AOTA SYSTEMATIC REVIEW GUIDE

Systematic Review Defined

There are many types of literature syntheses described in scholarly literature (e.g., scoping reviews, umbrella reviews, economic reviews, systematic reviews [Aromataris & Munn, 2020; Grant & Booth, 2009]). This guide focuses on conducting a systematic review (SR) of the literature to answer practice questions. Unlike literature reviews supporting original research, the goal of an SR is to synthesize the best available evidence related to a practice question. As the name implies, an SR is the process of systematically searching for evidence. The practice question is determined in advance of the search, and the search for literature is comprehensive, transparent, and reproducible. It includes the systematic search and the appraisal and synthesis of the evidence found. The review should follow established guidelines (Aromataris & Munn, 2020; Preferred Reporting Items for Systematic Reviews and Meta-Analyses [PRISMA], 2024b) of the elements that should be included in the review process. The outcome is a narrative or thematic synthesis of evidence that includes recommendations for practice that a single study cannot answer. Additionally, some authors will complete a quantitative synthesis (i.e., meta-analysis). The timeline for completing a traditional SR is highly variable based on several factors; it may take 1 year or longer to complete an SR.

Objectives

This guide supports occupational therapy faculty members, researchers, students, and practitioners in conducting systematic literature reviews to answer clinical questions. Specifically, this manual will aid the user in:

- ❑ Identifying the steps involved in completing a systematic review of the literature.
- ❑ Developing awareness of software and tools supporting the systematic review process.
- ❑ Writing clinical questions relevant to occupational therapy practice.
- ❑ Conducting systematic reviews of the literature.
- ❑ Synthesizing evidence to answer practice questions.
- ❑ Translating and disseminating the evidence for practitioners.

Project Management Considerations

Project management considerations should be addressed before starting an SR project. Addressing these considerations early in the project will help ensure that the review is conducted effectively and efficiently. Establishing realistic timelines, identifying team members and available resources, and creating a collaboration space will help to create structure for the project. Inadequate preparation before starting the project can lead to delays, inconsistencies, and, potentially, low quality results.

Establish a Team

Best practice in conducting an SR requires teamwork. A team reduces bias and ensures quality in the review process when various perspectives are included (Ioannidis et al., 2015; Uttley & Montgomery, 2017). A team aids in improving accuracy, as various people can contribute different perspectives, review records, and synthesize findings. Many combinations of team members are possible. Any combination of researchers, educators, practitioners, students, and community partners may be included on an SR team. Reference librarians are highly recommended team members to ensure quality of the literature search. Teams may be composed of members from one or more institutions. Diversity of thought adds strength to the team and should be considered when determining team members. Those with expertise in SR methodology or in the review's topic are helpful. Teams may range in size and may depend on several factors, such as the anticipated size and scope of the SR, the proposed timeline of

the review, the number of people available to contribute to the project, or the amount of time each team member has available to contribute to the review. A quality review requires a minimum of two to three members (PRISMA, 2024b).

As the team is identified, determine the strengths of the members and a team leader. Consider the range of skills needed to complete the review in comparison to the tasks to be completed. Some members may be good at or enjoy certain tasks more than others. When possible, the team will be more productive and effective when team members are working with their strengths in mind. Some members of the team may have limited roles (e.g., a reference librarian may be involved only in the literature search phase of the project), while others may have extended roles (e.g., quality control through all phases of the review). Identify roles and responsibilities of each team member to reduce miscommunication and conflict. Specific roles may include manager, quality controller, recorder, spokesperson, or tie breaker. Record these roles and responsibilities, including the order of authorship for anticipated presentations or publications. Authorship agreements, such as those available through the American Psychological Association (n.d.) may be useful.

