

Evidence-Based Practice Implementation in Stroke Rehabilitation: A Scoping Review of Barriers and Facilitators

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Importance: Despite advancements in stroke rehabilitation research, occupational therapy practitioners still face challenges with implementing research into routine practice. Although the development of evidence-based practices (EBPs) is one critical step along the knowledge translation continuum for the population of people with stroke, research is also needed to identify the most effective strategies for implementing EBPs with stroke survivors who are receiving occupational therapy services.

Objective: To synthesize research related to occupational therapy practitioners' implementation of EBPs in adult stroke rehabilitation.

Data Sources: We searched four electronic databases—CINAHL, MEDLINE, PubMed, and Academic Search Complete—and the peer-reviewed journal *Implementation Science* to identify relevant research studies.

Study Selection and Data Collection: Studies that met the following inclusion criteria were included in the scoping review: published between January 2003 and January 2018, addressed the adult stroke population, and examined the implementation of occupational therapy interventions. Data were abstracted on the basis of recommendations from the seminal review framework established by [Arksey and O'Malley \(2005\)](#). Thematic analysis identified themes that emerged from the included studies.

Findings: Twenty-five articles satisfied our inclusion parameters. Our analyses yielded three overarching themes: barriers to implementation, facilitators of implementation, and implementation strategies. Implementation strategies often consisted of multimodal knowledge translation training programs.

Conclusion and Relevance: Although the stroke rehabilitation literature appears to have established the barriers to and facilitators of EBP implementation, greater attention to the identification of effective implementation strategies that promote the uptake of EBPs by occupational therapy practitioners is needed.

What This Article Adds: This article summarizes the contextual factors and effective strategies that may influence practitioners' implementation of stroke research findings in real-world practice.

Stroke remains a leading cause of disability among adults in the United States ([Benjamin et al., 2017](#)), with impairments ranging from minor changes in sensation to devastating motor deficits. Despite advancements in stroke rehabilitation research, translation of research into practice remains an ongoing challenge for rehabilitation professionals, including occupational therapy practitioners ([Bayley et al., 2012](#); [Wressle & Samuelsson, 2014](#)). Occupational therapy practitioners are often tasked with implementing evidence-based interventions that address a multitude of functional, postural, behavioral, cognitive, and motor impairments ([American Occupational Therapy Association \[AOTA\], 2014](#)). High-quality evidence supports a variety of interventions to improve upper limb function after stroke, including constraint-induced movement therapy ([Corbetta et al., 2010](#); [Wolf et al., 2006](#)), mirror therapy ([Thieme et al., 2013](#)), and mental practice ([Braun et al., 2013](#); [Wang et al., 2011](#)). Evidence-based stroke interventions should be incorporated into routine occupational therapy practice to decrease the effects of disability on and increase the quality of life of stroke survivors.

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Implementation science scholars have continually acknowledged the 17-yr time lag between scientific health care discoveries and the adoption of only 14% of those discoveries into clinical practice (Balas & Boren, 2000; Green et al., 2009; Morris et al., 2011). Occupational therapy practitioners in stroke rehabilitation are not immune to this time lag, and purposeful efforts are needed to identify effective strategies to implement research into practice (Juckett et al., 2019). This article presents a scoping review designed to examine the determinants and strategies related to implementation of evidence-based stroke interventions in occupational therapy, and it provides recommendations for expediting implementation of scientific discoveries into clinical stroke rehabilitation.

Method

Our scoping review methodology was guided by the framework initially presented by Arksey and O'Malley (2005) and further expanded on by Levac et al. (2010). The decision to use a scoping review methodology was based on two key research objectives: (1) Summarize research related to occupational therapy practitioners' implementation of evidence-based practices (EBPs) in adult stroke rehabilitation and (2) identify gaps in the literature pertaining to the implementation of EBPs in stroke rehabilitation. We structured our protocol using five steps: identifying research questions, identifying studies, selecting studies, extracting data, and summarizing the results (Arksey & O'Malley, 2005).

Step 1: Identifying Research Questions

Our overarching research question was as follows: To what extent are occupational therapy researchers implementing EBPs in stroke rehabilitation? We anticipated locating studies that addressed two content areas: (1) determinants that have promoted or impeded occupational therapy practitioners' implementation of EBPs in stroke rehabilitation and (2) strategies that have been examined to encourage occupational therapy practitioners' implementation of EBPs in stroke rehabilitation.

