

Linda Tickle-Degnen, *Associate Editor*

## Introducing OTseeker (Occupational Therapy Systematic Evaluation of Evidence): A New Evidence Database for Occupational Therapists

Sally Bennett, Tammy Hoffmann, Annie McCluskey,  
Kryss McKenna, Jenny Strong, Leigh Tooth

**O**Tseeker (Occupational Therapy Systematic Evaluation of Evidence) is a new resource for occupational therapists that has been designed with the principle aim of increasing access to research to support clinical decisions. It contains abstracts of systematic reviews and quality ratings of randomized controlled trials (RCTs) relevant to occupational therapy. It is available, free of charge, at [www.otseeker.com](http://www.otseeker.com). This paper describes the OTseeker database and provides an example of how it may support occupational therapy practice.

Sally Bennett, BOccThy(Hons), is OTseeker Project Manager, Department of Occupational Therapy, University of Queensland, Queensland 4072, Australia; [sallybennett@uq.edu.au](mailto:sallybennett@uq.edu.au)

Tammy Hoffmann, BOccThy(Hons), is Associate Lecturer, Department of Occupational Therapy, University of Queensland, Queensland, Australia.

Annie McCluskey, MA, DipOccThy, is Lecturer, School of Exercise & Health Sciences, University of Western Sydney, New South Wales, Australia.

Kryss McKenna, PhD, BOccThy(Hons), is Senior Lecturer, Department of Occupational Therapy, University of Queensland, Queensland, Australia.

Jenny Strong, PhD, MOccThy, is Professor, Department of Occupational Therapy, University of Queensland, Queensland, Australia.

Leigh Tooth, PhD, BOccThy(Hons), is Postdoctoral Research Fellow, School of Population Health, University of Queensland, Queensland, Australia.

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### The Need for OTseeker

Evidence-based occupational therapy requires clinicians to access, appraise, and integrate research literature with clinical experience and clients' perspectives (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). Recent surveys suggest that more occupational therapists identify clinical experience, colleagues, and informal continuing education experiences as sources of evidence than research literature (Bennett et al., 2003; Dubouloz, Egan, Vallerand, & von Zweck, 1999; Dysart & Tomlin, 2002; Humphris, Littlejohns, Victor, O'Halloran, & Peacock, 2000). Increasingly, however, therapists are being encouraged to make use of research study findings to inform clinical decisions in addition to more familiar sources of evidence (Ottenbacher, Tickle-Degnen, & Hasselkus, 2002). This is in part because evidence from rigorous research articles may be less prone to bias or the "tendency to believe what we want to believe" (Tickle-Degnen, 1999).

One of the difficulties faced by occupational therapists who seek evidence-based resources for practice is that occupational therapy research is published in many different journals. Many do not have time to find, let alone read, research literature that supports their current practice. Further, the ability to locate research evidence may be hampered by lack of access to relevant databases (Bennett et al., 2003; Dysart & Tomlin, 2002; McCluskey, 2003; Upton, 1999).

Even when relevant research evidence is located, therapists report having difficul-

ty interpreting research results (Bennett et al., 2003; McCluskey, 2003; Upton, 1999). There is a need for methods that reduce time taken to locate research evidence and assist in its interpretation to help clinicians use this evidence to inform their treatment decisions (Bennett et al., 2003).

### OTseeker (Occupational Therapy Systematic Evaluation of Evidence)

To meet this need, a Web-based evidence resource named OTseeker was developed and made freely available at [www.otseeker.com](http://www.otseeker.com) in March 2003. The database currently comprises bibliographic details, abstracts, and quality ratings of approximately 1,500 RCTs, and abstracts of systematic reviews relevant to occupational therapy. Because the database is in its infancy there are a limited number of abstracts and practice areas currently available. This number will increase over time as more reports of RCTs are located, appraised, and copyright permission obtained.

### Development of OTseeker

Strong support for the development of this database was evident from the participants of the International Symposium on Evidence Based Occupational Therapy held at The University of Queensland, Australia, in 2001 (Evidence Based Occupational Therapy, 2001). A team of occupational therapists at the University of Queensland and University of Western Sydney subsequently developed the database. OTseeker was modelled on a physiotherapy equiva-

lent, PEDro (Physiotherapy Evidence Database) <http://www.pedro.fhs.usyd.edu.au/>, with generous support from OT Australia, the Motor Accident Authority of New South Wales, and the Centre for Evidence Based Physiotherapy, Australia.