Set Up Collaboration Space and Project Management Systems

After establishing a team, set up a collaborative workspace and establish a project management system. A collaborative workspace in an online environment where all materials for the project are stored, accessed, and used is helpful to store documents that all members of the team have access to and can work in synchronously. There are several options to choose from; for example, Microsoft Teams (https://microsoft.teams.com), Microsoft SharePoint (https://microsoft.sharepoint.com), Microsoft Planner (https://www.microsoft.com/en-us/microsoft-365/planner/microsoft-planner), Box (https://www.box.com), and Google Drive (https://www.google.com/drive/). The best one may depend on several factors including institutional informational technology systems and security practices; AOTA uses Microsoft Teams. Several SR tools (discussed below) are available to assist in the efficiency of the work; selecting which, if any, of these tools the team will use is vital for the success of the team and the project. Ensure all team members know how to use the tools selected or conduct necessary training sessions.

It is also helpful to establish project management systems. The team may benefit from a discussion of how often the team will meet, whether team members will complete project work between meetings or during working meetings, or clarifying the purpose of meetings (i.e., for progress check-in or for advancing the work). The team may also decide whether to use formal project management software, for example, Trello (https://www.trello.com) or Monday.com (https://monday.com) or rely on less formal means of project management (e.g., a Gantt chart can be developed in a spreadsheet software program).

The Systematic Review Process

The SR process can be divided into six main steps:

1. Determine the practice question.
2. Develop the search protocol.
3. Find the evidence.
4. Grade and appraise the evidence.
5. Synthesize the findings.
6. Translate the evidence.

Step 1: Determine the Practice Question

After the team is ready to begin the review, they first determine the practice question because it provides the focus and guide for the entire project (PRISMA, 2024b). There are three essential elements of a clinical question and several optional components. The practice question must name the population (patient), an intervention, and an outcome of interest. It may also include a comparison intervention, timeline, type of study design, or practice setting.

Practice questions are synonymous with Population, Intervention, Comparison, Outcome (PICO) questions. Refer to Table 1 for sample practice questions with the key elements of each identified.

Table 1. Sample Practice Questions

Sample Practice Question	Elements
Are social stories effective for improving social participation among elementary school-aged children with autism?"	**Population:** Elementary school-aged children with autism **Intervention:** social stories **Outcome:** improving social participation
Which interventions within the scope of occupational therapy are effective in enhancing health management for adults with chronic conditions?	**Population:** adults with chronic conditions **Intervention:** any within the scope of occupational therapy practice **Outcome:** health management
Which interventions within the scope of OT are effective for enhancing community mobility for autistic people?	**Population:** autistic people **Intervention:** any within the scope of occupational therapy practice **Outcome:** community mobility
Is mirror therapy more effective than bimanual therapy for enhancing hand function in older adults > 6 months post-stroke receiving outpatient services?	**Population:** adults post-stroke **Intervention:** mirror therapy **Comparison:** bimanual therapy **Outcome:** hand function **Time:** > 6 months post-stroke **Setting:** Outpatient services

Practice questions come *from* practice and the answers found are *for* practice. Systematic reviews inform practice by providing a summary of up-to-date evidence about an intervention for a particular practice situation. Practice questions can be broad or narrow in scope, and the scope of the question can influence the timeline of the project. For example, a practice question such as, "*which interventions within the scope of occupational therapy are effective in enhancing health management for adults with chronic conditions?*" is broad, while the question, "*is mirror therapy effective for enhancing hand function in older adults post-stroke?*" is narrower in scope. The outcome included in the practice question is an important consideration. While many outcomes can be selected, as occupational therapy practitioners, we ultimately demonstrate our distinct value as a member of the practice team when our focus is on occupational performance, participation, health, well-being, and quality of life. A conceptual model or theoretical framework, while not a required element of a systematic review, may assist in organizing the review process, synthesizing findings from included studies, and communicating occupational therapy's distinct value.

Step 2: Develop the Search Protocol

After the practice question is finalized, develop the search protocol. A cursory literature scan may be completed prior to developing the protocol to determine whether a current systematic review (e.g., one completed in the last 3–5 years) on the topic already exists. This brief scan may also provide clues about the amount of literature available on the topic.

