

Using AOTA's

Critically Appraised Topic (CAT) and

Critically Appraised Paper (CAP) Series

To Link Evidence to

Sofia has worked in the occupational therapy department of a large metropolitan hospital for the past 15 years. She values this setting because of opportunities that have arisen over the years to learn about and then practice in new areas. Recently, the department administrator approached her about taking a leadership role in developing a driving rehabilitation program to meet the needs of the large number of older adults served by the hospital community. Sofia is eager to be involved in this opportunity but realizes that she will need to learn a great deal about driving rehabilitation for older adults.

As a first step, Sofia visited the AOTA Web site (www.aota.org) to find some introductory information about the topic. She connected to the Older Driver Safety section, and clicked on the Toolkit for Professionals. She had recently attended a day-long workshop about evidence-based practice (EBP) sponsored by her state occupational therapy association and was still intrigued by the instructor's take-home message: "there are three components of EBP—clinical judgment, client context and preferences, and the scientific evidence." Sofia was confident with her skills in the first two components of EBP, but she was less comfortable in knowing how to use the scientific evidence to inform practice and program development.

Sofia began to explore the Toolkit section and saw Driving CATs and CAPs. Although she didn't know the

Supporting the integration of research evidence, practitioner expertise, and client perspectives in the clinical decision-making process.

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full scope of Critically Appraised Topics (CATs) or Critically Appraised Papers (CAPs), she did know that they were examples of the summaries of systematically appraised literature mentioned in the EBP workshop. So before proceeding, Sofia reviewed her notes.

The workshop leader had begun her presentation by acknowledging that most occupational therapists and occupational therapy assistants are interested in providing effective services that are client-centered, supported by evidence from the literature, and delivered in an efficient and cost-effective manner. At the same time, many practitioners are challenged to understand how to find literature relevant to their clinical questions, and then are not comfortable evaluating the quality of the literature after it is found. These factors, along with lack of time, limited access to key electronic databases, as well as competing workplace demands and administrative priorities, contribute to the need for practitioners

to have easy-to-access, evidence-based information to apply to their practice.

CATs are one way for practitioners to have easy access to evidence-based information that is presented in the context of a specific clinical situation or issue. CATs are an accepted format for providing readers with brief, easy-to-read summaries of the results of a systematic review of the literature. They are especially well suited for the busy occupational therapy practitioner who is interested in incorporating evidence into practice. Clinicians across the health care disciplines have valued CATs as important tools for developing an evidence-based practice perspective, helping them to integrate their clinical expertise and knowledge of client perspectives with the scientific literature.

CAT authors (1) develop a focused question to delineate the systematic review of the literature; (2) identify studies on a topic under consideration using specific inclusion and exclusion

Practice

requirements; (3) select a group of the highest quality and most relevant articles, ranked according to standardized criteria for rigor in study design and methods; (4) critically appraise and evaluate the design and methods used in each article; (5) present the findings of key articles in relation to any study limitations; and (6) synthesize the findings of the articles as a group in a balanced and impartial way. This “evidence” synthesis can then be used to inform clinical practice and program development, such as practice guidelines or best practice models. Some of the studies selected for inclusion in the CATs are summarized into CAPs, a format for reporting and appraising the design, methods, and findings of individual articles. Because CAPs summarize individual studies, the implications for EBP are limited to what can reasonably be suggested by the results of a single study. CATs synthesize the results of a systematic review of the literature, so the implications for practice are broader.

The synthesis of evidence produced by systematic reviews is based on a system of ranking the research designs used in the studies. From an evidence-based perspective, studies, reports, and expert opinions (e.g., the published results of a consensus conference) are ranked hierarchically and are referred to as “Levels of Evidence” (see Table 1). Studies at the higher levels of evidence are least vulnerable to bias and more generalizable to another group or to a specific client, and the out-

Table 1. Levels of Evidence

Levels of Evidence	Definitions
Level I	Systematic reviews, meta-analyses, randomized controlled trials
Level II	Two groups, nonrandomized studies (e.g., cohort, case-control)
Level III	One group, nonrandomized (e.g., before and after, pretest and posttest)
Level IV	Descriptive studies that include analysis of outcomes (single-subject design, case series)
Level V	Case reports and expert opinions that include narrative literature reviews and consensus statements

Note: Based on Sackett⁸

comes are more likely to be attributed to the intervention being studied. For example, the design of Level I and II studies includes a control group, which enhances the validity of the results by reducing the likelihood that any differences in outcomes are due to factors other than the intervention of interest. Findings from qualitative studies can also be used to inform practice, but they are considered separately from Level I to V studies because their philosophical roots differ from the experimental research paradigm.