One of the most common information needs in clinical practice relates to the effectiveness of interventions. The OTseeker team decided to initially provide a comprehensive database of systematic reviews and RCTs as these methodologies have the capacity to provide strong evidence about the effectiveness or ineffectiveness of interventions (Cook, Guyatt, Laupacis, Sackett, & Goldberg, 1995). Systematic reviews use rigorous methods to locate, assess, and summarize the results of many individual research studies outlining what is known or unknown about the effectiveness of a treatment (Cook, Mulrow, & Haynes, 1998). RCTs potentially offer less bias and more certainty than other study designs that the outcomes being measured are actually due to the experimental treatment condition, rather than other factors (Fletcher, 2002). Given the potential difficulties of carrying out RCTs in occupational therapy and that they are not a suitable methodology for answering all types of clinical or research questions (Bennett & Bennett, 2000; Ottenbacher, 1990), other types of research methodologies may be added to OTseeker at a later date, funding permitting.

The RCTs and systematic reviews in OTseeker are being located by conducting systematic searches of the following databases: Medline, CINAHL, ERIC, EMBASE Rehabilitation and Physical Medicine, AMED, PsycINFO, the Cochrane Library, CancerLit, and Ageline. Auto-alert strategies are currently in place for Medline, CINAHL, ERIC, EMBASE, AMED, and PsycINFO and the OTseeker team is notified as new RCTs and systematic reviews are added to these databases. Relevant journals that are not indexed by these databases are hand-searched on a regular basis. In addition, the staff of PEDro and the Rehabilitation and Related Field of the Cochrane Collaboration have kindly allowed the OTseeker team to search their respective databases for articles that were appropriate to include in OTseeker.

One of the current criteria for research articles to be included on OTseeker is that: at least one of the interventions is currently part of occupational therapy practice or could become part of occupational therapy practice. It is not necessary for occupational therapists to have carried out the study or the interventions within the study. (OTseeker Trial, 2003)

The OTseeker team has sought to be inclusive and take a broad perspective when deciding which articles are relevant to occupational therapy and should be contained in the database. This is for two reasons. First, occupational therapists working as case managers or in remote regions may be required to adopt broad roles. Second, as therapists anywhere in the world may access OTseeker it is acknowledged that occupational therapists may have a different scope or emphasis depending on where they work. The OTseeker team consulted widely about the decision to include or exclude entries in the database, but acknowledges on occasions these decisions may be arbitrary.

Not all RCTs are well-performed and many contain substantial potential for bias. To assist users to discern the internal validity of RCTs contained on the database, each RCT is rated for methodological quality using the PEDro scale. The PEDro scale was based on a list developed by Verhagen et al. (1998) and contains criteria concerning random allocation of subjects; allocation concealment; similarity of groups at baseline; blinding of therapists, subjects, and assessors; intention to treat analysis; and follow-up. These criteria for internal validity are commonly found in most checklists for the evaluation of RCTs (Moher et al., 1995). For the purposes of the OTseeker database, the PEDro scale was partitioned to present two items concerning the interpretability of statistics separately. These items refer to whether the RCT contains information about between-group statistical comparisons, point estimates (e.g., mean or median difference between groups, or a difference in proportions) and measures of variability (e.g., standard deviations or standard errors). This enables therapists to determine if the article contains infor-

mation about both the statistical and clinical significance of the study's results. In summary, the scale provides a maximum score of 8 for internal validity and a maximum score of 2 for statistical reporting. Both scores depend on elements of each criteria being clearly reported. Clinicians can be more certain that RCTs with a higher score for internal validity are less subject to bias than those with lower scores.

## Application of OTseeker

OTseeker is a tool that can be used to enable fast access to high-quality research to inform treatment decisions and assist clinical reasoning. The following is a fictional clinical situation to demonstrate the application of OTseeker in clinical practice.

An occupational therapist working in a community health center attends a team meeting, at which the physician notes that there is a relatively large number of older women regularly attending the clinic who have had multiple falls. He questions whether there is a need for the delivery of a preventive program for this group. The occupational therapist suggests education and home visits, but the community health team requests more information. To prepare for the next meeting, the occupational therapist searches for research evidence about falls prevention. Specifically the therapist wants to know if home visits and modifications for people at risk of having falls would reduce the risk of falling.