Step 2: Identifying Studies

To perform a comprehensive search of the available literature, we accessed the electronic databases CINAHL, MEDLINE, PubMed, and Academic Search Complete and the journal *Implementation Science*, a peer-reviewed journal committed to publishing implementation research studies that address an array of health care issues. We consulted with stroke rehabilitation and implementation science scholars to determine which key terms to use in our database and journal searches (Table 1). Articles were entered into the web-based scoping–systematic review program Covidence (Veritas Health Innovation, Melbourne, Victoria, Australia), before undergoing title and abstract review.

Step 3: Selecting Studies

We applied our inclusion and exclusion criteria to all identified titles and abstracts to determine which articles should be advanced to the full-text review phase. Studies that explored the actual implementation of stroke EBPs were included.

Table 1. Summary of the Search Strategy

Database and Peer-Reviewed Journal	Key Terminology
CINAHL	Occupational therapy
MEDLINE	Stroke
PubMed	Cerebrovascular accident
Academic Search Complete	Implementation
<i>Implementation Science</i>	Knowledge translation
	Intervention
	Evidence-based practice
	Dissemination
	Research utilization

We narrowed our search further by applying the following inclusion criteria to all abstracts and articles:

- Published in English
- Published between January 2003 and January 2018
- Addressed the adult stroke population (age 18 yr and older)
- Primarily addressed occupational therapy interventions.

We chose to exclude review articles such as meta-analyses, systematic reviews, and integrative and narrative reviews. We also chose to exclude articles that focused solely on physical therapy

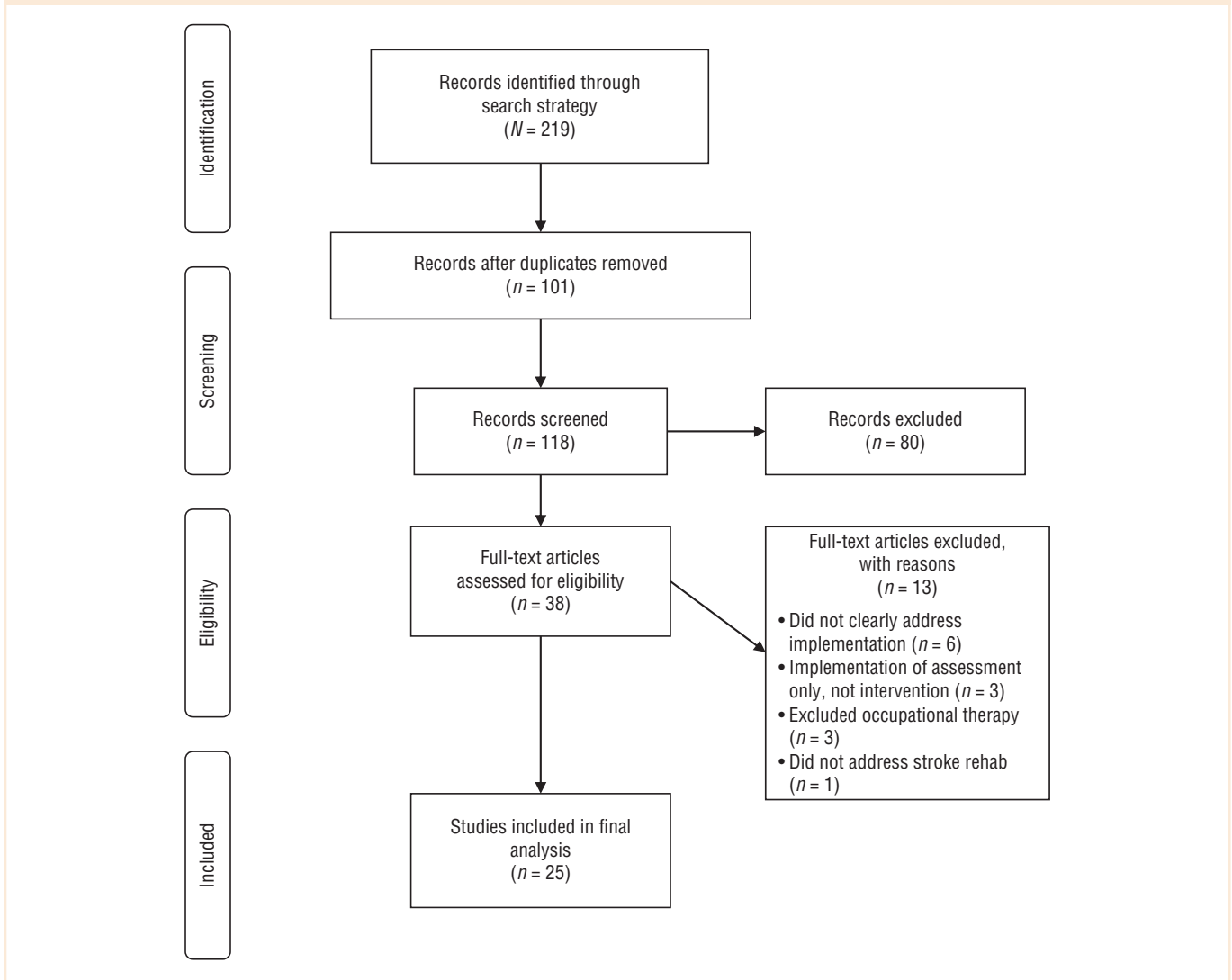
practitioners, addressed implementation of assessments, examined implementation of caregiver training, or presented study protocols without actual results.