Essential elements of the protocol include identifying relevant search terms, data sources, and inclusion and exclusion criteria; a complete list of protocol elements is available from PROSPERO, an online international database of prospectively registered SRs (University of York Centre for Reviews and Dissemination, n.d.). A reference librarian (i.e., a research librarian skilled at conducting thorough and systematic literature searches) at this phase of the project can bolster the quality of the literature search. The reference librarian can collaborate with the

team to develop a comprehensive list of search terms, organize a reproducible search with Boolean operators, and index key terms and subject headings for each database. They may also document the search strategy for the protocol.

For a comprehensive review, three or more databases are recommended. The databases should be representative of the question being asked. A description of the contents of a database can be found on each database website. Common data sources for systematic reviews in occupational therapy include PubMed, Cumulated Index to Nursing and Allied Health Literature (CINAHL), Excerpta Medica database (Embase), Education Resources Information Center (ERIC), Cochrane Library, Cochrane Database of Systematic Reviews, Web of Science, PsycINFO, Scopus, Physiotherapy Evidence Database (PEDro), and Google Scholar. Gray literature, or research findings not published in typical research databases, while more difficult to locate, may also be included in a systematic review, as it may reduce the risk of publication bias and lead to a more comprehensive review (Paez, 2107).

The team should also determine inclusion and exclusion criteria for the review (PRISMA, 2024b). These criteria will inform the search and be used by the team for article selection. Inclusion criteria are all the elements that an individual article would need to contain to be included in the review, while exclusion criteria are those items that would disqualify an article from inclusion. Applying inclusion and exclusion criteria ensures the search results are consistent, reliable, and uniform. Example inclusion and exclusion criteria are the year or language of publication, full-text availability, the type of research study design/level of evidence, the age range of the participants in the study, the setting of the intervention, the outcome of interest, or the type of intervention included in the study.

After the specific search terms, data sources, and inclusion and exclusion criteria have been determined, a protocol may be publicly registered. Two common protocol registries are PROSPERO (https://www.crd.york.ac.uk/PROSPERO) and the Open Science Framework (https://osf.io). The purpose of registering an SR is to reduce redundancy in the types of reviews completed. Not all protocols are accepted into a public registry; however, submission of a protocol to a public registry aids in research transparency, trustworthiness, and reproducibility. An SR can proceed regardless of whether the protocol is accepted in a public registry.

Step 3: Find the Evidence

At this point, the team is ready to find the evidence. They can implement the search strategies developed for each identified data source. This will produce a total number of articles from each data source that may contribute to the answer to the clinical question. These totals can be added together to get a total number of articles identified. Duplicate articles can be identified and removed.

Titles and abstracts of identified articles can be tracked in one of several ways. They can be compiled into one comprehensive word processing document or spreadsheet, or they can be downloaded into a reference management system such as Zotero (https://www.zotero.org/) or Endnote (https://endnote.com). Most reference management systems hold large numbers of articles; identify duplicate articles across the data sources; house full text of the record when available; have options for collaborative workspace; and integrate citations into written work. In short, a reference management system can save time and effort.

After articles have been identified and duplicate articles removed, the titles and abstracts of each are screened for inclusion. It is best practice to have at least two team members independently screen each article to reduce bias and error (PRISMA, 2024b). When screening, it is helpful to have the practice question and inclusion/exclusion criteria easily available to reference. It is important to use a system for tracking the decision made for each record and document the reason why an article is excluded; the system can incorporate high or low technology. In other words, this can be done manually or with low technology using a word processing document or spreadsheet. This step can also be completed with higher technology software tools (e.g., within a reference management system by creating subfolders for included and excluded articles). It can also be completed in Covidence (https://www.covidence.org), an online SR management tool that can aid in the efficiency of all stages of an SR. The

articles to be screened can be imported into Covidence, where the screener simply selects from "yes," "no," or "maybe" options for each, and adds notes, if needed.

