral project and any resultant scientific, peer-reviewed publication, as one of the dissemination activities described in the next section.

Dissemination activities and associated budget

As a science-based KT product, i.e., based on a synthesis of evidence, theory, and stated users' preferences, scientific dissemination venues are probably the most relevant, also as a means to provide a scientific, peer-review appraisal and a form of validation of the guide before it is accepted for publication or presentation to wider audiences in science-based dissemination channels. In this context, we plan to develop a two-pronged approach toward the dissemination activities of the current QI guide.

For the first dissemination strategy, we plan to present the work in at least one major OT congress or conference. For example, a proposal was submitted for an oral presentation of research for the 2022 Congress of the World Federation of Occupational Therapists (WFOT).

The WFOT Congress is held every four years and with a global outreach that may be relevant as an intended audience since the guide was developed to be applicable across national contexts. Also, its participatory development involved OTs from different countries and continents. In this context, and in response to a call for papers for the 2022 WFOT Congress, the oral presentation’s proposal was submitted under the following three congress themes: 1) Implementation science/knowledge translation; 2) Leadership, advocacy, and agents of change; and 3) Quality, effectiveness, and outcome measures. Fortunately, there are no costs or budgets associated with participating in the WFOT Congress. Indeed, the student has secured sponsorship for the attendance at the Congress both toward the conduct and presentation of another research project under the umbrella of the WFOT. Hence, there are no associated costs (e.g., registration fees, travel, accommodation) for an oral presentation at the 2022 Congress of the WFOT.

Complementary or alternative congress or conference presentation can also be sought, in part depending on the outcome of the abovementioned submission as well as the possibility of the student to attend alternative conferences under his 2-year fellowship period. For instance, while the presentation of the QI guide could be relevant for example in the AOTA annual conference, the cap space, including in terms of time available, for attending profession-specific conferences during the fellowship period is limited, and there is a priority to attending the largest inter-disciplinary Conference of the American Congress of Rehabilitation Medicine, for which the student’s fellowship cover any associated costs.

There is an opportunity for presenting the QI guide in the annual Conference of the American Congress of Rehabilitation Medicine, including for targeting secondary audience described above. However, that cannot be done during the 2021 Conference as the student already as an oral presentation as well as a symposium presentation in that same conference, leaving little room to accommodate other presentations. In turn, the 2022 Conference of American Congress of Rehabilitation Medicine can be a possibility for presenting the QI guide, possibly embedded in the scope of other related fellowship activities. As mentioned above, there are no specific costs for this dissemination activity as the presence of the student at the conference will be directly funded his fellowship, whether this is for the presentation of the QI guide or not.

On the second dissemination strategy, the QI guide and its participatory development process will be submitted to a peer-reviewed Occupational Therapy peer-reviewed journal or to a journal related to QI, human resources, management, or service delivery in the rehabilitation or broader health field, yet with at least a first submission attempt to an OT journal. The American Journal of Occupational Therapy, the Australian Journal of Occupational Therapy, The Canadian Journal of Occupational Therapy, the British Journal of Occupational Therapy, The Occupational Therapy in Health Care, the Occupational Therapy International are among the possibilities for a submission, although for example the American Journal of Occupational Therapy typically does not accept ‘intervention manuals’ for publication (American Journal of Occupational Therapy, 2020). However, the QI guide is not a manual of an ‘intervention’, but a guide for QI practices in the form of a KT tool or resource, additionally subject to a participatory development process – yet with only eight OT participants. The OT practice® magazine of the American Occupational Therapy Association could also be used toward the dissemination of the QI guide, yet the QI guide is intended to be disseminated as a science-driven too, hence other, research-focused dissemination venues may be more appropriate.

We will seek primarily subscription-based journals, without publication fees, for no budget implications. While the peer-reviewed publication may not be accessible to all potential end-users through this mechanism, the QI guide itself will. For example, we will submit the QI guide itself (not the peer-reviewed publication) for the Open Science Framework, which is an online and open repositorium of research-based data and resources. Also, we will submit the pre-publication version of the research manuscript to an open and online preprint database, among the many that exist (e.g., Preprints, MedRxiv, OSF preprints). Finally, the QI guide can be accessible here through the doctoral project report through the ProQuest database, for example. Links to these resources will be provided both in the peer-reviewed publication and the Congress or Conference presentations.

As for other dissemination activities, the Center on Knowledge Translation for Disability & Rehabilitation Research at American Institutes for Research has been collating resources for a KT Strategies Database. This KT Strategies Database is a searchable database that brings together research on KT tools and strategies and includes articles that address approaches to translating, disseminating, and utilizing knowledge. Importantly, suggestions for contributions to the database are accepted. Therefore, one can submit the QI guide to this database as well as its peer-review publication, for the guide to become available in this specific KT database for the rehabilitation field. Through this dissemination mechanism, the QI guide could be accessible including to a range of non-OT stakeholders, also at no cost.

To complement these dissemination strategies, the authors can send the QI guide out through their own personal and professional extended networks, taking benefit of their own social capital across the target populations, within and outside the OT stakeholders. This dissemination strategy both for their own use and for starting a snowballing dissemination procedure. As these acquaintances entail a large and diverse type of stakeholders, across nations, this can turn the QI guide more widely disseminated. For instance, any acquainted faculty members can include the QI guide in their educational or curriculum materials, thereby turning it available to many students and professionals through this snowballing mechanism. There are no associated costs to this strategy focused on spreading the word out, e.g., through email, and the Fact Sheet of this doctoral project can be used as information to be sent along.

Sources and messengers

For the primary audience as well as for OT overall, including academics, given that a scientific OT journal accepts the QI guide through their scientific dissemination channels provides an institutional source of credibility regarding the QI guide and the method used toward its development. However, the publication doesn’t necessarily represent an endorsement. The academic mentor of this work has an undeniable social capital within the OT profession, both by the academic, scientific, and editorial track record as well as by being a former president of the AOTA, which provides a level of credibility and perceived credibility to the QI guide she has supervised.

Furthermore, part of the input for the development of the QI guide is grounded in a couple of perspective papers published in the American Journal of Occupational Therapy, most notably by one common author, Dr. Amy Lamb, who also is a past president of the AOTA. One can also reach out with Dr. Lamb and try to obtain either endorsement or collaboration in the dissemination activities on the QI guide, through multi-modal means, e.g., video to be shown or whose link can be shown in conference presentations.

For non-OT stakeholders in the physical rehabilitation field, the own student already owns some social capital, which can be used in the presentation of the QI guide and related activities such as in the annual conference of the American Congress of Rehabilitation Medicine.

However, more importantly, if the QI guide are used into practice in the Shirley Ryan Ability Lab (formerly the Rehabilitation Institute of Chicago), named for 30 years in a row the best rehabilitation hospital in the USA, an American Congress of Rehabilitation Medicine’s congress presentation of its use with this institution as an ‘early adopter’ can provide a great stimulus for others to follow this practice leader (Rogers, 2003).

Evaluation of the dissemination activities

For the dissemination activities focused on a major congress presentation, the first indicator of success is the acceptance for an oral presentation and the actual delivery of such oral presentation. Although alternatives can or may need to apply in case of unsuccessful submission, there is special focus on the WFOT's 2022 Congress for an OT-based audience, and the Annual Conference of the Rehabilitation Medicine for non-OT stakeholders - even though many OTs and OT researchers attend that interdisciplinary conference, as well.

For the peer-reviewed publication, it will be a primary indicator of success to have the QI guide and its development process disseminated through a scientific journal with a focus on OT. Scientific publications are usually not repeated in other scientific journals or in magazines that focus on original content such as the OT practice®.

Perhaps more importantly, for the whole set of dissemination activities, one can for example measure how many times the QI guide gets reported or cited in the scientific and grey literature as a resource used to guide OT-led QI practices. One can also do it so for the reported perceptions of feasibility and usefulness by those using guide, and for the reported outcomes of those using this QI guide. The chapter 4, on an evaluation plan, provides further details on these approaches, because the evaluation of the QI guide is intrinsically linked to the evaluation of its dissemination.

Chapter six conclusion

The dissemination of the QI guide, as a KT tool, is key for both its use and assessment of usefulness, feasibility, and pragmatic effectiveness - in real-world practice contexts. A peer-reviewed publication will be sought both as a means to provide scientific credibility to the QI guide as well as a key dissemination vehicle in itself. In turn, an oral presentation in a major OT congress has been sought, with a proposal already submitted to the WFOT’s Congress, 2022. If accepted, the in-person delivery of this presentation will be feasible as there will be no associated costs in terms of registration fees, travel, or accommodation contexts – provided that these are covered by another project of the student being conducted on the WFOT’s behalf. Snowballing dissemination strategies as well as the submission of the peer-reviewed QI guide to a KT database in the rehabilitation field are complementary strategies in the dissemination of the QI guide here developed.

CONCLUSION

Physical rehabilitation services are not person-centered as much as they could be, and occupational therapy practitioners (OTPs) should take over leading roles for its improvement. The purpose of this doctoral project was to develop a user-centered as well as theory- and evidence-based Quality Improvement (QI) guide enabling OTPs in the leading of interprofessional QI processes on person-centered rehabilitation (PCR), within ‘their’ own adult-based inpatient physical rehabilitation settings.

Toward building the QI guide, we have synthesized applicable evidence, theory, and resources of the QI science and of the PCR literature. Moreover, we engaged into a user-centered, participatory development of the QI guide, involving a small, international sample (n= 8) of potential end-users (i.e., occupational therapists in frontline practice or service management roles), to turn the guide responsive to end-users’ preferences. The participatory development process has been completed and the resultant QI guide is presented in the **Appendix A**.

The participatory process involved three rounds of web-based surveys, the first conducted before the first draft of the QI guide - focused on preference-sensitive design features for the QI guide. The second web-based survey provided a mixed-methods formative evaluation of the first draft of the QI guide, including qualitative improvement suggestions. The last web-based survey consisted of a single Likert-type rating on the value and adequacy of the guide, and on ratings on the likelihood of use of the guide and likelihood of recommending the guide to colleagues.

Six out of eight participants considered that they were very likely to use of the QI guide and have rated the value and adequacy of the guide as “9” or “10” in a 1–10 scale — usually understood in marketing principles as active promoter scores. Qualitative comments in turn emphasized, for example, the value of having the needed resources in one place.

The QI guide and its development process will be submitted to peer-reviewed publication and an oral communication proposal was already submitted to the World Federation of Occupational Therapy’s Congress, 2022, which the student will be attending.

In conclusion, here we have developed a guide enabling OTPs-led interprofessional QI processes on PCR in adult-based inpatient rehabilitation settings. The QI guide, in the form of a knowledge translation tool, was subject to a participatory development, was well praised by the sample of potential end-users who participated in its development, is ready to use, and is freely accessible in the **Appendix A** and in the following link from the Open Science Framework: https://osf.io/xzgpe/.

EXECUTIVE SUMMARY

Person-centered care principles are increasingly required for guiding healthcare organization and service delivery practices, including in physical rehabilitation contexts. However, substantial evidence-based literature shows that physical rehabilitation services are all too often provider-centered. Quality Improvement (QI) activities, led by frontline staff, can help turn physical rehabilitation services more person-centered. As person-centered care principles are core tenets of occupational therapy (OT), occupational therapy practitioners (OTPs) are optimally positioned to lead systematic improvement in the person-centeredness of physical rehabilitation services. If they do so, they would be taking on leadership roles advocated for profession. However, OTPs may need to be equipped with the resources from the QI science and recent research on person-centered rehabilitation (PCR).

The purpose of this doctoral project was to develop a user-centered as well as theory- and evidence-based QI guide (i.e., a knowledge translation (KT) tool) enabling OTPs in the leading of interprofessional QI journeys on adult-based PCR) – within the inpatient physical rehabilitation settings they work for. Toward building that guide, we synthesized and integrated the evidence, theory, and resources of the QI science and PCR literature, including research that has involved OTPs as participants. Furthermore, we performed a user-centered, participatory development of the QI guide, to turn it responsive to the design and content preferences of a small, international sample (n= 8)

of potential end-users; that is, OTs in frontline practice or service management roles. The participatory development process has been completed and the resultant QI guide is available in the **Appendix A**.

In this doctoral project, we have systematically searched the evidence-based literature to support an explanatory model of why physical rehabilitation services are not person-centered as much as they could be. We found substantive support on the problem statement, including in four systematic reviews. Also, we have found substantiative empirical support for the lack of practitioners' capability (e.g., knowledge, skill, confidence, motivation) to deliver person-centered care approaches. Moreover, we have found substantive empirical support on the influence of macro- and micro-system variables (e.g., organizational support, teamwork functioning) on the ability of whole teams to deliver a person-centered service and care. Finally, a systematic search of the evidence-based literature has found neither OT-led QI activities on person-centered rehabilitation nor a guide or other KT tool synthesizing information on how to do so. Hence, the hypothesis of an absence of QI activities on PCR or an underlying guide for informing those improvement activities was supported by the literature searches.

Nonetheless, in the searches conducted, we have found empirical literature on related activities (e.g., capacity building for KT in OT departments; improvement activities that involved OT as participants), which were partly related with our subject. The resultant information was narratively synthesized per included paper, then thematically synthesized across papers toward providing key insights for the design of QI guide. The Table 1 of the QI guide (**Appendix A**) details how the insights from each paper have contributed to the design of the guide, notably the newly-built action model guiding OTPs on the ‘how’ of leading QI processes on PCR. That new model was labelled as “IMProvements in Person-Centered Rehabilitation: an ACTion model for QI journeys (*PCR-ImpAct*)”.

The *PCR-ImpAct* was also informed by key theories or frameworks from the QI and implementation science such as the Behavior Change Wheel model, the Consolidated Framework for Implementation Research, and the Model of Improvement, among others. How these and other frameworks have contributed to the development of the *PCR-ImpAct* is detailed in the **Appendix L**. Additionally, the design of overall QI guide was also theoretically informed; for example, its “why, what, and how” structure was derived from the Adult Learning theory principles. The chapter 3 details how this and other theories (e.g., complex adaptive systems) influenced the development of the QI guide.

Furthermore, several resources from the QI science as well as research on PCR approaches were used in the development of the QI guide. For example, many of these resources have collated, synthesized, organized by topic, and displayed in the multi-page Table 2 of the QI guide (**Appendix A**), which display resources OTs can use through their improvement activities in a discretionary way.

In turn, the “why” section of the QI guide was developed mostly based on the evidence synthesized in the chapters 1 and 2, e.g., evidence supporting the explanatory model of the problem. Finally, a recently published model of PCR (PCR Model), derived from a comprehensive scoping review, was used a gold standard for the “what” section of the QI guide, notably on what PCR means in concept and entails in practice. The

Annexure 1 provides the preprint version of that model and paper, provided that is published version is under an embargo period.

Finally, in addition to theory- and evidence-informed, the QI guide was shaped through a participatory development process. After ethics approval (**Annexure 2**), the participatory process was conducted and consisted of three rounds of web-based, mixed-methods surveys with a sample of potential end-users, i.e., OTs in frontline service or managing roles, yet with no relationships with the Boston University. From a snowballing procedure, which started from the student's and academic mentor's personal and professional networks, emails were sent to colleagues by those in these networks, with a recruitment information sheet and the contact details of the student for those interested to take part.

During the COVID-19 pandemic, a total of eight OTs, from three different countries (one from Denmark, two from The Netherlands, and five from the USA), showed interest and took part in the process, volunteering their time. There were no dropouts. Among the participants, all women, the median number of years of OT practice was 11, and three of them had formal service management roles.

The first web-based survey (**Appendix G**), conducted before the first draft of the QI guide, focused on quantitative ratings on preference-sensitive design features for the QI guide, as well as qualitative design suggestions. The analysis of these data revealed, for example, a great level of agreement with a "why, what, and how" structure, the need to keep the written content in no more than 20 pages (e.g., excluding references, supportive tables, or diagrams).

The second web-based survey (**Appendix H**), in turn, referred to a mixed-methods formative evaluation of the initial draft of the QI guide, which included quantitative ratings for example on the clarity of the guide and the value of different components, as well as room for qualitative improvement suggestions. A table of contents and a glossary of terms were included as a result, in addition to other edits detailed in the chapter 3.

The third and final web-based survey (**Appendix I**) consisted of a single Likert-type rating on the value and adequacy of the guide, and on ratings on the likelihood of use of the guide as well as the likelihood of recommending the use of the guide to colleagues.

Six out of eight participants considered that they were ‘very likely’ to use the QI guide and rated its value and adequacy as either “9” or “10” in a 1-to-10 scale. Qualitative comments for example emphasized the value of having all the needed resources in one place. Recommendations for further advances included the possibility to develop a web- or app-based platform for the QI guide.

As the QI guide was developed and initially appraised, part of its evaluation plan has been conducted. As a KT tool, the focus on its evaluation plan, detailed in the Chapter 4, has been on the dissemination outcomes and on outcomes of the use of the QI guide in ‘real’ practice contexts. For example, the long-term outcome focused on reviewing, through a mixed-methods systematic review or realist review, the reported uses of the QI guide, synthesizing the reported impacts for example on the patients’ perceptions of person-centeredness and/or on the patient experience of care.

Furthermore, as the QI guide has been developed, there were no specific funding requirements for its development. Also, the student is now taking a 2-year, federally-funded fellowship in rehabilitation services research that address the issues of the measurement and improvement of PCR. In this context, in the funding plan’s chapter, several external research funding options were explored mostly with an outlook for no sooner than two years and envisioning broader KT, measurement, improvement and implementation research approaches or toolkits, including the features of the QI guide.

Finally, the dissemination plan of the QI guide entails the submission to a peer-reviewed publication, especially an OT-focused journal, to provide scientific credibility to the QI guide as well as to be a dissemination vehicle itself. An oral presentation in a major OT conference also has been sought, with a proposal submitted to the 2022 World Federation of Occupational Therapists Congress. Among other activities, the dissemination plan also includes the possibly to present the QI guide to broader physical rehabilitation stakeholders, most notably at the annual conference of the American Congress of the Rehabilitation Medicine.

In conclusion, using applicable evidence, theory as well as a participatory development process, we have built a QI guide, in the form of a user-centered KT tool, enabling and empowering OTPs in the leading of QI processes - in adult-based inpatient physical rehabilitation contexts they work for. The design of the QI guide was responsive to design preferences and formative mixed-methods feedback of a small sample (*n*= 8) of international potential end-users. The tool was finally appraised as very likely to be used by most (six out of eight) of the potential end-users. Having the needed resources into one place was one of the most valuable features. The QI guide is freely accessible, ready to use, subject to a participatory development, and was well praised by a sample of OTPs.

APPENDIX A

The different files that altogether comprise Appendix A (i.e., the QI guide) can be freely downloaded at the following Open Science Framework page: https://osf.io/xzgpe/

Appendix B – Search reports

For each of the 4 hypotheses formulated in the chapter 2, including the problem statement and the 3 main determinants of the explanatory model, we have performed a comprehensive search to understand how much the evidence or peer-reviewed literature support each of the hypotheses. The respective search reports of each are provided below.

Search Report – Search Question # 1

Student Name: Tiago Jesus

Question:

On the Problem Statement:

1. Is there recent evidence that physical rehabilitation services and care are often provider-centric (or not person-centered as much they could be) as perceived by patients or significant others?

Databases searched and rationale:

I used PubMed and CINAHL as databases for the initial searches.

PubMed is a major health sciences database with a comprehensive indexation system for Medical Subject Headings, including “Patient-Centered Care”[MeSH]. The MeSH-based indexation system of PubMed has been used to map publication trends in the physical rehabilitation literature (Colquhoun et al., 2017; Jesus, 2016; Jesus, Bright, Kayes, & Cott, 2016; Jesus et al., 2019; Jesus & Colquhoun, 2018; Jesus, Hoenig, & Landry, 2020; Mimouni et al., 2016; Negrini et al., 2019). Therefore, toward building our search strategy in PubMed, one could rely on published search filters specifically designed to locate articles with physical rehabilitation content in PubMed, with a focus on empirical study types (Jesus, 2016; Jesus et al., 2020).

CINAHL complements PubMed/Medline due its more specific focus on the nursing and the allied health literature, i.e., it is less generalist than PubMed.

PsychINFO database, which is specific to psychological literature, was not included. It can provide results predominantly pertaining to the Rogerian, client-centred approach to psychotherapy, which isn’t relevant for this study.

Scopus and Web of Science are generalist databases that may had little for this study in relation to PubMed. In turn, EMBASE, another major health database, adds to PubMed essentially in the biomedical/pharmaceutical literature, which is not relevant for this study.

Search strategy and terms employed:

PubMed/MEDLINE

("Patient-Centered Care"[Majr] OR person cent*[All fields] OR client cent*[All fields] OR patient cent*[All fields] NOT "Person-Centered Psychotherapy"[Mesh]) **AND** ("rehabilitation"[Subheading] OR "Rehabilitation"[Majr] OR "Physical Therapy Specialty"[Majr] OR "Physical Therapy Modalities"[Majr] OR "Physical Therapy Department, Hospital"[Majr] OR "Hospitals, Rehabilitation"[Majr] OR "Physical Therapist Assistants"[Majr] OR "Physical Therapists"[Majr] OR "Physical and Rehabilitation Medicine"[Majr] OR "Rehabilitation Nursing"[Majr] OR "Occupational Therapists"[Majr] OR "Occupational Therapy Department, Hospital"[Majr] OR "Occupational Therapy"[Majr] OR "Speech-Language Pathology"[Majr] OR "Rehabilitation Centers"[Majr] OR "Rehabilitation Research"[Majr] NOT "Correction of Hearing Impairment"[Mesh] NOT "Substance Abuse Treatment Centers"[Mesh] NOT "Mouth Rehabilitation"[Mesh] NOT "Mental Disorders"[Mesh] NOT "United States Substance Abuse and Mental Health Services Administration"[Mesh] NOT "National Institute of Mental Health (U.S.)"[Mesh] NOT "Mental Health Services"[Mesh] NOT "Mental Health Associations"[Mesh] NOT "Community Mental Health Services"[Mesh] NOT "Community Mental Health Centers"[Mesh] NOT "Rehabilitation, Vocational"[Mesh] NOT "Sheltered Workshops"[Mesh] NOT "Psychiatric Nursing"[Mesh] NOT "Mental Health Recovery"[Mesh] NOT "Psychiatric Rehabilitation"[Mesh]) **AND** ("Study Characteristics" [Publication Type] OR "Support of Research" [Publication Type] OR "Guideline" [Publication Type] OR "Empirical Research"[MeSH] OR (Review[ptyp] AND systematic[tw] AND systematic[sb]) OR "Cochrane Database Syst Rev"[Journal] OR (“systematic review”[ti] OR “scoping review”[ti] OR “realist review”[ti])) **AND** ("humans"[MeSH Terms]) AND English[lang] AND “adult”[MeSH Terms]

An initial search, adding date limits since 2010 and conducted in February 20, 2020, yielded 626 records. Then, we narrowed the date limit for articles published from 2015 onwards, and retrieved 381 entries which were the ones exported to an EndNote file.

CINAHL

(SU Patient Centered Care OR SU Person Centered Care OR SU Person Centred Care OR SU Client Centered Care OR SU Person Centred Care) **AND** (SU rehabilitation OR SU occupational therapy OR SU Physical Therapy OR SU speech language OR SU rehabilitation centers)

Limiters - Published Date: 20150101-20201231; English Language; Peer Reviewed; Research Article; Exclude MEDLINE records; Human
Expanders - Apply related words; Also search within the full text of the articles; Apply equivalent subjects
Narrow by Language: - English
Search modes - Boolean/Phrase

An initial search, with date limits since 2010 and conducted on February 20, 2020, yielded 217 records. Of note, these records already exclude (i.e., are additional to) the MEDLINE records. Then, we narrowed the date limit for articles published from 2015 onwards, and retrieved 132 entries which were exported to the same EndNote file containing the records above.

Finally, we copied all the references selected from a recent scoping review on adult person-centered rehabilitation that were published from 2010 onwards (n= 129) for the EndNote file above (Jesus et al., 2019). After all duplicates have been removed, 572 unique records were kept

Process and criteria used to select articles for review:

It was applied a Level 1 screening (titles and abstracts) and then Level 2 screening (full text review). From the 18 articles selected for full-text review, a total of 8 were finally retained. The final inclusion criteria, hierarchical in type, were: 1) systematic review addressing issues and including papers on whether person-centered care or components of it (e.g. person-centered goal-setting, shared decision-making with explicit links to person-centered care), as explicitly stated, were or have been implemented into practice or by how much as perceived by patients or significant others – alone or compared against the perspective of providers; 2) Qualitative or quantitative studies addressing the issues above, notably those not included into systematic reviews we have retained.

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Search Report – Search question # 2

Student Name: Tiago Jesus

Question: 2. Is there evidence that physical rehabilitation practitioners lack the capability (e.g., knowledge, skills, intention, habits, or confidence) to deliver person-centered services and care, or that they need or benefit from education, training, Quality Improvement (QI) or implementation activities to do so?
Databases searched and rationale: I used PubMed and CINAHL as databases for the initial searches. PubMed is a major health sciences database with a comprehensive indexation system for Medical Subject Headings, including “Patient-Centered Care”[MeSH]. The MeSH-based indexation system of PubMed has been used to map publication trends in the physical rehabilitation literature (Colquhoun et al., 2017; Jesus, 2016; Jesus, Bright, Kayes, & Cott, 2016; Jesus et al., 2019; Jesus & Colquhoun, 2018; Jesus, Hoenig, & Landry, 2020; Mimouni et al., 2016; Negrini et al., 2019). Therefore, toward building our search strategy in PubMed, one could rely on published search filters specifically

designed to locate articles with physical rehabilitation content in PubMed, with a focus on empirical study types (Jesus, 2016; Jesus et al., 2020).

CINAHL complements PubMed/Medline due its more specific focus on the nursing and the allied health literature, i.e., it is less generalist than PubMed.

PsychINFO database, which is specific to psychological literature, was not included. It can provide results predominantly pertaining to the Rogerian, client-centred approach to psychotherapy, which isn't relevant for this study.

Scopus and Web of Science are generalist databases that may had little for this study in relation to PubMed. In turn, EMBASE, another major health database, adds to PubMed essentially in the biomedical/pharmaceutical literature, which is not relevant for this study.