Two reviewers (LAJ and LRW) selected relevant articles, on the basis of the inclusion and exclusion criteria, to be included in the final review. The authors discussed conflicts and consulted with a third and fourth reviewer (JF and CEG) to achieve consensus on article inclusion. Of the original 118 references, 38 articles were obtained for full-text review, and 25 were ultimately included in the scoping review (Figure 1).

Step 4: Data Extraction

After adapting Arksey and O’Malley’s (2005) data charting form (Table 2, at the end of this article), we abstracted pertinent information from each article using a descriptive–analytic method. We chose to use this method to provide readers with a broad understanding of each article, how implementation was examined, and the type of stroke

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram of study selection process.



Note. Figure format from “Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement,” by D. Moher, A. Liberati, J. Tetzlaff, and D. G. Altman; PRISMA Group, 2009, *PLoS Medicine*, 6(6), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>

intervention being implemented. As is inherent with scoping review methodologies, the data charting form was revised as needed throughout the data abstraction process to present the information in a cohesive and concise manner.

Step 5: Summarizing the Results

We established two processes to summarize our results: a descriptive numerical summary and a thematic analysis (Arksey & O'Malley, 2005; Levac et al., 2010). Our descriptive numerical summary highlighted details on the type and frequency of studies included, the EBPs being implemented, and the location where the study was conducted. We then used a thematic analysis approach to identify themes related to the implementation of stroke EBPs among practitioners. To guide our thematic analysis, we mapped our findings to the Consolidated Framework of Implementation Research (CFIR; Damschroder et al., 2009). Refer to Table 3 for a summary of the CFIR's five domains and their respective constructs.

Results

Our review process yielded a total of 25 articles that aligned with our inclusion criteria. The majority of included articles used qualitative research methods ($n = 9$) to examine determinants that influenced occupational therapy practitioners' implementation of EBPs in stroke rehabilitation. The remaining articles used quasi-experimental or pretest–posttest designs ($n = 7$), cross-sectional surveys ($n = 5$), cluster randomized controlled trials (RCTs; $n = 2$), or observational research designs ($n = 2$). Because of the large number of articles that assessed determinants that influence EBP implementation, we established two separate categories: barriers to effective implementation and facilitators of effective implementation. Because our scoping review was informed by the implementation science literature, we further classified our findings according to CFIR constructs: intervention characteristics, outer setting, inner setting, individual characteristics, and implementation process (Damschroder et al., 2009; see Table 3). Articles that

examined actual strategies designed to increase the uptake of evidence into practice were compiled into their own category—implementation strategies.

Table 3. Constructs From the Consolidated Framework for Implementation Research

Construct	Subconstructs
Intervention characteristics	Intervention source; evidence quality and strength; relative advantage; adaptability; trialability; complexity; design quality and packaging; cost
Outer setting	Patient needs and resources; cosmopolitanism; peer pressure; external policy and incentives
Inner setting	Structural characteristics; networks and communication; culture; implementation climate; tension for change; compatibility; relative priority; organizational incentives and rewards; goals and feedback; learning climate; readiness for implementation; leadership engagement; available resources; access to knowledge and information
Individual characteristics	Knowledge and beliefs; self-efficacy; individual stage of change; individual identification with organization; other personal attribute (e.g., values, motivation)
Implementation process	Planning; engaging; opinion leaders; formally appointed internal implementation leaders; champions; external change agents; executing; reflecting and evaluating

Barriers to Effective Implementation

Intervention Characteristics.

