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How to improve sharing and application of knowledge in care and support for people with intellectual disabilities? A systematic review

M. C. O. Kersten,^{1,2}  E. F. Taminiau,¹ M. I. M. Schuurman,³ M. C. D. P. Weggeman⁴ & P. J. C. M. Embregts¹

¹ Tilburg School of Social and Behavioural Sciences, Tilburg University, The Netherlands

² Dutch Association of Healthcare Providers for People with Disabilities (VGN), Utrecht, The Netherlands

³ Kalliope Consult, Nieuwegein, The Netherlands

⁴ Industrial Engineering and Innovation Sciences, Technical University Eindhoven, The Netherlands

Abstract

Background To optimise care and support for people with intellectual disabilities (ID), sharing and application of knowledge is a precondition. In healthcare in general, there is a body of knowledge on bridging the ‘know-do-gap’. However, it is not known to what extent the identified barriers and facilitators to knowledge sharing and application also hold for the care and support of people with ID, due to its specific characteristics including long-term care. Therefore, we conducted a systematic review to identify which organisational factors are enabling and/or disabling in stimulating the sharing and application of knowledge in the care and support of people with ID.

Method A systematic review was conducted using five electronic databases of relevant articles published in English between January 2000 and December 2015. During each phase of selection and analysis a minimum of two independent reviewers assessed all articles according to PRISMA guidelines.

Results In total 2,256 articles were retrieved, of which 19 articles met our inclusion criteria. All organisational factors retrieved from these articles were categorised into three main clusters: (1) characteristics of the intervention (factors related to the tools and processes by which the method was implemented); (2) factors related to people (both at an individual and group level); and, (3) factors related to the organisational context (both material factors (office arrangements and ICT system, resources, time and organisation) and immaterial factors (training, staff, size of team)).

Conclusion Overall analyses of the retrieved factors suggest that they are related to each other through the preconditional role of management (i.e., practice leadership) and the key role of professionals (i.e. (in) ability to fulfill new roles).

Keywords Health care organisations, Intellectual disability, knowledge application, knowledge sharing

Correspondence: MSc M. C. O. Kersten, Department of Tranzo, Tilburg School of Social and Behavioural Sciences, Tilburg University, PO Box 90153, 5000 LE Tilburg, The Netherlands (e-mail: m.c.o.kersten@uvt.nl); telephone number ++31-6-13205983).

Background

To optimise quality of care and support for people with intellectual disabilities (ID) it is important to

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make the most of the existing body of knowledge (Schalock *et al.* 2008; Reinders & Schalock 2014). The sharing and application of knowledge are key processes in this respect (West 2004; Pentland *et al.* 2011; Crilly *et al.* 2012). Knowledge (K) enables professionals to perform their tasks adequately and is derived from information (I), experience (E), skills (S) and attitude (A): $K = f(I \times ESA)$ (Weggeman 2007).

With respect to the source of knowledge, the primary focus is on evidence-based knowledge, both from a perspective of quality improvement and a financial perspective (Helderman *et al.* 2014). Evidence-based knowledge, which is the result of (high quality) scientific research, originated in the medical discipline of the 1990s. Although evidence-based knowledge has become an emerging standard in the field of ID (Schalock *et al.* 2011), currently little evidence-based knowledge is available and used (Burton & Chapman 2004, Kaiser & McIntyre 2010, Robertson *et al.* 2015).

In addition to evidence-based knowledge, increasing attention is paid to two other sources of knowledge, i.e. practice-based knowledge produced by professionals by learning and reflecting on their work, and experience-based knowledge created by service users and relatives by reflecting on their personal experiences. Evidence-based practice (EBP) integrates these three sources of knowledge, combining the 'best available research evidence with clinical expertise and patient values' (Sackett *et al.* 1996; Roulstone 2011).

Since (technological) innovations (e.g. ICT) have resulted in an increase in available evidence-based, practice-based and experience-based knowledge, and a decrease in the sustainability of this knowledge, it is important to examine how (all sources of) knowledge is (are) actually shared and applied in practice. The consequent improvement of these knowledge processes is an upcoming theme of interest in the field of ID (e.g. Ouelette-Kuntz *et al.* 2010; Timmons 2013; Naaldenberg *et al.* 2015). In healthcare in general, there is a body of knowledge on bridging the 'know-do-gap'. Since the World Health Organisation addressed this subject at a consensus meeting (World Health Organisation 2006) several reviews on this subject have been conducted, (e.g. Mitton *et al.* 2007; Nicolini *et al.* 2008; Contandriopoulos *et al.* 2010; Gervais & Chagnon 2010; Greenhalgh & Wieringa 2011; Pentland *et al.* 2011; Crilly *et al.* 2012; Ferlie

et al. 2012; Goldner *et al.* 2014; Karamitri *et al.* 2015). In most of these reviews, barriers and facilitators to sharing and applying knowledge were identified. These reviews indicate the conditional role of the organisation and its management, such as the commitment of management through efficient leadership (e.g. Karamitri *et al.* 2015), and specific organisational capacities such as sufficient time, and financial, technological and human resources (e.g. Pentland *et al.* 2011).

However, it is not known to what extent these barriers and facilitators also hold for the care and support of people with ID since this field of care has his own characteristics and developments. First, in the field of ID lifelong and life-wide care and support are provided. This implies a multidisciplinary collaboration by professionals specialised in, for example, social care, healthcare and education at different stages of life and is called 'integrated care'. When, for instance, professionals with a different professional background collaborate in a community-based team, sharing and application of knowledge at the right moment and in a common language is a vital though complicated process (Axford *et al.* 2006; Slevin *et al.* 2008; Farrington *et al.* 2015). Second, interventions for the general population are usually not suitable and have to be customised (Vlaskamp *et al.* 2007; Hodes *et al.* 2014). Third, in the field of ID increasing attention is being paid to the inclusion of experiential knowledge in conducting research and providing care and support (Embregts *et al.* accepted; van Loon *et al.* 2013; Verbrugge & Embregts 2013; Reinders & Schalock 2014; Frankena *et al.* 2015).

Therefore, we have conducted a systematic review on the following research question: which organisational factors are enabling/disabling to the sharing and application of knowledge in the care and support of people with ID? Since professionals involved in care and support of people with ID are the key figures in sharing and applying knowledge, we focused on barriers and facilitators as perceived by them.

Methods

Search strategy

A systematic review was conducted for relevant articles published in English between January 2000

and December 2015. In accordance with e.g. Mitton *et al.* (2007), Nicolini *et al.* (2008), Pentland *et al.* (2011) and Crilly *et al.* (2012) who also performed reviews on knowledge management in the field of healthcare, databases in the fields of healthcare (*PubMed* and *Cinahl*), social sciences (*Psych info*) and management (*Business Source Elite* and *Proquest*) were chosen. The particular time span was chosen due to the fact that research on knowledge processes in ID care became apparent at the start of this millennium (see introduction). The search was performed on January 27th, 2016.