Search strategy and terms employed:

PubMed/MEDLINE

("Professional Competence"[Majr] OR "Clinical Competence"[Majr] OR "Quality Improvement"[Majr] OR "Quality Improvement"[All fields] OR "Capacity Building"[Majr] OR "Diffusion of Innovation"[Majr] OR "Implementation Science"[Majr] OR "implementation" [ti] OR "education" [Subheading] OR "Education"[Majr] OR "Inservice Training"[Majr] OR "Staff Development"[Majr] OR "Learning"[Majr]) **AND** ("Patient-Centered Care"[Majr] OR person cent*[All fields] OR client cent*[All fields] OR patient cent*[All fields] NOT "Person-Centered Psychotherapy"[Mesh]) **AND** ("rehabilitation"[Subheading] OR "Rehabilitation"[Majr] OR "Recovery of Function"[Majr] OR "Physical Therapy Specialty"[Majr] OR "Physical Therapy Modalities"[Majr] OR "Physical Therapy Department, Hospital"[Majr] OR "Hospitals, Rehabilitation"[Majr] OR "Physical Therapist Assistants"[Majr] OR "Physical Therapists"[Majr] OR "Physical and Rehabilitation Medicine"[Majr] OR "Rehabilitation Nursing"[Majr] OR "Occupational Therapists"[Majr] OR "Occupational Therapy Department, Hospital"[Majr] OR "Occupational Therapy"[Majr] OR "Speech-Language Pathology"[Majr] OR "Rehabilitation Centers"[Majr] OR "Rehabilitation Research"[Majr] NOT "Correction of Hearing Impairment"[Mesh] NOT "Substance Abuse Treatment Centers"[Mesh] NOT "Mouth Rehabilitation"[Mesh] NOT "Mental Disorders"[Mesh] NOT "United States Substance Abuse and Mental Health Services Administration"[Mesh] NOT "National Institute of Mental Health (U.S.)"[Mesh] NOT "Mental Health Services"[Mesh] NOT "Mental Health Associations"[Mesh] NOT "Community Mental Health Services"[Mesh] NOT "Community Mental Health Centers"[Mesh] NOT "Rehabilitation, Vocational"[Mesh] NOT "Sheltered Workshops"[Mesh] NOT "Psychiatric Nursing"[Mesh] NOT "Mental Health Recovery"[Mesh] NOT "Psychiatric Rehabilitation"[Mesh]) **AND** ("Study Characteristics" [Publication Type] OR "Support of Research" [Publication Type] OR "Guideline" [Publication Type] OR "Empirical

Research"[MeSH] OR "Epidemiologic Methods"[MeSH] OR (Review[ptyp] AND systematic[tw] AND systematic[sb]) OR "Cochrane Database Syst Rev"[Journal] OR (“systematic review”[ti] OR “scoping review”[ti] OR “realist review”[ti])) **AND** ("humans"[MeSH Terms]) AND English[lang] AND “adult”[MeSH Terms]

An initial search, with date limits since 2010 and conducted on March 14, 2020, yielded 120 records, which were exported to an EndNote file.

CINAHL

(SU Competence OR SU Quality Improvement OR SU Capacity OR SU Implementation OR SU Education OR Training) **AND** (SU Patient Centered Care OR SU Person Centered Care OR SU Person Centred Care OR SU Client Centered Care OR SU Person Centred Care) **AND** (SU rehabilitation OR SU occupational therapy OR SU Physical Therapy OR SU speech language OR SU rehabilitation centers)

Limiters - Published Date: 20100101-20201231; English Language; Peer Reviewed; Research Article; Exclude MEDLINE records; Human; Age Groups: All Adult

Expanders - Apply related words; Also search within the full text of the articles; Apply equivalent subjects

Narrow by SubjectAge: - all adult

Narrow by Language: - English

Search modes - Boolean/Phrase

A search, with date limits since 2010 and conducted on March 14, 2020, yielded 69 records. Of note, these records already exclude (i.e., are additional to) the MEDLINE records. The 69 entries which exported to the same EndNote file containing the records above.

Finally, we copied all the references selected from a recent scoping review on adult person-centered rehabilitation that were published from 2010 onwards (n= 129) for the EndNote file above (Jesus et al., 2019). After all duplicates have been removed, 305 unique records were kept

Process and criteria used to select articles for review:

It was applied a Level 1 screening (titles and abstracts) and then Level 2 screening (full text review). From the 16 articles selected for full-text review, a total of 7 were finally retained. The inclusion criterion was research articles (qualitative, quantitative, or mixed-methods) that either evaluate in-service training programs or activities for person-centered care in physical rehabilitation contexts or evaluate the capability (e.g. skills, habits, mindset) of rehabilitation practitioners for performing person-centered care roles with a discussion of implications for training. Systematic reviews are included if they have specific results on staff’s capability, perceived capability, or on improvements in person-centeredness of physical rehabilitation care as a result of in-service training programs or activities.

References:

Colquhoun, H. L., Jesus, T. S., O'Brien, K. K., Tricco, A. C., Chui, A., Zarin, W., Lillie, E., Hitzig, S. L., & Straus, S. (2017). Study protocol for a scoping review on rehabilitation scoping reviews. *Clin Rehabil*, *31*(9), 1249-1256. https://doi.org/10.1177/0269215516688514

Jesus, T. S. (2016). Systematic Reviews and Clinical Trials in Rehabilitation: Comprehensive Analyses of Publication Trends. *Arch Phys Med Rehabil*, *97*(11), 1853-1862.e1852. https://doi.org/10.1016/j.apmr.2016.06.017

Jesus, T. S., Bright, F., Kayes, N., & Cott, C. A. (2016). Person-centred rehabilitation: what exactly does it mean? Protocol for a scoping review with thematic analysis towards framing the concept and practice of person-centred rehabilitation. *BMJ Open*, *6*(7), e011959. https://doi.org/10.1136/bmjopen-2016-011959

Jesus, T. S., Bright, F. A., Pinho, C. S., Papadimitriou, C., Kayes, N. M., & Cott, C. A. (2019). Scoping review of the person-centered literature in adult physical rehabilitation. *Disabil Rehabil*, 1-11. https://doi.org/10.1080/09638288.2019.1668483

Jesus, T. S., & Colquhoun, H. L. (2018). Publication trends of study protocols in rehabilitation. *Eur J Phys Rehabil Med*, *54*(5), 785-791. https://doi.org/10.23736/s1973-9087.17.04858-4

Jesus, T. S., Hoenig, H., & Landry, M. D. (2020). Development of the Rehabilitation Health Policy, Systems, and Services Research field: Quantitative Analyses of Publications over Time (1990-2017) and across Country Type. *Int J Environ Res Public Health*, *17*(3). https://doi.org/10.3390/ijerph17030965

Mimouni, M., Cismariu-Potash, K., Ratmansky, M., Shaklai, S., Amir, H., & Mimouni-Bloch, A. (2016). Trends in Physical Medicine and Rehabilitation Publications Over the Past 16 Years. *Arch Phys Med Rehabil*, *97*(6), 1030-1033. https://doi.org/10.1016/j.apmr.2015.10.102

Negrini, S., Levack, W., Gimigliano, F., Arienti, C., Villafane, J. H., & Kiekens, C. (2019). The Struggle for Evidence in Physical and Rehabilitation Medicine: Publication Rate of Randomized Controlled Trials and Systematic Reviews Is Growing More Than in Other Therapeutic Fields. *Am J Phys Med Rehabil*, *98*(4), 258-265. https://doi.org/10.1097/phm.0000000000001058

Search Report – Search question # 3

Student Name: Tiago Jesus

Question:

3. Is there evidence that macrosystem (e.g., organizational culture, policies, programs and practices) or micro-system variables (e.g., teamwork, physical space, office staff) directly affect or otherwise moderate (i.e., facilitate or hinder, lessen or strengthen) the delivery of person-centered physical rehabilitation services and care?

Databases searched and rationale:

I used PubMed and CINAHL as databases for the initial searches.

PubMed is a major health sciences database with a comprehensive indexation system for Medical Subject Headings, including “Patient-Centered Care”[MeSH]. The MeSH-based indexation system of PubMed has been used to map publication trends in the physical rehabilitation literature (Colquhoun et al., 2017; Jesus, 2016; Jesus et al., 2016; Jesus et al., 2019; Jesus & Colquhoun, 2018; Jesus et al., 2020; Mimouni et al., 2016; Negrini et al., 2019). Therefore, toward building our search strategy in PubMed, one could rely on published search filters specifically designed to locate articles with physical rehabilitation content in PubMed, with a focus on empirical study types (Jesus, 2016; Jesus et al., 2020).

CINAHL complements PubMed/Medline due its more specific focus on the nursing and the allied health literature, i.e., it is less generalist than PubMed.

PsychINFO database, which is specific to psychological literature, was not included. It can provide results predominantly pertaining to the Rogerian, client-centred approach to psychotherapy, which isn’t relevant for this study.

Scopus and Web of Science are generalist databases that may had little for this study in relation to PubMed. In turn, EMBASE, another major health database, adds to PubMed essentially in the biomedical/pharmaceutical literature, which is not relevant for this study.

Search strategy and terms employed:

PubMed/MEDLINE

"Organization and Administration"[Majr] OR "Health Services Administration"[Majr] OR "Patient Care Team"[Major] **AND** ("Patient-Centered Care"[Majr] OR person cent*[All fields] OR client cent*[All fields] OR patient cent*[All fields] NOT "Person-Centered Psychotherapy"[Mesh]) **AND** ("rehabilitation"[Subheading] OR "Rehabilitation"[Majr] OR "Recovery of Function"[Majr] OR "Physical Therapy Specialty"[Majr] OR "Physical Therapy Modalities"[Majr] OR "Physical Therapy Department, Hospital"[Majr] OR "Hospitals, Rehabilitation"[Majr] OR "Physical Therapist Assistants"[Majr] OR "Physical Therapists"[Majr] OR "Physical and Rehabilitation Medicine"[Majr] OR "Rehabilitation Nursing"[Majr] OR "Occupational Therapists"[Majr] OR "Occupational Therapy Department, Hospital"[Majr] OR "Occupational Therapy"[Majr] OR "Speech-Language Pathology"[Majr] OR "Rehabilitation Centers"[Majr] OR "Rehabilitation Research"[Majr] NOT "Correction of Hearing Impairment"[Mesh] NOT "Substance Abuse Treatment Centers"[Mesh] NOT "Mouth Rehabilitation"[Mesh] NOT "Mental Disorders"[Mesh] NOT "United States Substance Abuse and Mental Health Services Administration"[Mesh] NOT "National Institute of Mental Health (U.S.)"[Mesh] NOT "Mental Health Services"[Mesh] NOT "Mental Health Associations"[Mesh] NOT "Community Mental Health Services"[Mesh] NOT "Community Mental Health Centers"[Mesh] NOT "Rehabilitation, Vocational"[Mesh] NOT "Sheltered Workshops"[Mesh] NOT "Psychiatric Nursing"[Mesh] NOT "Mental Health Recovery"[Mesh] NOT "Psychiatric Rehabilitation"[Mesh]) **AND** ("Study Characteristics" [Publication Type] OR "Support of Research" [Publication Type] OR "Guideline" [Publication Type] OR "Empirical Research"[MeSH] OR "Epidemiologic Methods"[MeSH] OR (Review[ptyp] AND systematic[tw] AND systematic[sb]) OR "Cochrane Database Syst Rev"[Journal] OR (“systematic review”[ti] OR “scoping review”[ti] OR “realist review”[ti])) **AND** ("humans"[MeSH Terms]) AND English[lang] AND “adult”[MeSH Terms]

An initial search, with date limits since 2010 and conducted on March 20, 2020, yielded 348 records, which were exported to an EndNote file.

CINAHL

(SU organizational structure OR SU organizational culture OR SU organizational change OR SU organizational development OR SU organizational learning OR SU administration OR SU teamwork OR SU microsystem) **AND** (SU Patient Centered Care OR SU Person Centered Care OR SU	Limiters - Published Date: 20100101-20201231; English Language; Peer Reviewed; Research Article; Exclude MEDLINE records; Human; Age Groups: All Adult

Person Centred Care OR SU Client Centered Care OR SU Person Centred Care) **AND** (SU rehabilitation OR SU occupational therapy OR SU Physical Therapy OR SU speech language OR SU rehabilitation centers)	Expanders - Apply related words; Also search within the full text of the articles; Apply equivalent subjects Narrow by SubjectAge: - all adult Narrow by Language: - English Search modes - Boolean/Phrase
A search, with date limits since 2010 and conducted on March 20, 2020, yielded 13 records. Of note, these records already exclude (i.e., are additional to) the MEDLINE records. The 13 entries which exported to the same EndNote file containing the records above. Finally, we copied all the references selected from a recent scoping review on adult person-centered rehabilitation that were published from 2010 onwards (n= 129) for the EndNote file above (Jesus et al., 2019). After all duplicates have been removed, 456 unique records were kept	
Process and criteria used to select articles for review: It was applied a Level 1 screening (titles and abstracts) and then Level 2 screening (full text review). From the 13 articles selected for full-text review, a total of 7 were finally retained. The inclusion criterion was research articles (qualitative, quantitative or mixed-methods) that explicitly address organizational, teamwork or other macro- or micro-system variables directly or indirectly affecting the person-centeredness of physical rehabilitation services and care. Systematic reviews are included if they have specific results or sections of results on the variables above.	

References:

Colquhoun, H. L., Jesus, T. S., O'Brien, K. K., Tricco, A. C., Chui, A., Zarin, W., Lillie, E., Hitzig, S. L., & Straus, S. (2017). Study protocol for a scoping review on rehabilitation scoping reviews. *Clin Rehabil*, *31*(9), 1249-1256. https://doi.org/10.1177/0269215516688514

Jesus, T. S. (2016). Systematic Reviews and Clinical Trials in Rehabilitation: Comprehensive Analyses of Publication Trends. *Arch Phys Med Rehabil*, *97*(11), 1853-1862.e1852. https://doi.org/10.1016/j.apmr.2016.06.017

Jesus, T. S., Bright, F., Kayes, N., & Cott, C. A. (2016). Person-centred rehabilitation: what exactly does it mean? Protocol for a scoping review with thematic analysis towards framing the concept and practice of person-centred rehabilitation. *BMJ Open*, *6*(7), e011959. https://doi.org/10.1136/bmjopen-2016-011959

Jesus, T. S., Bright, F. A., Pinho, C. S., Papadimitriou, C., Kayes, N. M., & Cott, C. A. (2019). Scoping review of the person-centered literature in adult physical rehabilitation. *Disabil Rehabil*, 1-11. https://doi.org/10.1080/09638288.2019.1668483

Jesus, T. S., & Colquhoun, H. L. (2018). Publication trends of study protocols in rehabilitation. *Eur J Phys Rehabil Med*, *54*(5), 785-791. https://doi.org/10.23736/s1973-9087.17.04858-4

Jesus, T. S., Hoenig, H., & Landry, M. D. (2020). Development of the Rehabilitation Health Policy, Systems, and Services Research field: Quantitative Analyses of Publications over Time (1990-2017) and across Country Type. *Int J Environ Res Public Health*, *17*(3). https://doi.org/10.3390/ijerph17030965

Mimouni, M., Cismariu-Potash, K., Ratmansky, M., Shaklai, S., Amir, H., & Mimouni-Bloch, A. (2016). Trends in Physical Medicine and Rehabilitation Publications Over the Past 16 Years. *Arch Phys Med Rehabil*, *97*(6), 1030-1033. https://doi.org/10.1016/j.apmr.2015.10.102

Negrini, S., Levack, W., Gimigliano, F., Arienti, C., Villafane, J. H., & Kiekens, C. (2019). The Struggle for Evidence in Physical and Rehabilitation Medicine: Publication Rate of Randomized Controlled Trials and Systematic Reviews Is Growing More Than in Other Therapeutic Fields. *Am J Phys Med Rehabil*, *98*(4), 258-265. https://doi.org/10.1097/phm.0000000000001058

Search Report – Search question # 4

Student Name: Tiago Jesus

Question:

4. Is there any or any effective Occupational Therapist-led QI or implementation activities for an increased person-centeredness of physical rehabilitation services, or any user-centered other knowledge translation tool on ‘how to do’ so?

Databases searched and rationale:

I used PubMed and CINAHL as databases for the initial searches.

PubMed is a major health sciences database with a comprehensive indexation system for Medical Subject Headings, including “Patient-Centered Care”[MeSH]. The MeSH-based indexation system of PubMed has been used to map publication trends in the physical rehabilitation literature (Colquhoun et al., 2017; Jesus, 2016; Jesus et al., 2016; Jesus et al., 2019; Jesus & Colquhoun, 2018; Jesus et al., 2020; Mimouni et al., 2016; Negrini et al., 2019). Therefore, toward building our search strategy in PubMed, one could rely on published search filters specifically designed to locate articles with physical rehabilitation content in PubMed, with a focus on empirical study types (Jesus, 2016; Jesus et al., 2020).

CINAHL complements PubMed/Medline due its more specific focus on the nursing and the allied health literature, i.e., it is less generalist than PubMed.

PsychINFO database, which is specific to psychological literature, was not included. It can provide results predominantly pertaining to the Rogerian, client-centred approach to psychotherapy, which isn’t relevant for this study.

Scopus and Web of Science are generalist databases that may had little for this study in relation to PubMed. In turn, EMBASE, another major health database, adds to PubMed essentially in the biomedical/pharmaceutical literature, which is not relevant for this study.

Search strategy and terms employed:

PubMed/MEDLINE

("Occupational Therapy"[Mesh] OR "Occupational Therapists"[Mesh] OR "Occupational Therapy Department, Hospital"[Mesh]) **AND** ("Professional Competence"[Mesh] OR "Clinical Competence"[Mesh] OR "Quality Improvement"[Mesh] OR "Quality Improvement"[All fields] OR "Capacity Building"[Mesh] OR "Diffusion of Innovation"[Mesh] OR "Implementation Science"[Mesh] OR "implementation" [ti] OR "education" [Subheading] OR "Education"[Mesh] OR "Inservice Training"[Mesh] OR "Staff Development"[Mesh] OR "Learning"[Mesh]) **AND** ("Patient-Centered Care"[Majr] OR person cent*[All fields] OR client cent*[All fields] OR patient cent*[All fields] NOT "Person-Centered Psychotherapy"[Mesh]) **AND** ("rehabilitation"[Subheading] OR "Rehabilitation"[Majr] OR "Recovery of Function"[Majr] OR "Physical Therapy Specialty"[Majr] OR "Physical Therapy Modalities"[Majr] OR "Physical Therapy Department, Hospital"[Majr] OR "Hospitals, Rehabilitation"[Majr] OR "Physical Therapist Assistants"[Majr] OR "Physical Therapists"[Majr] OR "Physical and Rehabilitation Medicine"[Majr] OR "Rehabilitation Nursing"[Majr] OR "Occupational Therapists"[Majr] OR "Occupational Therapy Department, Hospital"[Majr] OR "Occupational Therapy"[Majr] OR "Speech-Language Pathology"[Majr] OR "Rehabilitation Centers"[Majr] OR "Rehabilitation Research"[Majr] NOT "Correction of Hearing Impairment"[Mesh] NOT "Substance Abuse Treatment Centers"[Mesh] NOT "Mouth Rehabilitation"[Mesh] NOT "Mental Disorders"[Mesh] NOT "United States Substance Abuse and Mental Health Services Administration"[Mesh] NOT "National Institute of Mental Health (U.S.)"[Mesh] NOT "Mental Health

Services"[Mesh] NOT "Mental Health Associations"[Mesh] NOT "Community Mental Health Services"[Mesh] NOT "Community Mental Health Centers"[Mesh] NOT "Rehabilitation, Vocational"[Mesh] NOT "Sheltered Workshops"[Mesh] NOT "Psychiatric Nursing"[Mesh] NOT "Mental Health Recovery"[Mesh] NOT "Psychiatric Rehabilitation"[Mesh]) **AND** ("Study Characteristics" [Publication Type] OR "Support of Research" [Publication Type] OR "Guideline" [Publication Type] OR "Empirical Research"[MeSH] OR "Epidemiologic Methods"[MeSH] OR (Review[ptyp] AND systematic[tw] AND systematic[sb]) OR "Cochrane Database Syst Rev"[Journal] OR ("systematic review"[ti] OR "scoping review"[ti] OR "realist review"[ti])) **AND** ("humans"[MeSH Terms]) AND English[lang] AND "adult"[MeSH Terms]

A search conducted on March 20, 2020, with no date limits yielded 22 records, which were exported to an EndNote file.

Others – google search (improvement person/patient centered care occupational therapy): 4

Personal libraries on QI: 13

AOTA: 1

CINAHL

(SU Occupational Therapy) AND (SU Competence OR SU Quality Improvement OR SU Capacity OR SU Implementation OR SU Education OR Training) **AND** (SU Patient Centered Care OR SU Person Centered Care OR SU Person Centred Care OR SU Client Centered Care OR SU Person Centred Care) **AND** (SU rehabilitation OR SU occupational therapy OR SU Physical Therapy OR SU speech language OR SU rehabilitation centers)	Limiters - Published Date: 20100101-20201231; English Language; Peer Reviewed; Research Article; Exclude MEDLINE records; Human; Age Groups: All Adult Expanders - Apply related words; Also search within the full text of the articles; Apply equivalent subjects Narrow by Subject Age: - all adult Narrow by Language: - English Search modes - Boolean/Phrase

A search, with date limits since 2010 and conducted on March 21, 2020, yielded 19 records. Of note, these records already exclude (i.e., are additional to) the MEDLINE records. The 19 entries which exported to the same EndNote file containing the records above.

Finally, we copied all the references selected from a recent scoping review on adult person-centered rehabilitation (Jesus et al., 2019), specifically the articles that were

published from 2010 onwards (n= 129) for the EndNote file above. After all duplicates have been removed, 177 unique records were kept
Process and criteria used to select articles for review: It was applied a Level 1 screening (titles and abstracts) and then Level 2 screening (full text review). From the 19 articles selected for full-text review, a total of 10 were finally retained. The inclusion criteria were: articles (either empirical, theoretical, educational, or perspectives), published recently (within the last 8 years), focused on post-acute rehabilitation or long-term settings, and that explicitly address at least two of following elements: quality improvement, person-centered care (or client-centered care), and occupational therapy resources for leading improvement journeys or accomplishing knowledge translation.

References:

Colquhoun, H. L., Jesus, T. S., O'Brien, K. K., Tricco, A. C., Chui, A., Zarin, W., Lillie, E., Hitzig, S. L., & Straus, S. (2017). Study protocol for a scoping review on rehabilitation scoping reviews. *Clin Rehabil*, *31*(9), 1249-1256. https://doi.org/10.1177/0269215516688514

Jesus, T. S. (2016). Systematic Reviews and Clinical Trials in Rehabilitation: Comprehensive Analyses of Publication Trends. *Arch Phys Med Rehabil*, *97*(11), 1853-1862.e1852. https://doi.org/10.1016/j.apmr.2016.06.017

Jesus, T. S., Bright, F., Kayes, N., & Cott, C. A. (2016). Person-centred rehabilitation: what exactly does it mean? Protocol for a scoping review with thematic analysis towards framing the concept and practice of person-centred rehabilitation. *BMJ Open*, *6*(7), e011959. https://doi.org/10.1136/bmjopen-2016-011959

Jesus, T. S., Bright, F. A., Pinho, C. S., Papadimitriou, C., Kayes, N. M., & Cott, C. A. (2019). Scoping review of the person-centered literature in adult physical rehabilitation. *Disabil Rehabil*, 1-11. https://doi.org/10.1080/09638288.2019.1668483

Jesus, T. S., & Colquhoun, H. L. (2018). Publication trends of study protocols in rehabilitation. *Eur J Phys Rehabil Med*, *54*(5), 785-791. https://doi.org/10.23736/s1973-9087.17.04858-4

Jesus, T. S., Hoenig, H., & Landry, M. D. (2020). Development of the Rehabilitation Health Policy, Systems, and Services Research field: Quantitative Analyses of Publications over Time (1990-2017) and across Country Type. *Int J Environ Res Public Health*, *17*(3). https://doi.org/10.3390/ijerph17030965

Mimouni, M., Cismariu-Potash, K., Ratmansky, M., Shaklai, S., Amir, H., & Mimouni-Bloch, A. (2016). Trends in Physical Medicine and Rehabilitation Publications Over the Past 16 Years. *Arch Phys Med Rehabil*, *97*(6), 1030-1033. https://doi.org/10.1016/j.apmr.2015.10.102

Negrini, S., Levack, W., Gimigliano, F., Arienti, C., Villafane, J. H., & Kiekens, C. (2019). The Struggle for Evidence in Physical and Rehabilitation Medicine: Publication Rate of Randomized Controlled Trials and Systematic Reviews Is Growing More Than in

Other Therapeutic Fields. *Am J Phys Med Rehabil*, *98*(4), 258-265. https://doi.org/10.1097/phm.0000000000001058