Many articles are typically removed from the SR during the screening process. Common reasons for exclusion include that the article only describes the method of a prospective study; the study design/level of evidence does not match stated inclusion criteria; the study does not include intervention within the scope of occupational therapy: or the study does not include a predetermined outcome of interest. The team will likely review titles and abstracts of articles for which they are unsure whether inclusion criteria are met. These articles should be retained at this stage, in a third "maybe" pile. After team members have conducted their independent screening of articles, the team meets to review the independent work and achieve consensus on any articles for which there were conflicting decisions. Interrater reliability (i.e., the degree of agreement between raters) may be calculated. The method of reaching consensus should be documented (e.g., after discussion both team members may agree on a decision, or the team may include a third person to settle stalemates or reach a majority decision).

After screening titles and abstracts, the excluded articles are discarded, and the process is repeated for all articles that were kept. The full text of all "yes" and "maybe" articles is retrieved and reviewed for inclusion. After the review of all full-text articles has been completed independently by each reviewer, the team meets to discuss those for which there is disagreement, to reach consensus. Upon completion of the full-text review, the team will have a total number of included and excluded articles. The rationale for exclusion of full text articles should be documented.

Hand searching is the last step of finding the evidence. *Hand searching* describes a manual review of references to ensure a comprehensive search. At a minimum, the references of each article included in the review should be explored for any additional articles that may meet the inclusion criteria for the review. Hand searching can also include a manual search of select journals of a specific publication date or other systematic manual search for articles that may have been missed in the initial database search.

A flow diagram is used to record the number of articles at each step of the review process. An example flow diagram is provided by PRISMA (2024a). The flow diagram is divided into three main sections: article identification, article screening, and article inclusion. The diagram provides a visual algorithm of how an SR progresses from article identification to the final number of articles included in the review, with a place to record the reasons why articles were omitted. Refer to the American Occupational Therapy Association's *Guidelines for Systematic Reviews* (AOTA; 2020) for a generic flow diagram based on PRISMA guidelines.

Step 4: Grade and Appraise the Evidence

The team is now ready to assess the quality of the articles included in the review (PRISMA, 2024b). Several tools can be used in the appraisal process, including an evidence table, a risk of bias assessment, and a critical appraisal form. An evidence table is a matrix typically developed in a word processing document that contains all articles included in the review. Each article is a row of the matrix. Key data from each article is extracted and organized in the columns of the matrix; this may include the full article reference; the study design and level of evidence; a description of the population (e.g., total number of participants, percentage of each gender, setting of the study, inclusion/exclusion criteria); a description of the intervention each study group received; the outcome measures used; and the study findings, including whether the findings were statistically significant (e.g., $p \leq 0.05$) . Refer to AOTA (2020) for a sample evidence table matrix. The evidence table summarizes the key characteristics of each article in one document for easy reference. It assists the team in identifying the strength and quality of literature available to answer the practice question and aids synthesizing the findings in Step 4.

An important component of the appraisal process is determining the level of evidence of each article. The level of evidence rating, sometimes using a scale from 1 to 5, is based on the study design; the more controlled a study is, the higher level of evidence it provides. In general, levels of evidence for quantitative studies progress from systematic reviews, meta-analyses, and randomized controlled trials (Level 1) to two-group non-randomized research studies (Level 2), followed by one-group pretest/posttest studies (Level 3), and case series and single-

subject designs (Level 4). Expert opinions provide the lowest level of evidence (Level 5). There are many systems available for rating levels of evidence, so it is important to decide in advance which system the team is using for the review. AOTA uses the 2009 Oxford Levels of Evidence (Oxford Centre for Evidence-Based Medicine, 2009), and those from Johns Hopkins University (Dang et al., 2022). Other ratings, such as those for single-subject designs, are also available (Romeiser Logan et al., 2008). Identifying the study's design and thus the level of evidence may take practice and repetition. All team members who are reviewing articles for the study design and level of evidence should be confident and competent in this step prior to doing it independently. While qualitative research findings may be included in SRs, tools to evaluate the quality of qualitative research differ from those that evaluate quantitative research. Including both qualitative and quantitative research in an SR increases the complexity of the review. When the intent is to use the findings from SRs to inform the development of clinical recommendations or practice guidelines, quantitative evidence provides stronger strength of evidence.