To conduct the literature search in a structured way, the Population, Intervention, Comparison and Outcomes (PICO) approach (Liberati *et al.* 2009) was used. These components were specified as follows: (1) population: professionals involved in the care and support of people with ID; (2) exposure: enabling/disabling factors for the sharing and application of knowledge in organisations providing care and support for people with ID; (3) comparison: not applicable to the aim of this review; and, (4) outcomes: knowledge sharing and application in organisations providing care and support for people with ID.

The formulated PICO was operationalised in search terms. After extensively testing these search terms, we decided only to include keywords on ID (population) and on knowledge sharing and application (outcome) in the search strategy (Table 1). The rationale for not adding keywords on types of professionals and organisations was to acknowledge the multidisciplinary character of care and support of people with ID and to limit the possibility of overlooking relevant professional groups and organisations. In addition, we decided not to include keywords on enabling and disabling factors, since it appeared that relevant literature addressing these factors did not include these terms as key words and/or in the title or abstract. Thus, we conducted our literature search using two groups of search terms. The subject directories 'OR' and 'AND' were used to separate synonyms and link the two groups.

Study selection

Figure 1 shows the flowchart of the selection process. Because we were focusing on empirical studies, the first reviewer (MK) removed reviews and essays in the

Table 1 Search strategy PubMed using Medical Subject Headings [MeSH] and text words

PubMed final search strategy	
	<i>Population: intellectual disability</i>
#1	Intellectual disability [MeSH]
#2	Mentally Disabled Persons [MeSH]
#3	Developmental Disabilities [MeSH]
#4	Learning Disorders [MeSH]
#5	TI = intellectual disab*
#6	AB = intellectual disab*
#7	#1 OR #2 OR #3 OR #4 OR #5 OR #6
	<i>Outcome: knowledge sharing and application in organisations providing care and support for people with intellectual disabilities</i>
#8	Knowledge management [MeSH]
#9	Evidence-based Practice [MeSH]
#10	'Knowledge exchange'
#11	'Knowledge sharing'
#12	'Knowledge practice'
#13	'Knowledge translation'
#14	'Knowledge transfer'
#15	'Knowledge utilisation'
#16	'Knowledge use'
#17	'Knowledge implementation'
#18	'Knowledge application'
#19	'Knowledge brokering'
#20	'Research utilisation'
#21	'Research use'
#22	Implementation
#23	#8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22
	Combining search term groups
#24	#7 AND #23

Note: TI/AB refers to the search for text words within title and abstract; MeSH refers to the search for Medical Subject Headings, the thesaurus terms that were used in PubMed. This strategy is related to the PubMed search. Very similar versions were used to search Psych info, Cinahl, Proquest and Bussiness Source Elite but adapted for the specific search terms used in these databases.

first selection phase. In this phase, duplicates and articles from non-Anglo-Saxon countries were removed as well, as comparison and interpretation of their results to Anglo-Saxon countries is complicated due to the different (organisational) conditions. In the second selection phase, two reviewers (MK and ET or MK and MS) independently screened titles and abstracts of all the articles, based on the inclusion and exclusion criteria (Table 2). As we were focusing on studies identifying barriers and facilitators per se, those examining the effectiveness of intervening in

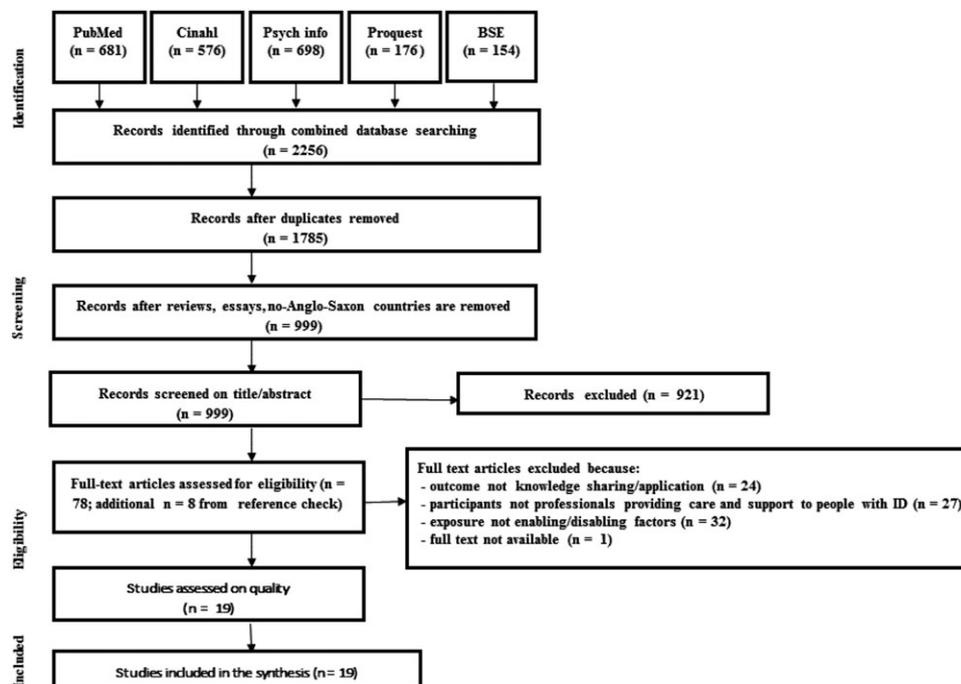


Figure 1 Flowchart of the selection process

Table 2 Inclusion and exclusion criteria

Inclusion criteria

- Subjects of study are all professionals providing direct care and support for (amongst others) people with intellectual disabilities; in case data were also gathered on other persons (e.g. managers), separate data on professionals are available.
- Studies focusing on knowledge sharing and application of knowledge.
- Studies which pay attention to enabling / disabling factors occurring in the context where care and support for people with intellectual disabilities is provided: healthcare organisations and services, both specialised residential services as well as community-based services, GP practices, schools and work places.
- Empirical research: qualitative, quantitative and mixed methods studies.
- Original, peer-reviewed studies conducted in Anglo-Saxon countries and written in English.

Exclusion criteria

- Non-empirical studies such as systematic reviews and editorials.
- Studies focusing on factors on an individual level (as opposed to factors on an organisational level)
- Studies only focusing on students (i.e. future professionals).
- Studies focusing on genetic research and/or prenatal screening, genetic testing and counselling.
- Studies focusing on physical or motor disabilities, mental or psychiatric disorders, visual, hearing or acquired brain impairments, reading and language difficulties, older people in general.
- Studies focusing on research and/or the development of instruments, programs, guidelines
- Studies focusing on the effectiveness of interventions (e.g. training, educational program) or innovations.
- Studies focusing on knowledge increase in itself (not application) as outcome of interventions.

these barriers and/or facilitators were excluded (for example, studies on the effectiveness of training). Disagreements about inclusion were resolved by discussion between the three reviewers (MK, ET and MS). In the third selection phase, full-text versions of

the publications were independently assessed for eligibility by two reviewers (MK and MS); in case of disagreement, a third reviewer (ET) assessed the publication as well. The fourth reviewer (PE) was consulted throughout all selection phases. The

agreement score was 90.2% in the second phase and 82% in the third phase.