Perhaps the most common barrier to effective EBP implementation was the high prevalence of inconsistent adherence to delivering the EBPs (e.g., interventions) as intended. This low rate of adherence, or fidelity, was identified through qualitative, observational, and cross-sectional survey data presented in several articles included in our review (Connell, McMahon, Harris, et al., 2014; Gustafsson & McKenna, 2003; Komer-Bitensky et al., 2007; Kristensen et al., 2016; Levac et al., 2016b; McCluskey et al., 2015; Scobbie et al., 2013). Related to this, the complexity of interventions served as an obstacle to their actual use in the rehabilitation setting, and interventions deemed inapplicable (Scobbie

Note. From “Fostering Implementation of Health Services Research Findings Into Practice: A Consolidated Framework for Advancing Implementation Science,” by L. J. Damschroder, D. C. Aron, R. E. Keith, S. R. Kirsh, J. A. Alexander, and J. C. Lowery, 2009. *Implementation Science*, 4, 50. Adapted from the original under the terms of the Creative Commons Attribution 2.0 Generic License (<https://creativecommons.org/licenses/by/2.0>). Retrieved from <https://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-4-50#rightslink>

et al., 2013) or unadaptable (Kristensen et al., 2012; Levac et al., 2016b) were less likely to be implemented in clinical practice.

Inner Setting.

Several resource limitations impeded the extent to which occupational therapy practitioners implemented evidence in practice. Specifically, a lack of staff and EBP experts, increased costs associated with select EBPs, time constraints, logistical challenges, and inadequate equipment all had a negative impact on practitioners' perceived ability to routinely implement EBPs (Bayley et al., 2012; Levac et al., 2016b; McCluskey et al., 2013; Petzold et al., 2014; Scobbie et al., 2013). Decreased interdisciplinary communication and inconsistent leadership engagement were also found to limit EBP adoption (Bayley et al., 2012; Munce et al., 2017).

Individual Characteristics.

A variety of extrapersonal factors influenced stroke rehabilitation practitioners' ability to consistently implement quality EBPs. These factors included lack of knowledge that select interventions existed, decreased confidence in using new interventions, and difficulty forming new habits using novel interventions (Munce et al., 2017; Petzold et al., 2014; Schmid et al., 2008; Scobbie et al., 2013). Moreover, practitioners who did not have a favorable view of a particular EBP were less likely to implement that EBP in clinical practice, despite strong evidence supporting the benefits of the intervention (Munce et al., 2017).

Facilitators of Effective Implementation

Many of the same CFIR constructs identified as barriers to EBP implementation were also identified as facilitators of EBP implementation.

Inner Setting.

The availability of supporting resources played an integral role in enhancing the use of EBPs in stroke rehabilitation. Such resources included EBP experts (otherwise known as *EBP champions*), online support guides, and electronic education modules (Connell, McMahon, Harris, et al., 2014; Korner-Bitensky et al., 2007). In addition, relationship building among therapy stakeholders, clear support from management, and ongoing communication from organizational leadership all encouraged the use of EBPs, resulting in more consistent EBP implementation and more favorable opinions toward routinely adopting EBPs (Kristensen et al., 2012; Masterson-Algar et al., 2014; Munce et al., 2017; Petzold et al., 2014).

Individual Characteristics.

The extent to which occupational therapy practitioners found value in a particular evidence-based intervention was the most common predictor of implementation (Connell, McMahon, Harris, et al., 2014; Connell, McMahon, Watkins, et al., 2014; Kristensen et al., 2012; Munce et al., 2017; Russell et al., 2018; Scobbie et al., 2013). Enthusiasm and support for a particular EBP promoted its adoption in the stroke rehabilitation setting. In addition, similar to how the lack of knowledge of current EBP recommendations impeded implementation, a strong working knowledge of available evidence-based interventions, along with their clinical application, enhanced EBP implementation (Munce et al., 2017; Petzold et al., 2014).

Outer Setting.

Although they identified no barriers in the outer setting construct of the CFIR, Levac et al. (2016b) found that patient preference had an impact on how often an evidence-based intervention was implemented. Occupational therapy

practitioners were more likely to implement an evidence-based virtual reality intervention with patients who had previously demonstrated strong engagement and interest in the intervention.