Appendix C — Summary Table, Search question #1

Author & year of publi-cation	**Title of the article**	**Type of report**	**Participant characteristics & selection**	**Site/context of study**	**Variables & measures**	**Procedures**	**Key findings**	**Application**
Lloyd et al, 2018	*Experiences of stroke survivors, their families and unpaid carers in goal setting within stroke rehabilitation: a systematic review of qualitative evidence*	*Systematic Review of qualitative evidence*	The participants of interest were adults (over 18 years) who had experienced a stroke and undergone rehabilitation, and their families and unpaid carers. *Four studies were included in this review, from which 44 findings were extracted.*	*The context was stroke rehabilitation in acute and community hospitals, inpatient rehabilitation units and the community. No country-specific Studies considered for this review were qualitative primary research studies and the qualitative portion of mixed methods research.*	The phenomena and variables of interest were the experiences (qualitative accounts) of goal setting within stroke rehabilitation for stroke survivors, their families and unpaid carers.	*A three-step search strategy was used to identify English language qualitative primary research studies (both published and unpublished) through November 2017. That included the search of nine electronic databases. Two reviewers independently appraised the included studies using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Qualitative Research. Studies were included if they*	*Participants experience person-centered goal setting as both possible and rewarding, but as often not occurring, with barriers outweighing facilitators. The practitioners working with stroke survivors are perceived as having a powerful role, which can positively or negatively shape the goal setting, and thus the rehabilitation experience. Practitioners need to listen to the person and know ‘‘who they are’’ – there is a need for an individualized approach to goal setting. Practitioners had the potential to shape the context of goal setting in both positive and negative ways; they wanted practitioners to listen to them and find out more about who they really were. Stroke survivors express a need for goal setting to be tailored to individual needs and preferences and, for that to happen, practitioners need to take the time to listen well. A relationship where practitioner and stroke survivor goals were not aligned led to discontentment, resignation and sometimes to the*	*Person-centered goal-setting is possible but often does not occur, goal-setting is practitioners-led, and the person needs to be listened to for ”who they are” for a more individualized approach to goal-setting*

						achieved 50% "yes" results for the methodological assessment. *Data were extracted from the included papers using the standardized JBI qualitative data extraction tool. Data were synthesized using meta-aggregation.*	*stroke survivors keeping their own goals secret.* *Recovery after stroke is perceived as an ongoing, natural but unpredictable process, to which stroke survivors respond in different ways. However, there appears to be a shared experience of the importance of maintaining hope and a forward momentum in recovery, and that goal setting could serve as a useful tool to support this if used well.*	
Yun et al, 2019	*Person-centered rehabilitation care and outcomes: A systematic literature review*	*Systematic Review of quantitative studies*	quantitative studies that examined person-centered rehabilitation interventions and relevant outcomes for adult populations (38 years or more). A total of 17 eligible studies were included	*No country-specific, yet included only studies published in English. Includes studies about rehabilitation interventions in any care location, such as acute care and community settings.*	*Studies needed to address a rehabilitation intervention based on the person-centered care concept or study any outcomes related to person-centered rehabilitation interventions, excluding studies that evaluated*	*Six electronic databases (PubMed, Web of Science, CINAHL, Scopus, PsycARTICLES, and Cochrane library) were searched for articles published between January 2000 and January 2018.* *Study quality assessment was made with the Johns Hopkins Nursing*	Regarding the results of the quality ratings of the 17 studies, four were high quality (A), and four were good quality (B), while the remaining nine were low quality (C). *Each of the 10 interventions, arising from the 17 studies, was examined concerning which attributes of the person-centered care concept were explicitly translated into practice according to the core attributes of this concept identified by Morgan and Yoder (2012): holistic, individualized, respectful, and empowering. The most-prominent attribute found in this review was individualized care because this attribute was identified in all 10 interventions. Although three out of four attributes—individualized care,*	*Most person-centered rehabilitation interventions in the literature only address one or a few attributes of person-centered care, mostly care individualized for personal needs and preferences in developing a shared decision-making and*

					only staff outcomes. .	*Evidence-Based Practice Research Evidence Appraisal Tool. Selection decision were made by one author and verified by another. Quality assessment was performed independently by two authors, and then a consensus was reached concerning all quality ratings through discussions about discrepancies*	*respectful, and empowering—were incorporated into six interventions, there was only one intervention (Gothenburg person-centered care) reflecting all four attributes of person-centered care identified by Morgan and Yoder (Fors et al., 2017; Olsson et al., 2016).* *Similarly, the authors state that most interventions included in this review focused only on a specific attribute, mostly individualized for personal needs and preferences in developing a shared decision-making and goal-setting process, but hardly implemented a holistic–biomedical, psychosocial, and spiritual–approach, which is the most fundamental attribute of person-centered care.* *The authors concluded that true person-centered care was not fully adopted in rehabilitation practices.*	*goal-setting process.* *An holistic, psychosocial, and spiritual approach is hardly implemented in person-centered care interventions, Hence, authors conclude that true person-centered care was not fully adopted in rehabilitation practices.*

Rose et al 2017	*Shared decision making within goal setting in rehabilitation settings: A systematic review*	*Systematic Review*	*Qualitative, quantitative and mixed-methods studies, published since 2015, were included. Only adult populations were considered. Pilot studies, conference proceedings, and non-peer reviewed articles were excluded. A total of 15 articles met the inclusion criteria and were used.*	*No country-specific yet included only studies published in English. Also, no setting-specific as long as addressing rehabilitation contexts. The author defined rehabilitation patients as those going through an enabling process that helps them to reach and maintain their optimal physical, sensory, intellectual, psychological and social functional levels.*	*To be included articles had to have considered the Shared Decision Making (SDM) approach within the goal-setting process for patients who are undergoing rehabilitation.*	Four electronic databases were searched from January 2005 until September 2015 (Cochrane, Medline, CINAHL and ASSIA). Three different critical appraisal tools were applied to included articles according to the methodology. A second reviewer was involved in the screening of abstracts and agreement by both had to be reached for all included articles. *The primary author undertook a thematic synthesis. Once complete the findings were presented using supportive and critical results from the*	The literature showed various levels of patient involvement existing within goal-setting however few teams adopted an entirely patient-centred approach. *Only three studies reported a goal-setting process with clear evidence for SDM [12,13,16]. The other studies were largely therapist-led with minimal evidence of SDM. Explictly, four studies [12,18– 20] described a therapist-led approach to goal-setting with little evidence of the SDM approach. For instance, two studies [18,20] identified that the therapist would suggest goals and the patient could agree or disagree perhaps because patients struggled to come up with their own goals despite being encouraged to do so by staff. This resulted in the therapist suggesting goals and the patient could agree or disagree. Additionally, the mindset of staff to prioritise a list of 'privileged' (high priority for the service) goals prior to discussing goals with patients and their family was steering away from SDM [19]. If the patient expressed goals that did not align with the privileged goals, staff would try to steer the patient towards the pre-selected goals, or frequently just ignore the expressed goal. Moreover, they would begin any discussions about goals with statements that indirectly limited the*	*Reviewed studies find that therapist-led decision making is largely the common practice, with minimal evidence of SDM. At times, staff suggest or provide an a priori list of 'privileged' goals for patients to agree or disagree, with staff trying to steer the patient toward the pre-selected goals, frequently ignoring the patient stated goal or initially limiting the scope. Staff managed the interaction to control the process despite the*

						quantitative studies.	*potential scope of goals [19]. Consequently, staff managed the interaction in order to control the process despite the opportunity for patients to participate more in goal-setting.* *Within the process of goal-setting various levels of patient involvement were reported [14,15,45]. For instance, Two studies [17,46] indicated a perceptual gap between staff and patients on involvement in decisions about their goals. In both studies staff reported adopting a patient-centred approach however patients reported having minimal involvement and indicated frustration at not being involved enough.* *Overall, compared to usual practice patients were significantly more satisfied with goal-setting with a SDM approach [16,43,46].*	*opportunity for patients to participate in goal-setting. Two studies indicated perceptual gap between patients and staff about degree of involvement in decisions, with practitioners reporting adopting a person-centered approach while patients being frustrated with the minimal involvement.*

Rose-william et al., 2011	*A systematic review and synthesis of the quantitative and qualitative evidence behind patient-centred goal setting in stroke rehabilitation*	*Systematic review*	Quantitative and qualitative studies, peer-reviewed, published from 1980 to June 2010. Case studies were not eligible. Eighteen qualitative and eight quantitative and one mixed method study on stoke patients were included.	*No country-specific yet included only studies published in English.* Included studies conducted in stroke rehabilitation services ranging from acute to community rehabilitation.	*Included articles needed to address aspects of patient-centredness and goal setting*	*Searches were conducted in the Cochrane (Wiley), AMED, Medline (EBSCO), Embase, Sports discuss, Medline (Ovid) and CINAHL databases. Secondary search based on references from the preliminary search was undertaken. The methodological critiquing of the studies was done initially by one researcher, cross-checked by one of the other two authors. Extracted findings were open coded, followed by broader descriptive and interpretative coding by the first author. The codes were then*	*Patient-centred goal setting is minimally adopted in goal-setting practice. Evidence from both qualitative*[51] *and quantitative*[43,49] *studies demonstrate that current goal-setting practice is not largely patient-centred.* *Patients criticized the professionals and health care system for being prescriptive and inflexible with respect to treatment goal setting.*[12,48]*. Clinicians perceived that they had focused on the patient needs to a greater extent than the patient's family members.*[50] *While clinicians perceived that their practice was patient-centred, less than a quarter of the patient participants assisted in goal-setting processes.*[43] *Furthermore, although professionals were setting goals and planning individual treatments, most patients were neither given verbal nor written information about the goal-setting process.*[49] *The evidence showed that the patients' social and occupational needs were not explicitly incorporated into the treatment goals by therapists, thereby reflecting a perceptual practice gap.*[51]	*Patient-centred goal setting is minimally adopted in goal-setting practice and practice largely provider-centred as shown by both quantitative and qualitative studies.* *Patients were critic about the prescriptive and inflexible nature of goals.* *The review revealed major discrepancies between patient and professional in their perceptions regarding level of patient*

						refined by the two authors. The findings were synthesized by two researchers, by aggregating the themes from the qualitative studies and relating them to relevant findings from the quantitative studies.	*Although some professionals had indicated that they were patient-centred, in actual practice they had not been explicit with their goals related to participation or had not delivered interventions pertaining to the set goals.51,57* *The review revealed major discrepancies between patient and professional in their perceptions regarding level of patient involvement in the goal-setting process.43* *In some instances professionals had suggested ways to improve patient compliance that confirmed a patient as a receiver and not as a collaborator.58*	*involvement in the goal-setting. Practitioners typically perceived their practices as more person-centered than the patient's family. Less than a quarter of patients assisted in goal-setting, although practitioners perceive their practice as person-centered. Social and occupational needs were found not incorporated into treatment plans. Accounts for improved compliance with patients as receivers, not collaborators.*

van Seben et al, 2019	*A qualitative study of patient-centered goal-setting in geriatric rehabilitation: patient and professional perspectives*	*Qualitative interview study, using Semi-structured interviews.*	Ten patients (aged ⩾ 80), with no signs of cognitive impairment, who had recently received inpatient geriatric rehabilitation purposively recruited, likewise seven professionals. Authors aimed to include participants who had made significant shifts in their functioning, hence recruited participants who had experienced loss of functioning after acute hospitalization and who were subsequently admitted to geriatric	*Three geriatric rehabilitation centers in the Netherlands, with the study being conducted between March and June 2014*	How patient goals may change over time, and' attitudes toward patient-centered goal-setting and their perspectives on what rehabilitation goals comprise. Goals patients formulated during the interviews were compared with goals the multidisciplinary team formulated in participants' rehabilitation plan.	*descriptive qualitative design was used, grounded in a phenomenological study approach Patients were interviewed in the third or fourth week after discharge from inpatient rehabilitation, to reflect on their inpatient goals and to investigate long-term goals now that they were at home. A thematic analysis was performed. Interviews with patients took between two and three hours (with professionals one hour) and were audiotaped and transcribed verbatim. Data analysis was primarily performed by*	*Theme 2: Discrepancy between patients' and professionals' goals: Based on the interviews, professionals apparently had difficulty setting goals with their patients. This difficulty seems to have been caused by a discrepancy between patient goals and rehabilitation goals from a professional's perspective. Professionals explained that patients often do not set goals, or they set goals that are too ambitious. In addition, professionals' goals were mainly related to discharge criteria, and as they explained, they were not able to take into account patients' long-term goals. Professionals expressed that rehabilitation revolves around getting patients ready for discharge as soon as possible, and therefore, rehabilitation goals need to be discharge-related. Subsequently, rehabilitation goals are formulated from a professional's perspective So even though professionals ask patients about their goals, getting people home as soon as possible is the main focus during rehabilitation. Transitional rehabilitation nurses further explained that they pay a home visit to review patients' medication and health status, and they actually cannot help patients attain rehabilitation goals once they are at home.*	*One of the identified themes is that there is a discrepancy between patients' and professionals' goals. Professionals explained that patients often do not set goals, or they set goals that are too ambitious. Besides the focus of care or follow-up home visits are pre-determined by the service (enable discharge, perform basic self-care activities, and review medication and health status). Staff reports they actually cannot help patient attain*

			rehabilitation for at least two weeks.			*R.v.S. A senior researcher (S.M.S.) and professor (B.M.B.) in geriatric care provided supervision during all phases of data analysis, and R.v.S. discussed the results of each phase with S.M.S. and B.M.B. to ensure reliability and integrity of the data.*	*Indeed, the rehabilitation process revolves around getting patients ready for discharge, resulting in goals that are related to discharge, for example, being able to perform basic self-care activities.*	*their own rehabilitation goals even once they are at home.*

Zimmer-mann et al., 2014	*Patient perspectives of patient-centeredness in medical rehabilitation*	*Mixed-methods, cross-sectional study combining focus groups and a survey*	The patients (n=35) of the five centers were internally recruited on-site by study coordinators, had >18 years, no cognitive impairment, and varied yet representative mix of clinical / functional characteristics.	*The context was 5 rehabilitation centers in Germany, with different indication fields (cardiology, neurology, oncology, and orthopedics)*	custom-designed questionnaire assessed a total of five dimensions of patient-centeredness (patient focus, appreciation, patient participation, information and communication) from a patient perspective on a 6-point Likert scale ranging from 1, ‘‘very good’’, to 6, ‘‘unsatisfactory’ – built as based on previous studies from the authors. Semi-standardized interview guide for the focus groups. Four experts from	*The patients of the five centers were internally recruited on-site by study coordinators.* *The analysis included a qualitative component with summarizing content analysis and a descriptive-exploratory quantitative component.* *The interviews were analyzed on the basis of Mayring’s content analysis and the qualitative elements using a statistical software package, applied inclusively to an inferential analysis across rehabilitation centers’ results.*	*Considerable between-center differences exist, particularly in patients’ opportunity to participate in treatment planning, which can be a starting point for improvements. Indeed, results differed significantly between centers. The score ranges, from best to poorest, were as follows: patient focus (1.5–2.4), appreciation (1.2–2.2), patient participation: involvement in treatment planning (1.3–3.9), information (1.7–2.3), and communication (1.3–2.2).* *A significant difference between centers ($p < .05$) was found for the items ‘‘patient participation’’, ‘‘patient focus’’ and ‘‘patient appreciation’.* Subsequent post hoc tests (Tukey’s HSD) confirmed this significant difference between Center 3 and all other centers. Apart from the positive comments, patients negatively commented: On patient participation, they want more individualized treatment and consideration in the treatment schedule (30 codings), specific and rapid feedback on treatment goals (13 codings), or transparency and linking of treatment services (6 codings). In the ‘‘interaction/relationship’’ category, negative comments related to staff members’ lack of willingness to help, patients feeling that they are not taken seriously (13 codings), and	*Considerable between-center differences exist in patients’ opportunity to participate in treatment planning. Patient participation, information and communication are among the poorest items in person-centered communication.* *Patients wanted more:* *-Involvement for individualization, including in treatment scheduling, provision of specific and rapid feedback on treatment*

					different scientific disciplines and rehabilitation practice constructed the interview guide.		the medical staff not being familiar with patients (4 codings) In the information category, negative statements were grouped using the following subcodes: poor labeling of rooms and offered services (7 codings), lack of information about offered services, cancellations, and contact persons (6 codings), and poor information flow about the disease and treatment schedule (3 codings). The ‘‘communication’’ category contains a total of 45 statements. Criticisms included lack of time for provider–patient consultations (14 codings), patients having to take the initiative to communicate (9 codings), and unfriendly communication with the patient (4 codings). Between centers, the numbers of statements about the various dimensions varied, as did the positive/negative ratio. For example, in the category ‘‘patient participation’’, meaning participative patient involvement in the treatment process, there are differences between clinics. For this dimension, many more critical statements (described as negative) were recorded at Center 3 (in total 18 statements) and Center 4 (also in total 18 statements) than at the others, for example Center 1 (one statement).	*goals, transparency and linking of treatment services.* - *Willingness and time to help, patients being taken seriously and being activated in communication, friendly communication, and staff familiar with their situation.* - *Information and better flow of information about offered services, cancellations, contact persons, the condition and the treatment schedule.*

Smit, 2018	*Patient-centred goal setting using functional outcome measures in geriatric rehabilitation: is it feasible?*	*Pilot study on the feasibility of a new, collaborative, person-centered goal-setting approach*	Geriatric stroke rehabilitation patients because authors wanted to test the new intervention in challenging conditions, such as in patients with a high incidence of cognitive and communicative problems. Eight patients were included in the study, five of which could be interviewed. Additionally, the three professionals implementing the intervention also were interviewed	*Two geriatric rehabilitation wards in The Netherlands, with a capacity of 40 patients, participated in this feasibility study. The three professionals (nurse or physician) were responsible for the implementation of the intervention on their ward .*	The views and experiences of both patients and professionals with the intervention during inpatient geriatric rehabilitation are explored with qualitative methods	*The professionals working in geriatric rehabilitation wards were trained in the new approach and then interviewed at the end of the study. Open in-depth interviews with both the patients and professionals working with this new intervention were conducted and qualitatively analyzed.* *The patients were interviewed after completion of the intramural rehabilitation program and the professionals were interviewed at the end of the study by the first author.*	*Patients indicated that goals were mainly set by the professional and that a rehabilitation plan was either not presented or its content was not clear to them.* *At the same time, the patients specifically stated that they wished to be actively involved in the goal-setting process, and that rehabilitation goals ought to be discussed with them.* *The professionals indicated having difficulty with the implementation of the intervention.* *Indeed, professionals acknowledged that the intervention differed from their conventional way of working and signaled a tendency to fall back on old routines. Second, the professionals stated that it was difficult for them to lead the rest of the multidisciplinary team in working according to the method because they had not built up extensive experience with it.*	*Within a pilot study of a person-centered intervention, goals remained as professional-led, with a rehabilitation plan either not presented or not clear to patients.* *Patients stated that they wished to be actively involved in the process, and that rehabilitation goals ought to be discussed with them.* *Professionals acknowledged that the intervention differed from their conventional way of working and signaled a tendency to*

						All interview transcripts were independently analyzed by two researchers.		*fall back on old routines*
Cameron, 2018	*A qualitative investigation into the patient-centered goal-setting practices of allied health clinicians working in rehabilitation*	*Ethnographic study utilizing observed practice-thematic analysis*	Participants included 17 rehabilitation patients, 18 allied health clinicians and one family member. Disciplines represented were speech pathology, occupational therapy, social work and physiotherapy	*Four rehabilitation wards of a large metropolitan hospital in Melbourne, Australia*	Ways clinicians engage rehabilitation patients in patient-centered goal setting and identify factors influencing the goal-setting process are explored from both the perspective of clinicians and patients.	*Multiple qualitative methods were used. A total of 18 routine goal-setting interviews between clinicians and patients were audio recorded and transcribed. Together with associated entries in the patient medical record, transcripts were coded and developed into themes using thematic analysis. Finally, focus groups with clinicians were conducted to validate themes identified*	*The practice of patient-centered goal setting varied considerably between clinicians .Goals developed were strongly influenced by the clinician's views, although strategies of respect for the patient and reflective listening skills increased patient participation and the patient centeredness of goals developed.* *It was heard that sometimes patients were not even invited to participate in goal setting, or their views were simply ignored. There were, however, examples of patients driving the goal-setting process with clinicians providing support.* *Non-participant observation of actual practice (audio recordings) revealed goalsetting interviews across the continuum of patient centeredness. At one end of the spectrum, goal setting was strongly clinician-directed. The most overt example of this was an interview where the clinician informed the patient of the goals she had developed prior to the session. The patient had no influence on the generation or refinement of the goals.*	*The practice of patient-centered goal setting varied considerably between clinicians.* *Yet, goals were strongly influenced by the clinician's views.* *At times, patients were not even invited to participate in goal setting, or their views were simply ignored. In more than two-thirds of the goal-setting interviews, there was no attempt made by the clinician to*

							At the other end of the spectrum, there were also examples of goal-setting interviews where it was the ideas, priorities and language of the patients that shaped the goals developed. Patients in these interviews had the opportunity to express their goals in their own words. *There were also examples of clinicians failing to integrate crucial information in the goals set or making assumptions which were incorrect. For example, one patient had difficulty getting his clinician to acknowledge the problem of his oversized wheelchair despite the implications for toileting independence and community access. In this example, he raises the problem for the second time in the interview and for the second time, he is ignored.* *In more than two-thirds of the goal-setting interviews, there was no attempt made by the clinician to formulate the problems or goals discussed into an explicit goal statement with the patient. Mostly, issues were raised in conversation and not referred to again in recorded dialogs. There were notable exceptions where clinicians did summarize the patient goals they had heard, and this increased transparency, provided an opportunity for the patient to correct*	*formulate the problems or goals discussed into an explicit goal statement with the patient. In one example, the clinician informed the patient of the goals she had developed prior to the session. The patient had no influence on the generation or refinement of the goals, yet the professional perceived the practice as person-centered.* *At other times, patients raised important issues (e.g., oversized wheelchair) for their rehabilitation twice ignored.*

							the record and gave an indication of the direction therapy might take. The vast majority of clinicians felt goals were jointly set by the clinician and the patient. This is in contrast with the overall impression of the researchers who observed a stronger influence of the clinicians. The clinician who was observed in the recording to provide a list of goals without inviting any input from the patient reported that the goals were set together.	*At the other end, the ideas, priorities and language of the patients shaped the goals, with the opportunity to express their goals in their own words.*

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Appendix D - Summary table, search question # 2

Author & year of publication	***Title of the article***	***Type of report***	***Participant characteristics & selection***	***Site/context of study***	***Variables & measures***	***Procedures***	***Key findings***	***Application***
Smit, 2018	*Patient-centred goal setting using functional outcome measures in geriatric rehabilitation: is it feasible?*	*Pilot study on the feasibility of a new, collaborative, person-centered goal-setting approach*	*Geriatric stroke rehabilitation patients because authors wanted to test the new intervention in challenging conditions, such as in patients with a high incidence of cognitive and communicative problems. Eight patients were included in the study, five of which could be interviewed. Additionally, the three professionals implement-*	*Two geriatric rehabilitation wards in The Netherlands, with a capacity of 40 patients, participated in this feasibility study. The three professionals (nurse or physician) were responsible for the implementation of the intervention on their ward .*	*The views and experiences of both patients and professionals with the intervention during inpatient geriatric rehabilitation are explored with qualitative methods*	*The professionals working in geriatric rehabilitation wards were trained in the new approach and then interviewed at the end of the study. Open in-depth interviews with both the patients and professionals working with this new intervention were conducted and qualitatively analyzed. The patients were interviewed after completion of the intramural rehabilitation program and the professionals were interviewed at the end of the study by the first author. All interview transcripts were independently*	*Patients indicated that goals were mainly set by the professional and that a rehabilitation plan was either not presented or its content was not clear to them.* *At the same time, the patients specifically stated that they wished to be actively involved in the goal-setting process, and that rehabilitation goals ought to be discussed with them.* *The professionals indicated having difficulty with the implementation of the intervention.* *Indeed, professionals acknowledged that the intervention differed from their conventional way of working and signaled a tendency to fall back on old routines. Second, the professionals stated that it was difficult for them to lead the rest of the multidisciplinary team in working according to the method because they had not built up extensive experience with it.*	*Even after a pilot implementation of a new person-centered, collaborative-goal-setting approach, geriatric rehabilitation patients report that the goal setting is still professional-led - although patients wanted more involvement.* *Professionals indicated having difficulty with the implementation of the intervention and acknowledged that the intervention differed from their conventional way of working and finally signaled a tendency to fall back on old routines.* *Besides, the professionals stated that it was difficult for them to lead the rest of the team in working according to the method because they*

			ing the intervention also were interviewed			analyzed by two researchers.		had not built up extensive experience. Although the implementation was not effective, the findings signposted a need for education, training, or further development in this area.
Lawford, 2018	Training Physical Therapists in Person-Centered Practice for People With Osteoarthritis: A Qualitative Case Study	Qualitative case study using semi-structured interviews, nested within a clinical trial	Eight physical therapists were interviewed before, and after, training in person-centered practice for people with knee osteoarthritis.	Australian context, in Victoria. The physical therapists were employed to deliver the intervention for the RCT,	In accordance with a constructivist paradigm, interview topics were designed to explore physical therapists' beliefs about their role managing patients with OA, as well as their perceptions about their training experiences including	Training involved a 2-day workshop, skills practice, and audit of 8 consultations with 4 patients (per therapist), and a final single-day workshop for audit feedback and consolidation. Semi-structured interviews were audio-recorded and transcribed verbatim. Data were thematically analyzed	Physical therapists found training overwhelming initially as they realized the limitations of their current knowledge and clinical practice. After the training, physical therapists felt more confident and able to provide person-centered care to people with knee osteoarthritis by the end of training. After training, therapist acknowledged a deeper and more complex understanding of person-centered care. Importantly, therapists described an increased ability to integrate person-centered care within their patient consultations. After training, therapists believed that they had a bigger role to play in supporting their patients. Therapists believed that the training had positively impacted their communication	Therapists realized their current knowledge and practice stands apart from a person-centered practice as they got involved in the training for that practice – with a restructured consultation framework, as part of a clinical trial. As a result, therapists initially found the training overwhelming; yet they felt more confident and described their ability to integrate the approach in their practice by the end of the training. Indeed, they now believe that they had a role in supporting their patients, that their

					a description of their pre- and post-training beliefs and practices		*style with patients in the clinic, with many spending more time discussing personal barriers and facilitators to exercise. Some however acknowledged that it was difficult to change their practice habits, and one did not believe that a person centered approach suited his personality or the way he liked to interact with patients, and did not intend to incorporate it into his practice.* *Authors concluded that training in structured person-centered methodology that provides opportunity for skills practice with patients using a restructured consultation framework can change beliefs of most physical therapists about their roles when managing patients with osteoarthritis and positively impact their clinical practice*	*communication style was improved and that discussion of personal barriers and facilitators to exercise emerged. Yet, some acknowledge that changing habits was tough. One did not believe that the approach suited his personality or the way he liked to interact with patients, and did not intend to incorporate it into his practice.*
Kontos et al, 2012	*Improving Client-Centered Brain Injury Rehabilitation Through Research-Based Theater*	*3-year study evaluating, in a qualitative and exploratory manner, the impact of*	*33 licensed practitioners with the most and least years' experience from nursing; (n = 11), psychology (PSY; n = 1), Occupation-*	*The study settings were the neurorehabilitation units of two inpatient rehabilitation hospitals in Ontario, Canada.*	*knowledge and attitudes of health care practitioners regarding the injury and client-centred practices,*	*At baseline, and at 3PI and 12PI, a lone researcher at each site undertook nonparticipant naturalistic observation. Speech and action were recorded by hand in field notes during the observation sessions.*	*Findings demonstrate the effectiveness of the play (i.e. research-based theater) in influencing practice through the avoidance of medical jargon to improve clients' understanding and participation in treatment; newfound appreciation for clients' needs for emotional expression and sexual intimacy; increased involvement of family caregivers; and avoidance or*	*The evaluation of this research-based theater showed it can improve the: avoidance of medical jargon to improve clients' understanding and participation in treatment; appreciation for clients' needs for emotional expression*

		the "After the Crash", a research-based drama designed to teach client-centered care principles to brain injury rehabilitation staff	*al therapy (OT; n = 5), physical therapy (PT; n = 5), speech language pathology (SLP; n = 6), social work (SW; n = 3), recreational therapy (RT; n = 1), and chaplaincy (n = 1).*		*and whether and how this impact led to the implementation of client-centred principles*	*Audiotaped, semistructured interviews (lasting approximately 60 minutes each) were also conducted at these time points. Observational and interview data were analyzed using thematic analysis techniques*	*awareness of informal or work-related discussions with colleagues in the presence of a client.* *In more detail, findings were organized thematically. "From med speak to plain speak" captures changes in staff speech and information delivery style from baseline to postintervention. "From physical work to emotion work" is illustrative of changes in the degree to which practitioners viewed their own and clients' emotional responses and their professional responsibilities toward emotional concerns. "From client to client and family" captures how practitioners expanded their care activities to include family members. "From talking over to talking to" demonstrates how practitioners were increasingly mindful of the need for restraint when speaking with other practitioners in the presence of a client about personal or care matters, and how they came to view differently the awareness, presence, and participation of clients during the exchange of client information.*	*and sexual intimacy; involvement of family caregivers; and the avoidance of informal or work-related discussions with colleagues in the presence of a client. Overall, this research shows that, in terms of person-centeredness, suboptimal patterns of interactions with clients existed, and that they can be improved with a research-based theater (i.e. arts-based knowledge translation tool)*