Assessment of methodological quality

Next, two reviewers (MK and ET) independently assessed the methodological quality of all the included publications, using the Mixed Methods Appraisal Tool checklist [MMAT; (Pluye *et al.* 2011)]. This instrument was chosen because the validity and reliability of the measure have been tested (Pace *et al.* 2012) and both qualitative and quantitative studies can be evaluated using the same method. All 21 criteria were assessed and subsequently rated as fulfilled, unfulfilled or cannot tell. When information about the study's methodology was insufficiently presented, the authors were contacted for clarification. Relative outcome scores were converted to indications of the level of evidence (high, moderate, low), which are reported in Table 3. In the mixed methods studies, only the designs that sufficiently met the criteria for methodological quality were included (i.e. high or moderate level of evidence).

Analysis

After familiarising themselves with the included studies, two reviewers (MK and ET) independently extracted, for each study, the factor(s) presented as enabling and/or disabling to the sharing and/or application of knowledge that can be influenced by an organisation. Disagreements were resolved by discussion between the reviewers. Next, all factors were incorporated in Atlas-Ti (Muhr 2005), to facilitate clustering of codes. The factors of quantitative as well as qualitative studies were analysed separately. Consequently, in mixed methods studies each design was also analysed separately.

Data analysis was iterative, with matrices used to summarise the information and guide a bottom-up analysis of emerging themes. In this way, thematic clusters became apparent (Thomas 2006). Two reviewers (MK and MS) then analysed the data across all studies using the final version of the thematic clustering (see Table 4), which was verified by the third reviewer (ET). Finally, a model was developed in which all clusters were positioned (see Fig. 2 in the results section). Throughout the period of analysis, the findings were discussed with PE and MW.

Results

Background and research quality

Initially, 999 unique research publications were retrieved. After the selection process, 19 papers were included. The design characteristics and research focus of the included papers are presented in Table 3. In the following section, we refer to these papers by their sequence number (also included in Table 3). With respect to background information, seven studies were conducted in the USA (3, 4, 6, 11, 12, 13, 16), seven in the UK (1, 5, 7, 9, 10, 18, 19), three in Australia (2, 14, 15), one in Canada (8) and one in the Netherlands (17).

Two publications had a quantitative, non-randomised design (1, 2), three a quantitative descriptive design (3, 4, 5), nine a qualitative design (6, 8, 9, 10, 11, 14, 16, 18, 19) and five a mixed methods design (7, 12, 13, 15, 17).

The study population consisted of direct care staff working in residential settings (1, 2, 5, 18), members of multidisciplinary teams working in integrated services (7, 9, 19), job coaches in diverse ID agencies (8), speech and language therapists in diverse ID settings (10), general practitioners (14), clinicians in paediatric practices (16), ID physicians and physical therapists in diverse ID services (17), teachers (in special and general education) in different kinds of elementary schools (6, 11, 12, 15) and special (and general) education teachers in mainstream secondary schools (3, 4, 13).

With respect to the knowledge processes, 10 studies focused on knowledge application (1, 3, 4, 5, 6, 8, 12, 13, 15, 16), one on knowledge sharing (9) and eight on both knowledge sharing and application (2, 7, 10, 11, 14, 17, 18, 19). As to the kind and character of knowledge, all the studies involved new knowledge, which was combined with existing knowledge in two studies (5, 9). The knowledge itself concerned instructional practices (3, 4, 6, 11, 12, 13, 15), active support (1, 2, 18), assessment (8, 14, 16), interventions (10, 17), an outcome measurement system based on Goal Attainment Scaling (7), practice-based knowledge (9), evidence-based and practice-based practices (5) and care pathways (19).

The quality assessment with the MMAT (Pluye *et al.* 2011) resulted in eight studies of high evidence, ten of moderate evidence and one of mixed (i.e. a combination of high and low) evidence (see Table 3).

Table 3 Descriptive information and characteristics of the included studies

#, authors, year, country	Focus research [†]	Design; level of evidence [‡]	Results [§]
<i>Quantitative non-randomised studies</i>			
1. Beadle-Brown <i>et al.</i> 2014 (UK)	Role of practice leadership in Active Support in residential services (EBP) (I)	Compares data gathered in 2009/2010 (233 staff in 64 services) with that collected in 2005/2006 (505 staff in 137 services). On 116 Adults with severe or profound ID data were available at both times. Method: questionnaires* Staff (n = 64) in shared community-based houses answered questions about the organisational activities and processes thought to assist AS implementation, their understanding of engagement and their experiences of changes in staff practice consistent with AS. Method: questionnaires*	Practice leadership mediated by management quality result: in significant change in active support ($P < .001$) (KA+)
2. Fyffe <i>et al.</i> 2008 (Australia)	Organisational factors associated with the implementation of Active Support (EBP) (I)	Staff (n = 64) in shared community-based houses answered questions about the organisational activities and processes thought to assist AS implementation, their understanding of engagement and their experiences of changes in staff practice consistent with AS. Method: questionnaires*	Positive significant correlation between training, teamwork, meetings and paperwork and recording systems and changes in staff practice ($P < .01$) and fewer implementation problems ($P < .05$) (KS+ and KA+)
<i>Quantitative descriptive studies</i>			
3. Kim & Dymond 2010 (USA)	Perceptions, barriers and components of community-based vocational instruction (EBP) (I)	Special education teachers in public high schools (n = 68) Method: survey*	In ranked order of effect in implementation: Not enough staff (KA-) Lack of preparation time (KA-) Lack of transportation (KA-) Lack of administrative support (KA-) In ranked order of effect in implementation: Lack of materials (KA-) Current textbook (KA-) Lack of information/knowledge (KA-) Lack of administrative support (KA-) Lack of time (KA-) Limited access to research findings (KA-) No supportive culture to do and to use research (KA-)
4. Maccini & Gagnon 2002 (USA)	Perceptions and applications of NCTM standards (EBP) by special and general education teachers (I)	Teachers (special and general education) of secondary schools (n = 129) Method: survey*	In ranked order of effect in implementation: Not enough staff (KA-) Lack of preparation time (KA-) Lack of transportation (KA-) Lack of administrative support (KA-) In ranked order of effect in implementation: Lack of materials (KA-) Current textbook (KA-) Lack of information/knowledge (KA-) Lack of administrative support (KA-) Lack of time (KA-) Limited access to research findings (KA-) No supportive culture to do and to use research (KA-)
5. Parahoo <i>et al.</i> 2000 (UK)	Research utilisation and attitudes towards research amongst learning disability nurses (EBP and PB) (I and E)	Learning disability nurses working in the three main hospitals (n = 87) Method: survey**	Teachers' influence: expertise, autonomy at program selection, adaptations (KA+)
<i>Qualitative studies</i>			
6. Boardman <i>et al.</i> 2005 (USA)		Special education teachers of elementary schools (n = 49)	

Table 3. (Continued)