Implementation Strategies

Although our scoping review identified several factors that influenced occupational therapy practitioners' use of EBPs with the stroke population, we also sought to determine what implementation strategies, otherwise known as *implementation interventions*, have been used to promote the uptake of EBPs in clinical practice. Of the 25 articles, 10 (40%) examined one or more implementation strategies to increase EBP adoption. Multimodal knowledge translation strategies were those most often used and consisted of techniques such as in-person workshops, online modules, expert or mentor consultation, educational materials, and email reminders related to the targeted EBPs (Levac et al., 2016a, 2016b; McCluskey et al., 2016; McEwen et al., 2005; Petzold et al., 2012; Salbach et al., 2017). Multimodal knowledge translation strategies were found to increase practitioners' knowledge and confidence in using stroke-related EBPs (Doyle & Bennett, 2014; Levac et al., 2016a, 2016b; Petzold et al., 2014), but they did not, with the exception of McEwen et al.'s (2005) knowledge translation program, consistently enhance the adoption of EBPs in the practice setting (McCluskey et al., 2016; Salbach et al., 2017). Audit and feedback strategies (Kristensen & Hounsgaard, 2014; McCann et al., 2009) and organizational initiatives designed to increase practice guideline adoption (McCann et al., 2009; Read & Levy, 2006) were successful techniques that had a positive impact on the integration of EBPs.

Discussion

The objective of this scoping review was to synthesize research related to occupational therapy practitioners' implementation of EBPs in adult stroke rehabilitation. On the basis of our review, we were able to identify barriers to EBP use, facilitators of EBP use, and implementation strategies specifically intended to increase the adoption of EBPs with the population of people with stroke. By drawing from the implementation science literature, we mapped key barriers to and facilitators of EBP implementation to overarching constructs from the CFIR, a frequently referenced framework in implementation research.

We identified barriers to EBPs in stroke rehabilitation in three of the five CFIR constructs: intervention characteristics, inner setting, and individual characteristics. Common barriers that emerged throughout the scoping review process included the lack of resources to implement EBPs, lack of knowledge or awareness of EBPs, and varying adherence to EBP recommendations (i.e., lack of fidelity when administering evidence-based interventions in clinical practice). These barriers are consistent with the barriers to EBP implementation identified in existing allied health literature (Juckett & Robinson, 2018; Wressle & Samuelsson, 2014). Acknowledging barriers to EBP implementation is an important first step toward identifying effective strategies to enhance the uptake of research into practice.

Our coding and thematic analyses also found several facilitators of EBP use, all of which were mapped to the following three CFIR constructs: inner setting, individual characteristics, and outer setting. Of all facilitators identified, occupational therapy practitioners' perceptions of the value of EBPs appeared to be the most consistent predictor of EBP implementation in clinical practice. This finding speaks to the importance of continuously incorporating research education into professional development from the student level all the way to the experienced occupational therapy practitioner level. Prior evidence has confirmed the notion that professionals with a positive opinion of EBPs are more likely to seek out and use EBPs with patients. Specifically, Jordan et al. (2016) found that recent nursing graduates (younger than age 40 yr) were more familiar with EBPs and, therefore, may be more likely to implement EBPs in practice. This finding may suggest the value of the EBP paradigm shift in academic programs because more recent graduates are more likely to receive training in EBPs in their curricula. Conversely, among occupational therapy practitioners, positive views of or recent exposure to EBPs has not necessarily led to greater implementation of EBPs with patients (Upton et al., 2014), although this is an area of study that requires further investigation.

Although our findings support common factors influencing implementation of EBPs with stroke survivors, recognition of these barriers and facilitators is merely one element of enhancing the adoption of EBPs. Greater emphasis on identifying effective strategies for increasing EBP implementation is imperative. Our scoping review commonly identified multimodal knowledge translation strategies that have been explored in research studies, yet the effectiveness of these specific strategies remains unclear, limiting their applicability to clinical practice. Notably, however, multimodal approaches have been found to be more effective than singular implementation strategies alone (i.e., one training session; [Kirschner et al., 2017](#)). Moreover, although we identified several studies that leveraged multimodal strategies to enhance EBP implementation ([Doyle & Bennett, 2014](#); [Levac et al., 2016a, 2016b](#); [Petzold et al., 2014](#)), applying these strategies in occupational therapy practice would be difficult because these authors did not provide adequate detail for replication. Implementation science scholars have encouraged clear descriptions of implementation strategies to enhance their replicability ([Bunger et al., 2017](#); [Proctor et al., 2013](#)). Future research on the implementation of valid and reliable assessments ([Lynch et al., 2016](#)) for stroke survivors is also warranted because assessments inform the selection of appropriate EBPs.