Rosewilliam, 2016	*Is the practice of goal-setting for patients in acute stroke care patient-centred and what factors influence this? A qualitative study*	*Multiple qualitative methods, including semi-structured interviews, analysis of patient records, and observation of team meetings*	*Seven patients (Patients with stroke who had no cognitive or significant communication problems) and seven health-care professionals (those who had a significant engagement with an individual patient)*	*The study was carried out between 2010 and 2011 on a specialised stroke ward treating adult patients from a multicultural population in a large university teaching hospital in England*	*Perceptions and beliefs about patient-centredness, within the context of goal-setting, using qualitative semi-structured interviews*	*Qualitative semi-structured interviews. Adoption of patient-centred behaviour was triangulated using analysis of patient records and observation of team meetings related to participating patients. Interview transcripts and field notes were coded, clustered under categories and descriptively summarised. Additionally, data from patients' documents were summarised. These summaries were then mapped on to an a-priori framework of patient-centredness from which further interpretative themes were derived.*	*Some professionals perceived that they understood patient-centred principles and therefore had considered patients' expertise. Moreover, staff also presumed that patients' goals were mainly discussed with other staff in MDT meetings. This perception was contrary to the records of these meetings that indicated that they were forums to discuss the patient's condition and therapeutic plans. Such differences between professionals' perceptions and practice could give professionals a false belief of being patient-centred in their goal-setting.* *In certain situations, professionals assumed power and responsibility to set goals in the best interests of patients based on beliefs that patients might not have adequate knowledge, good health or expertise to set realistic goals. Moreover, staff expressed a lack of strategies or tools to implement patient-centred principles in care processes such as goal-setting.* *Limited patient-centredness in goal-setting was evident through incongruities in goal-setting and dysfunctional therapeutic relationships.*	*A perceptual gap often exists for person-centered care among professionals. Some professionals perceived they understood patient-centred principles and therefore had considered patients' expertise and that patients' goals were discussed in team meetings, which is contrary to the researchers' observations, including detected incongruencies in goal-setting and dysfunctional therapeutic relationships* *Professionals sometimes take leasing roles in setting goas as they perceive patients might not have adequate knowledge, good health or expertise.* *Professionals also express lack of capability or capacity (e.g. strategies, tools)*

							The authors conclude that professionals need support and training to adopt patient-centred principles in goal-setting practice.	*to implement person-centered principles. They need support and training to do so.*
Rose et al 2017	*Shared decision making within goal setting in rehabilitation settings: A systematic review*	*Systematic Review*	*Qualitative, quantitative and mixed-methods studies, published since 2015, were included. Only adult populations were considered. Pilot studies, conference proceedings, and non-peer reviewed articles were excluded. A total of 15 articles met the inclusion criteria and were used.*	*No country-specific yet included only studies published in English. Also, no setting-specific as long as addressing rehabilitation contexts. The author defined rehabilitation patients as those going through an enabling process that helps them to reach and maintain their optimal physical, sensory, intellectual, psychological and social functional levels.*	*To be included articles had to have considered the Shared Decision Making (SDM) approach within the goal-setting process for patients who are undergoing rehabilitation.*	Four electronic databases were searched from January 2005 until September 2015 (Cochrane, Medline, CINAHL and ASSIA). Three different critical appraisal tools were applied to included articles according to the methodology. A second reviewer was involved in the screening of abstracts and agreement by both had to be reached for all included articles. *The primary author undertook a thematic synthesis. Once complete the findings were presented using supportive and critical results from the quantitative studies.*	*Staff felt they did not have the necessary skills to involve patients in decisions about their goals. Physiotherapists from one study [45] felt that these skills came with more experience. The more experienced a therapist was, the better their communication skills were and their ability to empower the patient. Other communication skills such as confidence scaling (a self-report measure of self-efficacy on a 10-point scale), that can facilitate clinicians to use SDM with their patients, are hard to grasp and often time consuming [12]. However, staff emphasised its importance because a patient's confidence could influence completion of their action plan [14]. Schoeb et al. [20] felt clinicians should be able to seek the patient's preferences and use open questions in their enquiry.*	*Overall, staff feels they do not have the necessary skills and confidence to involve patients in a shared decision-making*

Flink et al, 2016	*Training in client-centeredness enhances occupational therapist documentation on goal setting and client participation in goal setting in the medical records of people with stroke*	*Comparison of medical records, in the context of a Randomized Controlled Trial (RCT)*	*Occupational therapist documentation in medical records of 279 clients with stroke; 77 occupational therapists. documented in the medical records of the intervention group, whereof 44 therapists had participated in the training workshops. On average, each client had 2.1 occupational therapists involved in their rehabilitation; ranging from 1 to 7 occupational*	*Study conducted in Sweden, in 3 county county councils, with 16 poststroke rehabilitation units.*	*level of client-centeredness extracted from medical records according to a protocol.*	*The occupational therapists in the intervention groups participated in a workshop training to enhance their client-centeredness. The medical records were reviewed for their level of client-centeredness using a protocol developed from the Stewart et al model. The medical records were analysed using manifest quantitative content analysis with a deductive approach. Independent variables were drawn from the data Collection of the randomized controlled trial: client socio-demographic data (age, education, gender, marital status), client disease related factors (the Frenchay Activity*	*Occupational therapists (OTs) with training in client-centeredness documented significantly more on goal setting (OR = 4.1; 95% CI, 1.87-8.81), on client participation in goal setting (OR=11.34; 95% CI, 5.97-21.57), on how the goals could be reached (OR=2.8; 95% CI, 1.7-4.62), on client participation in how goals could be reached (OR=4.56; 95% CI, 2.73-7.64), on the follow-up on goals (OR=5.77; 95% CI, 2.78-11-98) and on client participation in follow-up on goals (OR=7.44, 95% CI, 4.33-12.8). This association remained after adjustment for healthcare setting, client socio-demographic variables, and stroke severity. The association between finding common goals for rehabilitation and the intervention having received training to enhance client-centeredness remained in all the logistic regression models. Occupational therapists in the intervention group documented significantly more on all aspects related to goal setting and on client engagement/ motivation for rehabilitation than*	*OTs with training in client-centeredness had improved documentation practices on person-centered care items compared to OTs in a control group. Therefore, target improvements can be achieved with specific training, which means that improvement margins exist.*

			therapists per client.			Index,23 stroke severity); and healthcare setting, (inpatient versus outpatient rehabilitation, and county council).	occupational therapists in the control group. Authors conclude that documentation of goal setting and client participation in goal setting can be influenced by training. Also, they conclude that there is room for improvements regarding how to achieve and follow-up on goals, as well as on client participation for occupational therapists in the stroke rehabilitation.	
Plant et al, 2016	What are the barriers and facilitators to goal-setting during rehabilitation for stroke and other acquired brain injuries? A systematic review and meta-synthesis	Systematic review and meta-synthesis	adult patients with stroke or other acquired brain injuries and/ or their families, carers or the health care professionals treating them. Nine qualitative papers were selected, involving 202 participants in total: 88 patients, 89	No restriction to settings as long as it referred to participants undergoing rehabilitation	Any research studies, excluding systematic reviews, that addressed the barriers and facilitators to goal setting were included. However, only qualitative studies were	A systematic search was conducted in 4 databases, including MEDLINE and CINAHL. Two reviewers independently screened, extracted data and assessed study quality using the Mixed Methods Appraisal Tool and undertook thematic content analysis for papers examining the barriers and facilitators to goal-setting during stroke/neurological rehabilitation (any design).	The main barriers to goal-setting during stroke rehabilitation include: • A mismatch between patients' and staff's perspective. • Staff lack of confidence to manage patient expectations. Staff too were uncertain about how much recovery was possible, especially in the early stages of rehabilitation18 and how to involve patients soon after their stroke when they "did not know what they wanted" and found goal identification difficult. 12 Many staff also considered that patients' expectations of recovery (their desire to "get better") were unrealistic and thus a barrier to effective goalsetting. Coupled to this,	Practitioners had concerns about their ability to manage less realistic or unachieved expectations or any resultant disappointment. On the other hand, when staff was confident and encouraging as well as able to actively communicate and to tailor the goal-setting process, goal-setting practices where more person-centered.

			health care professionals and 25 relatives of participating patients		*finally included.*	*Finally, thematic content analysis was used to draw out key themes from the findings of the selected studies*	*they had concerns about their ability to manage these expectations and were concerned to avoid disappointment, or disagreement with patients if recovery was less than hoped,11,12,14,19 which would hamper goal-setting. A further barrier was concern about their ability to manage team discussions while the patient is present.12* *In turn, when staff was confident and encouraging as well as able to actively communicate and to tailor the goal-setting process, that was seen as a facilitator of person-centeredness in goal-setting practices.*	

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Appendix E - Summary table, search question # 3

Author & year of public-ation	**Title of the article**	**Type of report**	**Participant character-istics & selection**	**Site/ context of study**	**Variables & measures**	**Procedures**	**Key findings**	**Application**
Plant et al, 2016	*What are the barriers and facilitators to goal-setting during rehabilitation for stroke and other acquired brain injuries? A systematic review and meta-synthesis*	Syste-matic review and meta-synthesis	adult patients with stroke or other acquired brain injuries and/ or their families, carers or the health care professionals treating them. Nine qualitative papers were selected, involving 202 participants in total: 88 patients, 89 health care professionals and 25 relatives of participating patients	*No restriction to settings as long as it referred to participants* undergoing rehabilita-tion	*Any research studies, excluding systematic reviews, that addressed the barriers and facilitators to goal setting were included. However, only qualitative studies were finally included.*	A systematic search was conducted in 4 databases, including MEDLINE and CINAHL. *Two reviewers independently screened, extracted data and assessed study quality using the Mixed Methods Appraisal Tool and undertook thematic content analysis for papers examining the barriers and facilitators to goal-setting during stroke/ neurological rehabilitation (any design). Finally, thematic content analysis was used to draw out key themes*	*Organisational or service level barriers to person-centered goal-setting:* *The most frequent organisational barrier to goalsetting during rehabilitation was lack of time, especially when there was an emphasis on involving patients in the process.11,12,17,19 Other barriers related to the need to co-ordinate staff, which was hampered by inflexible working practices and shift patterns;12,17 duplication and difficulty transferring information between multiple record systems;19 integrating goal-setting with other rehabilitation processes:17,19 staff turn-over which required ongoing training and support for less experienced and skilled staff,19 and the pressure of competing priorities, particularly to provide 'hands-on therapy'.12,19* *Van de Weyer looked at organisational factors impacting on goal-setting.12 They noted sufficient resources were needed for effective goal-setting, as were sufficient time and expertise within the team. An effective chair for goal-setting meetings and a functional multi-disciplinary team was needed.*	*Organizational barriers to person-centered goal-setting include:* *- lack of time, especially when involving patients is required,* *- the need for upgrading staff coordination and the functionality of team meetings;* *- staff turn-over, requiring constant training and support;* *- competing priorities, such as pressure to provide hands-on therapy*

						from the findings of the selected studies		
Rose et al 2017	*Shared decision making within goal setting in rehabilitation settings: A systematic review*	*Systematic Review*	*Qualitative, quantitative and mixed-methods studies, published since 2015, were included. Only adult populations were considered. Pilot studies, conference proceedings, and non-peer reviewed articles were excluded. A total of 15 articles met the inclusion criteria and were used.*	*No country-specific yet included only studies published in English. Also, no setting-specific as long as addressing rehabilitation contexts. The author defined rehabilitation patients as those going through an enabling process that helps them to reach and maintain their optimal physical, sensory, intellectual, psychological and*	*To be included articles had to have considered the Shared Decision Making (SDM) approach within the goal-setting process for patients who are undergoing rehabilitation.*	Four electronic databases were searched from January 2005 until September 2015 (Cochrane, Medline, CINAHL and ASSIA). Three different critical appraisal tools were applied to included articles according to the methodology. A second reviewer was involved in the screening of abstracts and agreement by both had to be reached for all included articles. *The primary author undertook a thematic synthesis. Once complete the findings were presented using supportive and*	*A number of articles described barriers related to the organisation of the healthcare system [13,14,17,18]. Staff discussed the annoyance of varying work patterns (shift work) that resulted in certain staff members not being able to attend goal-setting meetings where patients were present [13,18]. This resulted in some staff attending the meeting that did not know the patient well enough. They were not familiar with the patient's records and had spent little time with the patient [18]. This was not good for developing a strong staff-patient relationship, a commonly reported facilitator to using SDM [12,15,16,18,45]. Two studies [12,18] discussed the benefits of the rehabilitation assistant attending the goal-setting meeting because they had built a strong relationship with them. This could then lead to the patient feeling more confident to express their opinion [18].*	*Varying shift patterns prevented certain staff to attending goal-setting meetings with the patient present. In contrast, attending staff often did not know the patient well enough (not familiar or with a staff-patient relationship with the patient).* *In turn, rehabilitation assistants attending meetings, with deeper bond with patients, can lead to the patient feeling more confident to express their opinion.*

				social functional levels.		*critical results from the quantitative studies.*		
Korner et al, 2017	*A cluster-randomized controlled study to evaluate a team coaching concept for improving teamwork and patient-centeredness in rehabilitation teams.*	*Cluster Randomized Controlled Trial (RCT)*	Ten clinics were involved *At t1 and t2, 890 and 633 questionnaires were distributed to staff, and 317 and 226 questionnaires were completed. In total, 990 patient questionnaires were sent to nine clinics at t1, of which 850 were handed out. The questionnaires were completed by 539 patients, Out of the 768 patients asked at t2 (n=940 sent out), 567 filled out the*	*German rehabilitation clinics, of five different indication fields (orthopedics, cardiology, oncology and neurology).*	*Staff questionnaires were used to evaluate several aspects of teamwork functioning. The Client Centred Rehabilitation Questionnaire, a patient self-report measure, was used to measure person-centeredness from the perspective of patients*	*Data were collected before (t1) and after (t2) the intervention. Intervention clinics received the team coaching concept (TCC), while control clinics did not receive any treatment. The TCC was developed for medical rehabilitation based on a systematic literature search on team development and a qualitative pilot study including interviews with executives, group interviews with team members as well as focus groups with patients.* *Data collected on an individual level was*	*The TCC improved team organization, willingness to accept responsibility and knowledge integration according to staff, with small effect sizes (univariate: $\eta 2=.010 \pm .017$), whereas other parameters including internal participation, team leadership and cohesion did not improve due to the intervention. Indeed, The TCC improved dimensions that were addressed directly by the approach and were linked to the clinics' needs, such as restructured team meetings and better exchange of information.* *The patient survey on client-centered care did not show any improvements on the assessed dimensions.* *Indeed, the multivariate test showed a significant main effect of group, $F(3,721)=3.77$, $p=.01$, $\eta 2 =.015$, although the main effect of time, $F(3,721)=1.51$, $p=.21$, $\eta 2=.006$, and the main effect of group x time, $F(3,721)=0.48$, $p=.70$, $\eta 2=.002$, were not significant. The tests of effects between subjects yielded a significant main effect of group for the CCRQ scale self-management/ empowerment, $F(3,723)=4.57$, $p < .05$, $\eta 2 =.006$, with higher mean values for the control group ($M=3.77$, $SD=0.07$) than for the intervention group ($M=3.60$, $SD=0.04$).*	*A team coaching intervention improved certain dimensions of teamwork, which are deemed relevant for an increased person-centeredness. However, the patient survey on person-centered care showed no gains as in person-centered as perceived by patients. No improvement was found in person-centeredness experienced by patients as mediated by an improvement in certain teamwork dimensions.*

			questionnaire.			*aggregated to a group level (intervention vs. control group) for each data collection period. On a cluster-level, only descriptive analysis was done. For the comparison of the intervention and control groups, pre- and post-intervention multivariate analysis of variance (MANOVA) was performed to investigate differences in teamwork variables. For the patient survey, a MANOVA was equally performed to analyze time and group differences*		

Papadimitriou & Cott, 2015	Client-centred practices and work in inpatient rehabilitation teams: results from four case studies	Case study, mixed-method design, with strong qualitative component.	For each unit, a Research Assistant (RA) completed in-depth semi-structured interviews with 10–12 HCPs, 10 clients and 5 family members and 20 structured observations (10 of HCPs with clients and 10 with team meetings).	Four cases from two institutions in the Greater Toronto Area: Hospital 1, amputee and stroke units; and, Hospital 2, stroke and geriatrics units. Both hospitals were large, free-standing rehabilitation facilities. The two case studies in each institution represent the highest and lowest scoring service units on the Client Centred Rehabilitation Questionnaire	Qualitative understanding of the characteristics of the organization, inter-professional rehabilitation team, staff, clients and families associated with client-centredness (CC).	An RA was hired and trained in data collection procedures by the principal investigator. Information sessions were conducted on each case study unit to explain the study to staff. All HCPS and other staff who were directly involved with clients in the four case study units were eligible to participate. Qualitative data involved semi-structured, in-depth interviews conducted in a private location in the hospital. The RA conducted the interviews using a semi-structured interview guide but was free to vary the wording and order of the questions as needed.	Practitioners perceived organizational factors such as workload, schedules and hospital culture to influence their work on teams and with clients. Indeed, client-centred practice is affected by similar factors that affect work in teams such as organizational policies, team characteristics and culture. Client-centred practice (CCP) is influenced by client, provider and organizational factors. CCP is not just about client–provider communication. How inter-professional teams work together is an important aspect of CCP. Shared knowledge, shared goals and mutual respect characterize the relationships among members in a team. These three dimensions influence, and are influenced by, the nature of team members' communication and the organizational structures and culture in which they take place. Effective teamwork does not automatically lead to enhanced client-centredness. Yet, the HCPs described that working in the same physical space enhances communication and cooperation. Practitioners mentioned that ''working together'' in the same treatment room enhanced their ability to communicate with each other about patients' progress and thus, in their view, offered client-centred care. This is because they could align and adjust their treatment plants ''on the spot'' based on clients' progress and needs. The	Organizational policies, team characteristics, and culture are perceived by practitioners to affect person-centeredness, as they do for work in teams overall. How inter-professional teams work together can help determine a person-centered practice but does not automatically lead to that. Working in shared spaces can enhance communication and cooperation on the spot. Workload, staffing ratios, staff scheduling; staff turnover, inter-professional assessment

				(CCRQ) within that hospital.		*Data analysis consisted of an inductive, comparative approach whereby the investigators reviewed all data and allowed ideas or categories to arise from the data rather than imposing a pre-existing framework.*	*ability of the PT and OT to be supportive of each other is augmented by the organizational structure of shared treatment rooms that enhance physical proximity.* HCP participants mentioned administrative decisions and policies regarding workload, staffing ratios, staff scheduling; staff turnover, availability or fostering of inter-professional assessment forms as well as of formal positions (such as goal coordinators or client-centred facilitators) to ensure inter-professional communication as affecting teamwork and their ability to be client-centred. *Participants gave examples of when organizational policies can impede the staff's ability to be client-centred. One HCP said ''[the hospital] only get paid for a bed with the patient in the bed that day''. This speaks to discharge policies possibly being influenced by financial goals rather than client needs and thus perceived by some nursing participants as not client-centred.*	*forms and formal positions (such as goal coordinators or client-centred facilitators) were mentioned to facilitate inter-professional communication, teamwork and the ability to be client-centred. Discharge-oriented reimbursement schemas were perceived as a barrier to person-centerdness.*

Burau et al, 2017	*Professional groups driving change toward patient-centred care: interprofessional working in stroke rehabilitation in Denmark*	*Qualitative multiple-case design of the introduction of interprofessional teams*	5 stroke teams and 17 interviews with different health professionals conducted in 2015	*Early discharge teams in stroke rehabilitation, in Denmark*	*Qualitative focuses on day-to-day coordination of care tasks and the professional groups' interests and strategies, and the role and capacity of health professions in driving organisational change in interprofessional working and patient-centred care.*	*Data were generated from semi-structured interviews with individual members of the stroke teams. The recruitment of informants aimed to include one member of each of the 4 professional groups represented in the stroke team: nurses, physiotherapists, occupational therapists and doctors. The stroke teams helped the researchers identify individual informants. The interviews lasted 30–40 min and were conducted in person in autumn 2015 by a research assistant under close supervision of the senior*	*The study identified supportive factors and contexts of patient-centred care:* *Professional groups emerged as key governance players driving interprofessional working, drawing on individual professional as well as collective interprofessional perspectives. Working in the homes of patients supported health professionals in this role by creating functional and financial imperatives for interprofessional working.* *The Danish case study of stroke rehabilitation teams is embedded in a health system with a long tradition of more integrated forms of service provision and governance.*	*Home-based care added imperatives for interprofessional working in Denmark, yet the Danish system as a long tradition of integrated service provision and governance.*

						members of the research team. For the analysis, the authors first conducted a within-case analysis, followed by a cross-case analysis and a search for check for any disconfirming evidence		
McGilton et al, 2013	*Evaluation of patient-centered rehabilitation model targeting older persons with a hip fracture, including those with cognitive impairment*	*quasi-experimental design, following implementation in two community hospital inpatient rehabilitation units of the Patient-Centered Rehabilitation Model including persons*	One hundred forty-nine patients aged 65 and older participated as patients in the usual care (76) or PCRM-CI intervention (73) groups.	*Participants for both groups were recruited from two Ontario Community Hospitals: Site I, a 40-bed unit in a 500-bed hospital, and Site II, a 20-bed unit in a 120-bed hospital*	*Primary outcome measures were mobility gain from admission to discharge and whether or not patients returned home post-discharge. Patient mobility was assessed at admission and discharge by the*	*The PCRM-CI is an interdisciplinary rehabilitation program that incorporates education for healthcare professionals (HCPs), including nurses, which is focused on geriatric care including management of dementia and delirium, support for HCPs from an Advanced Practice Nurse, and family support and education.*	*No difference in mobility gain was found between the usual care and PCRM-CI groups as measured by the FIMM. Patients in the intervention group were more likely to return home post-discharge than those in the usual care group (p = 0.02).* *Results of the PCRM-CI evaluation suggest that older adults with CI can successfully be rehabilitated post-hip fracture repair using this novel, interdisciplinary rehabilitation program.* *The current study afforded preliminary evidence that providing additional education, support, and clinical resources (e.g., practitioners with expertise in gerontology) in existing community rehabilitation units can increase the proportion of patients who return home post-discharge. While many patients with cognitive impairment continue to be denied*	*An organization-supported person-centered program for including people with cognitive impairments into rehabilitation services post-hip fracture achieved non-inferiority to usual care group. This means that this vulnerable population, otherwise unserved, can be equally*

		with CI (PCRM-CI).			*Functional Independence Measure Motor Subscale (FIMM); the difference in mobility scores was defined as mobility gain. Patient discharge location was also captured to determine whether or not patients returned home from inpatient rehabilitation.*	*Participants were enrolled in the study in two phases: between January 2009 and June 2010, all eligible, consenting patients admitted consecutively at both sites were enrolled in the usual care group. Following staff consent and a workshop, the PCRM-CI model was then implemented at both sites. Recruitment to the PCRM-CI intervention groups occurred between August 2010 and March 2012. Unpaired t-tests were used to assess differences between treatment group means.*	*access to inpatient rehabilitation post-hip fracture in many countries, implementing the PCRMI-CI is a viable option for enhancing access and care for those patients requiring active rehabilitation services post-hip fracture.*	*served, in a person-centered way, as regular population do – when specific programs are designed.*

van Seben et al, 2019	*A qualitative study of patient-centered goal-setting in geriatric rehabilitation: patient and professional perspectives*	*Qualitative interview study, using Semi-structured interviews.*	Ten patients (aged ⩾ 80), with no signs of cognitive impairment, who had recently received inpatient geriatric rehabilitation purposively recruited, likewise seven professionals. Authors aimed to include participants who had made significant shifts in their functioning, hence recruited participants who had experienced loss of functioning after acute hospitalizetion and who were subsequently	*Three geriatric rehabilitation centers in the Netherlands, with the study being conducted between March and June 2014*	How patient goals may change over time, and' attitudes toward patient-centered goal-setting and their perspectives on what rehabilitation goals comprise. Goals patients formulated during the interviews were compared with goals the multidisciplinary team formulated in participants' rehabilitation plan.	*descriptive qualitative design was used, grounded in a phenomenological study approach Patients were interviewed in the third or fourth week after discharge from inpatient rehabilitation, to reflect on their inpatient goals and to investigate long-term goals now that they were at home. A thematic analysis was performed. Interviews with patients took between two and three hours (with professionals one hour) and were audiotaped and transcribed verbatim. Data analysis was primarily performed by R.v.S. A senior researcher (S.M.S.) and professor*	*Professionals apparently had difficulty setting goals with their patients. This difficulty seems to have been caused by a discrepancy between patient goals and rehabilitation goals from a professional's perspective. Professionals expressed that rehabilitation revolves around getting patients ready for discharge as soon as possible, and therefore, rehabilitation goals need to be discharge-related. Subsequently, rehabilitation goals are formulated from a professional's perspective So even though professionals ask patients about their goals, getting people home as soon as possible is the main focus during rehabilitation. Transitional rehabilitation nurses further explained that they pay a home visit to review patients' medication and health status, and they actually cannot help patients attain rehabilitation goals once they are at home. Indeed, the rehabilitation process revolves around getting patients ready for discharge, resulting in goals that are related to discharge, for example, being able to perform basic self-care activities.*	*Professionals had difficulty setting person-centered goals with their patients, partly because of organizational pressures to a discharge-oriented rehabilitation.* *Home visits have predetermined tasks that make staff not able to accommodate the person's rehabilitation goals while at home.*

			admitted to geriatric rehabilitation for at least two weeks.			*(B.M.B.) in geriatric care provided supervision during all phases of data analysis, and R.v.S. discussed the results of each phase with S.M.S. and B.M.B. to ensure reliability and integrity of the data.*		