#, authors, year, country	Focus research [†]	Design; level of evidence [‡]	Results [§]
	Special education teachers' views of instructional practices (EBP and PB) (I)	Method: focus groups interviews*	Teachers perceptions of research-based practices (KA-) Lack of support in access to materials and resources (KA-) Lack of collaboration between teachers within the organisation (KS-, KA-) Lack of access to materials and resources (KA-) Unavailability of resources needed for different new practices (KA-) No provision of evidence or research for effectiveness of new practice (KA-) Not being able to do everything (KA-) Lack of professional development opportunities (KA-)
7.Chapman <i>et al.</i> 2006 (UK)	Implementation of an outcome measurement system based on Goal Attainment Scaling (PB) (I)	Staff of four teams in community intellectual disability teams (n = 13) Method: Questionnaires* and interviews** (triangulation of the data)	Difficulties in completing forms (KS-) More and duplicated paperwork (KS-) Management pressure (KA-) Lack of consultation of professionals before the implementation (KA-) Introduction through community id teams – not professional group (KA-) Time consuming process (KS-) Timing of the assessment: low productivity schedule and caseload (KA+)
8.Cobigo <i>et al.</i> 2010 (Canada)	Implementation of method for assessing of vocational interests (RBP) (I)	Job coaches in four agencies (n = 16) Method: interviews**	Training, supervision and feedback on performance (KA+) Decrease of potential distractions (when the assessment is performed) (KA+) Formal knowledge exchange – MDT meetings (KS+) Informal knowledge exchange mechanisms – e.g. conversations, emails (KS+) Arbitrariness which knowledge reaches which members of the teams (KS-) Sustainability: team members are temporarily absent or depart (KS-)
9.Farrington <i>et al.</i> 2015 (UK)	Knowledge exchange in integrated services (PB) (I and E)	Members of an urban and a rural team of an integrated intellectual disability service (n = 24) Method: interviews**	

Table 3. (Continued)

#, authors, year, country	Focus research [†]	Design; level of evidence [‡]	Results [§]
10. Goldbart <i>et al.</i> 2014 (UK)	Speech and language therapists decision making in communication interventions (EBP and PB) (I)	Speech and language therapists in diverse settings (n = 55) Method: survey ^{§§}	(In)adequate office arrangements (access to email and online resources) (KS+, KS-) Inaccessibility of care records: mix of paper and electronic records (KS-) Irreliability of care records (incomplete or out of date) (KS-) Tool to share client-centred information between systems, places and persons (KS+) Tool to enable better interpretation of the person's communication (KA+) Intervention is easy to access (KA+) Lack of staff commitment (KS-) Lack of managerial support (KS-) Availability of resources for intensive interaction (KA+)
11. Greenway <i>et al.</i> 2013 (USA)	Practice and decision-making for students with ID and DD (EBP and PB) (I)	Special education teachers of elementary schools (n = 9) Method: interviews ^{§§}	The day to day environment (is a barrier to communication) (KS-) Tool is in accordance with organisational policy (KA+) Opportunities imposed by the organisation and service structures (KA+) Training of staff (KS+, KA+) Lack of staff availability (KA-) (Lack of) understanding and perspective of Evidence Based Practice (KA+, KA-) Autonomy to use professional judgement and lack of accountability (KA+) Lack of accountability to school (and district) administration (KA-) Sustainability: team members are temporarily absent or depart (KS-) Lack of access to appropriate tools (materials or technologies) (KA-) Lack of access to the research literature / research-based information (KA-)

Table 3. (Continued)

#, authors, year, country	Focus research [†]	Design; level of evidence [‡]	Results [§]
12.Klinger <i>et al.</i> 2003 (USA)	The upscaling of the implementation of research-based practices in inclusive classrooms (RBP) (I)	Teachers in resource, special education and general education classrooms of elementary schools (n = 29) Method: interviews*, logs**	Lack of access to professional development and support in implementation (KA-) Teachers feeling sufficiently prepared for strategy implementation (KA+) (In)sufficient administrative support from administrators (KA+, KA-) (In)sufficient administrative support from principles (e.g. providing materials) (KA+, KA-) Lack of materials (KA-) Lack of sufficient instructional time for the students (KA-)
13.Langone <i>et al.</i> 2000 (USA)	Development and implementation of Community Based Instruction (CBI) (EBP) (I)	Special education teachers of secondary schools (n = 36) Method: questionnaire and interviews**	Too many competing demands on time (KA-) Scheduling problems of transportation and CBI activities (KA-) (Lack of) administrative support from special education coordinators and building principles (KA+, KA-) Additional costs of transportation and CBI activities (KA-) Time constraints – mostly for teachers in traditional resource room models (KA-)
14.Lennox <i>et al.</i> 2013 (Australia)	Implementation of health assessment for people with ID (CHAP) (RBP) (I)	General practitioners (n = 46) Method: interviews*	A tool for generating a comprehensive written history that could be held by support workers and their organisations (KS+, KA+) A tool for greater collaboration between the support worker and the GP (KS+, KA+) Lack of capacity of support workers (KS-, KA-) Inadequate interest or motivation of support workers (KS-, KA-) The coordination of all parties (KA+)

Table 3. (Continued)

#, authors, year, country	Focus research [†]	Design; level of evidence [‡]	Results [§]
15. Moni <i>et al.</i> 2007 (Australia)	Teachers' knowledge and attitudes and their implementation of practices around the teaching of writing (EBP) (I)	Teachers in inclusive middle years classrooms in three regions of Queensland (Metropolitan, remote, regional) (n = 37) Method: questionnaires ^{§§} , discussions in workshops ^{§§} ; observation ^{§§}	Lack of consistent support workers for some patients (KS-, KA-) Time needed for preparation and follow-up (KS-) Lack of abilities of the teachers to motivate the students and to align the activities to the individual needs (KA-) General lack of resources (KA-) Time constraints in remote highly autonomous one teacher schools (KA-) Lack of time for planning tasks that are meaningful in regional schools (KA-) Teachers development (KA+) Lack of teacher-aid training (in regional schools) (KA-) Lack of professional development (in remote highly autonomous one teacher schools) (KA-) Lack of allocation of teacher-aid training (KS-) Lack of support related to the teacher-aides (KA-) Size and kind of school: in metropolitan schools: the administration and organisation (-> top-down administrative restrictions and bureaucracy) (KA-) Size and kind of school: in larger primary schools the focus on assessment (KA-) Model and associated practices were easy to incorporate into the existing structure (KA+) Attitude of the clinicians (rely on their clinical acumen and to watch and wait) (KA-) Lack of training in the use of developmental screening tools (KA-) Arranging the multidisciplinary meeting (KA-) Lack of information because certain aspects of medical history were unknown (KS-) Not correct caregivers accompanying the person with ID (KS-) Lack of information because of changes in personal (KS-)
16. Morelli <i>et al.</i> 2014 (USA)	Implementation of developmental screening in urban primary care (RBP) (I)	Clinicians four urban paediatric practices in a metropole (n = 22) Method: focus groups ^{§§}	
17. Smulders <i>et al.</i> 2013 (the Nether-lands)	Implementation of a tailored multifactorial fall risk assessment and intervention strategy (EBP and PB) (I)	ID physicians and physical therapists in three service provider facilities (n = 9) Method: focus groups ^{§§}	

