Demystifying Research: Accessing & Understanding Evidence for Clinical Practice

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Demystifying Research: Accessing and Understanding Evidence for Clinical Practice

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WHAT IS EBP AND WHY DO WE CARE?

EBP is the integration of:
- Clinical expertise/expert opinion
- External scientific evidence
- Client/parent/caregiver values and preferences

The EBP process:
- Ask a question
- Acquire knowledge – search the literature
- Appraise the literature – is it valid
- Apply the knowledge – clinical practice
- Assess client improvement

The goal of EBP:
- Provide optimal client-centered service
- Provide dynamic integration of external evidence and clinical expertise
- Provide high-quality services

WHAT DO SLPs GATHER INFORMATION FROM?

Databases

- PubMed
- ERIC
- SpeechBITE
- ASHA’s Evidence Maps
- The Informed SLP

How to search a database:
https://www.nlm.nih.gov/bsd/disted/pubmedtutorial

Research Guidelines & Systematic Reviews

- Evidence-based宅: What is it? How do we use it?
- Critical Appraisal
- Statistical Analysis

WHERE DO I FIND THE BEST EVIDENCE?

A tradeoff between sources designed to be exhaustive and sources designed to support EBP and reduce the time barrier. Often good to use both.

How do SLPs gather information?

- Must find research evidence that pertains to the question (Baker & McLeod, 2011; Gillam & Gillam, 2006)
- Where are SLPs getting their information?
  - Personal contacts most common, followed by open internet search (Nail-Chewetalu & Ratner, 2007)
  - Continuing education experiences personal contacts rated as most helpful (Nail-Chewetalu & Ratner, 2007)
  - Note: Combing of courses is “... not exhaustively reviewed prior to approval, unlike peer-reviewed journal publication content.” (Nail-Chewetalu & Ratner, 2007)
- Barriers: Time constraints (Nail-Chewetalu & Ratner, 2007; Hoffman et al., 2013 for review)
  - But would we, if given the time? Takes 5-7 hours to pose a question, research it, read the evidence, and pose a solution (Brackenberry et al., 2008)
- SLP ideas of what they need other than time (Hoffman et al., 2013):
  - 70% = additional training in EBP
  - 62% = EBP policies in place at state or district level
  - 54% = EBP study group

WHERE DO I FIND THE BEST EVIDENCE?

EBP and Scientific Evidence

Cost of articles is a barrier. Options:
- Pay for it ($12-$55 for our top journals); rent it (e.g. $6, 48 hrs)
- ASHA journals (free for members)
- Google (not Google Scholar) article title alone, then author name. If brand new, wait and try again later
- Author’s institutional repository (aka Scholarly Commons; search www.openeducar.org)
- Visit a university; get alumni or community access
- Get it from your employer
- Ask the author for it (small)
- Remember: publisher owns the article, not author

HOW DO I EVALUATE THE EVIDENCE I’VE FOUND?

EBP is grounded in theory
- Treatment guided by theory
- Treatment data including the client’s response to intervention, changes in intervention, generalization, and effectiveness

Type of research designs that indicate a higher level of evidence:
- Experimental (and quasi-experimental)
- Randomized controlled trial (RCT)
- Systematic review
- Meta-analysis

More advanced statistical methods may provide more precise results:
- HLM – hierarchical linear modeling
- SEM – structural equation modeling
- Growth models

Commonly reported statistics

- p-value: Statistical significance is there a difference
- Cohen’s d: Effect size: how big the difference is
- r: Pearson correlation – the strength of a linear relationship between two variables
- R²: Percent variance explained

How to interpret:
- p < .05 = “significant”
- d > 0.8 = “large”
- r > .5 = “strong”
- R² > .7 = “very strong”

EBP Guideline & Systematic Reviews

- Autistic PDC’s EBP Guide (Autism)
- ASHA Practice Portal (Speech-Language Pathology)
- ASHA SIR Perspectives Paco (Speech-Language Pathology)
- ASHA’s Systematic Reviews (Speech-Language Pathology)
- Campbell Collaboration (Social-Economic)
- Cochrane Database of Systematic Review (Medical)
- Pearson EBP Briefs (Speech-Language Pathology)
- U.S. Department of Health & Human Services National Guideline Clearinghouse (Medical)
- What Works Clearinghouse (Education)

Beware the pseudoscience!
- Science vs. Pseudoscience Checklist
- Baloney Detection Kit

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- Visit a university; get alumni or community access
- Get it from your employer
- Ask the author for it (small)
- Remember: publisher owns the article, not author

Statistical Analysis

- Number of people who drowned by falling into a pool
- Filmes Nicolo Cape appeared in

Critical Appraisal

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Research Type

- Case study
- Correlation
- Comparison of means
- ANOVA and ANCOVA
- Regression and multiple regression
- Single subject design

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Evidenced-Based Practice Guide for Nursing Students:
Adapted from: UWYO: Evidence Based Practice Guide for Nursing Students:
http://digitalcommons.odu.edu/cdse_pubs/16

Poster, references, and resources can be retrieved from http://digitalcommons.odu.edu/cdse_pubs/16

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