LINKING TO AOTA'S CAT AND CAP SERIES

As a way of connecting AOTA members to practice-relevant evidence, the Evidence-Based Literature Review Project has recently added CATs and CAPs to summarize and report the results of its reviews. The CAT and CAP series are located on AOTA's Web site and can be found by linking to either the Practitioners or the Educators-Researchers section and clicking Evidence-Based Practice & Research. As of this writing, the completed and available CAT and CAP subjects were Driving and Community Mobility for Older Adults, Alzheimer's Disease, Traumatic Brain Injury, and Autism Spectrum Disorder. Future topics will include Occupational Therapy and Children and Adolescents With Sensory Processing/Sensory Integra-

tive Disorders, and Clinical Conditions Related to Workers' Compensation.

Sofia clicked on Driving CATs and CAPs and found four CATs, each on a different aspect of driving and community mobility for older adults. One focused on interventions related to the driver, another was concerned with interventions related to community mobility and policy, the third dealt with how modifications made to an automobile could affect driving performance and safety, and the fourth focused on how modifications to the infrastructure of the physical environment (e.g., roadways, signage, lighting) could have an impact on older adult driving performance and safety.

Sofia began by reading the first CAT, which addressed those interventions directed specifically to the older adult driver. This CAT began with a focused question:

What is the evidence for the effect of interventions to address cognitive and visual function, motor function, driving skills intervention, self-regulation/self-awareness, and the role of passengers and family involvement in the driving ability, performance, and safety of the older adult?

Intervention approaches include adaptation, remediation, prevention, and maintenance.

Focused questions are derived from a clinical situation and area of practice for which evidence is needed. In this first CAT, the focused question arose from issues that could possibly affect the performance and safety of the older driver. Sofia realized that this question encompassed a much broader range of issues and interventions than she had previously imagined. Although she was aware that cognitive, motor, and visual performance could affect older adult driving, she had not thought about how self-regulation issues or the role of passengers and family could also affect older driving ability, performance, and safety. Sofia was both impressed with the careful thought involved in crafting a focused question and with the inclusion of many of the occupational therapy approaches: adaptation, remediation, prevention, and maintenance. She was eager to begin learning about the interventions related to the essential components of older driver performance and safety from an occupational therapy perspective.

Next, Sofia read the Clinical Scenario, which presents a broad perspective about the importance of the question. Driving is significant to the older adult, not only because of its relationship to meaningful daily life

FOR MORE INFORMATION

Evidence-Based Rehabilitation: A Guide to Practice

Edited by M. Law, 2002. Thorofare, NJ: Slack. (To order, call toll free 877-404-AOTA or shop online at www.aota.org. \$44.95 for members, \$63.95 for nonmembers. Order #1356-MI)

Driving and Community Mobility for Older Adults: Occupational Therapy Practice Guidelines

By W. B. Stav, L. A. Hunt, & M. Arbesman, 2006. Bethesda, MD: AOTA Press. (To order, call toll free 877-404-AOTA or shop online at www.aota.org. \$39 for members, \$55 for nonmembers. Order #2210-MI)

practice. Sofia was pleased to note that the scenario and the CAT in general were developed with the *Occupational Therapy Practice Framework: Domain and Process (Framework)*¹ in mind. Because her occupational therapy department required services to be structured around the Framework, she knew that the CAT findings would help make it easier to develop plans for the new older driver program.

Before reading the Summary of Key Findings and Bottom Line for Occupational Therapy Practice sections of the CAT, Sofia was curious to examine the Review Process to see how the

ence proceedings. The databases and sites searched were listed, along with key search terms. Keywords used to describe the client population (elderly, older driver, aging) were cross-referenced with several intervention-related terms (e.g., driving behavior, automobile driving, vehicle operation, vision tests, driver education, traffic safety, traffic accidents). Also included in the review process section was a description of the quality control process used by the EBP review authors, such as peer review.

Sofia noted that 16 of 19 articles included in the review were studies with a Level I or Level II ranking, which she now understood as studies that included a control group, so the potential for generalizability was high. Because one of the key points of the EBP workshop was that each article needed to be considered in terms of its limitations, she turned to the Limitations of the Studies Appraised section to find out about any significant biases or errors in the selected articles. She learned that although some of the Level I and II studies had relatively small sample sizes or lacked randomized subject selection, used self-report measures, and involved more than one intervention, taken as a whole, the evidence assembled and appraised in this CAT could be counted on as being of high quality.