Table 3. (Continued)

#, authors, year, country	Focus research [†]	Design; level of evidence [‡]	Results [§]
18. Totsika <i>et al.</i> 2008 (UK)	Staff experiences of an interactive training and implementation of Active Support in a community residential service (EBP) (I)	Staff of community residential settings (n = 37) Method: focus groups*	The AS plans are not flexible enough for unpredicted changes (KS-, KA-) The AS plans involve too many details (KS-, KA-) Lack of management input and support to the AS plans (KS-, KA-) Lack of manager or discontinuity of management input (KS-, KA-) Lack of priority for AS in the team meetings (KS-, KA-) Lack of team meetings (KS-, KA-) Not enough staff to do (more) activities with the residents (KA-) Lack of time to develop the AS plans (KS-, KA-) Not enough time to do the paperwork because of other tasks (KS-, KA-) Lack of time in the team meetings to discuss AS issues (KS-, KA-)
19. Wood <i>et al.</i> 2014 (UK)	The transition process to care pathways in adult ID services (PB) (I)	Health professionals in an intellectual disability service (n = 50) Method: observations and minutes of meetings, written correspondence*	Storyboard methods were seen as a useful tool to aid understanding of the care pathways by both the professionals and the Care Pathway Implementation Team (CPiG). (KS+) Pathway protocols were viewed as clear and easy to follow (KS+, KS+) Unclear of some of the documents (KS-, KA-) Some aspects of the pathway procedures (KS-, KA-) (In)ability of the health professionals to take on new roles (possession of skills and knowledge) (KS+, KS-, KA+, KA-) Attitudes towards care pathways (KS+, KS-, KA+, KA-) (Absence of) clear leadership in the teams (KS+, KS-, KA+, KA-)

Table 3. (Continued)

#, authors, year, country	Focus research [†]	Design; level of evidence [‡]	Results [§]
			<p>Role, (lack of) capacity and (bad) performance of administrators (to assist health professionals including documenting core information, updating the referral spread sheet, and assisting the chairperson to follow the care pathways approach in the team meetings) (KS+, KS-, KA+, KA-)</p> <p>Access to and input from other professionals through meetings (KS+, KA+)</p> <p>Nonattendance of professionals at the team meetings (KS-, KA-)</p> <p>Multi-Disciplinary team working: providing support and assistance to others (KS+, KA+)</p> <p>Support and guidance from the Care Pathway Implementation Group (amongst others the clinical director) (KA+)</p> <p>The communication from the Care Pathway Implementation Group (amongst others the clinical director) had been inconsistent (KS-, KA-)</p> <p>Organisation of the documentation in the ICT system (=the organisation of the care pathways documents in the shared folder) (KS+, KS-, KA+, KA-)</p> <p>Applying the pathway terminology in the clinical information system (KS-, KA-)</p> <p>Communication system for the implementation process (visits of Care Pathway Implementation Group, issue logs and email correspondence) (KS+, KA+)</p> <p>Lack of communication on the latest version of pathway protocols (KS-, KA-)</p> <p>Lack of time to read guidelines, and complete core information – especially in smaller teams and short staffed disciplines (KA-)</p>

Table 3. (Continued)

#, authors, year, country	Focus research [†]	Design; level of evidence [‡]	Results [§]
			Substantial time burden on administrator's time difficulty in localities with less administrative support and smaller teams (KS ⁻ , KA ⁻) Size of the locality teams: -larger teams had the advantage of adequate representation of various disciplines (KS ⁺ , KA ⁺) - smaller teams lack of adequate representation from all professional disciplines (KS ⁻ , KA ⁻) - larger teams more difficult to manage all referrals and to achieve meaningful discussion (KS ⁻ , KA ⁻)

[†]EBP (Evidence-Based Practice); RBP (Research-based Practice); PB (Practice-based knowledge); I (Innovation), E (Existing Knowledge).

[‡]Total score 75–100%: high evidence; **total score 50–74% moderate evidence; ***total score 0–49% low evidence.

[§]In terms of Knowledge Sharing (KS) and Knowledge Application (KA), enabling factors (+) and disabling factors (-). In the quantitative studies the actual factors are shown in bold.

Overall, the main methodological limitation concerned the lack of information on how findings were related to researcher influence (e.g. the researcher's perspective, role and interaction with participants). In addition, in the quantitative studies the response rate did not meet the criterion of 60% or above (3, 4) or was not reported at all (2, 5). In five of the qualitative studies (6, 8, 11, 13 16), no information was provided on the location in which the data collection took place.

An integrating framework

We categorised all retrieved organisational factors that were enabling/disabling in sharing and application of knowledge in the care and support of people with ID into three main clusters: (1) characteristics of the intervention (factors related to the tools and processes by which the method was implemented); (2) factors related to people (both at an individual and group level); and (3) factors related to the organisational context (both material factors (office arrangements and ICT system, resources, time and organisation) and immaterial factors (training, staff, size of team)) (see Table 4). In presenting our results, this model is used as an integrating framework (see Fig. 2).

Characteristics of the intervention

Characteristics of the intervention, i.e. paperwork and recording systems, were found to be enabling factors for sharing and application of knowledge in a quantitative (non-randomised) study (2). In qualitative studies, characteristics of the intervention, i.e. availability of tools (10, 14, 19), user-friendliness of protocols (7, 18, 19) and accessibility of the intervention (10), were also reported as enabling factors. For example, availability of information carriers (tools) such as communication passports or the Comprehensive Health Assessment Program (CHAP), facilitated the sharing of client-related information between systems, places and people (10, 14), as well as collaboration between professionals (14) and understanding of the intervention (19). However, when the intervention was not user-friendly, e.g. when it involved more and duplicated paperwork, professionals considered the availability of tools as a disabling factor in sharing and applying knowledge (1, 18, 19).

Table 4 Organisational factors enabling/disabling the sharing and application of knowledge in the care and support for people with intellectual disabilities