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Appendix F - Summary table, search question # 4

Author & year of publication	Title of the article	Type of report	Participant characteristics & selection	Site/ context of study	Variables & measures	Procedures	Key findings	Application
Pellerin et al, 2019	*Systematic review of determinants influencing knowledge implementation in occupational therapy*	*Systematic review*	The population of interest in this review was occupational therapists. Studies had to target occupational therapy professionals exclusively. Research aimed at covering a team of professionals was excluded, even if some occupational therapists were part of the process.	*Studies were included regardless of the practice setting or clinical population they might serve*	All types of empirical studies, focused on knowledge translation or knowledge implementation, were considered for this review, including those using quantitative, qualitative and mixed-method designs. Editorials, comments and theoretical papers were excluded.	*Twelve databases were searched for. Screening was done by the first author MP and eligibility was determined by MP and ML Discrepancies were discussed by the two reviewers to try to reach a consensus, and a third person was designated to resolve any remaining differences of opinion. The Consolidated Framework for Implementation Research (CFIR) was used to organise the extraction of the determinants associated with KI. The Mixed*	*Seven determinants are most often reported in KI studies in occupational therapy: (i) Adaptability of the new practice; (ii) Learning climate in the organisation; (iii) Leadership engagement from the manager; (iv) Available resources to sustain KI; (v) Knowledge and Beliefs about the Intervention; (vi) Individual Stage of Change; and (vii) Executing the KI strategy.* *The review suggests that suggests that organizational context can frequently play a role in KI. More specifically, learning climate reflected the importance of colleagues and team collaboration in KI initiatives. Leadership engagement pointed to the importance of managerial support, involvement and leadership in the KI process, whereas Available resources showed the importance of having sufficient time and opportunity to practice and reflect to improve KI.(…) Thus, KI in occupational therapy should include some actions aimed at influencing the organisational*	*Organizational context was found a determinant of KI in OT, specifically for: a learning climate that reflects the importance of colleagues and team collaboration in KI activities; managerial support, and available resources – including time and opportunity to practice and reflect to improve KI.* *Hence, KI in OT should include action to influence the organizational environment that affects/catalyze the adoption of new, improved practices.*

						Methods Appraisal Tool (MMAT) was used to assess the methodological quality of the studies. Quality was appraised by M.A.P. and M.E.L. Discrepancies were discussed by the two team members to try to reach a consensus, and a third person.	*environment to catalyse the adoption of new practices.* *The construct mentioned most often was Executing. Most studies used multifaceted strategies, with educational meeting being the most frequently used.* *Other constructs documented were the Individual Stage of Change and Knowledge and Beliefs about the Intervention (Characteristics of individuals domain), which suggests that therapists' readiness to change as well as their knowledge, beliefs and values may foster greater commitment to the adoption of change in practice.* *Finally, the Outer setting domain was the least documented (6/77)*	*Multifaceted KI strategies were often used.* *Finally, therapists' readiness to change as well as their knowledge, beliefs and values may foster greater commitment to the adoption of change in practice.*

Eames et al, 2018	*A pre-post evaluation of a knowledge translation capacity-building intervention*	*A pre-post study to develop Knowledge translation (KT) capacity amongst Occupational Therapists (OTs)*	Occupational therapy clinicians (n = 46)	*Large metropolitan hospital in Queensland, Australia.*	*A customized questionnaire (baseline and 18 months) identified KT-related behaviors and barriers and enablers guided by the Theoretical Domains Framework (TDF).*	*Data were collected using an online questionnaire designed specifically for this study by the researchers, and piloted first with a small group of clinicians.* *Data were collected at two time points: (i) during the planning phase of the first cycle (baseline) and (ii) in the observe phase of the second cycles (i.e., at 18 months after commencement of the project).* *McNemar's tests and Wilcoxon signed rank tests were completed on matched data (n = 20). At follow-up additional items explored perceptions of change and*	At follow-up, participants had read more clinical guidelines (10 vs. 17) and more participants reported using strategies to increase the use of recommended clinical practices (P = 0.006). Participants from the whole group at follow-up reported perceived improvements in their understanding (95%) and confidence (87%) in KT, and they felt that KT had become part of the department's culture – that it was 'just part of what we do' now (85%). Seventy-two percent of participants agreed that they were now more likely to use practices recommended from rigorous research and 69% agreed that they were more aware of the recommendations from systematic reviews or randomised controlled trials in their area of clinical specialty. A multifaceted intervention to build occupational therapists' capacity in using KT processes. This was collaboratively informed by results from a questionnaire identifying barriers and enablers to the use of KT processes. The investigation of the main barriers at the commencement of this study provided the rationale for the selection of a number of strategies that targeted those specific barriers.	*A multifaceted knowledge translation capacity-building intervention, informed by a questionnaire* identifying barriers and enablers to the use of KT processes, *was able to produce an increased adherence to recommended clinical practices.* *Collaborative team learning of KT processes occurred since an implementation as a team and with mentorship was fostered.* *A systematic approach was embedded within existing structures and workloads, yet time constrains remained a barrier to the use of KT processes, especially in*

						usefulness of strategies.	The six strategies (identified by higher agreement rates) that appeared to be most useful were: having a dedicated staff member (KT Champion/mentor) to talk about various activities involved in KT; working as a team on a KT plan; departmental director support; learning over time; mentoring meetings and training sessions. Specifically, strategies such as mentorship and implementing KT as a clinical team so that collaborative team learning of KT processes could occur – and departmental leadership and organisational strategies for embedding and sustaining – were well-received by the participants. The findings suggest that these collaborative approaches and strategies may provide practical methods of improving KT using a systemic approach incorporated within existing structures and workloads. As seen from the barriers present at the start of the project, the challenge of managing time constraints and prioritising KT activities over direct clinical contact was significant. Although this study had run over an 18-month period, the process of using KT in real-time clinical practice took each participating	*initial stages - which are time-consuming until they become more familiar.* *Indeed, managing KT activities and direct clinical contact at the same time can be challenging and time-consuming.* *Also, the process of using the approach along with other practice demands can take a quite long time (e.g. several months), until the approach becomes familiar and easier to use.* *Besides, providers with little experience with the approach may feel that additional training is required.* *Ongoing commitment, organizational support and*

							team quite a long time to understand and engage in due to concurrent clinical demands. It is possible that because participants were still learning about applying KT processes, a longer time might be needed before KT processes become more familiar and therefore less time consuming for them. The findings revealed that at the commencement of the project, participants' limited knowledge and confidence were also barriers to their use of KT processes. Unsurprisingly then, participants felt that they had received insufficient training that supported their use of KT processes. Overall, the findings indicate that time constraint can remain a barrier to the use of KT processes. It is possible that clinicians may require a longer time to become accustomed to KT processes before such processes become familiar enough to require less time to use. It appears that building capacity for KT is a process that develops over time, requiring good organisational support, and strategies tailored to the specific barriers within the local context.	*locally-tailored strategies can overcome barriers.* Strategies perceived most useful included working as a team, having a dedicated staff member, mentoring meetings department leader support, learning about KT over time, and training sessions. In particular, having the opportunity to talk with a mentor about the various activities involved (and having monthly mentoring support) were found to be valuable support activities.

Eriksson et al, 2019	*Occupational therapists' perceptions of implementing a client-centered intervention in close collaboration with researchers: A mixed methods study*	*A cross-sectional study with a combination of qualitative and quantitative data in a mixed method design to investigate the key factors important to the OTs in the implementation of a new complex intervention.*	*The present study involved occupational therapist (OTs) trained in a new person-centered intervention as part of a RCT, notably 41 OTs and 23 managers*	*Three country councils in Sweden which provide stroke rehabilitation care*	*Quantitative survey also with qualitative perceptions. The questions of the survey were closed-ended and open-ended, divided in themes (1) the role as an OT, (2) conditions at the workplace, (3) the intervention, and (4) how do you work today? The closed questions were rated on a Likert scale, the open were qualitatively analyzed*	*The 2008 Promoting Action on Research Implementation in Health Services (PARIHS) version was used to inform the implementation of the complex intervention. The researchers responsible for the RCT designed a questionnaire in line with the PARIHS framework. The questionnaire was sent to the OTs by regular mail one year after participation in the research project had ended. The analysis sought to identify subcategories and categories that appeared to be important in the*	*Over 70% of the OTs benefitted from reading and discussing articles in the workshop; 60% had faith in the intervention; 69% reported usability of the intervention.* *The present study has highlighted how OTs in close collaboration with researchers can implement a new and complex intervention. Even though given access to research evidence conveyed and packaged by researchers to be transferred and become sustainable in clinical practice, the OTs needed time and opportunities for effectively implementing the knowledge in the new intervention.* *Furthermore, the intervention required a structure in which it could be applied, as well as a supporting organization. Therefore, a prerequisite for integrating research-based knowledge into occupational therapy practice is that evidence, facilitation and context exist and interact simultaneously.* *In OT practice as well as in other health care professional areas there is a need of space and room for discussions and reflections over time to be able to the translation of research-based knowledge into the*	*Most therapist reported faith in and usability of a new client-centered intervention, as well as the opportunity to discuss articles in workshops.* *Close collaboration between OTs and researchers worked for implementation a new, complex, person-centered intervention. Yet the OTs needed time and opportunities to effectively implement the new approach.* *OTs felt they needed space and room for discussions and reflections over time so they could integrate the new approach or evidence into the previous*

						implementation process .	*clinician's previous experience and knowledge.* *The OTs gave several examples of factors that facilitated and changed their approach. These included the collegial exchange during the workshops; and the dialog and support from colleagues at their own workplace as well as from other workplaces that were prominent. One OT commented: 'Good that many of us are taking part (in the workshop) from the workplace, to exchange experiences, support each other, this all makes it easier to initiate the changes'.* *Most of the OTs stated that they had an operational manager who was positive to their participation in research and development projects (Q8). The OTs also stated that they had strong support to participate in the project and to use CADL from their immediate superiors. (Q9 and 10).* *Some OTs considered it time-consuming to learn to use the intervention, and difficult to document in the clients' medical records since they felt that they needed to give it more consideration. Another OT argued that the structure of the intervention was too controlling and limiting.*	*experience and knowledge.* *Overall, the OTs perceived that the enablers of the approach were: collegial exchanges during person-centered care or other workshops, dialog and support from colleagues, and managerial/supervisor support for service development projects* *Either a suitable structure and supportive organizations exist or need to be created as a prerequisite.* *As barriers, OTs identified that a person-centered care approach can be time-consuming to learn to use, and hard to document in records. If the*

							Many also thought that there was insufficient time allocated for the actual implementation, as the various parts of the intervention were too extensive. For some OTs, it was difficult to continue using CADL as they would have liked to when they changed workplaces. *Initially, the team mistrusted some parts of the intervention, which created a need for more clear information.* *During the time of the project, nine of the 16 units had been reorganized or had been informed about upcoming reorganization and streamlining, which caused concern. Other reasons were low staffing resulting from a recruitment freeze, difficulties in recruiting staff. One OT wrote: 'It was a bit vague at first – and the material was changed during the process rather than being sorted out right from the beginning'.*	*approach has too much of a structure, it can be perceived as too controlling and limiting.* *Also, if the approach is extensive and has various components, it can be time-consuming to implement.* *Without opportunity for clarification – including over time, the approach can be mistrusted, and in some parts perceived as vague.*

Sirkka, 2014	*Occupational therapists' experiences of improvement work: a journey towards sustainable evidence-based practice*	Qualitative descripttive study	OTs participating in a long-term improvement work based on the Occupational Therapy Intervention Process Model (OTIPM), which aims to lead to a more person-centered and occupation-focused reasoning. Nineteen occupational therapists participated	This study was performed at an OT unit at an acute hospital in Sweden. The improvement work started at the unit in 2001 in order to improve the OT service.	Qualitative experiences data from focus groups	Data were collected through focus groups on two occasions (2006 and 2011). The data obtained were analysed using a qualitative content analysis.	*The journey, guided by the OTIPM, led gradually to increased client-centred and occupation-focused practice. The findings indicate that when the occupational therapists used the OTIPM, they could transform their clinical reasoning from a more disease and impairment orientation to a more client-centred and occupation-focused reasoning in all phases of the intervention process, in line with the essence of the model.* *The participants found themselves in a process of transformation during the various phases of their improvement work. They described how collegial reflections and reasoning led to a gradual transformation of thought, including increased knowledge and awareness. Both individual reflections and regular collegial discussions were stressed as conditions for the improvement of clinical reasoning and acting in practice. The transformation had evolved over a long time and required repetitive critical reflection on issues that arose in daily practice.* *The improvement work involved a lot of individual reflections and collegial discussions to change clinical reasoning and acting in practice. It is important to note that the transformation evolved over a*	*Collegial discussions and individual reflections are key for a sustained practice change, through a transformational process which is gradual (i.e., evolves over time) and challenges basic assumptions and taken-for-granted thinking.* *The transformation had evolved over a long time and required repetitive critical reflection on issues that arose in daily practice.* *As external aspects that affected OT and improvement work shifted over time, it is important to have a flexible and model-based improvement work, to meet and*

							long time through repetitive critical reflection on issues that arose as a consequence of the improvement work. In accordance with these findings, both the importance of critical thinking to challenge basic assumptions and the "taken for granted ways of thinking" are emphasized to develop OT practice. However, the aspects that pressurized and hindered the occupational therapists shifted over time, such as shorter hospital stays, workload, and time-consuming improvement work, and others' lack of knowledge of the role of the occupational therapist. This highlights the importance of flexible and model-based improvement work to meet and adapt to the reality of those involved, to achieve sustainable and desirable changes. *An interesting finding is the fact that the group established a culture where the improvement work became an integrated part of their practice.*	*adapt to the evolving reality of those involved, to achieve sustainable and desirable changes.* *The improvement work became established as an integrated part of the group's culture and practice.*

Miller et al, 2019	*Learning What is Important: A Quality Improvement Initiative to Enhance Patient-Centred Care in Home Care*	*Report of a Quality Improvement activity – undertaken to increase the utilization of a new tool designed to facilitate the provision of patient-centred care*	Patients and family members (n=19) and personnel (n=7) offered feedback that directed revisions to the tool's format. Personnel included occupational therapists	Home-based care, in Ontario, Canada.	*Quantitative and qualitative measurement occurred within the study stage.* *Quantitative measurement was on the level of agreement with how much comfortable was answering the questions on the tool*	*The new tool, entitled Life Through My Eyes (LTME), is completed voluntarily by the patient or a family member.* *In order to personalize the patient's care, it captures information about what is important to the patient and ways to make the patient feel comfortable. A Plan, Do, Study, Act (PDSA) cycle was used to introduce the tool into practice.* *Patients and their families played an integral role in design and revision of the tool.*	*Feedback from patients, their families and personnel through the PDSA cycle has led to changes in both the format and implementation of the tool. The PSDA methodology, with its iterative cycles, was well suited to this QI initiative.* *Changes were made to the tool to improve its ability to capture information about what is important to the patient and ways to for personnel to make the patient feel comfortable. The results of this QI initiative, introduced in selected regions in one province, directed changes to the tool's format and to the processes related to its use, prior to its introduction provincially, with national distribution planned.* *Feedback from patients, their families and personnel through the PDSA cycle has led to changes in both the format and implementation of the tool. The PSDA methodology, with its iterative cycles, was well suited to this QI initiative.* *Building on the results of the first PDSA cycle, a second PDSA cycle has been implemented with the introduction of the LTME tool throughout the province.* *A 'train the trainer' webinar was developed and delivered to all provincial PFCC leaders.*	*A PDSA cycle, a typical quality improvement methodology was successfully implemented to revise a tool for higher patient-centeredness in home care.* *Occupational therapists in practice roles were involved in the process along with other professionals and patients, yet did not lead the process. This process preceded a wider, province-wide implementation of the revised person-centered tool.* *A second PDSA cycle has been implemented to facilitate the spread of the intervention to other units in the province.*

							Coaching techniques include an explanation of the benefits of LTME, the 'why' of PFCC and emphasizing the 'win-win' for patients and personnel. Members of the PFCC Committee also recognized the need for additional training to optimize the successful integration of the new tool into the homecare setting. A specific training program was developed for supervisors to use when coaching frontline personnel. It includes information on the use of PFCC principles and outlines strategies for optimizing patient-centred care that includes the LTME tool. *Furthermore, the tool and the results of the PDSA cycle have been shared with the clinical leaders in all provinces.*	*Activities for enabling a spread of the tool to other units in the province, include: a 'train the trainer' webinar, coaching techniques on the why and mutual benefits of the approach, and a specific training program for supervisors to coach frontline personnel, including information and strategies for optimizing person-centered care and the use of the tool – the latter shared with clinical leaders province-wide.*

Burau et al, 2017	*Professional groups driving change toward patient-centred care: interprofessional working in stroke rehabilitation in Denmark*	*Qualitative multiple-case design of the introduction of interprofessional teams*	*5 stroke teams and 17 interviews with different health professionals conducted in 2015*	*Newly introduced interprofessional Early discharge teams in stroke rehabilitation, in Denmark*	*Qualitative focuses on day-to-day coordination of care tasks and the professional groups' interests and strategies, and the role and capacity of health professions in driving organisational change in interprofessional working and patient-centred care.*	*Data were generated from semi-structured interviews with individual members of the stroke teams. The recruitment of informants aimed to include one member of each of the 4 professional groups represented in the stroke team: nurses, physiotherapists, occupational therapists and doctors. The stroke teams helped the researchers identify individual informants. The interviews lasted 30–40 min and were conducted in person in autumn 2015 by a research assistant under close supervision of the senior*	*The study identified supportive factors and contexts of patient-centred care:* *Professional groups emerged as key governance players driving interprofessional working, drawing on individual professional as well as collective interprofessional perspectives. Working in the homes of patients supported health professionals in this role by creating functional and financial imperatives for interprofessional working.* *The Danish case study of stroke rehabilitation teams is embedded in a health system with a long tradition of more integrated forms of service provision and governance.* *Being able to include the perspective of other professions rather than to focus exclusively on their own, was exactly what constituted a competent and valued member of the stroke team. This type of engagement in (micro-level) health workforce governance included a number of strategies. The individual professionals worked both independently and on behalf of the team when they were in the homes of stroke patients. It was their responsibility to make a*	*Interprofessional teams were introduced, including as a means to enhancing person-centred care. Professional groups, which included occupational therapists, emerged as key governance players driving person-centered care and interprofessional working in stroke rehabilitation in Denmark* *Home-based care added imperatives for interprofessional working in Denmark, yet the Danish system as a long tradition of integrated service provision and governance.* *Interprofessional teamworking,*

						members of the research team. For the analysis, the authors first conducted a within-case analysis, followed by a cross-case analysis and a search for check for any disconfirming evidence	*holistic assessment of the patient, initiate rehabilitation and organise timely discharge and transfer to rehabilitation in the municipality. Awareness of own professional strengths and shortcomings, and thus knowing when to include expertise of other team professionals, was integral to this practice. One occupational therapist explained this approach as follows:* *'I have a sense that I do not have to see all patients. I have to see those where it is relevant. I feel we [in the interprofessional team] trust each other, that we draw on our [respective] expertise where this is relevant.'* *Occupational therapist, Lakeside.*	*holistic care, acting both independently and on the behalf of the teams when the care is delivered to patients, awareness of own professional strengths and shortcomings are strategies integral to a person-centered interprofessional practice - within a framework of a micro-level of health workforce governance*

Kontos et al, 2012	Improving Client-Centered Brain Injury Rehabilitation Through Research-Based Theater	3-year study evaluating, in a qualitative and exploratory manner, the impact of the "After the Crash", a research-based drama designed to teach client-centered care principles to brain injury rehabilitation staff. "After the Crash," is a play based on focus group research with survivors of TBI, their	33 licensed practitioners with the most and least years' experience from nursing; (n = 11), psychology (PSY; n = 1), Occupational therapy (OT; n = 5), physical therapy (PT; n = 5), speech language pathology (SLP; n = 6), social work (SW; n = 3), recreational therapy (RT; n = 1), and chaplaincy (n = 1).	The study settings were the neurorehabilitation units of two inpatient rehabilitation hospitals in Ontario, Canada.	Knowledge and attitudes of health care practitioners regarding the injury and client-centred practices, and whether and how this impact led to the implementation of client-centred principles	At baseline, and at 3PI and 12PI, a lone researcher at each site undertook nonparticipant naturalistic observation. Speech and action were recorded by hand in field notes during the observation sessions. Audiotaped, semistructured interviews (lasting approximately 60 minutes each) were also conducted at these time points. Observational and interview data were analyzed using thematic analysis techniques	The evaluative data suggest that drama was effective as a pedagogical tool in translating research on client-centered brain injury rehabilitation and effecting practice change. Findings demonstrate the effectiveness of the play (i.e., research-based theater) in influencing practice through the avoidance of medical jargon to improve clients' understanding and participation in treatment; newfound appreciation for clients' needs for emotional expression and sexual intimacy; increased involvement of family caregivers; and avoidance or awareness of informal or work-related discussions with colleagues in the presence of a client. In more detail, findings were organized thematically. "From med speak to plain speak" captures changes in staff speech and information delivery style from baseline to postintervention. "From physical work to emotion work" is illustrative of changes in the degree to which practitioners viewed their own and clients' emotional responses and their professional responsibilities toward emotional concerns. "From client to client	This research involves occupational therapists and other care providers of neurorehabilitation units of two inpatient rehabilitation hospitals as recipients of a research-based theater that aimed to improving person-centeredness, and did it so as qualitatively appraised by practitioners. Overall, the research shows that regarding person-centeredness suboptimal patterns of interactions with clients existed, and that they can be improved with a research-based theater (i.e. arts-based knowledge

		families, and health care practitioners concerning experiences with the health care system, and day-to-day challenges and coping strategies					*and family” captures how practitioners expanded their care activities to include family members. “From talking over to talking to” demonstrates how practitioners were increasingly mindful of the need for restraint when speaking with other practitioners in the presence of a client about personal or care matters, and how they came to view differently the awareness, presence, and participation of clients during the exchange of client information. Practitioners, including OTs, after watching a part of the play mentioned that: “We shouldn’t talk other people’s business in front of patients” (RN, I). “It’s [the scene] when . . . the nurses were talking among each other . . . not even realizing that that person was there. It’s like an ‘aha’ moment. It’s like, oh my god, I’ve seen myself do that, actually” (OT, I). For some it served as a catalyst for change in behavior:* *Despite new awareness of the inappropriateness of talking over clients, however, this interaction pattern proved difficult for many practitioners to break: [The play] has helped me to relate back to the patient, to really set my priority around the patient during therapy time. [Since watching the play] I caught myself a couple of times. It’s*	*translation tool and educational intervention). The intervention is based on research with survivors of TBI, their families, and health care practitioners concerning experiences with the health care system, and day-to-day challenges and coping strategies.* *The evaluation of this research-based theater showed it can improve the: avoidance of medical jargon to improve clients’ understanding and participation in treatment; appreciation for clients’ needs for emotional expression and sexual intimacy; involvement of family caregivers; and the*

							not difficult, right, when you're like ten people in a therapy room, somebody throws out a comment, and all of a sudden there's a discussion about that comment or about a movie . . . and all of a sudden you realize that your patient . . . is left out of it. (OT, I) *The second was the frequent need for quick informal information exchanges among practitioners in public hospital space—referred to as "corridor conversations" (Long et al., 2007). Hospital hallway communication has elsewhere been identified as a common forum for brief opportune exchanges of information given practitioners' heavy workloads and the need for immediacy and brevity (Miller et al., 2008; Reeves et al., 2009). Yet practitioners in our study often referred to Scene 17 in reflecting on the more problematic aspects of corridor conversations, including lack of confidentiality and the additional efforts required to ensure as much privacy as possible in public institutional space.* *Some practitioners took great pains to explain that the play did not fundamentally change their practice but instead prompted new or enhanced engagements of desired behaviors. An oft-repeated explanation was that the play highlighted best practices in which*	*avoidance of informal or work-related discussions with colleagues in the presence of a client.* *Providers, including OTs, have taken lessons including for change their practice from the play. Often, they understood the importance of not talking in corridors or public place about clients, avoiding the use of medical jargon in most communication situations, and the need to change own emotion work from a cheerfulness to a more genuine emotional timbre during therapy (e.g., acknowledging the sadness,*

							they had been previously trained or engaged, but which had subsequently lapsed or decreased. Unexpectedly, a sizeable minority of practitioners defended the use of jargon. They cited its utility in terms of brevity and exactness of meaning during formal exchanges with other members of the health care team, as well as obfuscation against lay eavesdroppers during informal hallway or "corridor conversations" (Long, Iedema, & Lee, 2007) *A scene prompted evaluations of their own emotion work of overt cheerfulness vs. a more genuine emotional timbre during therapy. Their reflexivity included examining their own behavior as well as acknowledging the sadness, variability in mood, and motivational struggles which might affect clients during therapy sessions*	*variability in mood, or motivational struggles).* *Sometimes providers saw the need to be formal and concise through medical jargon, also as a means to conceal information in public places. The practitioners highlight that sometimes confidentiality and full attention to the person is complex in open spaces or large/crowded therapy rooms.* *Scenes sometimes reminded what professional once have learned but which was erased in terms of practice use.*

