Evidence-Based Decision Making: Troubleshooting Common Obstacles to External Scientific Evidence

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Speaker Disclosure

• Financial:
  – Clinical Research Associate for the ASHA’s National Center for Evidence-Based Practice in Communication Disorders (NCEP)
• Nonfinancial:
  – ASHA certified SLP and ASHA member

Objectives

• Briefly review the components of Evidence-Based Practice (EBP),
• Describe common obstacles to identifying and applying external evidence to support clinical decision making,
• Identify solutions that can help clinicians overcome each of these obstacles, and
• Provide guided practice for using these solutions
EBP Overview

1. Form Your Clinical Question
2. Gather Evidence
3. Assess the Evidence
4. Make Your Clinical Decision

Coming up next

We’ve explored the concept of EBP. In the next activity, we’ll describe the barriers to integrating external research.

Barriers to Integrating External Research
Common Research Obstacles

- Limited research
- Reduced quality or trustworthiness
- Conflicting or inconclusive findings

Limited Research: Lack of Research

- New or rare disorder
- Client characteristics not represented
- New treatment technique
- Novel assessment tool

Limited Research: Search Strategy

- Too many required key words
- Study design restrictions
- Date range restrictions
Limited Research: Search Strategy

Limited Research – Poor Quality Research

Too few participants

High drop-out rates

Poor design

Other Biases

Conflicting Results

Methods: A systematic review and meta-analysis of 76 studies was conducted. The search strategy included articles published in English-language journals. The primary outcome measure was the effect size of the intervention. Results: A total of 31 studies were included in the analysis. The effect size of the intervention was moderate (0.50), indicating a small effect. Conclusion: The intervention was effective in improving the outcome measure. However, the limited number of studies and the high level of heterogeneity suggest the need for further research.
Troubleshooting Common Obstacles to External Scientific Evidence

Inconclusive Results

CONCLUSIONS FROM THIS SYSTEMATIC REVIEW

**Results from five reviews suggest that cognitive training might work for improving memory, cognitive functioning, neuropsychiatric symptoms, behavior, depression, quality of life, learning and activities of daily living. Evidence is insufficient on a variety of small sample sizes.**

**Maps:**

These reviews addressed reality orientation. Authors of these reviews acknowledged the low quality and small sample sizes of studies included in the review. This added to the power of the studies by improving its generalizability. However, the evidence was still weak.

<table>
<thead>
<tr>
<th>Maps</th>
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<tbody>
<tr>
<td><strong>Demonstration</strong></td>
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Coming up next

We’ve outlined common obstacles to integrating research evidence. In the next activity, we will explore the **strategies for overcoming these obstacles.**

Evidence-Based Decision-Making Micro Course Series
Strategies for Overcoming Obstacles

- Adjust your search parameters
- Rely on the other components of the EBP triangle
- Weigh methodological quality and risk of bias

Adjusting Search Parameters: PICO Question

<table>
<thead>
<tr>
<th>Population</th>
<th>What are the characteristics and/or condition of the group? Examples: age, diagnosis, severity, or linguistic or hearing status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>What is the screening, assessment, treatment, or service delivery model that you are considering? Examples: hearing aid provision, instrumental swallowing assessment, or a particular dosage/format of services</td>
</tr>
<tr>
<td>Comparison</td>
<td>What is the main alternative to the intervention, assessment, or screening approach? Examples: comparing specific treatment techniques or comparing the reliability or validity of assessment tool to the current gold standard tool</td>
</tr>
<tr>
<td>Outcomes</td>
<td>What do you want to accomplish, measure, or improve? Examples: improved sound discrimination in noise, articulation, cognitive performance, or swallowing function</td>
</tr>
</tbody>
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Adjusting Search Parameters: Broad and Narrow PICO Questions

- **Too Broad**: “What are the effects of breathing exercises on swallowing?”
  - **Problem**: unfocused, too general → many irrelevant results
  - **Solution**: Add or refine keywords, include more limiters

- **Too Narrow**: “What is the effect of expiratory muscle strength training compared to effortful swallow training on aspiration on thin liquids in adult with Huntington’s disease?”
  - **Problem**: too specific → unlikely to capture relevant results
  - **Solution**: Reduce required keywords and other limiters

- **Balanced**: “What are the effects of expiratory muscle strength training compared to oropharyngeal exercises on aspiration in adults with neurodegenerative disease?”
  - **Captures clinical scenario**: sufficient, relevant results
Troubleshooting Common Obstacles to External Scientific Evidence

Adjusting Search Parameters: Other Search Strategy Elements

**AND/OR/NOT**
- **Broaden**: Include ORs with many related keywords
- **Narrow**: Include ANDs and NOTs, which ensure multiple keywords are present or that words are not present respectively

**Study Designs**
- **Broaden**: Include any experimental study
- **Narrow**: Include only RCTs

**Date Ranges**
- **Broaden**: Include all dates
- **Narrow**: Include results within the last 5-10 years

Considering Alternatives

<table>
<thead>
<tr>
<th>Intended</th>
<th>Relevant</th>
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<tbody>
<tr>
<td>Population</td>
<td>Aphasia status-post TBI</td>
</tr>
<tr>
<td>Intervention</td>
<td>Visual Action Therapy</td>
</tr>
<tr>
<td>Comparison</td>
<td>VFSS</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Percent consonants correct</td>
</tr>
</tbody>
</table>

Weighing Quality and Trustworthiness

<table>
<thead>
<tr>
<th>Example consideration</th>
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<tbody>
<tr>
<td><strong>Study Design</strong></td>
</tr>
<tr>
<td><strong>Quality Assessment Tool</strong></td>
</tr>
<tr>
<td><strong>Levels of Evidence</strong></td>
</tr>
<tr>
<td><strong>Limitations</strong></td>
</tr>
<tr>
<td><strong>Sponsoring Body/Conflicts of Interest</strong></td>
</tr>
<tr>
<td><strong>Publication Date</strong></td>
</tr>
</tbody>
</table>
### Internal Evidence

<table>
<thead>
<tr>
<th>Data &amp; Observation</th>
<th>Trends from prior therapy</th>
<th>Trial Therapy &amp; Stimulability</th>
</tr>
</thead>
</table>

### Coming up next

We’ve explored barriers to implementing evidence and solutions to overcoming those obstacles. The next activities are your turn to practice identifying limitations in research evidence and considering the evidence to make a plan.

### Locate and Appraise Research Evidence

Take 5 minutes to locate research on the Evidence Maps relevant to the case scenario and note any limitations or barriers to its implementation.
Take 5 minutes to weigh the quality of the evidence and determine an intervention plan incorporating EBP components.

Make a Clinical Decision

Learning Assessment

Take 5 minutes to complete your learning assessment in the ASHA Learning Center. You'll have access to your certificate of completion immediately after you complete and submit your assessment.

Learning Assessment