Knowledge sharing enabling	Knowledge sharing disabling	Knowledge application enabling	Knowledge application disabling
<p><i>1. Characteristics of the intervention (= tools and processes in which the method is implemented)</i></p> <p>Availability of tools: - for sharing client-related information between systems, places and persons (10; 14); for greater collaboration between professionals (14); -to aid the understanding of the intervention (19)</p> <p>Paperwork (e.g. plans and protocols) and recording systems used in the intervention are user-friendly (e.g. clear and easy to follow) (2; 19)</p>	<p>The forms used in the intervention are not user-friendly (more and duplicated paperwork, not in good working order, unclarity for some of the documents, too many details, not flexible enough changes, some aspects of the procedures) (7; 18; 19)</p>	<p>Availability of tools: - for sharing client-related information between systems, places and persons (14), for greater collaboration between professionals (14); -to aid the understanding of the person (10)</p> <p>Paperwork (e.g. plans and protocols) and recording systems used in the intervention are user-friendly (e.g. clear and easy to follow) (2; 19)</p> <p>Intervention is easy to access (10)</p>	<p>The forms used in the intervention are not user-friendly (more and duplicated paperwork, not in good working order, unclarity for some of the documents, too many details, not flexible enough for unpredicted changes, some aspects of the procedures) (18; 19)</p>
<p><i>2. Factors related to persons: a) individual factors</i></p> <p>Professionals: all individuals who implement the intervention in the primary process</p> <p>Ability of the professionals to fulfil new roles (possession of skills and knowledge) (19)</p>	<p>Inability of some professionals to fulfil new roles (lack of skills and knowledge) (14; 19)</p>	<p>Ability of the professionals to fulfil new roles (possession of skills and knowledge) (19)</p> <p>Understanding and perspective of Evidence Based Practice (11)</p> <p>Teachers feeling sufficiently prepared for strategy implementation (12)</p>	<p>Inability of some professionals to fulfil new roles (lack of skills and knowledge) (14; 19)</p> <p>Lack of understanding and perspective of Evidence Based Practice (11)</p> <p>Teachers perceptions of research-based practices (6)</p> <p>Lack of abilities of the teachers to motivate the students and to align the activities to the individual needs (15)</p> <p>Negative attitudes towards the intervention (19)</p>
<p>Positive attitudes towards the intervention (19)</p>	<p>Negative attitudes towards the intervention (19)</p>	<p>Positive attitudes towards the intervention (19)</p>	<p>Negative attitudes towards the intervention (19)</p>

Table 4. (Continued)

Knowledge sharing enabling	Knowledge sharing disabling	Knowledge application enabling	Knowledge application disabling
Clear leadership in the teams (19)	Inadequate interest or motivation of support workers (14) Lack of clear leadership in the teams (19)	Teachers' influence: expertise, autonomy at program selection, adaptations (6; 11) Clear leadership in the teams (19)	Attitude of the clinicians (rely on their clinical acumen and to watch and wait) (16) Lack of accountability to school (and district) administration (11) Inadequate interest, commitment or motivation of support workers (10; 14) Lack of clear leadership in the teams (19)
Administrative staff Role, capacity and performance of administrators (to assist health professionals including e.g. documenting core information) (19)	Role, lack of capacity and performance of administrators (to assist health professionals including e.g. documenting core information) (19)	Role, capacity and performance of administrators (to assist health professionals including e.g. documenting core information) (19)	Role, lack of capacity and performance of administrators to assist health professionals including e.g. documenting core information (19) Scheduling problems of e.g. transportation (13) The coordination of all parties (14) Arranging the multidisciplinary meeting (17)
Management	Lack of management input and support to the AS plans (18) Inconsistent communication from the Implementation Group and lack of and delay in response from them to issues (19) Lack of manager or discontinuity of management input (18)	Practice leadership mediated by management quality and support and guidance from the Implementation Group (amongst others the clinical director) (1; 19) Administrative support from special education coordinators and building principles (e.g. providing materials) and from administrators (12)	Lack of management input and support to the AS plans (18) Lack of administrative support from special education coordinators and building principles (e.g. providing materials) and from administrators (3; 4; 6; 10; 12; 13; 15) Inconsistent communication from the Implementation Group and lack of and delay in response from them to issues (19) Lack of manager or discontinuity of management input (18) Management pressure (7) Lack of consultation of professionals before the implementation (7)

Table 4. (Continued)

Knowledge sharing enabling	Knowledge sharing disabling	Knowledge application enabling	Knowledge application disabling
<p>2 Factors related to persons: b)</p> <p>groups factors (team factors)</p> <p>Formal knowledge exchange – MDT meetings (9) Access to and input from other professionals through meetings (2; 19)</p> <p>Informal mechanisms of knowledge exchange: conversations, emails, impromptu meetings and phone calls (9)</p>	<p>Lack of team meetings (18)</p> <p>Lack of priority for the intervention in the team meetings (18)</p> <p>Nonattendance of professionals in meetings (19)</p> <p>Arbitrariness which knowledge reaches which members of the teams (9)</p> <p>Sustainability: team members are temporarily absent or depart (9; 11)</p> <p>Lack of collaboration of the teachers within the organisation (6)</p>	<p>Access to and input from other professionals through meetings (2; 19)</p>	<p>Introduction through community id teams – not professional group (7)</p> <p>Lack of team meetings (18)</p> <p>Lack of priority for the intervention in the team meetings (18)</p> <p>Nonattendance of professionals in meetings (19)</p>
<p>Multi-Disciplinary team working: providing support and assistance to others (2; 19)</p> <p>3 Factors related to the organisational context: a) material factors</p> <p>Office arrangements and ICT system: factors related to the administrative preconditions necessary for the implementation of the intervention</p> <p>Organisation of the documentation in the ICT system (=Having only the latest documents available) (19)</p>	<p>Multi-Disciplinary team working: providing support and assistance to others (2; 19)</p> <p>Organisation of the documentation in the ICT system (=the organisation of the documents in the shared folder) (19)</p> <p>Applying the pathway terminology in the clinical information system (19)</p> <p>Lack of communication on the latest version of the protocols (19)</p>	<p>Multi-Disciplinary team working: providing support and assistance to others (2; 19)</p> <p>Organisation of the documentation in the ICT system (=Having only the latest documents available) (19)</p> <p>Communication system for the implementation process (visits of Implementation Group, issue logs and email correspondence) (19)</p>	<p>Lack of collaboration of the teachers within the organisation (6)</p> <p>Organisation of the documentation in the ICT system (=the organisation of the documents in the shared folder) (19)</p> <p>Applying the pathway terminology in the clinical information system (19)</p> <p>Lack of communication on the latest version of the protocols (19)</p>

Table 4. (Continued)

Knowledge sharing enabling	Knowledge sharing disabling	Knowledge application enabling	Knowledge application disabling
Adequate office arrangements (access to email and online resources) (9)	Inadequate office arrangements: no access to email, online resources and paper records (9) Inaccessibility of care records: mix of paper and electronic records (9) Irreliability of care records (incomplete or out of date) (9) Lack of information because certain aspects of medical history were unknown (17)	Availability of resources for intensive interaction (10)	Unavailability of (access to) materials, resources and tools (4; 6; 11; 12; 15) Current textbook (4) No provision of evidence or research for effectiveness of new practice (6) Lack of access to the research literature / research-based information (4; 5; 11) Lack of transportation (3) Additional costs of transportation and CBI activities (13)
Resources: factors related to the resources which are necessary for the implementation of the intervention			
Time: factors related to the time needed for the implementation of the intervention	Time needed for the intervention or lack of time to develop the AS plans or to do the paperwork (7; 14; 18) Lack of time: - in the team meetings to discuss AS issues (18)	Timing of the assessment: low productivity schedule and caseload (8)	Time needed for the intervention or lack of time to e.g. develop the AS plans, to do the paperwork, to read guidelines, and complete core information; not being able to do everything; too many competing demands on time (3; 5; 6; 7; 12; 13; 15; 18; 19) Lack of time: - in the team meetings to discuss AS issues (18)

Table 4. (Continued)