Limitations

Although our findings make a valuable contribution to the implementation and knowledge translation research in occupational therapy, our study is not without limitations. As is standard with scoping reviews ([Colquhoun et al., 2010](#)), our methodology did not include a quality assessment of each included article, such as those conducted in systematic reviews. Our review methods were structured to include all study types, ranging from qualitative studies to RCTs, to examine the extent to which the implementation of stroke EBPs were included in the occupational therapy literature. Without quality assessments, our findings are not as generalizable to the occupational therapy profession but still provide insight that can guide future implementation research in stroke rehabilitation.

Practitioner perceptions examined in the included articles most often reflected the views of occupational therapists, not occupational therapy assistants. Although both groups of professionals work collaboratively, the EBP-related needs of occupational therapists may differ from the needs of occupational therapy assistants and warrant further research. Last, because implementation-related research is still an emerging area in occupational therapy, the articles we included did not investigate EBP implementation by occupational therapy practitioners exclusively. With these articles, we were unable to extract data that represented only occupational therapy practitioners; thus, our results may be less representative of the occupational therapy profession.

Implications for Occupational Therapy Practice

To make our findings most useful to occupational therapy, we have highlighted four key strategies that practitioners, supervisors, and administrators may consider embedding in their respective stroke rehabilitation settings:

- Assess practitioners' adherence to EBPs in the clinical setting. Practitioners' ability to adhere to EBPs, as they are prescribed or intended, can vary on the basis of the availability of supportive resources, interest in or comfort with using EBPs in practice, and familiarity with the core components of EBPs. Identifying barriers to EBP adherence can be the first step in determining how to increase effective EBP use.
- Consider assessing the value practitioners place on evidence-based interventions that are either currently used in practice or intended to become integrated into practice. Our review findings indicated that the greater value practitioners placed on research, the more likely they were to implement EBPs with their patients.
- When planning to adopt one or more EBPs, consider using a multimodal knowledge translation program or combination of implementation strategies. For instance, instead of a 1-hr in-service on the use of functional electrical stimulation, structure the in-service to also include educational materials, electronic resources, and follow-up consultations to help practitioners solidify their understanding of how to apply the EBP in a real clinic scenario.

- Use the EBP tools and resources available to AOTA members. Practitioners can access the Evidence-Based Practice & Research section of the AOTA website (<https://www.aota.org/Practice/Researchers>) and find practice-specific EBP resources, Critically Appraised Papers, a journal club toolkit, and a database of EBP resources. In addition, AOTA *Occupational Therapy Practice Guidelines* are available for purchase, including guidelines for adult stroke rehabilitation (Wolf & Nilsen, 2015). These resources are specifically geared toward occupational therapy practitioners and may assist in maximizing implementation of EBPs.

Conclusion

Implementation of research into practice is a complex process influenced by an array of individual and contextual determinants. Although recognition of these factors is important, the occupational therapy profession needs to expand on its examination of actual implementation strategies that have been shown to increase the adoption of EBPs with the stroke population. As stroke rehabilitation research becomes more robust, we encourage researchers to investigate implementation strategies to better facilitate translation into clinical practice. Collaborating with implementation scientists may help guide researchers toward an understanding of how to structure methodologies when designing implementation studies and when measuring implementation outcomes. Key implementation outcomes include acceptability, adoption, appropriateness, costs, feasibility, fidelity, penetration, and sustainability (Proctor et al., 2011). These outcomes can be assessed when examining the effectiveness of implementation strategies used to increase the uptake of EBPs with patients. Extensive examples of implementation strategies, also referred to as *implementation interventions*, can be found in Powell et al. (2012).