Phipps P, 2015	*Transformational and Visionary Leadership in Occupational Therapy Management and Administration*	*Narrative Review: Continuous Education Article of the American Occupational Therapy Association*	Focus on Occupational Therapists	Not applicable	Not applicable	*The authors provide a narrative review on issues of transformational and visionary leadership applied to the administration and management in occupational therapy, including on change management issues*	*There are key differences between leaders and managers in the context of having a transformational and visionary approach to leadership (Loehr & Schwartz, 2001). Managers tend to be internally focused, whereas leaders are externally focused, attempting to build consensus on a vision for the future and the action steps required in achieving the goals. Managers tend to think and act from a short-term view, whereas leaders have a long-term, big-picture focus. Managers control and direct, whereas leaders inspire and empower. Managers tend to recognize and solve problems, whereas leaders empower and clear the path for staff to make decisions and solve problems. Yet another differentiation is that managers tend to rely on strategy, structure, and systems, whereas leaders are inclined to use style, staff members, skills, and goals to reach the desired outcome.* *The tasks associated with management require that the person who manages has been given the authority to supervise, organize, and control. In contrast, the tasks involved in leadership can be carried out by anyone. You can be a leader in promoting ethical practice, in maintaining*	*Unlike managers, leaders tend to have a long-term focus, inspire and empower (not control), clear the path for staff to solve problems (not about solving themselves), and focus on human factors more than structures or systems toward outcomes.* *Leadership tasks (e.g., facilitation of client-centered and culturally competent practices, working inter-professionally) can be carried out by anyone; needs not to have the formal authority or managerial roles.* *Inspirational motivation, shared vision (clearly communicated through*

							competency or achieving expertise in a specialized area of practice, in facilitating client-centered and culturally competent practice, and in working effectively with the interprofessional team and referral sources. You can accomplish these goals even if your job title or job description does not encompass managerial functions. *Visionary Leadership entails: Model the way; inspire a shared vision; challenge the process; enable other to act; Encourage the art. Successful transformational leadership entails: Intellectual stimulation that promotes creativity and independent thinking; Idealized influence, though which leaders serve as a positive role model; tailored mentorship and support for individual mentees; Inspirational motivation which creates a vision to which others want to contribute to. Transformational leadership focuses on helping every member of the team succeed in achieving the vision. A vision must be bold but also realistic, achievable, and measurable. The vision must then be communicated through multiple stakeholder groups, using a variety of tailored approaches to each audience. Clear goals and objectives must be enacted to implement the vision, and leaders and frontline staff must remain*	*stakeholders groups, tailored as required), intellectual stimulation; independent thinking; promotion of continuous improvement and critical reflection; challenge of the process; enable others, creativity; tailored mentorship and support for helping every member achieving the vision are among the features promoted by a visionary and transformational leadership.*

							laser focused and accountable in order to sustain the vision for the long haul. Managing resistance to change requires courage, frequent communication, and the full engagement of the team to be a part of the change process. *In addition to transformational leadership, development requires continuous improvement and reflection on critical achievements, defining moments and setbacks.*	

Mroz, 2015	*Client Centeredness and Health Reform: Key Issues for Occupational Therapy*	*Health Policy Perspective paper*	*Focus on Occupational Therapists (OTs)*	*Focus on the United States' context.*	*Not applicable*	*Authors provide a narrative review of the literature, focused on significant Intersection between core components of client-centered care and patient-centered care at the backdrop of policy and payment reforms. Implications are drawn for occupational therapy research, practice, and education*	*Occupational therapy practitioners can provide insights on interdisciplinary quality improvement (QI) teams tasked with addressing patient-centered care because they have training and practice experience with several of the core components. Occupational Therapists should be aware, however, that different professions may value or emphasize different core components of patient-centered care.* *As a profession with a knowledge base in client centeredness, occupational therapy has an opportunity to be a leader in this area. Current occupational therapy education provides practitioners with skills for collaborative goal setting, client education, and support for clients in participation, as well as with an understanding of the greater contexts that affect the client, all of which contribute to patient-centered care. However, the profession needs to be able to clearly articulate how current training fosters patient-centered care using language not specific to occupational therapy so that practitioners can communicate these abilities to other professionals.* *Occupational therapy profession must explore the most effective methods to train future*	*As a mean to demonstrating the value of the profession for the healthcare system, OTs can provide key insights and be leaders on interdisciplinary QI for person-centered care because of their seminal knowledge and practice experience with the approach, for example on collaborative goal-setting, support for the person, and the understanding of greater contexts that affect the person.* *OTs need to clearly articulate how their knowledge and skills foster person-centered care in a language or terminology that*

							practitioners not only in how to practice client-centered occupational therapy but also in how to work on interprofessional teams that promote patient-centered care. *Because patient centeredness cuts across professions, interprofessional training in patient-centered practice is a possible future direction for occupational therapy education.* *For occupational therapy to demonstrate its value within the evolving health care system, the profession must consider how the ever-increasing focus on patient-centered care may shape research, practice, and education.* *A clearer understanding of how core concepts of client-centered care are operationalized in practice will allow for robust study of the translation of client-centered care principles to practice*	*is not profession-specific, and which can resonate with other practitioners as well.* *Person-centeredness can be a matter for Interprofessional training and development, which OT should promote.* *Operationalization of the concepts in practice is needed for study and knowledge translation.*

Rafeedie et al, 2018	*Opportunities for Occupational Therapy to Serve as a Catalyst for Culture Change in Nursing Facilities*	*Health Policy Perspective paper*	*Focus on Occupational Therapists (OTs)*	*Focus on Skilled Nursing Facilities in the USA.*	*Not applicable*	*Authors provide a narrative review of the literature, focused on significant problems in skilled nursing facilities and how on Occupational Therapists can be a catalyst for cultural change for the provision of client-centered, meaningful services and care.*	*Advocacy by individual practitioners—challenging themselves and others to provide more patient-centered care—can lead to changes that benefit clients, facilities, and payment systems as well as contribute to career satisfaction of OT practitioners.* *Occupational therapy can and should serve as catalyst for culture change in SNFs.* *Occupational therapy practitioners can be a critical component of creating change in nursing facilities by relying on the profession's principles of client-centered care, facilitation of individual choice, and promotion of optimum performance.* *Occupational therapy practitioners are the experts at supporting society's older adults in maximizing QOL; however, it will take considerable change in practice patterns in settings such as SNFs to implement these changes. We believe that if the profession engages in the pursuit of culture change and client-centered service provision in these facilities, occupational therapy can lead the charge to positively influence both this population of clients and the health care providers and systems of care.* *Occupational therapy, through the change agency of every SNF*	*In SNFs, OTs can and should serve as a catalyst for cultural change, with advocacy - challenging themselves and others to provide more patient-centered care. This can lead to systemic benefits and career satisfaction too.* *OTs can rely on the profession's principles of client-centered care and facilitation of individual choice as means to do so. Also, they can activate the other practitioners' change agency, which may imply restructuring organizational silos, including separate rehabilitation gyms.*

							practitioner, can serve as a catalyst to remodel the culture of SNFs. This process may require changing administrative thinking; restructuring organizational silos; and providing individualized, meaningful, and empowering services. Furthermore, the payment structures and physical structures of separate rehabilitation gyms or activity rooms may further isolate the potential of occupational therapy to promote facility wide improvement for residents. However, these factors can be changed.	

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Appendix G

FIRST SURVEY

Project's title: Occupational Therapist-led, team-based Quality Improvement (QI) process on person-centered adult physical rehabilitation: Participatory development of a theory- and evidence-based QI guide for post-acute inpatient rehabilitation settings.

1. Introduction

After brief items on identity and socio-demographics, this initial survey contains a List of Statements (n=11, 1 page) for you to kindly rate from "0" to "10", regarding your agreement with the statement, with 10 meaning the highest agreement possible.
We provide opportunities for you to clarify, in words, each of your rates, if you want – yet you don't need to.
Finally, we provide an open comment box, for you to provide any feedback, tips, comments, or suggestions you would like us to consider for the design of the up, up to 250 words total. Regrettably, we would not consider any text content that comes above that threshold in word count. We do encourage you to do fill into that open box, and to be as honest as you can in every input. Remember that we are not seeking 'right' or 'wrong' answers, but just your perspective and suggestions to build the best possible guide - from the end-users' perspective.

2. Brief Identity and Socio-demographic Indicators

First and last name:
Primary Email contact:
Current Main Position (including affiliation):
Currently with any management roles/duties, including OT department (Y/N):

Years of active OT practice (in Full-time Equivalents):

Age:

Gender (M/F):

City, State/Country:

3. Initial Survey

ITEMS	**AGREEMENT RATE (0-10)***	**Short Comment (e.g., one sentence) to Clarify the Rate <u>- if needed</u>**
1. A “why”, “what” and “how” structure can work for organizing the guide. Concretely: 1) “why (to do this)”, 2) “what” (are person-centered rehab practices and QI activities)”, and 3) “how (can one do it)”.		
2. A full guide with less than 20 pages is desirable and more likely to be used in practice.		
3. A “executive summary” with 2 pages or less can be beneficial to grasp the concept.		
4. Links to external resources and a brief synthesis of them must be provided, so they can be consulted, selected and/or used in a discretionary way.		
5. Text-boxes with practical suggestions (i.e. tips) for person-centered care and quality-improvement practices are likely important.		
6. Theory and evidence content should be integrated / synthesized into a whole body of knowledge in the form practical guidance, instead of being provided into separate or standalone sections.		
7. The guide must be designed to be applied in a customized way (i.e. providing options for being applied in a context-sensitive manner)?		
8. An action model, with a visual map of which QI steps can be taken, is likely helpful		

9. A checklist on which procedures might be considered to be taken is important as a complement of an action model.		
10. A list with examples of practices more and less aligned with person-centered must be provided.		
11. Ethical dilemmas on person-centered care must be included as a mean to trigger reflection and clarify the application of the concept.		

* rate 0; 1; 2; 3; 4; 5; 6; 7; 8; 9; or 10; in which for example: 0= Do not agree at all and 10=Could not agree more.

4. **Box for Open Comments (<u>up to 250 words</u>; regrettably, we won't consider any content after that limit). Include any tips, suggestions, comments you find important for us to consider on the design of the guide.**

Appendix H

2nd survey: Formative feedback on the 'QI guide'

Project's title: Occupational Therapist-led, team-based Quality Improvement (QI) process on person-centered adult physical rehabilitation: Participatory development of a theory- and evidence-based QI guide for inpatient post-acute rehabilitation settings.
Investigators: Tiago S. Jesus; Karen Jacobs.
Contact person: jesusts@bu.edu

Introduction page:

This survey is sent to you as you have been previously enrolled (i.e., have completed the 1st survey) of this study. You are now invited to take part of the 2nd survey, out of three. In this survey, you are invited to provide a formative feedback on the first draft of the guide, to inform any refinements – which will be finally evaluated during the 3rd survey. Please **return this 2nd survey within 2 weeks, or let us know (use the contact person's email above) that you need more time**.
Please **read the guide and: 1) provide quantitative ratings on the clarity, value, and usability,** using the survey questions below – you can clarify if you want, **and** 2) **provide a qualitative, open feedback including any improvement suggestions, up to 350 words**, using the text box below.
Be reminded that there are no right or wrong answers. We just seek your honest perspective to build the best guide one can. The investigators are not entitled to question you about your comments or reveal the identity of who provided which type of feedback. Returning this survey does not imply you can't drop out from the study later, i.e., may not return the 3rd survey if you don't want to. Also, if you returned the 1st survey, that does not preclude you need to return this survey, just that you are entitled and encouraged to – and that we are grateful for that. Thank you!

1) QUANTITATIVE RATINGS

How do you rate the QI guide **(0 to 10),** with “0” being the minimum and “10” the maximum values, the current guide in terms of:

Item	**Rate**	**Short Comment (e.g., one sentence) to clarify the Rate <u>- if needed</u>**
The clarity of its structure		
The clarity of the content		
The adequacy of the length		
The value of the Why section		
The value of the What section		
The value of the How section		
The value of the guide as a whole		
The usefulness of the supportive tables with resources		
The overall relevancy - as a tool empowering and enabling OTs aiming to lead QI journeys on person-centered rehabilitation		

2) QUALITATIVE COMMENTS

Use the text box below to provide **open feedback on the guide, which would include any suggestions for the improvements on the guide**. Your response **cannot exceed 350 words**.

Appendix I

3rd survey: Final feedback on the 'QI guide'

Project's title: Occupational Therapist-led, team-based Quality Improvement (QI) process on person-centered adult physical rehabilitation: Participatory development of a theory- and evidence-based QI guide for inpatient post-acute rehabilitation settings.
Investigators: Tiago S. Jesus; Karen Jacobs.
Contact person: jesusts@bu.edu

Introduction page:

This survey is the last one from the project above.
Please **return this 2nd survey within 2 weeks or let us know (use the contact person's email above) that you need more time**.
This final survey has only **3 questions for ratings**.

We are extremely grateful for your contribution.

Thank you!

Tiago S. Jesus

How do you rate the QI guide **(0 to 10), with "0" being the minimum and "10" the maximum** values, the current guide in terms of:

Single Item	**Rate**	**Any comments to clarify the Rate**
The overall value and adequacy of the Guide as a quality improvement manual on person-centered rehabilitation?		

Rate as:

1. **Not at all;**
2. **Possibly;**
3. **Likely;**
4. **Very likely.**

Single Item	**Rate**	**Any comments to clarify the Rate**
If you need or decide to develop a related QI initiative, how likely are you to use or rely on the Guide?		
If a colleague needs or decides to develop a related QI initiative, how likely are you to recommend the use of the Guide?		

Appendix J
Participants Recruitment Information Sheet

Protocol Title: Occupational Therapist-led, team-based Quality Improvement (QI) process on person-centered adult physical rehabilitation: Participatory development of a theory- and evidence-based QI guide for inpatient post-acute rehabilitation settings.

Principal Investigator: Tiago Jesus, Ph.D., PP-OTD (student);
Faculty: Karen Jacobs, EdD, OTR, FAOTA;

Description of Study Population: Seasoned/leading Occupational Therapists in practice (more than 4 years in practice) and/or with service or department management roles, within inpatient post-acute rehabilitation settings, notably rehabilitation inpatient facilities or skilled nursing facilities.

Contact Person: Tiago Jesus; jesusts@bu.edu

The purpose of this research is to develop a theory- and evidence-based 'guide' (Knowledge Translation tool) for enabling Occupational Therapists (OTs) to lead team-based Quality Improvement (QI) processes on person-centered rehabilitation (PCR), within 'their' inpatient rehabilitation setting. To do so, in addition to a synthesis of the literature, we employ a user-centered, participatory development process in which we collect initial, formative and summative feedback on the 'guide' from potential end-users, in order to turn it more relevant and usable by OTs in practice settings.

If you are interest in participating in this study, please email the Principal Investigator, Tiago Jesus, at: jesusts@bu.edu. We begin the recruitment immediately and will engage about 10-12 OTs in this role. The recruitment will be open until the participant positions are filled.

You are deemed eligible to participate if you have more than 4 years of Occupational Therapy practice, are currently working at or for an inpatient rehabilitation facility or skilled nursing facility addressing predominantly adult populations (over 18 years) and if you don't have any current affairs with the Boston University (e.g., student, employee, fieldwork supervisor).

Eligible participants who take part in this research will be in this research for about 10 months. During this time, subjects will provide 3 rounds of feedback, through brief web-based surveys: one initially, another about 6 months after, and a final one about 4 months later. Completing each survey may take about 12 to 15 minutes, and you have 1 week to do so after reception. You can, however, ask for more time. Once admitted, you are entitled to remain a participant up to the study's end, or drop out at the point.

The main risk of allowing us to use and store your information for research is a potential loss of privacy. The principal investigator will protect your privacy by labeling your information with a code and keeping the key to the code in a password-protected server.

There are no direct benefits from participating in this research. The potential benefits of taking part relate with the ability to actively influence the content and shape of a quality-improvement guide, for relevance and usability, which can then be more likely used by OTs in practice. You will also receive the final guide, immediately after completion. Finally, we will give you the opportunity to get public, reputational credit – your name and position to be explicitly acknowledged in any dissemination venue (e.g., in the final thesis, resultant peer-reviewed publication, conference communication) for the participation in this study. That is optional.

Thank you and looking forward to receiving interest statement from you at jesus@bu.edu!

Boston, March 10, 2020

Tiago Jesus, PhD & Karen Jacobs, FAOTA

Appendix K

Protocol Title: Occupational Therapist-led, team-based Quality Improvement (QI) process on person-centered adult physical rehabilitation: Participatory development of a theory- and evidence-based QI guide for inpatient post-acute rehabilitation settings.
Principal Investigator: Tiago Jesus, Ph.D., PP-OTD (student)
Description of Study Population: Seasoned/leading Occupational Therapists in practice and/or with management roles, within inpatient post-acute rehabilitation settings, notably rehabilitation inpatient facilities or skilled nursing facilities.
Version Date: February 5th, 2020

Study Summary

The purpose of this research is to develop a theory- and evidence-based 'guide' (Knowledge Translation tool) for enabling Occupational Therapists (OTs) to lead team-based Quality Improvement (QI) processes on person-centered rehabilitation (PCR), within 'their' inpatient rehabilitation setting. To do so, in addition to a synthesis of the literature, we employ a user-centered, participatory development process in which we collect initial, formative and summative feedback on the 'guide' from potential end-users, in order to turn it more relevant and usable by OTs in practice settings.

You are deemed eligible to participate if you have more than 4 years of Occupational Therapy practice, are currently working at or for an inpatient rehabilitation facility or skilled nursing facility addressing predominantly adult populations (over 18 years) and if you don't have any current affairs with the Boston University (e.g., student, employee, fieldwork supervisor). If you don't comply with any of these requirements, or have any doubts, please let us know about (jesusts@bu.edu), as it can turn you ineligible to participate. If ineligible, you are going to be emailed with the final guide, nonetheless.

Eligible participants who take part in this research will be in this research study for about 4 months. During this time, subjects will provide 3 rounds of feedback, through brief web-based surveys: one initially, another about 3 months after, and a final one about 1 month later. Completing each survey may take about 12 to 15 minutes, and you have 1 week to do so after reception. You can, however, email the principal investigator if you need more time, and likely that can be accommodated. You will receive up to two weekly reminders, per survey, if we don't get your surveys on time or an email response from you, for accepting, declining or dropping out. After a no response to both reminders and no completion of the survey, you may be considered by the research team as not currently participating in the study. As one receives your feedback surveys, we assume you have agreed to be an active participant up to that point.

The initial survey, which can be completed now or up to a week from now, includes 11 statements for participants to provide a rate on the level of agreement with the statement. It also affords the opportunity for participants to provide open qualitative, written accounts with word-count limit (up to 250 words). The second and third rounds consist essentially of open-ended, qualitative feedback or suggestions for improvements on the guide, also in written format and with word-count limit (up to 350 words), in addition to a single rate on the value of the guide as it is. The feedback is sought after the participants have been supplied with the first and second drafts of the 'guide', respectively for the second and third feedback round. This means that completing the second and third round of feedback also takes you the time to read the provisional 'guide', which isn't expected to be page loaded (e.g., can be of less than 20 pages, excluding references and any appendixes; yet the ideal length is one of the aspects we want to accommodate based on your feedback, i.e. one of the items in the initial survey).

The main risk of allowing us to use and store your information for research is a potential loss of privacy. The principal investigator will protect your privacy by labeling your information with a code and keeping the key to the code in a password-protected server. Any indirect markers of identity in the qualitative comments (e.g., employers' names, city where you live) will be removed along with personal identifiers. Any faculty, including external advisors, will only handle de-identified data.

The person in charge of this study is **Tiago Jesus, Ph.D. and student at the post-professional Occupational Therapy Doctorate, under the academic mentorship of Karen Jacobs, FAOTA. Tiago Jesus** can be reached at **jesusts@bu.edu and, if not responsive, Karen Jacobs** at **kjacobs@bu.edu.**

What else should I know about a research study?

Participation in research is voluntary. It is your choice to participate in the study, or not to participate. If you choose to participate now, you may change your mind and stop participating later. If you decide not to participate, that decision will not result in any penalty or loss of benefits to which you are otherwise entitled. Indeed, any person initially invited to take part will be emailed with the final guide. That is not dependent on the participation status.

About 10 subjects will take part in this research study at Boston University. Once you accept, you are entitled to remain a participant up to the study's end, or drop out at the point you want to.

There are no direct benefits from participating in this research study. The potential benefits of taking part of the study relate with the ability to actively influence the content and shape of a quality-improvement guide, for relevance and usability, which can then be more likely used by Occupational Therapists in practice. We will give you the opportunity to get public, reputational credit for the participation in this study. That is optional. If you decide that you want your name and position to be explicitly acknowledged in any dissemination venue (e.g. final thesis, any resultant peer-reviewed publication, conference communication), please fill out the box at the end of this consent and return this consent to the principal investigator, using jesusts@bu.edu**.** Of note, if your option is to get your participation acknowledged, that does not imply that your individual input is disclosed; the latter will remain de-identified. It will only be disclosed that you have participated.

Other than that (i.e., if you want to participate but don't want your name acknowledged), you don't need to return this consent. You can merely respond to the surveys within a week of reception, or more if explicitly asked for.

Who is Funding the Study?

This study has no funding support.

Study Participation and Early Withdrawal

Taking part in this study is your choice. You are free not to take part or to withdraw at any time for any reason. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential.

Will I get paid for taking part in this research study?

We will not pay you for taking part in this study.

What will it cost me to take part in this research study?

There are no costs to you for taking part in this research study.

Acknowledgement of participation in any dissemination venue

If you want your participation to be acknowledged in any dissemination of this research, you need to fill out the content of the next text box. Recalling, this is optional, i.e. you may choose not to do so. Also, you may do it partly. You may want only your name to be acknowledged, for example. In that case, write YES, and then your name only in the respective spots.

I want my name, position and/or affiliation, as written below, to be explicitly acknowledged, as an active participant in this study, in any dissemination venue (e.g., final report, any resultant publication, conference communication).

As that is my option, I write “YES” here: ________

The way I want my name to be written: ____________________________________
The way I want my position to be written: __________________________________
The way I want my affiliation to be written: _________________________________

Statement of Consent

I have read the information in this consent form including risks and possible benefits. I have been given the chance to ask questions. I have no questions or my questions have been answered to my satisfaction, and I agree to participate in the study.

APPENDIX L

Theory or frameworks supporting the 'How' section of the QI guide

Note: External links were active by the time this guide was developed. Alternatives based on the title of the framework/resource should be searched if the links become disactivated.