Knowledge sharing enabling	Knowledge sharing disabling	Knowledge application enabling	Knowledge application disabling
<p>Organisation: factors related to the schools and agencies where the intervention is implemented</p>	<p>- to attend meetings— especially in smaller teams and short-staffed disciplines (19)</p> <p>Substantial time burden on administrator's time difficulty in localities with less administrative support and smaller teams (19)</p>	<p>Decrease of potential distractions (when the assessment is performed) (8)</p> <p>Tool is in accordance with organisational policy (10)</p> <p>Model and associated practices were easy to incorporate into the existing structure (15)</p> <p>Opportunities imposed by the organisation and service structures (10)</p>	<p>- to attend meetings— especially in smaller teams and short-staffed disciplines (19)</p> <p>Substantial time burden on administrator's time difficulty in localities with less administrative support and smaller teams (19)</p> <p>Size and kind of school: -in metropolitan schools: the administration and organisation (— > top-down administrative restrictions and bureaucracy) (15)-in larger primary schools the focus on assessment (15)</p>
<p>3 Factors related to the organisational context: b) immaterial factors Training of staff (by SLT's) (2; 10)</p>	<p>The day to day environment (is a barrier to communication) (10)</p> <p>Lack of consistent support workers for some patients (14)</p> <p>Lack of information because of changes in personal (17)</p> <p>Not correct caregivers accompanying the person with ID (17)</p>	<p>Training, supervision and feedback on performance (2; 8; 10; 15)</p>	<p>Lack of training, professional development opportunities and support in implementation (6; 11; 15; 16)</p> <p>Lack of staff availability (3; 10; 15; 18)</p> <p>Lack of a consistent support worker for some patients (14)</p>
Size of the locality teams:	Size of the locality teams:	Size of the locality teams:	Size of the team:

Table 4. (Continued)

Knowledge sharing enabling	Knowledge sharing disabling	Knowledge application enabling	Knowledge application disabling
-larger teams had the advantage of adequate representation of various disciplines (19)	Size of the team: -smaller teams lack of adequate representation from all professional disciplines (19) -larger teams more difficult to manage all referrals and to achieve meaningful discussion (19)	-larger teams had the advantage of adequate representation of various disciplines (19)	-smaller teams lack of adequate representation from all professional disciplines (19) -larger teams more difficult to manage all referrals and to achieve meaningful discussion (19) No supportive culture to do and to use research (5)

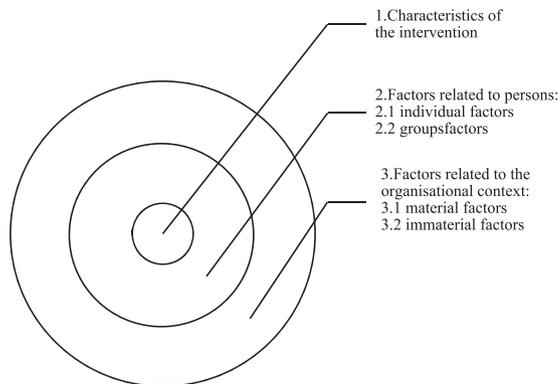


Figure 2 Graphic representation of the clustering of the enabling and disabling factors of knowledge sharing and knowledge application

Factors related to people

At an individual level, factors related to management were reported in several quantitative studies. A non-randomised study of the implementation of active support (1) established, for example, that practice leadership mediated by management quality was a facilitator of knowledge application. Support from management (12, 19) was also considered enabling. Two other studies (3, 4) found that teachers in secondary schools considered ‘lack of administrative support’ a barrier for the application of knowledge. Lack of management input and support (6, 10, 12, 13, 15, 18), and lack of a manager or discontinuity of management input (18) were also found to be disabling factors in several qualitative studies. In addition, inappropriate behaviour, such as not consulting professionals before implementation (7) and inconsistent communication (19), were reported as disabling factors at management level.

Although in quantitative studies only individual factors related to management were reported, in qualitative studies individual factors were also related to health professionals and administrative staff. In many studies, the same factors appeared both as enabling and disabling (when the person involved disposed of or lacked this characteristic, respectively). With respect to health professionals, the following characteristics were identified: their (in)ability to fulfil new roles, which was often related to (lack of) skills and knowledge (6, 11, 12, 14, 15, 19); (lack of) leadership in the teams (19); (lack of) motivation,

interest and commitment (10,14); and attitudes towards the interventions, for example towards the introduction of care pathways (16, 19). In addition, the autonomy of professionals to select programmes was also reported as an enabling/disabling factor (6, 11). As for administrative staff, their role, (lack of) capacity and performance was mentioned (13, 14, 17, 19) as facilitating, for example in cases where they assisted health professionals in documenting core information and disabling in cases where they did not.

At a collective level, a quantitative, non-randomised study (2) found that teamwork as well as team meetings facilitated knowledge sharing and application. This is in line with the identification of enabling factors in qualitative studies, such as meetings, conversations and emails, and access to and input from other professionals (9, 19). However, these qualitative studies also identified barriers: lack of team meetings or lack of priority given to the intervention in team meetings (18); non-attendance/ departure of health professionals (e.g. in meetings) (9, 11, 19); and lack of collaboration with other professionals and the arbitrary way in which knowledge reached specific team members (6, 9, 11).

Factors related to the organisational context

As to material factors, in the quantitative studies the following barriers regarding knowledge application were found: lack of time (3, 5); lack of transportation (i.e., to the community in which the vocational instruction took place) (3); lack of materials, current textbook (being inappropriate to the intervention), lack of information/knowledge (4); limited access to research findings (5). Barriers concerning time and resources were also reported in the qualitative studies. More specifically, they concerned lack of time for implementation of the intervention (6, 7, 12, 13, 14, 15, 18, 19), as well as for attending meetings (18, 19). With respect to resources, the following barriers were identified: no access to materials, resources and tools (6, 11, 12, 15); no evidence or research provided on the effectiveness of the new practice and lack of access to the research literature / research-based information (6, 11); and additional costs (13). Additionally, the conditional role of office arrangements and the ICT system of the organisation itself was highlighted. That is, documentation in the ICT system (i.e. having only the latest documents available) (19) was an enabling

factor in knowledge sharing and application, as was access to email, online resources and paper records (9), information (17) and communication (19). Lack of the last three factors also proved to be a barrier with respect to knowledge sharing. The organisation as a whole was facilitating in case the intervention was in line with its policy or was easy to incorporate into the existing organisation structure (15), or in case the organisation provided the opportunities for knowledge application (10). The day-to-day environment was mentioned both as enabling (8), for example in terms of reducing potential distractions when the assessment took place, and disabling (not further specified, 10). In schools, the size (large) and organisational structure (top-down, administrative restrictions and bureaucracy) were identified as barriers (15).