Although stroke mortality rates have decreased over the past 2 decades, the incidence of stroke-related disability continues to increase worldwide (Feigin et al., 2014). This trend demands that we establish effective, tangible solutions for narrowing the 17-yr research-to-practice gap. Although impressive advancements have been made in stroke rehabilitation research, it is essential that practitioners take these advancements to the next level by consistently integrating them into practice with stroke survivors. As practitioners continue to adhere to AOTA's *Vision 2025* of being a science-driven, evidence-based profession (AOTA, 2017), they must identify effective strategies for implementing evidence-based stroke rehabilitation practices to maximize performance levels of the stroke survivors they serve. ■

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Table 2. Characteristics of Articles Examining Occupational and Physical Therapy Practitioners' Implementation of Stroke Rehabilitation EBPs

Author/Year	Type of EBP	Implementation Approach	Methodology	Findings
Bayley et al. (2012)	Evidence-based recommendations for arm and leg rehabilitation after stroke	Local facilitators; workshop; consultation with KT experts; implementation toolkit	Qualitative; focus groups with practitioners	Barriers to implementation: decreased resources (staff, time, equipment, training); decreased communication among leadership
Connell, McMahon, Harris, et al. (2014)	GRASP designed to support higher exercise intensity in inpatient settings	N/A	Qualitative; interviews with practitioners	Facilitators of implementation: available online resources; access to leaders and experts; perceived value of GRASP Barriers to implementation: Inconsistent adherence to GRASP
Connell, McMahon, Watkins, et al. (2014)	GRASP	N/A	Descriptive; cross-sectional survey	Facilitator of implementation of perceived value of GRASP
Doyle & Bennett (2014)	ULPSSI management	Workshop drawn from Adult Learning Theory and Theory of Planned Behavior	Single group pretest–posttest design	Implementation strategies: Workshop led to improved knowledge of, attitude toward, and confidence in capabilities with ULPSSI; also led to higher intended behaviors regarding ULPSSI
Gustafsson & McKenna (2009)	Practice related to support devices, PROM, Bobath techniques, and static positional stretches	N/A	Descriptive; cross-sectional survey	Barriers to implementation: inconsistent adherence to best practice recommendations; cost of recommendations
Korner-Bitensky et al. (2007)	Best practice utilization behaviors in rehabilitation	N/A	Descriptive; cross-sectional survey	Barriers to implementation: lack of resources (time and staff); lack of perceived value of EBP
Korner-Bitensky et al. (2008)	StrokEngine	N/A	Descriptive; cross-sectional	Facilitators of implementation: availability of resources (online)
Kristensen & Hounsgaard (2014)	General EBP for stroke rehab	Audit and feedback	Descriptive; chart audits	Implementation intervention: audits and feedback positively influenced use of EBPs
Kristensen et al. (2016)	General EBP for stroke rehab	N/A	Qualitative; field observations, interviews, focus groups	Barriers to implementation: complexity of stroke-related assessments; lack of adaptability of assessments Facilitators of implementation: engagement from organizational leadership; perceived value of EBP
Levac et al. (2016a)	VR in stroke rehabilitation	Multimodal KT intervention including computer-based learning, hands-on learning sessions, experiential learning, email reminders; mentorship	Single group pretest–posttest design	Barriers to implementation: limited resources (time, LOS, equipment); VR complexity; VR appropriateness Facilitators of implementation: client engagement in VR Implementation intervention: Multimodal KT intervention led to increased confidence in using VR

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Table 2. Characteristics of Articles Examining Occupational and Physical Therapy Practitioners' Implementation of Stroke Rehabilitation EBPs (Cont.)

Author/Year	Type of EBP	Implementation Approach	Methodology	Findings
Levac et al. (2016b)	Motor learning approach within VR	Multimodal KT intervention including self-paced e-learning, hands-on learning sessions, VR sessions with stroke survivors, didactic reminders	Single group pretest–posttest design	Implementation intervention: Multimodal KT intervention led to increased knowledge regarding motor learning and VR
Masterson-Algar et al. (2014)	A complex ADL intervention	N/A	Qualitative; semistructured interviews	Facilitators of implementation: building relationships among staff led to improved adherence to the intervention; being able to modify the physical environment also led to improved adherence
McCann et al. (2009)	Stroke performance indicators	Establishment of a stroke-specific hospital unit	Single group pretest–posttest design	Implementation intervention: Establishing a designated stroke unit led to increased compliance with performance indicators and enhanced stroke survivor outcomes
McCluskey et al. (2015)	Outdoor therapy sessions	Audit and feedback	Observational	Barriers to implementation: decreased adherence to conducting therapy sessions in the outdoor environment
McCluskey et al. (2016)	Outdoor mobility clinical guideline	Intervention group: multimodal KT intervention including training workshop, implementation barrier discussion, printed education materials, audit and feedback with medical records, 1-hr booster session Control group: printed copy of the 2010 stroke guidelines delivered by mail	Experimental; cluster RCT	Implementation intervention: The multimodal KT intervention did not change community teams' behavior in delivering outdoor mobility sessions with stroke survivors
McCluskey et al. (2013)	Multiple stroke guidelines	N/A	Qualitative; semistructured focus groups (6) and individual interviews (2)	Barriers to implementation: beliefs about potential negative outcomes or lack of memory support to facilitate good practice and documentation habits; limited knowledge of EBP; poor prioritization of EBP; and limited resources, such as time or patient literature
McEwen et al. (2005)	General stroke EBP utilization	The Rehabilitation Education Program for Stroke was administered; it combined a self-directed online learning module with support from peer mentors, technical skill workshops, and organizational supports	Single group; pretest–posttest design	Facilitators of implementation: beliefs about potential positive outcomes of a guideline, knowing EBP options, clinician motivation to use EBP, availability of resources Implementation intervention: Multimodal KT intervention positively influenced the use of stroke rehabilitation practices