Code	**Framework / Resource**	**Description**	**How it informed the development of the *PCR-ImpAct***	**Key External Resources**
A	The Model of Improvement, includes the Plan, Do, Study, Act (PDSA) cycles	The Model of Improvement from the Institute for Health Improvement includes the widely-recognized PDSA model, as well as three fundamental questions about: the purpose of the improvement (i.e., what people wants to accomplish); assuring that changes are in fact improvements (i.e., lead to more positive care experiences or outcomes); and what changes can be made that will result in improvements The component referring to the PDSA entails rapid testing cycles of the agreed improvement idea, and are usually at the core of local, small-scale QI activities. PDSA cycles are used in QI across many industries, including healthcare, although not always properly applied (Knudsen et al., 2019; McNicholas et al., 2019; Taylor et al., 2014). This method is sometimes oversimplified (i.e., merely applied in a technical rather than socio-technical way), and its application sometimes not iterative enough, to allow for the identification of and adaptation to the local circumstances (McNicholas et al., 2019).	This model was critical to inform the development of the improvement cycles in the *PCR-ImpAct*. That is inclusive of each of the components of the PDSA stages: the Plan, Do, Study, and Act. Furthermore, elements of three initial questions of the model for improvement were accommodated within the Plan stage of the improvement cycles. Several considerations were applied related to the need of the improvement cycles and its steps, in terms of being focused on the identification of and adaptation to the local data, perspectives, and circumstances.	How to Improve | IHI - Institute for Healthcare Improvement
B	Consolidated Framework for Imple-	The CFIR is meta-theoretical menu of constructs (39 constructs organized across five major domains), built from a synthesis of research and theories (e.g., Everett Rogers'	Several constructs of the CFIR were used in the *PCR-ImpAct*. For example, the type of Intervention	The Consolidated Framework for

	mentation Research (CFIR)	Diffusion of Innovations), toward detailing the variables that have been associated with effective implementation endeavours (Birken et al., 2017; Kirk et al., 2016; Means et al., 2020). The CFIR has been widely used to design implementation interventions or to identify the factors associated with effective or non-effective implementation endeavours (Birken et al., 2017; Kirk et al., 2016; Means et al., 2020). In concrete, the CFIR provides a repository of implementation-related constructs, which can act as facilitators or barriers, and address the following domains: the Intervention Characteristics; Outer setting; Inner Setting; Characteristics of Individuals, and the Process of implementation (Kirk et al., 2016). The CFIR is therefore a comprehensive framework in terms of the wider range of internal and external factors to be considered in implementation endeavours.	Characteristics (e.g., trialability, complexity, relative advantage, adaptability) were reported in the Plan stage as criteria for selection of potential change ideas. Elements of the domain Outer Setting were considered, such as on the involvement of patients and their needs for informing the QI journey and activities. Issues of the Inner Setting were considered for example regarding the organizational incentives and rewards, the readiness for implementation, available resources, and leadership engagement. Characteristics of Individuals were also considered, such as the need to address beliefs that care is already person-centered and the need to foster individuals' self-efficacy as an intrinsic determinant of motivation. Finally, in the Process domain, we include the key notions of the opinion leaders, champions of change, and finally the need to reflect and evaluate the QI activities and overall journey.	Implementation Research – Technical Assistance for users of the CFIR framework (cfirguide.org)
C	The Behaviour Change Wheel (BCW)	This BCW is another meta-model that integrates components of 19 behaviour change frameworks (Michie et al., 2011). The BCW includes the key features of the Theoretical Domains Framework, which is another widely-used framework to understanding individual's barriers and facilitators of change which compiles 33 behaviour	The central elements of the BCW model focus on the Capability, Opportunity, and Motivation for a behaviour change. The *PCR-ImpAct* provides a focus on these three elements, including the roles of	Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for

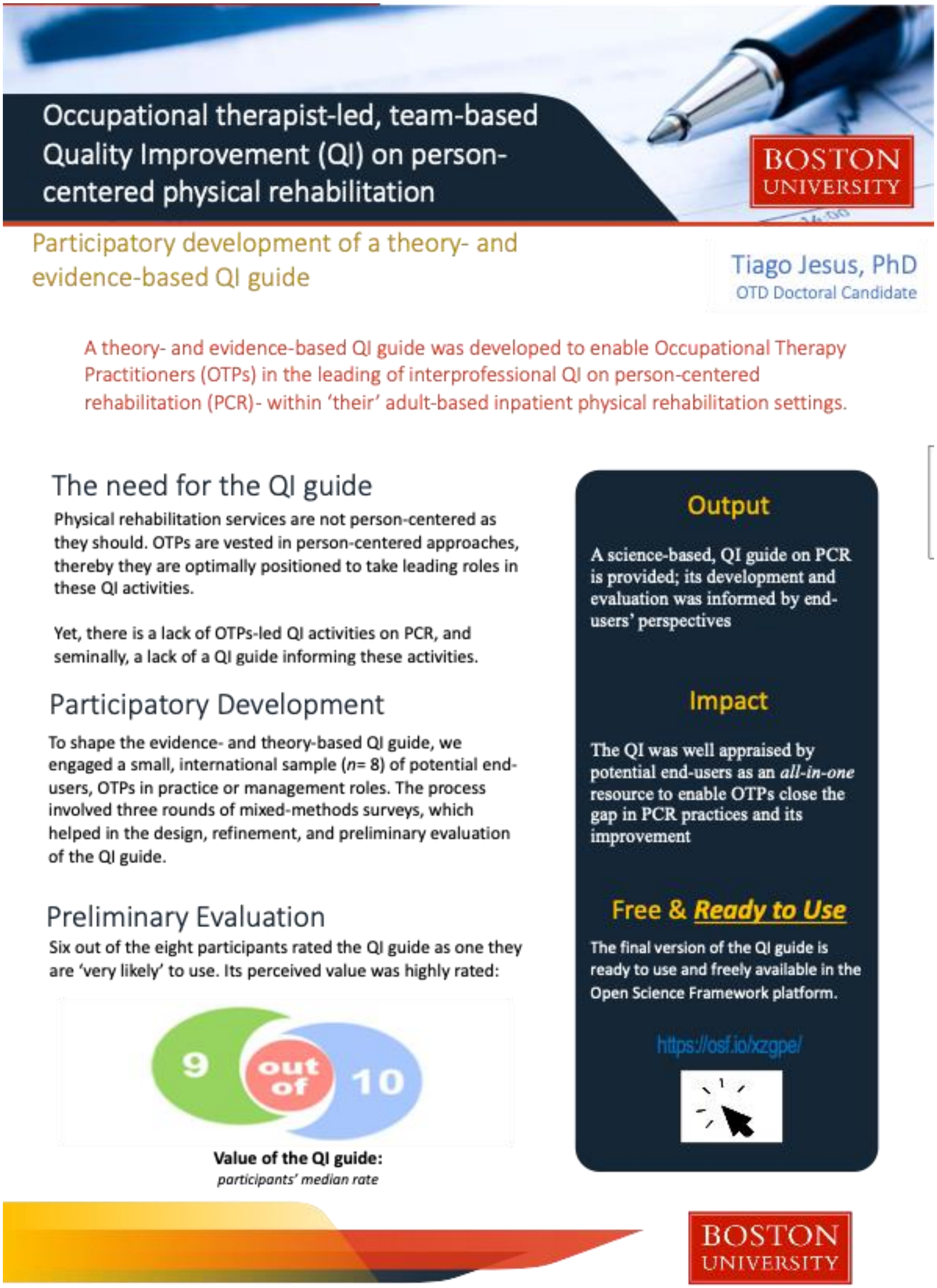
		change/psychological theories (Atkins et al., 2017; Birken et al., 2017; Cane et al., 2012). Compared to the Theoretical Domains Framework, the BCW adds elements designed to help in the transition from the 'diagnosis' of behavioural problems (e.g. ineffective healthcare practices, routines or behaviours) to the design of an intervention that helps to address those problems change, i.e., improve healthcare practices (Ekberg et al., 2020; Michie et al., 2011). Hence, the BCW more closely resembles an action model. Also, the BCW as well as the Theoretical Domains Framework differ from the CFIR due the more stringent focus on psychological or behavioral change theory. Finally, associated with the BCM, one can find the Behaviour Change Techniques Taxonomy. This taxonomy provides a classification of behaviour change techniques (Cane et al., 2015; Michie et al., 2013), which can be used to guide the discrete, low-level components of interventions focused on changing providers' behaviors.	opportunities and capabilities to build motivation for QI journeys of PCR, and the importance to address individual's motivation in addition to team's motivation. Other components of the BCW model were used as well, such as the functions of education, training, enablement, and incentivisation (external and especially the intrinsic) to provide development opportunities, build capability, as well as motivation for engagement in the QI journey.	characterising and designing behaviour change interventions. Implementation science. 2011;6:42. Note: This journal is open-access. Welcome - BCT Taxonomy Training (bct-taxonomy.com)
D	The Normalization Process Theory (NPT)	The NPT is an action theory focused on the process of how a new or changed practice becomes embedded into everyday practice, i.e. becomes 'normalized' (May et al., 2009). The NPT has a substantial use in improvement or implementation processes (May et al., 2018; McEvoy et al., 2014). As an action theory, NPT is concerned with explaining what people do, not their attitudes or beliefs, to turn a new practice into a regular practice pattern. Overall, the theory addresses what individuals and groups do, to enable interventions aimed at implementing new practice routines. There is a dedicated website for the NPT, which includes, for example, the NPT Online Toolkit.	The NPT was particularly influential for the last task of the Team's Engagement process, which focused on the need to "collectively reflect on how changes are being enacted, appraised, challenged, and finally normalized into practice". This task essentially reflects the phases of this model. Additionally, the model can also be useful to inform the decision to "act" within the PDSA cycles.	Normalization Process Theory | Normalization Process Theory Normalization Process Theory | NPT Toolkit

E	Clinical Micro-Systems (CMS)	CMS refer to small, interdependent group of people who work together regularly to provide care for specific groups of patients or discrete population served (Nelson et al., 2008). This small group is often embedded in a larger organization, formed around a common purpose or need, and may comprise discrete units of care (Nelson et al., 2008). In addition to healthcare professionals, these micro-systems include administrative and other support staff, the population (e.g., clients, their families) served, and the means (e.g., information technology) or processes that link them up (Nelson et al., 2008; Wasson et al., 2003). In short, clinical microsystems are the care team, their clients (including relatives), and their processes, here often referred to as the 'team'. The implementation of the CMS approach can help to develop a patient-centered approach, promote interdisciplinarity and quality improvement skills, and contribute to increasing patients' and clinicians' satisfaction (Côté et al., 2020). The use of the CMS approach emphasises the improvement work at the 'team' level, and the role of improvement leaders at that level (Batalden et al., 2003).Of note, a clinical micro-system is different a health professions' department (OT department), which rather aggregates practitioners of the same professional discipline and often act in different service units and with different processes and sub-populations. Furthermore, CMSs can be extended to meso-systems. This occurs when one rather considers the whole, organized 'service line' of micro-systems that provide a continuum of services and care to a group of patients. At meso-system level, improvement activities can address, for example, transitional aspects of care (McKinley et al., 2008).	The CMS approach was central for the definition of the main unit for the QI journey and activities to occur, i.e., at the micro-system or service-unit level. Furthermore, The CMS approach was also informative for the need to include clients served and all the unit's staff and rehabilitation team members in the QI journey. The notion of meso-systems and continued service-lines also informed on the possibilities to develop QI activities that include discharge approaches or promote coordination with other levels of care and institutions, for example explored among the options to "foster accountability" within the upper stream of *PCR-ImpAct*.	IEHSS (clinicalmicrosystem.org) Clinical Microsystem Assessment Tool | IHI - Institute for Healthcare Improvement
F	The Successful Healthcare	The SHIFT-Evidence is a recent model incorporating key features of existing improvement and implementation science models, but with an added focus on the complexity	The SHIFT-Evidence was highly influential in the development of the *PCR-ImpAct*. The actionable 'simple	Successful Healthcare Improvements

	Improvements From Translating Evidence in complex systems (SHIFT-Evidence)	science, systems dynamics, and the notion of complex adaptative systems (Reed, Green, et al., 2019). The SHIFT-Evidence identifies common QI challenges and strategies to overcome them, which are summarized in 12 ‘simple rules’ that provide actionable guidance (Reed, Howe, et al., 2019). The SHIFT-Evidence emphasizes the need to: take into account the unique initial conditions in each local setting; conduct needs assessments to respond to unpredictable effects or dependent problems; and the need for improvement activities to be sensitive to evolving priorities and circumstances (Reed, Howe, et al., 2019). In short, the SHIFT-Evidence embraces the improvement and implementation science, but challenges any linear or fully generalizable responses and assumptions based on science alone. It rather fosters pragmatism and the local adaptation of a QI activity to the complex, dynamic, and the somewhat unpredictable local context or their responses (Reed, Green, et al., 2019; Reed, Howe, et al., 2019).	rules’ helped to provide guidance especially for elements of the upper and lower streams. For example, the recommendation related to understanding and addressing dependable processes at the organizational level was reflected in the upper stream of the *PCR-ImpAct*. Perhaps more importantly, the overall focus on the need to be adaptive and guide one’s action according to the unique conditions of each setting, the evolving local priorities or circumstances, and unexpectable events were also addressed throughout the *PCR-ImpAct.*	From Translating Evidence in complex systems (SHIFT-Evidence) | The Health Foundation
G	The Health Foundation’s white papers: on organization-wide improvement journeys, and the habits of an improver	Two white papers of The Health Foundation, from the UK, were important too. One white paper focuses on the how to get started with the development and sustainment of long-term QI journeys within healthcare organizations (Jones et al., 2019). The other white paper focuses on the five main habits (and subsequent sub-habits) of an ‘improver’ (Lucas & Nacer, 2015). The former, although focused on organization-wide QI journeys, provides a roadmap on how to develop QI journeys in the long-term, as opposed to merely developing discrete QI activities; arguably person-centered care cannot be fully addressed by single activities or QI cycles and does not become a system’s property over night (Jones et al., 2019). The latter resource, in turn, addresses the key habits of the person driving the improvements, which consist of: developing a systems thinking (i.e. connection making,	The white paper on QI journeys within healthcare organizations informed the focus on QI journeys beyond QI activities, and on the typical characteristics of these journeys - which are all but linear. Regarding these typical characteristics, the *PCR-ImpAct* emphasized, for example, the need to initially assess the systems’ readiness and the need to securing the ‘buy in’ and support of the organizational leadership. In turn, the white paper on improvement habits contributed to shape the recommendations for	The improvement journey | The Health Foundation The habits of an improver | The Health Foundation

		synthesizing, accepting of change), fostering creativity (i.e. team playing, critical thinking, and generating ideas), stimulating learning (e.g. reflective, problem finding, questioning), instilling resilience (i.e. optimism, tolerating uncertainty, calculated risk taking), and being able to exert influence (i.e. being emphatic, facilitative, and comfortable with conflict) (Lucas & Nacer, 2015).	action from the perspective of the OT champion, on its role and approach, including the need to promote creative thinking, and a resilient QI journey. Overall, these resources were instrumental to provide structure to the *PCR-ImpAct* as well as to inform the activities of the agent or 'champion' of change.	
H	Embedding a culture of quality improvement	A recent report from the King's Fund of the UK (Jabbal, 2017), was developed based on a literature review, roundtable event, and semi-structured interviews with leaders of the National Health System and senior stakeholders involved in QI initiatives. According to the report, successfully launching a QI strategy depends on: having a clear rationale; ensuring staff are ready for change; and understanding the implications for the organisation's leadership team in both style and role. The report also found that the enablers for embedding a culture of QI included: fostering a new approach to leadership; allocating adequate time and resources; ensuring patient engagement and co-production; and maintaining staff engagement. Fidelity to a chosen approach was also deemed critical to sustaining and embedding QI in an organisation's culture. Leaders need to engage with staff, empower frontline teams to develop solutions and change ideas, and ensure that there is an appropriate infrastructure to support staff and spread learning.	This resource informed the development of *PCR-ImpAct*, especially on the tasks related with the need to secure organizational support and the types of support that needs to be sought and secured for supporting QI journeys, agents, and activities. The engagement of clients was also supported by this resource, likewise the need to develop a culture of practice associated to QI activities.	Jabbal J (2017). Embedding a culture of quality improvement. The King's Fund, London. The full text can be downloaded at: Embedding a culture of quality improvement | The King's Fund

Appendix M – Fact Sheet



Occupational therapist-led, team-based Quality Improvement (QI) on person-centered physical rehabilitation

BOSTON UNIVERSITY

Participatory development of a theory- and evidence-based QI guide

Tiago Jesus, PhD
OTD Doctoral Candidate

A theory- and evidence-based QI guide was developed to enable Occupational Therapy Practitioners (OTPs) in the leading of interprofessional QI on person-centered rehabilitation (PCR)- within 'their' adult-based inpatient physical rehabilitation settings.

The need for the QI guide

Physical rehabilitation services are not person-centered as they should. OTPs are vested in person-centered approaches, thereby they are optimally positioned to take leading roles in these QI activities.

Yet, there is a lack of OTPs-led QI activities on PCR, and seminally, a lack of a QI guide informing these activities.

Participatory Development

To shape the evidence- and theory-based QI guide, we engaged a small, international sample (n= 8) of potential end-users, OTPs in practice or management roles. The process involved three rounds of mixed-methods surveys, which helped in the design, refinement, and preliminary evaluation of the QI guide.

Preliminary Evaluation

Six out of the eight participants rated the QI guide as one they are 'very likely' to use. Its perceived value was highly rated:

Value of the QI guide:
participants' median rate

Output

A science-based, QI guide on PCR is provided; its development and evaluation was informed by end-users' perspectives

Impact

The QI was well appraised by potential end-users as an *all-in-one* resource to enable OTPs close the gap in PCR practices and its improvement

Free & ***Ready to Use***

The final version of the QI guide is ready to use and freely available in the Open Science Framework platform.

https://osf.io/xzgpe/

BOSTON UNIVERSITY

Annexure 1 – Journal article preprint

Paper type: *Review*

Running Head: Person-Centered Rehabilitation Model

Title: The Person-Centered Rehabilitation Model: Framing the concept and practice of person-centered adult physical rehabilitation based on a scoping review and thematic analysis of the literature

Abstract

Objective: To develop a cross-professional model framing the concept and practice of Person-Centered Rehabilitation (PCR) in adult populations, based on a scoping review and thematic analysis of the literature

Data Sources: Key databases (PubMed, Scopus, CINAHL), snowballing searches, and experts' consultation were the data sources for English-language empirical and conceptual papers. Papers subject to the thematic analysis were published from 2007 to February 2020, after all-time papers have been identified.

Study Selection: Two independent reviewers selected adult-based empirical or conceptual papers addressing at least one of the six categories of PCR-related content, a

priori specified in the published in the review protocol. From 6527 unique references, 174 were initially included, and 147 remained after the temporal cut-off. Of those, 26 were exclusively conceptual papers.

Data Extraction: Two independent reviewers extracted textual data on what PCR entails in either concept or practices. No quality appraisals were performed as typical in scoping reviews.

Data Synthesis: A thematic analysis produced thematic categories that were combined into an emergent model (the PCR Model), which was reviewed by five external experts. As an overarching theme, PCR was framed as way of thinking about and providing rehabilitation services “with” the person. Then, the model articulates that PCR is embedded in rehabilitation structures and practice across three levels: 1) the person-professional dyad, 2) the micro-system level (typically an interprofessional team, involving significant others) and 3) a macro-system level (organization within which rehabilitation is delivered). Thematic categories are articulated within each level, detailing both the conceptual and practice attributes of PCR.

Conclusions:

The PCR model can inform both clinical and service organization practices. As essentially literature-informed, the PCR Model may benefit from further developments. This includes obtaining wider stakeholders’ input, further operationalization, and the testing in improvement projects.

Keywords (MeSH): Patient-Centered Care; Rehabilitation; Review; Models, Theoretical.

List of Abbreviations:

PCR: Person-Centered Rehabilitation

BODY OF THE TEXT

Person-centered care principles are fundamental for organizing and delivering health services, optimizing care experiences, and achieving meaningful outcomes.[1-5] Therefore, conceptual models that both improve understanding and enhance the practice of person-centered care have proliferated in the broader healthcare literature[6-13] and in specific fields (e.g. dentistry, emergency care, long-term care),[3,7,12,14-18] some informed by systematic reviews.[13,16] However, in rehabilitation, this type of knowledge synthesis and framework is absent,[19] although Person-Centered Rehabilitation (PCR) is widely recommended for guiding rehabilitation services delivery and organization.[19-24] Furthermore, PCR remains more rhetoric than standard rehabilitation practice, as identified by recent studies[25,26] and systematic reviews on goal-setting and decision-making.[27-30] Moreover, professionals often perceive their care as being more person-centered than their patients do.[26,29,31,32]

To address these gaps, this paper aims to depict what PCR means, in both conceptualization and practice.[19-22] To do so, this paper provides the results of a scoping review and thematic analysis of the PCR literature. The thematic categories are combined into and presented through the *Person-Centered Rehabilitation Model* (PCR Model): a cross-professional model for the concept and practice of PCR in adult physical rehabilitation settings that emerged from the thematic analysis of the literature reviewed.

Methods

The review protocol,[19] and initial scoping review results (i.e. quantitative map of the literature)[33] have been published. This paper provides the thematic analysis of that literature. It does so under the form of a conceptual model. As planned,[19] the thematic categories emerging from the literature reviewed were organized into a conceptual model, here labeled as the PCR Model. The components of the PCR Model, presented throughout the results, refer to our thematic categories.

For the reporting, we used the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).[34] The PROSPERO database, a prospective register of systematic reviews, does not allow for the registration of scoping reviews.

Eligibility criteria:

The scoping review included English-language theoretical or empirical articles addressing PCR. Papers were included if they addressed at least one PCR topic, among six pre-defined categories (see **table 1**), and the rehabilitation of adults (age >18) with physical impairments (excluding mental health conditions or intellectual impairments).[19] Pediatric populations were excluded as the decision-making autonomy of children and the role of parents may imply substantive differences for the conceptualization and practice of PCR.[19]

Searches and selection of information and evidence sources:

We used key databases (PubMed, Scopus, CINAHL), snowballing searches, and experts' consultation as information sources. The full search strategy in PubMed and other search details are available in the open-access review protocol.[19]

For the underlying scoping review, previously published, we included papers from all time to May 2019, which resulted into 170 papers, 35 exclusively conceptual.[33] For the purpose of this thematic analysis, we updated the searches up to February 2020 on the one hand, and applied a temporal cut-off for the oldest papers on the other.[19] Here we include only papers published since 2007, matching the publication date of key conceptual articles.[35-38] This reduced risks of neglecting historical principles, and prevented the dilution of recent perspectives.

Using the eligibility criteria, two independent reviewers were used throughout the selection decisions, using a second round for agreement over conflicts, while a third, senior author decided on remaining disgreements.[19] [33]

Data charting

Text quotations for what PCR entails, and how was it practiced or implemented (including determinants or perceived facilitators or barriers), were independently extracted for open boxes by two independent reviewers (TJ; CP), who have both review and subject-matter expertise. The independent extractions were merged afterwards, followed by a topical synthesis of the data per paper. . Quality appraisals were not performed as typical in scoping reviews.[34,39]

Synthesis of results

An inductive thematic analysis and following the Braun and Clarke’s six-phase guide was used.[19] TJ and CP, the data extractors, initiated the thematic analysis and drafted the resultant model, which combined and articulated the thematic categories. The whole model and its components (i.e. the thematic categories) were revised iteratively by other authors with PCR expertise (FB, NK, CC), with reference to the data extracted. A draft manuscript was then sent to five external experts (see **web-appendix 1** for their names and positions), for improvement suggestions. A ‘knowledgeable insider’ (person experiencing disability and a disability advocate) was included. Manuscript revisions in response to the experts’ feedback (detailed in the **web-appendix 2**) were finally sent back to the external experts who had the opportunity to comment.

RESULTS

Figure 1 provides the PRISMA flowchart. From 6527 unique references, 174 were initially included, and 147 remained after the temporal cut-off. Of those, 26 were exclusively conceptual papers. The most prevalent inclusion category was on studies of the implementation of PCR approaches, including its effect (category #3 in **table 1**), with

58 papers, 27 exclusively on this inclusion category. The **web-appendix 3** provide the list of 144 papers included, including the respective inclusion categories. In turn, the **web-appendix 4** presents the 239-page data extraction table, with a topical synthesis of data per included paper.

Figure 2 displays the PCR Model. After the model overview (i.e. synthesis of themes), we elaborate on each theme to elucidate the concept and practice of PCR.

1 OVERVIEW

PCR is *a way of thinking about and providing rehabilitation services "with" the person*. The focus is on how rehabilitation services and care are thought about, organized, and delivered by professionals, and ultimately experienced by the *person*, i.e. the person in a rehabilitative process, henceforth. The PCR model articulates that PCR is embedded in rehabilitation structures and practices across: 1) the person-professional dyad; 2) the micro-system level (broader unit of care, including interprofessional teams and significant others); and 3) macro-system level (organization and structures within which PCR is delivered). Each level has its PCR attributes (**Figure 1**), which interact across levels.

2 PERSON-PROFESSIONAL DYAD

Within the person-professional dyad, we identified five attributes characterizing PCR approaches in which interactions are:

2.1 Respectful of and tailored to the *Person* – beyond individualized interventions for the patient: PCR refers to a culture of service focused on the needs of the whole *person*, not merely those arising from *patients* as objects of biomedical conditions and interventions.[22,40-45] Hence, PCR is respectful of and tailored to the unique characteristics and circumstances of the *person* (perspectives, preferences, values, experiences, worldview), beyond consisting of individualized interventions addressing the impairments or symptoms of unique patients.[21,35,42,43,45-53] PCR nurtures notions of personhood, the *person*'s self-determination, and values the singularities (i.e. unique characteristics) of each *person*.[36,37,43,47,51] *Persons* should be treated with respect, dignity, and valued as persons with needs, resources, and capabilities.[21,36,38,48,49,52,54-63] Each *person* has an equal right to experiencing a PCR approach.[38,51,64-66] PCR is accepting, non-judgmental, embraces individual differences, and aspires to reduce any power differentials exerted by professionals in the person-professionals dyad.[37,51,57,66-72]

PCR practices are respectful of personal choices and of *persons*' control over their lives.[28,30,43,51,61,71,73-76] Professionals must acknowledge *persons*' right to participate and ultimately decide about relevant rehabilitation goals, which includes the right to not do so.[55,77-79] Indeed, not all *persons* want active involvement in rehabilitation planning, especially day-to-day decisions,[79,80] yet need to be provided with the means and opportunity to participate in that planning,[53,69,81] to the degree they desire.[82] *Persons*' willingness to participate in rehabilitation decisions need to be monitored, revisited and accounted for,[29,55,82] not presumed.[83]

Finally, PCR implies that professionals' communication is respectful of and tailored to person-specific circumstances. These include *persons*' cultural values (for a culturally-competent rehabilitation[84,85]), health literacy,[52,79] educational level,[86] language needs,[87] cognitive or communication impairments,[27,53,88-92] impaired self-awareness,[93] visual or hearing impairments,[62] or spiritual needs.[21]

2.2 Reflexive and adaptive to the situation at hand – not script-based: Though PCR is now widely required and accepted as morally appropriate, appraising and developing person-centered interactions remains challenging. Professionals[77] and PCR experts[43] often disagree on whether given person-professional interactions are person-centered. In each situation, professionals need to consider a complex net of professional obligations, assigned tasks, organizational imperatives, and safety considerations, along with PCR requirements.[43,94-97] PCR occurs at the interface of a minimum of two subjectivities: professionals' and *persons*'.[43,44] As situations and *persons*' characteristics vary, PCR cannot be fully guided, standardized, or dictated. Rather than merely being protocol-driven or a 'one-size-fits-all' approach, it is anti-reductionist and adaptive to situations at hand.[22,36,43,67,98] Rigid scripts for PCR curtail the needed personalization and adaptability to *persons* served, the subjectivities of those involved, and the unique contexts in which rehabilitation takes place.[22,43,44,49,99]

Adaptation to the situation requires professionals being continually attentive to persons' responses (e.g. bodily reactions, verbalizations, emotional cues),[43] reflecting on how their actions come across to that particular *person*, in that context and timing, and adjusting action nimbly.[43,78,98-100] Similarly, professionals need to understand how and when to push and when to ease off.[43] For example, "benevolent manipulations" (encouraging behaviors to support persons in achieving own goals) may fit PCR ideals,[43] yet professionals cannot coerce or persuade *persons* to go against stated preferences.[43,94,101] Altogether, PCR is complex, subject to failure, and involves continuous learning and adaptation.[67,68,102] It requires humility,[43] mindful questioning,[102] ethical reasoning,[44,96,103,104] and critical reflection in and on one's actions, both at the time services are provided, and retrospectively thereafter toward continual improvement.[43,67,68,100,102]

2.3 Nurtures a supportive relationship – compassionate, trustful, and caring: PCR interactions are compassionate, trustful, caring, attentive, and genuinely supportive.[22,37,43,44,70,102,105-107] It includes providing emotional support and empathetic reassurance of *persons*' suffering or misfortunes,[37,44,45,48,57,60,98,105,108-117] without condescension, pity, or stigma.[36] These actions require professionals' willingness to spend time being with the *person*,[118] undivided attention and active listening toward the *person*'s lived experience, as much as *persons* desire, without rush.[22,26,38,40,49,50,57,76,109,111,112,118-123] In the digitalization era, professionals need to look at the *person*, not only at computer screens, to obtain information first-hand and show presence.[124,125] In doing so, professionals can use communication strategies like paraphrasing,[112] summarizing,[26] interpreting and seeking explanation,[112] and providing gentle reflections on the *person*'s thoughts, for clarification not for shaping *persons*' values.[111]

In enacting PCR, professionals strive to: get to know each *person*, as much as they want to be known;[28,49,59,118] understand the *person*'s struggles, hopes, and priorities;[58,71,111,126] help understand what is meaningful;[47,68,118] and convey that the *person* is heard - not merely a "number" or object of care.[22,48,49,61,101,127,128] Information obtained on what is valued or meaningful additionally informs rehabilitation planning.[88,99,111]