Another important tool for appraising the quality of the articles included in the review is a risk of bias table (AOTA, 2020; PRISMA, 2024b). As the name implies, a risk of bias table is used to appraise the potential prejudice in the study design that may influence the results of the study. Potential bias can be introduced at each stage of a research study, from participant recruitment to data analysis and reporting. Type of bias depends on the type of study conducted. For example, the potential for bias in a systematic review is different than the potential bias in an experimental study. Therefore, several types of risk of bias tables are available based on study design. See AOTA (2020) for risk of bias templates, including those for SRs (Shea et al., 2017), randomized and non-randomized controlled trials (Higgins et al., 2016), and pre- and post-test studies (National Heart Lung and Blood Institute, 2014). More than one type of risk of bias table may be needed to assess all articles included in the review. Risk of bias tables include between 9 to 15 items for each article reviewed; each item is rated as "yes," "no," or "unable to determine." An overall risk of bias rating (low, moderate, or high) for each article is determined by totaling the number of minus ratings. At least two team members independently complete a risk of bias assessment for each article included in the review and then meet to determine the level of agreement and achieve consensus on items of disagreement.

An optional tool that may be used to appraise the quality of articles included in an SR is the critically appraised paper (CAP). A CAP is an in-depth critique of one article. There are several CAP templates available to use as a guide for the critique. See AOTA (2024) for AOTA's CAP templates. Other checklists are available through Cincinnati Children's Hospital Medical Center (2024) Let Evidence Guide Every New Decision resource or JBI's (n.d.) critical appraisal tools. A CAP includes an appraisal of the article's level of evidence, study design, risk of bias, intervention description, outcome tools used, and findings. It also includes an opportunity for the person completing the critique to summarize the value of the article for practice, education, and research. Completion of a CAP is not a required step in the SR process; however, it is a useful exercise for those unfamiliar with data extraction, as CAP templates come with directions for completion and can enhance article appraisal skills and familiarity with the articles included in the review.

Step 5: Synthesize the Findings

Once all articles are summarized on the evidence table and risk of bias tables are complete, the team is ready to synthesize the findings (PRISMA, 2024b). Synthesis is a purposeful process of combining findings from the articles in the SR to answer the practice question. It is the process of analyzing the data the team has gathered on the evidence and risk of bias tables. Rather than considering each article individually, the team considers how the combination of articles works together to answer the practice question.

The evidence table becomes a useful tool for synthesizing the evidence as the data that was recorded in rows can now be analyzed by columns for similarities and differences. First, it is helpful to understand the overall strength of evidence by reviewing the number of articles at each level of evidence. The team should also review and summarize the range of years of publication of the articles; the geographic location or country in which the research was conducted; the age range and gender distribution of participants; and the total number of participants included in the review (larger samples are more robust). The team should also review the outcome measures used across the

articles to determine which are most used and whether there is consistency in outcome measures. This information is helpful for the research team when making conclusions and recommendations based on the evidence. It is also helpful for practitioners to determine whether there is a match between the population in the review and the population with which they work.

After this quantitative synthesis, the team completes a qualitative synthesis of articles included in the review. Articles with commonalities are grouped or themed together, as theming the results leads to more specific practice recommendations. For example, if the team found three different intervention options among the articles included in the review available to address an occupational performance issue, they may group the articles into three themes. Typically, articles are themed by type of intervention; however, the team may decide to use other rationale or criteria for theming. For example, the team may opt to theme articles by outcome, such as interventions supporting occupational performance, decreasing depressive symptoms, or improving quality of life. The rows of the evidence table can be rearranged as the team determines themes so that articles in each theme are physically grouped together for easier viewing and analysis. Once themes are established, the team combines the results within each theme to determine whether the findings are consistent across articles and uses risk of bias data to inform the analysis of each theme. The consistency of results combined with the level of bias are indicators of the strength and quality of research supporting each theme. The study design and bias can influence the certainty of evidence and decision-making. For example, a randomized controlled trial with low risk of bias will have a higher strength of evidence rating compared with one with high risk of bias. The team makes a strength of evidence determination through careful consideration and discussion of how much weight each article in the theme contributes.