As to immaterial factors, the quantitative, non-randomised study (2) established training of staff as a facilitator, whereas 'no supportive culture to conduct and use research' (5) was reported as a barrier (3). Lack of staff was established as a barrier in the latter study (3) as well as in several qualitative studies (10, 14, 15, 17, 18). In these latter ones, size of team was identified as being both an enabling and disabling factor (19): larger teams had an advantage with respect to adequate representation from all professional disciplines, as opposed to smaller teams. However, larger teams encountered more difficulties in managing referrals and achieving meaningful discussions in the team. Finally, the availability of training opportunities, supervision and feedback on staff performance were identified as facilitating factors (8, 10, 15), whereas not having this kind of support was identified as a barrier (6, 11, 15, 16).

Discussion

The application and sharing of knowledge are indispensable in optimising the quality of care and support for people with ID (Schalock *et al.* 2008; Reinders & Schalock 2014). In order to contribute to improving these knowledge processes, we conducted a systematic review aimed at identifying enabling and disabling factors at an organisational level, perceived by professionals.

Quantitative and qualitative studies were analysed separately, though, irrespective of the research designs, the same factors were identified and were

clustered as characteristics of the intervention; factors related to people; and factors related to the organisational context. The results of the qualitative studies enabled deeper insight into the results derived from the quantitative studies. For example, one quantitative study identified teamwork as a facilitator (2), which was made more explicit in qualitative studies describing the provision of support and assistance in a team as facilitating (19). Moreover, in combining the results of the qualitative and the quantitative studies our understanding of the cohesion between the identified factors has been enhanced.

An overall analysis of the retrieved factors indicates that they are related through the pre-conditional role of the management of the organisations. Management seems to provide the identified material and immaterial factors, such as time, resources and training. In addition, management is usually guiding in the choice of the method, tool or ICT system; whether user-friendliness and suitability for the professionals are considered as criteria is up to the management. Moreover, the selection of professionals, the composition of teams and policymaking is performed by managers. In this way, management is able to influence the organisational culture in terms of being more or less supportive of knowledge processes. In this way, management has a key position in facilitating processes of sharing and application of knowledge.

These results are in line with the (included) study of Beadle-Brown *et al.* (2014), in which management quality is indicated as a facilitator of knowledge application when combined with practice leadership. In this study, active support was not better implemented by higher quality of management on its own, but only in combination with practice leadership. Beadle-Brown and colleagues applied the following definition of practice leadership: ‘the development and maintenance of good staff support for the people served, through: focusing, in all aspects of the manager’s work, on the quality of life of service users and how well staff support this; allocating and organising staff to deliver support when and how service users need and want it; coaching staff to deliver better support by spending time with them, providing feedback and modelling good practice; reviewing the quality of support provided by individual staff through regular one-to-one

supervision and finding ways to help staff improve it; reviewing how well the staff team is enabling people to engage in meaningful activity and relationships in regular team meetings, and finding ways to improve this.’ (Mansell *et al.* 2005: p. 839). These are all important clues for managers pursuing the application of evidence-based practice such as active support.

Besides the preconditional role of managers, overall analyses also highlight the key role of professionals in processes of knowledge sharing and application, and as such underscore our choice to focus on their perspective. Many of the factors found were related to these professionals, both individually and in teams: their personal characteristics, such as (lack of) motivation, interest and commitment, positive or negative attitude towards the intervention, their (in)ability to fulfil new roles and (absence of) leadership in teams, their (lack of) collaboration in teams and their level of knowledge exchange in team meetings. These results and insights are helpful in understanding the importance of a stimulating learning culture, in which professionals take on responsibility for themselves and collaborate in self-steering teams.

A third overall analysis shows that, depending on the specific context, the same factors can be both enabling and disabling, for example professionals’ (in)ability to fulfil new roles. Most likely, in practice the retrieved factors will be realised on a continuum ranging from enabling to disabling. Future research is needed to further explore the optimal position of factors on this continuum. The fact that far more barriers than facilitators were identified does underline the need for improving knowledge sharing and application in practice.

In addition to practice leadership of management, scientific leadership of researchers is also needed to improve sharing and application of knowledge. When researchers develop evidence-based practices, it is a precondition for successful (knowledge) application that they pay attention to the user-friendliness of the intervention. Ideally a research program will have a co-creating design, in which practice-based knowledge of professionals and experience-based knowledge of service users and their relatives are included (Embregts 2017).

Reviews conducted in general healthcare reveal similar factors to those found in our review, e.g. the

role of professionals, management, leadership, the ICT-system and the availability of time (Nicolini *et al.* 2008; Pentland *et al.* 2011; Goldner *et al.* 2014; Karamitri *et al.* 2015). However, the comparison also shows differences. First, these reviews revealed enabling factors which were not (explicitly) identified in our study, such as the use of opinion leaders, political influence and knowledge brokers. Second, these studies did not mention factors found in the field of ID, such as collaboration and knowledge exchange in teams, or tools to share knowledge such as communication passports. These factors are related to specific characteristics of care and support of people with ID, in which multidisciplinary teams have to share information with many stakeholders. It is also relevant to address the finding that the focus of the general healthcare reviews differed from that of our study. Whereas these reviews were aimed to review the literature on knowledge processes in general, in our study we specifically searched for enabling and disabling factors in processes of sharing and application of knowledge.

In that respect, the review of Fleuren *et al.* (2004) has more similarities to ours. While focusing on innovation within healthcare organisations, the authors identified 49 determinants for implementing innovations successfully. Many of these determinants are identical to the results of our review, such as the predominant role of the organisation and management. Interestingly, they also established different determinants, which were connected to the influence of the socio-political context, such as fit with existing rules, regulations and legislation, patient co-operation, patient awareness of benefits and patient discomfort. These factors raise awareness of the importance of the socio-political context in improving knowledge processes. In addition, they also point at the lack of factors related to service-users in the studies included in this review. This is consistent with Best & Holmes (2010) and Contandriopoulos *et al.* (2010), who state that for successful knowledge exchange processes, the organisational context (e.g. culture, leadership, the users of knowledge) must be taken into account.

In future research, it is thus not only important to explore the role of management in more depth, but the role of stakeholders in the socio-political context and the perspective of service users in improving knowledge processes as well. More specific, the

experiential knowledge service users can provide is an increasingly important source of knowledge to combine with evidence-based and practice-based knowledge. Establishing collaborations between people with and without ID (e.g. in academic collaborative centres) is key in successfully combining these sources of knowledge (Embregts *et al.* accepted; Embregts 2017).

In our review, some limitations need to be acknowledged. Only one of the included studies (Farrington *et al.* 2015) explicitly addressed the key concept 'knowledge sharing'. In all other studies, this concept is operationalised in phenomena like training, meetings, teamwork and paperwork. We have interpreted these terms as 'knowledge sharing' making it subjective interpretations of this knowledge process. However, as all analysis were performed by at least two researchers, the chance of misinterpretation has been minimalised. Furthermore, all but one (17) of the selected studies in our review were conducted in the USA and Commonwealth countries. That means that our results may not be applicable to other countries because local conditions can be different. Notwithstanding these limitations, this systematic literature review does provide both scientifically sound and practical indications to stimulate knowledge sharing and application, thereby contributing to optimising the care and support for people with ID.

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Conflict of interest statement

The authors declare no conflicts of interest.

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