Caring interactions help to build rapport and trust, and contribute to developing supportive person-professional relationships, all key for PCR.[32,37,48,70,91,102,116,127,129,130] Supportive, trustful relationships can be engendered from early interactions,[116] including in the acute-care setting,[22] taking priority over formal assessments, where possible.[91,92,130] These interactions can be reinforced throughout rehabilitation,[22,56] with benefits transferable to others within the rehabilitation teams, and to the next line of professionals in a patient's care .[22]

Professionals can make subtle, tailored use of touch and casual conversations,[131] closer to informal chat,[99,116,131] conducted alongside or apart from structured care requirements.[30] Such acts can put persons at ease[22] and convey authenticity.[70] Adding to transparency and reciprocity, professionals can share their experiences and perspectives, as long as relevant for the context and done non-judgmentally.[70,74,119] That contrasts with "low key", detached approaches devoid of the personal.[22,43] PCR entails time for reciprocal interactions,[107] conveying the professional's personhood.[43,44] Professionals use open minds and hearts to understand the *person*'s perspective, without fearing exposure to personal vulnerabilities.[22,93,109]

With a trustful relationship established, *persons* can more likely be supported to reflect on and integrate challenging circumstances.[86,115] This includes issues of grief,[84] intimacy,[84,110,132] social comparisons, comparisons to one's previous self,[71] the exploration of occupational alternatives,[63,68,77] and overall psychosocial struggles, which are acknowledged and taken seriously.[81,84,110-114,117,133] Open, honest, transparent, and reassuring communication may also securely unfold about interventions, unfavorable prognosis, recovery expectations, or slower progress.[49,52,56-58,60,71,81,98,105,115,119,122,134]

Finally, within holistic principles, professionals are attentive and responsive to the *person's* physical comfort needs,[21,49,60,111,115,116,135] including pain issues,[60] fatigue or other symptoms,[46] and how the *person* experiences and copes with the symptoms.[42]

2.4 Focused on meanings, hope, and strengths – beyond addressing deficits: With the advent of impairments, *persons* may not develop or lose occupational roles and functioning and, with that, their sense of self, self-efficacy and self-worth (i.e. sense of being valuable and competent).[22,48,49,76,123,136] *Persons* may struggle to envision a fulfilling life.[38,47,71,77,123,127,130,133] PCR approaches are open to exploring the experiences and perceptions of disability, how meaningful lives can be (re-)constructed, and how rehabilitation can be instrumental for that.[38,137]

PCR interactions provide *persons* with the opportunities and empathetic encouragement for supported self-explorations, as much as the *person* wants, to addressing issues like one's life story, situation, life goals, or occupational

choices.[30,38,45,47,55,63,71,76,83,98,111,116,117,130,133,137] This helps to frame impairments within a continuum of life changes, link one's past and present to hopes for a meaningful future, and foster the *person*'s capacity to envision relevant life goals and agency-based paths toward their achievement.[21,22,27,38,49,65,68,71,74,76,79,83,91,98,109,115,122,123,126,130]
Self-exploration can be supported by narrative, story-telling approaches,[76,84,120,138,139] including exploration of life in retrospect or teleologically,[83] or by: using tools which identify issues of personal relevance (e.g. Canadian Occupational Performance Measure),[40,66] structured workbooks (e.g. for the *person* to describe "my best day"),[111] metaphorical approaches or imaginary scenarios (e.g. on possible 'selves' or alternative outcomes),[38,121,133] motivational interviewing approaches (e.g. helping identifying and acting on own motivations for change),[49,52,84] or open-ended interviews to understand in which life aspects the *person* puts energies on.[38] PCR approaches foster reflective, interpretive, and supported dialogue, not one-way reporting.[38,109]

Additionally, PCR approaches are encouraging, foster belief in self and hope, and try to maximize persons' engagement in rehabilitation and life situations, through reinforcing the person's earlier achievements - enabling a sense of progress, achievement, and outcomes as they occur.[22,28,79,98,122]

Finally, PCR approaches are not deficit- or problem-centered (i.e. merely listing and addressing problems, limitations, or vulnerabilities),[30,38,92] but also identify and build on the person's strengths, abilities, and resources to attain fulfilling lives and relevant rehabilitation outcomes.[51,56,58,61,73,88,92,102,121,138]

2.5 Collaborative, empowering and enabling – co-constructed rehabilitation:

Applying PCR approaches entail developing a person-professional collaboration (commonly referred to as working alliance or partnership) throughout the rehabilitation process.[40,44,46,48,49,54,66,71,72,78,79,83,116,119,121,126,127,133,134,136,139,140] This means that rehabilitation is seen as co-constructed, i.e. the product of a mutually-committed person-professional partnership, consisting of shared power, responsibility, and ownership for the rehabilitation process and outcomes.[27,40,44,58,65,74,115,117,141-143]

In PCR approaches, the person-professional partnership enables and enacts the *person*'s autonomy and self-determination, through supportive interpersonal relations and mutual dependencies.[22,78,104] For example, the *person*'s autonomy and self-determination can be enabled through information exchange, supported reflection, education, facilitated participation into rehabilitation decisions, and self-management support.[21,22,43,49,57,69,74,78,81,104,128,129,141] These activities can enable *persons* to (re-)exert mastery and control over their lives,[30,71,74-76] and take charge for their own rehabilitation and community (re-)engagement, as much as desired.[21,45,49,106,111,115,119,126,144,145] In PCR approaches, professionals neither dictate nor are passive caregivers expecting the *person* “to get rehabilitated”.[146]

Shared decision-making (SDM) approaches are advocated to support the *person* in decision-making (on rehabilitation goals, intervention planning, discharge options).[21,28,29,41,45,46,52,63,78,80,81,92,96,107,112,126,134,135,138,144] SDM first involves sharing information about rights and responsibilities, assessments, intervention options and rationales, community resources, and *persons*' preferences.[49,52,71,81,91,101,102,110,112] In doing so, professionals must listen to *persons*, convey information in an understandable and actionable manner (e.g. jargon-free, with links to resources),[96,104,110] assuring understanding (e.g. asking to "teach back"[52]), and clarifying if needed.

Then, SDM evolves toward shared deliberation, whereby alternatives and their rationales, as well as persons' preferences are openly discussed, non-judgmentally, balancing effectiveness, risks, and uncertainty against what is meaningful or the *persons* prefer.[45,52,110] A shared deliberation may include exploration, interpretation, and seeking clarification of the factors (e.g. fears, knowledge, beliefs) that drive *persons*' preferences or motivations.[45,53,130] Similarly, it provides opportunities for honest, supported reflections that hopefully lead to a shared understanding of which goals and activities are relevant, have acceptable risks, and are deemed achievable.[35,58,63,68,77,96,98,102,111,112,126,130,133,147]

To be person-centered, shared deliberations evolve from what the person desires, not what professionals perceive is doable.[30,68,111] Rehabilitation plans may incorporate goals brought by the person even outside of immediate scopes of practice,[102] including for psychosocial well-being.[30,32,91,101] Finally, a tentative rehabilitation plan can be collaboratively devised,[29,45,46,52,91,112] linking goals to rehabilitation tasks,[91,117] and may include short-term goals, resources, possibilities, obstacles, and how support needs can be met.[86,98,111,136,138]

SDM and PCR approaches overall are evolving processes (not one-off or "tick-box" exercises), and can be incorporated within rehabilitation activities (e.g. an exercise program).[43,92] PCR goals and plans are not set in stone.[91] They are collaboratively monitored, and may need update, expansion, refinement, or re-negotiation over time, because circumstances and preferences can change.[25,47,86,91,99,111,114,136,148] Furthermore, person-centered rehabilitation goals, plans, or their development are not necessarily formulaic.[82,99,127,137] Some *persons* find that far-reaching or general goal statements, worded into “relaxed”, colloquial language,[53] are more person-centered than short-term, specific goals designed to be measurable, which are sometimes understood as service-oriented.[32,122,128,137,149] From a PCR perspective, meaningful changes are not necessarily numerically-based, but experienced by the *person*.[91,101] Yet, varying goal-setting approaches work differently for different *persons*;[53,80,82,122,127,148] the balance between flexible, open-ended approaches and formal, structured ones has to be found, for each *person*.[30]

Finally, *persons* with cognitive, communication, or self-awareness impairments should be supported to participate meaningfully in SDM and goal-setting.[53] Challenges exist[92,97] and demand adaptations like: metaphorical approaches,[133] providing hints rather than detailed instructions,[62] information in aphasia-friendly formats,[53,91,92] and information supplemented with images[49,57,71,89,102] to enable collaborative decisions.

3 MICRO-SYSTEM

Person-professional interactions occur within a micro-system, often involving significant others, multiple professionals, and support staff. At this level, PCR approaches are:

3.1 Inclusive of significant others: Engaging significant others (e.g. spouse, family, personal caregivers) is seen as germane to PCR.[50,56,60,63,66,69,71,79,110,119,135,144,150] Caregivers are sometimes care-agents; addressing their preferences, informational, and emotional needs can be part of PCR.[36,89,142] Furthermore, when intimate relationship issues are addressed, the couple is the unit for PCR.[132] Significant others may have a role in rehabilitation planning, if the *person* wants them to be involved (which cannot be taken for granted[81,113]), and if the *person* is not coerced by any dominating relatives.[62,96,104,138,151] Finally, significant others may contribute to rehabilitation decisions when the *person* has cognitive or communication impairments, especially after attempts to engage and support the *person*'s involvement have been exhausted.[30,133] Following PCR reasonings, professionals would try to assure that the presumed best interests, expressed desires, or typical *person's* preferences (e.g. inferred from previous life choices) are not overridden by significant others' conflicting interests.[27,30,53,96,104,151] With appropriate safeguards, significant others should be integral part of PCR approaches, beyond being mere bystanders,[103,152] adding a relational, systemic approach to PCR practices.[152,153]

3.2 Articulated through a person-centered rehabilitation team: Rehabilitation is often delivered by professionals from multiple disciplines; therefore PCR approaches (and how the *person* experiences them) emerge from interactions with rehabilitation teams, not single professionals.[119,145,154] As such, PCR is contingent upon individual professionals working within person-centered teams, and is activated through team members systematically working together to address the *persons'* needs.[20]

Optimally, all professionals who deliver interventions to the *person* demonstrate a shared commitment to PCR,[63,64,110] listen to the *person*,[81] and work towards common or articulated rehabilitation goals (beyond disciplinary-based agendas).[54,79,117,155,156]

Knowledge exchange and mutual respect among team members, social cohesion, professionalism, and interprofessional teamwork can facilitate team communication, coordination, and ultimately PCR.[54,134,157]

Experienced or skilled professionals can support other team-members (novice, less skilled) in applying PCR approaches,[26,133] or sometimes act on the team's behalf.[155] Finally, a team-based PCR implies that messages delivered to those served are congruent and coordinated among professionals, avoiding contradictory statements that often lead to distrust.[70,110]

3.3 Delivered in a welcoming and secure environment: PCR benefits from a welcoming environment, including physical spaces and affective atmospheres created within those spaces. In inpatient settings, the physical space would provide a sense of a noninstitutionalized environment.[101] Features can include places to read, watch television, or others for socializing and spending relaxing times (e.g. garden, café).[75,101] A PCR atmosphere also can be created by staff attentiveness, courtesy, and friendliness.[50] Enjoyable, informal activities, like weekly barbecues with staff, clients and outsiders, can also signpost and contribute to PCR environments.[101]

PCR also implies the availability of private spaces to address intimate/personal matters[49,75,93,112,132] and to promote both undistracted and uninterrupted attention to the *person*.[70] Reconfigurations of the layouts of rehabilitation gyms or units may be needed.[93,132] Home or natural environments of everyday living is often where PCR can be best enacted; because of its homeliness, personally relevant aspects for rehabilitation can naturally emerge.[73,91,148,158,159] In the persons' home, professionals are like guests.[159] Finally, home environments are often secure for addressing sensitive topics, such as sexual issues with couples.[132]

4 MACRO-SYSTEM

The PCR Model accounts for broader organizational issues, at the macro-system level, such as the attributes described below:

4.1 Inclusive of persons and staff in service design, evaluation & improvement: PCR approaches imply that rehabilitation outcomes, services, or care experiences are evaluated from the client perspectives, including significant others'.[60,71,107,135,160] Feedback can be routinely collected via interviews or client-centered assessment questionnaires.[60,107,135] Experience surveys with focused questions can reveal suboptimal experiences with sensitivity;[141] yet, open-ended, qualitative questions may capture unmeasured or unmeasurable aspects of PCR and care experiences, for closer inspection and quality-improvement opportunities.[50]

Clients or their representatives can be involved in service planning or (re-)design[60] and participate in quality-improvement committees.[144] Research teams, experienced facilitators, clients, and staff (healthcare professionals, middle-managers, support staff) can all help design person-centered services and programs.[41,88,139,161] In the implementation of PCR programs, professionals' concerns must be raised and addressed, including in initial debriefings,[88] with room for discussions and reflections,[161] toward facilitating and safeguarding appropriate implementation.[139]

Finally, as part of quality-improvement initiatives, organizations can use reflective workshops, where clients and staff provide their experiences, stories, and qualitative accounts on PCR issues, including providing de-identified, yet personalized, non-judgmental, narratives on different aspects of PCR they experienced.[162-164]

4.2 Creating the context for person-centeredness: Organizational approaches are needed toward creating the context for PCR to be delivered, for staff to have the means, opportunity, confidence, competencies, and accountability to deliver and improve PCR. Frontline staff need to feel safe, confident, and supported to provide PCR.[32,157,165] Translating PCR ideals into practice, organizational leaders and managers need to show commitment to PCR approaches, beyond lip service.[32,161,162,166] This includes proactively identifying and reducing organizational barriers to the uptake of PCR approaches.[28,80,82,94,97,131,167,168] Healthcare organizations often operate within a biomedical paradigm;[32] indicators of success are often service-centered (e.g. reduced length-of-stay) which drives goals and behaviors often inconsistent with PCR (e.g. to discharge patients quickly).[95] Sometimes, it takes whole organizational shifts to move from service-centered, disciplinary-based 'treatments' to PCR.[27] Organizational re-design can empower professionals to exert accountable, self-directed work that follows the *persons*' priorities; for example, professionals would be able to spread out intervention sessions over time for the *person* to have the chance to practice at home, if desired,[107,119] and could honor *person*'s preferences in scheduling follow-up visits.[46,86] Organizational challenges for professionals to deliver PCR may include high caseload, understaffing, staff turn-over, reimbursement based on procedures/visits, or narrow focuses on self-care activities.[25,43,52,97]

Creating the context for PCR also necessitates building staff capacity for PCR, including provision of staff training.[27,110,131,165] Without PCR training (on skills, knowledge mindset), professionals may experience difficulty and discomfort with PCR approaches, partly because components (e.g. emotional support, SDM) may be perceived as out of their scope.[95,133,165] Training on basic knowledge and skills for SDM approaches has been advocated,[112] since professionals often lack confidence and capability in developing this approach, which is relevant to PCR.[29,80,112] Finally, to train staff on PCR, professionals' assumptions that they are already person-centered have to be challenged first.[32] Implementing PCR practices is challenging. In one case, a 40% non-adherence was found on the implementation of a novel PCR approach, as wide-ranging changes in hospital routines were required.[139] Professionals recognize they tend to fall back to old routines.[82] If not carefully designed, implementation initiatives for PCR may hit the target and still miss the point (e.g. improved documentation at the expense of reduced the emotional support provided to the *person*).[117] To be optimized, training and implementing PCR approaches might engage whole teams (including medical doctors[163]) beyond specific individuals,[82] and include booster sessions with tutoring and case examples.[56] Professionals also value training opportunities with persons with lived experience of rehabilitation.[165] Lastly, training approaches on PCR can entail art- and research-based approaches, such as research-based drama plays for enhancing reflexivity and empathy, and improving professional's person-centeredness.[110]

4.3 Organized for continued, coordinated & tailored services

PCR services are designed to be coordinated and ensure continuity of care,[60,135,138] for the *person* to not feel abandoned after discharge from rehabilitation services.[60] Service design features include the provision of supported discharges, follow-up, transitional services, information about community resources, and appropriate referrals to primary, outpatient, home, or community-based providers.[24,49,56,60,81,85,86,136,138,147,155] Having a designated "contact person" and providing support material (e.g. booklet to prepare for going home) also can enable the continuity of care after discharge.[60,89] Within the rehabilitation setting, organizational arrangements can promote that *persons* are cared for by the same professionals as much as possible and the *person* desires; this can help develop person-professional relationships and shared knowledge.[50,81]

Furthermore, inpatient programs can include planned returns to real-life environments before discharge (e.g. home-based therapy one day a week intertwined with inpatient rehabilitation; through weekend passes), for the *person* to best identify priorities, participate in goal-setting, and in discharge planning.[79,86,91,148,169]

Finally, PCR programs should be designed to be inclusive of vulnerable or marginalized sub-populations. Examples include a PCR service model for people following hip fracture designed to include persons with cognitive impairment,[88,89] person-centered goal-setting approaches for people with aphasia and/or cognitive impairments,[53,87,91,92] and person-centered services adapted or reaching out to populations of low-resource[170] and rural/remote settings.[171]

DISCUSSION

PCR approaches are needed for high-quality rehabilitation;[23,144] yet professionals have been required to implement a rehabilitation service and care ideal without an actual model for the conceptualization and practice of PCR.[19] Emerging from a scoping review,[33] thematic synthesis, and experts' feedback, this paper presents the PCR Model, a cross-professional model for framing the concept and practice of PCR in adult rehabilitation. Within each model component (i.e. thematic category), the conceptual attributes of PCR approaches are described, as well as how can these attributes be operationalized into practices.

The PCR Model incorporates attributes of PCR at the care frontlines, and at micro- and macro-system levels. First, respectful, compassionate, and collaborative interactions were often described by the literature as at the heart of PCR. However, service-level and organizational factors were identified to create the context for PCR to be delivered at care frontlines. Embracing both service and care factors is consistent with current models of person-centeredness in the broader health literature.[7,13] Both dimensions are part of a whole, latent construct of PCR. By placing the person-professional dyad at the model center we denote that it is the smallest unit in which PCR practices occur. However, its central position is not intended to imply it is more important or should be given priority.

Comprehensive service development to implement PCR approaches needs to consider all levels simultaneously.

Similarly, while the PCR model is organized around themes, collectively exhaustive relative to reviewed literature, their limits are blurred, artificial, and reflect interdependencies. For example, tailoring rehabilitation to the unique person's characteristics and circumstances, within the first attribute, depends on getting to know the person as much as he/she wants to be known, within a supportive relationship, which refers to another attribute. Overall, no one attribute can be fully realized without considering the others. The model attributes need to be considered in tandem and complementarily, not as isolated components or thematic categories. Approaching PCR in such a way aligns with system as well as biopsychosocial and ecological perspectives of rehabilitation service delivery.[172,173]

While person-centered care principles can be generally agreed upon, operationalization and implementation has been difficult.[11,25-28,30,174] The PCR Model was informed by the conceptual and empirical literature, including the testing or implementation of PCR approaches; the most common category among the literature reviewed.[33] The incorporation of the examples, nuances, and challenges in its operationalization and implementation of PCR, reported in the rehabilitation-specific literature, provides some hints for developing PCR practices. In concept, some attributes of the PCR Model also seem to be specific to rehabilitation. For example, the focus on addressing the meanings, experiences, and perceptions of disability, emphasis on strengths-based approaches, and the role of PCR in supporting (re-) construction of self and envisaging possible futures may be particularly relevant to rehabilitative contexts and their person-centeredness.. Explicitly addressing the nuances of PCR in the context of communication or cognitive impairments is a key feautre, as well. Overall, rehabilitation-specific nuances for the concept and practice of PCR were reflected into the PCR Model, and that specificity can be a “relative advantage” for the diffusion of the PCR Model.[175]

Although key notions, overall guidance, and options for the PCR practice are provided (e.g. SDM approach for a collaborative and co-constructed rehabilitation; narrative approaches to explore meanings and foster hope), the PCR Model does not intend to prescribe or dictate which procedures should be followed. Conceptually, PCR emerged as anti-reductionist, non-determinist, and a reflexive endeavor that is adaptive to: the unique person (beyond the unique patient); the subjectivity of those involved (including professionals’); and the unique situation at hand (often unpredictable). No strict guidance for practice could arise, in theory, for this concept type. The PCR Model focus on specifying attributes and on how well these are accomplished. Hence, the PCR Model is principles- and attributes-based, not procedures-oriented. Furthermore, although some model attributes align with foundational principles and approaches of specific professions (e.g. client-centeredness and exploration of meaningful occupations are core within occupational therapy;[63,68] motivational interviewing can be especially relevant to rehabilitation psychology[176,177]), the emphasis is cross-professional, although some professionals in certain contexts can apply specific attributes or nuances of these at a deeper or more skillful level.

Finally, measurement of PCR is a complex issue[178,179] the PCR Model does not solve but provides some guidance. The PCR Model sets that PCR is about how rehabilitation is experienced by the person, acknowledges the role of the (inter-)subjectivity of those involved, and requires that care interactions are tailored to each person's characteristics (e.g. perspectives, values), in addition to being constantly adaptive to the situation at hand. Therefore, patient experience surveys that focus exclusively on more objective ratings of pre-defined, standard professionals' behaviors can provide only proxy indicators of PCR. Qualitative accounts and subjective rating appraisals might, in turn, address the unmeasured or otherwise unmeasurable aspects of PCR.[50,180] These assessments can focus, for example, on: how and how much each person experienced staff as being welcoming, engaging, and supportive; how unique preferences, struggles or circumstances were felt acknowledged as much as they could; and how any of that can be improved - from the person's perspective.

Limitations:

Several limitations apply to this review and model:

First, the review only considered English-language papers, which may have led to an insufficient consideration of non-Western, collectivist worldviews, which in turn can challenge assumptions of self-determination, autonomy, or about the involvement of significant others. Whether and how different worldviews and cultural values affect the concept and practice of PCR is a venue for further research.

Second, pediatric rehabilitation literature was excluded. Issues of child’s autonomy and parents’ involvement would require a different model, or explicit adaptations to the PCR Model. That may start with a review of the PCR literature specifically on pediatric populations.

Third, multiple study designs and conceptual paper were included, while quality assessments of the included studies were not performed, as planned[19] and typical in scoping reviews; hence the PCR Model is not an aggregative synthesis of tested PCR approaches

Fourth, PCR Model may reflect any imbalances in the focus of the literature. Attributes at the team and organizational levels seemed less addressed (and in the PCR Model possibly under-explored) than those at the person-professional dyad; for example, we found no mention to health literate organization approaches[181] in the literature reviewed. The identification of PCR attributes at the broader micro- and macro-levels likely benefits from further research.

Fifth, authors’ subjectivity played a role in the thematic analysis, meaning that a different set and organization of thematic categories (i.e. model components) could come from the same extracted content, especially because limits of the categories are intrinsically blurred. Yet, the substance of the whole PCR Model would be less prone to be different, even with any different internal structure. The engagement of external experts provided an initial form of validation of the PCR Model.

Sixth, although with diverse backgrounds, only five experts were consulted for comments, , including only one ‘knowledgeable insider’. The PCR Model benefits from

further validation and refinement (e.g., through wider stakeholders' input), operationalization (e.g. translated into more detailed intervention manuals or user-friendly knowledge translation tools), and testing (e.g., used in large and small-scale improvement journeys). The PCRM Model is dynamic and open to contest.
Seventh, the PCR Model does not address underlying capability issues (e.g., in providers' education), does not address the family-centered[182] and people/population-centered concepts,[183] and do not include broader health system, policy or legal factors affecting rehabilitation service delivery and PCR.[63,184] We restrained the focus to PCR, and to the level providers and organizations can directly manage. Finally, we do not focus on whether or how a PCR contributes to other quality dimensions (e.g., efficiency, effectiveness).PCR has been understood as a quality dimension in its own right.[185,186]

CONCLUSION

The PCR Model is a cross-professional model addressing the concept and practice of person-centeredness in adult rehabilitation, tackling both the frontline care and service organization. The model emerged from a scoping review and thematic synthesis of the rehabilitation literature, focused on how PCR was framed, operationalized and implemented. The PCR model may be useful to inform current clinical and service organization practices. Nonetheless, further validation and development should be continued particularly in relation to obtaining wider stakeholders' input, further operationalization into assessment tools and intervention manuals, and the testing in improvement or implementation projects.

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Figures legends

Figure 1: The Person-Centered Rehabilitation (PCR) Model, a cross-disciplinary framework for the concept and practice of adult physical rehabilitation.

Annexure 2 – IRB Exemption Approval

Charles River Campus Institutional Review Board
25 Buick Street, Room 157
Boston, Massachusetts 02215
T 617-358-6115 / www.bu.edu/irb

Notification of IRB Review: Exemption Request

March 10, 2020

Tiago Jesus, PhD
Occupational Therapy
Sargent College
635 Commonwealth Avenue
Boston, MA 02215

Protocol Title:	Occupational therapist-led, team-based quality improvement (QI) process on person-centered adult physical rehabilitation: Participatory development of a theory- and evidence-based QI guide for inpatient post-acute rehabilitation settings
Protocol #:	5495X
Funding Agency:	Unfunded
IRB Review Type:	Exempt (2)(ii)

Dear Professor Jesus:

On March 10, 2020, the IRB determined that the above-referenced protocol meets the criteria for exemption in accordanc with CFR 46.104(d)(2). Per the protocol, this project consists of a user-centered, participatory development of a theory- and evidence-based 'guide' for enabling Occupational Therapists (OTs) to lead team-based Quality Improvement processes on person-centered rehabilitation, within 'their' inpatient rehabilitation settings. The 'guide' will be literature-based but responsive to initial, formative, and summative feedback (web-based surveys) from 10-12 potential end-users: seasoned OT practitioners and/or service managers.
The exempt determination includes the use of:
☐ Recruitment information sheet
☐ Consent form
☐ Surveys (3)

Additional review of this study is not needed unless changes are made to the current version of the study. Any changes to the current protocol must be reported and reviewed by the IRB. If you have any changes, please submit the ***Clarification Form*** located at http://www.bu.edu/researchsupport/compliance/human-subjects/. No changes can be implemented until they have been reviewed by the IRB.

If you have any questions, please contact me at 617-358-6922.

Sincerely,

Mary McCabe
Senior IRB Analyst and Reliance Specialist
Charles River Campus IRB

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