Assigning a strength of evidence rating to each theme or group of articles enables the team to make a recommendation for or against using the intervention in practice. In other words, it assists in answering the practice question. Teams can use the Levels of Certainty from the U.S. Preventive Services Task Force (2018) to assign a strength of evidence to each theme. Refer to AOTA (2020) for definitions and levels of certainty AOTA uses, which are adapted from the U.S. Preventive Services guidelines. In general, a theme needs consistent findings from well-conducted studies (i.e., more than one Level 1 study) to receive a strong strength of evidence rating. A strong strength of evidence rating means it would be unlikely that additional research on the topic would change what is known about the effectiveness of the intervention or the confidence to use this intervention in practice. A moderate strength of evidence is assigned to a theme when the evidence is sufficient, but the confidence in it is limited by the number, size, or quality of articles within the theme (e.g., one Level 1 study combined with studies at lower levels of evidence). There may be inconsistencies in the findings across studies of the same intervention (U.S. Preventive Services Task Force, 2018). A low strength of evidence rating is assigned when there is insufficient evidence or flaws in the study designs (e.g., studies at lower levels of evidence; U.S. Preventive Services Task Force, 2018). The strength of evidence assigned to each theme can then be used to guide clinical decision making. Interventions with strong or moderate evidence strength should be routinely offered in practice, whereas interventions with lower strength of evidence grades may be considered case by case or not recommended for use.

It is important to note that research findings are not always universally positive. The team may find evidence that an intervention is not effective. In this case, the same method of synthesis applies. However, rather than determining the level of evidence to support the intervention, the team is determining the level of evidence against the intervention. For example, if the team finds multiple high-quality studies demonstrating an intervention is not effective, their conclusion may be that there is strong strength of evidence that it is not effective. Alternatively, the team may find that an intervention is effective for one subset of the population of interest but not for another. In this case, specificity in reporting the findings and recommendations is critical.

Step 6: Translate the Evidence

Once the team has determined the answer to the practice question by synthesizing the findings, they are ready to translate and share them. While translating and disseminating the results of SRs is not a required step of the

process, it is important to present the findings in a way that is meaningful to practicing clinicians and consumers and to share the findings with others to inform practice decisions and move the profession forward. It is also important to share the information in ways that reach the people who benefit most from the information. We know there is a significant lag time to get research findings into practice (Morris et al., 2011). SRs are one way to reduce the research-to-practice gap if the information is communicated to others effectively. It is important to communicate the findings of SRs in plain language using a multi-pronged approach to reach practitioners, researchers, students, and clients of OT services. Traditional methods of disseminating SR findings include SR briefs, peer-reviewed journal articles, practice guidelines, and conference presentations. Additional translation tools include podcasts, evidence connection articles, evidence graphics (Richardson, 2023), webinars, and infographics.

AOTA often develops SR briefs. An SR brief is a written summary of the evidence on one theme within the SR topic. The team writes a separate SR brief for each theme developed in the synthesis of findings. The SR brief includes the practice question, the specific focus of the SR brief, background information regarding the importance of the topic, a summary of the key findings, and the implications for occupational therapy practice. The summary of key findings includes an abbreviated evidence table outlining the research studies that support the findings. AOTA publishes SR briefs conducted in collaboration with the AOTA Evidence Based Practice Program in the *American Journal of Occupational Therapy* (*AJOT*). Refer to Smallfield et al. (2023) for an example.