Because the occupational therapist's interest is in the *effectiveness* of home visits and modifications, he or she should initially try to locate systematic reviews of RCTs or individual RCTs. Instead of searching multiple databases such as the Cochrane Library, Medline, or Cinahl, the occupational therapist could search OTseeker. On the search page of OTseeker, typing "falls prevention" in the keywords field and selecting "Home modification/access" from the Intervention drop-down menu, results in a list of articles being displayed. The results of this search are displayed in Figure 1. Clicking on one of these titles then provides a detailed results page that in many cases provides an abstract.

The occupational therapist selects the individual systematic review of interest



**Figure 1. Searching OTseeker for falls prevention research**

“Interventions for preventing falls in elderly people” and is provided with the abstract (Gillespie et al., 2003). The review concludes that home hazard assessment and modification that is professionally prescribed for older people with a history of falling is likely to be effective. The systematic review also reports that programs for muscle strengthening and balance retraining; a 15-week Tai Chi group exercise intervention; multidisciplinary, multifactorial, health–environmental risk factor screening–intervention programs; and withdrawal of psychotropic medication are likely to be effective in preventing falls (Gillespie et al.).

If the occupational therapist wished to look further, relevant articles describing individual RCTs could be located in the same search. For example, in this search OTseeker displays bibliographic information for the following trial: “Home visits by an occupational therapist for assessment and modification of environmental hazards: a randomized trial of falls prevention” (Cumming et al., 1999)<sup>1</sup>.

As well as bibliographic details, OTseeker displays the scores for internal validity and statistical reporting for this

individual RCT. Receiving a score of 6 out of 8 for internal validity indicates quite strong methodology (see Figure 2). This RCT randomly allocated subjects to control group or experimental group thereby maximizing the chance that both known and unknown confounders were equally distributed. It used concealed allocation to ensure the person determining digibility or allocating participants to groups could not influence the randomization schedule. The groups were comparable at baseline and outcome measurements were reported for

over 85% of the subjects thereby minimizing follow-up bias. Intention to treat analysis was used meaning that whether or not participants actually received the planned treatments, data analysis occurred as if they did. While the authors were not able to blind the subjects or therapists to the treatment condition, they ensured that the assessors were unaware to which groups the subjects were allocated. Statistical reporting indicates this RCT contains information on between group comparisons and point estimates. In this case home visits and modifications led to a reduction in the number of participants falling (relative risk 0.64, 95% CI 0.49 to 0.84) if they had a history of one or more falls in the previous year. There was no significant effect for those without a history of falls in the previous year. The RCT concluded that:

Home visits by occupational therapists can prevent falls among older people who are at increased risk of falling. However, the effect may not be caused by home modifications alone. Home visits by occupational therapists may also lead to changes in behavior that enable older people to live more safely in both the home and the external environment. (Cumming et al., 1999)

On the basis of this information, the occupational therapist may recommend intro-



**Figure 2. Detailed search result from OTseeker**

<sup>1</sup>OTseeker is awaiting copyright permission to display abstracts; however, in the meantime, most can be accessed by links to another database. The abstract for the article by Cumming et al. (1999) was obtained by a link to PubMed.

ducing preventive home visits only for those who had a fall in the past year, resources permitting. The therapist could also bring the wider results of the systematic review to the attention of the community health care team.

Of importance to note is that even when rigorous research evidence is available and shows clear effects, there are still assumptions and uncertainties to deal with. Ultimately clinical decisions always require clinical reasoning and expertise, and considered dialogue with our clients.

## Summary

This clinical scenario illustrates how OTseeker can be used by occupational therapists to locate research that may inform clinical decisions. Beyond the clinical arena, this database also has potential to greatly enhance the ability of researchers to perform systematic reviews of RCTs and eventually, development of clinical guidelines.

In conclusion, OTseeker is a new Web-based database that provides fast access to evidence of therapeutic effectiveness for clinicians, academics, and students, as well as consumers and providers of occupational therapy services. OTseeker will be able to be used by clinicians to guide clinical practice, by researchers to perform systematic reviews of RCTs, by students, and by consortiums of stakeholders to develop evidence-based guidelines for occupational therapy practice.▲

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