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Table 2. Characteristics of Articles Examining Occupational and Physical Therapy Practitioners' Implementation of Stroke Rehabilitation EBPs (Cont.)

Author/Year	Type of EBP	Implementation Approach	Methodology	Findings
Munce et al. (2017)	Stroke clinical guidelines	N/A	Qualitative; semistructured focus groups	Barriers to implementation: lack of familiarity with and lack of beliefs in the guidelines; environmental factors; lack of communication and collaboration Facilitators of implementation: familiarity with and perceived value of the guidelines; team communication and collaboration
Petzold et al. (2012)	Poststroke USN	7-hr in-person interactive workshop; 8-wk reinforcement period	Single group pretest–posttest design	Implementation intervention: A multimodal KT intervention can improve practitioners' knowledge of how to manage poststroke USN
Petzold et al. (2014)	USN treatment	N/A	Qualitative; focus groups	Barriers to implementation: staff and managerial factors, limited resources, client factors, lack of practitioner training, decreased perceived value of USN treatment Facilitators of implementation: access to resources, supportive management, access to continuing education, perceived value of USN treatment, client factors
Read & Levy (2006)	Stroke care pathways	Stroke care pathway implementation	Single group pretest–posttest design	Implementation intervention: Establishing stroke care pathways appears to improve the process of stroke care
Russell et al. (2018)	Cross-education, the practice of improving an untrained muscle through training of the same muscle on the opposite side of the body	N/A	Qualitative; focus groups	Facilitators of implementation: perceived value of intervention
Saibach et al. (2017)	18 stroke rehab guidelines	Intervention group: KT program including 4 hr of live support from trained facilitators over 16 mo, small group education sessions with stroke teams, booklets on EBP guidelines and protocols, web-based teleconferences Control group: guideline booklets, video, handbook	Experimental, cluster RCT	Implementation intervention: Of the 18 guidelines, the implementation of only 2 guidelines improved in the intervention group; in the control group, the implementation of 1 guideline improved
Schmid et al. (2008)	Stroke rehabilitation guidelines	N/A	Descriptive; cross-sectional survey	Barriers to implementation: lack of knowledge and skills regarding stroke guidelines

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Table 2. Characteristics of Articles Examining Occupational and Physical Therapy Practitioners' Implementation of Stroke Rehabilitation EBPs (Cont.)

Author/Year	Type of EBP	Implementation Approach	Methodology	Findings
Scobbie et al. (2013)	Goal setting and action planning framework	N/A	Qualitative; interviews	Barriers to implementation: lack of time, lack of confidence in using a new outcome measure, difficulty habitually integrating new interventions into clinical practice, logistical challenges (e.g., inability to find intervention materials efficiently), limited applicability to patients with cognitive or communication impairments Facilitators of implementation: previous experience with similar intervention, confidence in technique, rehabilitation assistant involvement, perceived value of goal setting and action planning framework

Note. ADL = activities of daily living; EBP = evidence-based practice; GRASP = Graded Repetitive Arm Supplementary Program; KT = knowledge translation; LOS = length of stay; N/A = not applicable; PROM = passive range of motion; RCT = randomized controlled trial; ULPSSI = upper limb poststroke sensory impairment; USN = unilateral spatial neglect; VR = virtual reality.