An SR manuscript is a full-length summary of the findings of all the themes of a review. An SR manuscript is more comprehensive and detailed than an SR brief. It can be submitted for publication in a peer-reviewed journal. All manuscripts submitted to *AJOT* go through a rigorous peer-review process prior to publication; a submission to the journal does not guarantee acceptance and publication. An SR manuscript is written in the traditional format of a research study, including an abstract, background, method, results, discussion and implications, and conclusions. AOTA provides a guide to submitting SRs for review authors that contains the information authors need to submit an SR manuscript to the journal (AOTA, 2020). This guide ensures quality, rigor, and uniformity in the review and writing of the manuscript. *AJOT* follows the PRIMSA guidelines and checklist for conducting systematic reviews (AOTA 2020; PRISMA, 2024b). Refer to Smallfield et al. (2021) for an example systematic review published in *AJOT*.

Practice guidelines (PGs) may be developed using the findings from SRs on common areas of occupational therapy practice. PGs provide practice recommendations based on published scientific research and serve as a reference for health care practitioners, managers, regulators, third-party payers, academic educators, researchers, and students. AOTA develops and regularly updates PGs to support occupational therapy practitioners, policy makers, third-party payers, and others in understanding the value of occupational therapy services to support health and well-being. In addition to reporting the recommendations of SRs around the topic of interest, PGs developed in collaboration with AOTA identify gaps in scientific research related to the focused topic of the PG and apply the recommendations to clinical cases. Recent PGs developed by AOTA also include evigraphs (evidence graphics), which are a combination of an algorithm and an infographic (Richardson, 2023) that practitioners can use as a job aide at point-of-care when making practice decisions. Refer to Smallfield et al. (2024) for an example practice guideline published in *AJOT* that includes evigraphs.

Conference presentations are another venue for sharing SR findings. The SR team may want to discuss whether one or more conference presentations should be included in the dissemination and translation strategy, and, if so, which conferences would be most relevant, as there are many to choose from. Conferences may be held at the local, state, national, or international level. Conference presentations may be in oral or poster format; creating engaging and memorable presentations is encouraged. There is often more cost associated with conference presentations compared with manuscript preparation; the price of travel, lodging, and conference registration is significant and may present barriers to this form of knowledge translation.

There are several additional translation strategies. Podcasts such AOTA's Everyday Evidence provide opportunities for review authors to share SR findings in an audio format that can be passively consumed by listeners. AOTA also sponsors professional development webinars, either live or on-demand, for practitioners to access virtually anywhere. AOTA publishes Evidence Connection articles in *AJOT* in which SR or PG recommendations are applied

to a case to illustrate how practitioners can integrate the findings into practice. Review teams may develop additional strategies for sharing the findings to close the research-to-practice gap.

Summary

This publication is intended to serve as a guide for occupational therapy faculty members, researchers, students, and clinicians to conduct systematic reviews of the research literature to find evidence to support practice decisions. It provides tips for forming a project team and getting started, as well as a step-by-step guide for working through the SR process. By using this guide, researchers may develop increased confidence and competence in the rigor and quality of their reviews. Together, we can continue to close the research-to-practice gap.

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Systematic Review Checklist

Get Started

- ❑ Establish a team of at least two to three members.
- ❑ Determine the strengths of the members.
- ❑ Identify roles and responsibilities of each team member to reduce miscommunication and conflict.
  - ❑ Consider roles such as manager, quality controller, recorder, spokesperson, or tie breaker.
- ❑ Discuss authorship agreements.

Set Up Collaboration Space and Project Management Systems

- ❑ Set up a collaborative workspace in an online environment where project materials are stored and accessed synchronously.
- ❑ Ensure all team members have access and know how to use the software tools selected.
  - ❑ Consider options such as Microsoft Teams, Microsoft SharePoint, Box, or Google Drive. AOTA uses Microsoft Teams.
- ❑ Conduct necessary training sessions.
- ❑ Establish project management systems.
  - ❑ Consider how often the team will meet, whether team members will complete project work between meetings or during working meetings, and whether to use formal project management software or rely on less formal means of project management.