USING THE SUMMARY OF KEY FINDINGS AND CLINICAL BOTTOM LINE

Sofia was now prepared to jump into the Summary of Key Findings section because she felt grounded in her understanding of both the review process and the levels of evidence used in this CAT review. The one-to-two sentence summary of key findings from each article appraised were organized around four categories that were meaningful to Sofia as a practitioner: (1) Visual, Cognitive, and Motor; (2) Educational; (3) Passengers; and (4) Medical Interventions. Authors and date of publication were also listed for each article, along with its Level of Evidence—a full bibliography of articles appraised and used as references was provided at the end of the CAT. Sofia found that the summary of key findings was written in a manner that was easy

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activities, but also because one needs to understand the impact of medical conditions (e.g., stroke) and changes in aging (e.g., decreased vision) on driving performance. The clinical scenario also emphasized how occupational therapy practitioners can have a role in the area of older adult driving and discussed which interventions (e.g., visual, cognitive, motor, educational) were of importance to occupational therapy practitioners. This information would be helpful in linking evidence to

literature review had been structured, including the procedures for selecting and appraising articles. This section began by noting the inclusion and exclusion criteria for searching databases, Internet sites, and the bibliographies of key articles. She found that the CAT series included peer-reviewed journals from 1980 to 2004 that were Level I, II, or III, evidence-based reviews, and published reports. It excluded Level IV and V articles and reports, dissertations, and confer-

to understand, even when she was not familiar with the area being discussed or there was conflicting evidence in a specific intervention category. With this evidence in hand, she was now aware of the potential value of including these interventions in the older driver program and the importance of working with physicians to clarify medical issues for each client. She was frankly stunned at how easily she had walked through the CAT, and that she had found the summary of key findings section to be clear and understandable.

Sofia then moved on to the Bottom Line for Occupational Therapy Practice section, where she read a brief discussion of possible directions for relating the evidence to practice, research, and education. While reading this section Sofia developed a clearer sense of where to focus her energies to develop a driving program that used best practices from an EBP perspective.

The bottom-line discussion began with a reminder to consider that even a single intervention may have variable effects on the older driver. An intervention may have a positive effect on one component of driving, but it may have either a negative or no effect in another. For example, although driver education programs have been shown to reduce traffic citations, those programs have not been shown to prevent crashes and fatalities in older adults.^{2,3} In another example, although older adult study participants who had received cataract surgery experienced half the crash rates of those electing not to do so, they continued to self-limit their driving behavior even though their vision had improved.⁴

Sofia found that reading the evidence was challenging her to think differently about the potential for the new driving program and to think critically about each component she would consider incorporating into the program. She realized that this critical thinking process would help her to prioritize what would be essential for the program at its start, and what could be considered for inclusion as the program expanded. For example, after reading conflicting evidence for Useful Field of View (UFOV),⁵⁻⁷ an assessment and intervention tool of visual attention, Sofia decided it was important to read

the CAPs related to UFOV so she could evaluate the issue more carefully. She also decided to consult with colleagues to see what their clinical experience had been with UFOV. Not only would this information help her justify any purchases to her departmental administrator, but the process was motivating her to take an active role in the lifelong learning aspect of her practice.

Having a better grasp of the many dimensions of evidence related to driving also encouraged Sofia to think differently about how to attract clients to the program. Not only would the occu-

pational therapy practitioners working in the driving rehabilitation program need to reach out to the community for new clients, but clients could also come from other outpatient programs within the hospital. For example, she could direct some of her energies to the inpatient and outpatient rehabilitation programs and departments (e.g., gerontology, orthopedics, neurology) that often did not recommend driving evaluations unless there appeared to be serious impediments to safe driving. She understood now that a driving evaluation and intervention program

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could be useful to older adults with a wide range of diagnoses and clinical conditions.

Because Sofia had enjoyed reading the CAT and thinking about the implications of the evidence for her practice, she looked forward to moving ahead and interpreting the other three CATs on the AOTA Web site. She was now confident that she could turn to these CATs to help her further refine what a potential driving program could look like. This information would be extremely helpful when establishing contact with physicians, licensing

agencies, and highway department and transit agencies during the initial development and marketing phases of the program. The CATs would also help her determine the best intervention training for her and her staff to make sure the program was of the highest quality.

Sofia's experience of reading the CATs and finding relevant evidence to inform decisions is an exemplar of self-directed learning and scholarship of practice—the translation of high-quality findings from the scientific community to the practice of occupa-

tional therapy. Evidence-based practice provides one avenue for all members of the occupational therapy community—practitioners, educators, students, and researchers—with an opportunity to link education, research, and practice and to participate in a shared commitment to AOTA's Centennial Vision. ■

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