The Systematic Review Process

Step 1: Determine the Practice Question

- ❑ **Determine the practice question.**
  - ❑ Include the population (patient), an intervention, and an outcome of interest. Consider including a comparison intervention, timeline, type of study design, or practice setting.

Step 2: Develop the Search Strategy

- ❑ Conduct a cursory literature review prior to developing the strategy.
- ❑ Consult a reference librarian to bolster the quality of the literature search.
- ❑ Develop the search strategy.
  - ❑ Include relevant search terms, data sources, and inclusion and exclusion criteria.
- ❑ Search three or more databases for a comprehensive review.
- ❑ Determine inclusion and exclusion criteria.
- ❑ Include the search strategy in the systematic review protocol when registering it.

Step 3: Find the Evidence

- ❑ Implement the search strategy.
  - ❑ Record the total number of articles identified.
- ❑ Identify and remove duplicate articles.
  - ❑ Record the number of duplicates removed.
- ❑ Track titles and abstracts of identified articles.

- ❑ Screen titles and abstracts of each article for inclusion.
  - ❑ Have at least two team members independently screen each article.
- ❑ Use a system for tracking the decision made for each article.
  - ❑ Document the reason why an article is excluded.
- ❑ Keep articles marked as "yes" and "maybe."
- ❑ Meet as a team to review the independent work and achieve consensus on any articles for which there were conflicting decisions.
  - ❑ Document the method used to reach consensus.
  - ❑ Calculate interrater reliability, if desired.
- ❑ Record the number of excluded articles after screening titles and abstracts.
- ❑ Retrieve the full text of all "yes" and "maybe" articles left after screening titles and abstracts.
- ❑ Repeat the screening process with the full text of all remaining articles.
- ❑ Meet as a team to review the independent work and achieve consensus on any articles for which there were conflicting decisions.
- ❑ Total and record the number of included and excluded articles.
  - ❑ Document the rationale for exclusion of full text articles.
- ❑ Manually search for additional articles that meet inclusion criteria but may have been missed in the initial search.
  - ❑ Consider searching the reference lists of each article included in the review, or manually searching select journals of a specific publication date.
- ❑ Document the search process using a flow diagram.

Step 4: Evaluate and Appraise the Evidence

- ❑ Evaluate the quality of the articles included in the review.
  - ❑ Use an evidence table, a risk of bias assessment, or a critical appraisal form to appraise the evidence.
- ❑ Extract key data from each article to an evidence table.
- ❑ Determine the level of evidence of each article.
  - ❑ Rate the level of evidence based on the study design; decide in advance which system the team is using for the review.
- ❑ Complete a risk of bias assessment to appraise the potential partiality in the study design.
- ❑ (Optional) Use a critically appraised paper (CAP) to complete an in-depth critique of one article.

Step 5: Synthesize the Findings

- ❑ Combine the findings from each article to answer the practice question.
  - ❑ Consider how the combination of articles work together to answer the practice question.
- ❑ Analyze the articles on the evidence table by scanning the columns.
  - ❑ Identify similarities and differences in the articles.
- ❑ Summarize the quantitative information from each column.
  - ❑ Consider the years of publication, the geographic location in which the research was conducted, the age and gender distribution of participants, the total number of participants included in the review, interventions, and outcome measures.
- ❑ Group articles with similar interventions by theme to reach more specific practice recommendations.
- ❑ Evaluate the strength of evidence in each theme by qualitatively reviewing the number and quality of articles at each level of evidence.
- ❑ Review the results within each theme to determine whether the findings are consistent.
- ❑ Use the risk of bias data to inform analysis of each theme.
- ❑ Assign a strength of evidence to each theme.
- ❑ Use the grade assigned to each theme to guide practice recommendations.

Step 6: Translate and Disseminate the Evidence

❑ Communicate the findings of SRs in plain language using a multi-pronged approach to reach practitioners, researchers, students, and clients of OT services.
❑ Share the findings to inform practice decisions and to reach the people who will benefit most from the information.