Evidence-Based Practice in Pediatric Feeding and Swallowing

ASHA 2012–Session #1103
Atlanta, Georgia
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Disclosures

Neither Donna Scarborough or Neina Ferguson have financial or non-financial relationships to disclose.
Participants will acquire knowledge of best practice evidence from research to support clinical practice judgment

Participants will be able to explore and evaluate external evidence from research with confidence

Participants will be able to rate various levels of evidence to support practices in pediatric feeding and swallowing

Participants will describe challenges of EBP directed towards specific, select populations
Let’s Dive Into Evidenced Based Practice (EBP)
Goal of Evidence-Based Practice

EBP is to provide high-quality services to individuals that reflect their
- Interests
- Values
- Needs
- Choices

Integration of 3 main components

Scientific Research
Clinical Expertise
Client/Patient/Caregiver values
Factors to Weigh

Clinical Experience

- **EBP**
- Needs of client/patient
  - Values
  - Culture
  - Environment
  - Family Preferences

- "BEST" Available Research
- Current
Does your clinical question fit into a theoretical model?
Is the population well defined?
Are the intervention strategies clearly delineated?
What is being compared?
Is there a “positive” or “negative” outcome?
What types of evidence are available?
Types of Evidence (2)

(1) Systematic Reviews—Summary of the scientific literature that uses explicit methods.

- Meta-analyses

Key questions:
- Is it relevant to your clinical question?
- Who wrote it?
- Is it still current?
2) Individual studies: Types and Levels of Evidence

- Expert committee report, conference consensus, clinical experience (expert)
- Non-Experimental study types for example: Correlational and Case Studies
- Quasi-experimental studies
- Controlled studies without randomization
- Randomized control studies
- Meta-analysis
“Quasi-experimental” designs

Are subjects randomly assigned to groups?

- NO
  - Does the experiment have multiple measures or a control group?
    - NO
      - Non-Experimental
    - YES
      - Quasi-Experimental

- YES
  - True Experiment

Adapted from Meline, p 9
Putting the research together

When evaluating the literature or evidence on a particular treatment, you must consider the

- **Quality**
  - Validity
    - Internal factors
    - External factors
  - Blinding
  - Bias
    - *Example*

- Number of studies

- Consistency of findings
Specific examples in special populations
Premature Infants
Bronchopulmonary Dysplasia (BPD)
Cardiac Anomalies
Consider your question

Example: In children with prematurity does a specific, volume driven versus infant driven feeding approach improve the clinical outcomes?
Infant Driven
- Multiple randomized control trials have been completed
Do we know all the signs and symptoms of trouble in premature infants?
Little or no evidence in the literature...what then?

Example: signs and symptoms of aspiration in preterm infants

- Theoretical Model (Als, 1986)
  - Synactive Theory of Neurodevelopment

- Research done with other populations
  - Term infants
  - Adults
    - Weigh best evidence with knowledge of developmental differences, and theory
Premature infants—beyond the first year

Consider your question

Example: In children with a history of prematurity does a specific, single therapy approach (pick one: sensory, motor, behavioral) improve the clinical outcomes compared to a multilayered treatment approach (or no treatment or a different approach)?
It’s complicated... consider the cause of chronic feeding problems

- prematurity itself?
- medical interventions associated with survival?
- environment... NICU, Home?
- previous treatment (or lack of)?
- other influences?
What do we search for in the literature?

Narrow our original question

• Is there evidence that preterm infants have high risk of difficulties with persistent feeding/swallowing problems?

• Are premature infants at high risk for specific types of feeding/swallowing problems?

• How long does it take to successfully remediate a child with a history of prematurity?

• What is success?→ Getting them off the tube or least restrictive diet?

• Have older premature infants been absorbed into another category?
For example, are premature infants who had grade 3 or 4 hemorrhages now group with children with cerebral palsy?

We have this answer!

SW, now 11
Weighed < 1 pound
at birth. G–tube weaned
this summer
Interventions for oropharyngeal dysphagia in children with neurological impairment

- Review included randomized controlled trials and quasi-randomized controlled studies
- Findings: 3 articles met this criteria
  - 2 articles on sensorimotor treatment in cerebral palsy and 1 article on lip strengthening in myotonic dystrophy
  - Unable to complete a meta-analysis
- Conclusion: Insufficient high-quality evidence
Bronchopulmonary Dysplasia

Infants
Older infants/children
BPD and prematurity and feeding: Evidence-Based Treatments

- Environmental modification
- “Oral” stimulation
- Flow rate modification
- Pacing
- Infant Position
- Feeding Schedule
- Feeding Practice

Ferguson & Estes, 2011
Consider your question

Example:
What happens to these infants as they grow? Do they persist with feeding difficulties?
At 12 months still have difficulties transitioning to solid foods (Giambra & Meinzen-Derr, 2010)

Are their specific treatment approaches that work to remediate their feeding challenges as they age?
It’s complicated…consider additional factors

- Depending on what part in the country—some have the physician giving the dx still using “old” versus “new” definition of BP
  - Large airway disease
  - Small airway disease
  - Lack of alveoli production
  - Genetic component

- Often complicated by mechanical ventilation, persistent needs requiring O2, often have g-tube early, therefore we know that they have sensory processing issues (Scarborough et al, 2006).
No, we don’t have SPECIFIC feeding treatments reported in the literature for BPD for older children

What we do know...however,
Review: General and Respiratory Health Outcomes in Adult Survivors of BPD (Gough et al, 2012)

- Searched databases
- 8 high quality studies
- All studies found that many adult survivors had more respiratory symptoms and lung function abnormalities
- Reported structural changes
- Decreased exercise capacity

Conclusion: Greater impairment in general and with respiratory health
Cardiac Issues

Infants
Older infants/children
Often miss critical periods to practice...too sick to eat
Often g-tube fed
Specific treatment options not reported in the literature
Consider your question.

Example: In children with cardiac anomalies (who were full-term), is there a specific feeding/swallowing treatment approach that is appropriate compared to (either no treatment or another treatment)?
It’s complicated and little to no evidence...

Factors to consider

- Severity of cardiac problem
- Necessitating a feeding tube?
  - Have own complications
- Pre or post surgery?
- Complications from surgery
- Family / Culture
- Requires investigating specific types of cardiac anomalies
Persistent growth failure to at least 14 months of life

Greater daily caloric intake needs

Persistent growth failure is associated with increased mortality following cardiac surgery.

Pre and post operative management of enteral nutrition varies

Wolovitis & Torzone, 2012
Tips for compiling evidence

- Look outside the speech pathology journals
- Look in international journals—some of our best research is coming from other countries
- Start broad with your key terms in the search engine
- If you find a positive outcome in one age—infants or adults, can you extrapolate to your population?
Misconceptions of EBP

- EBP requires randomized controlled trials
  - Remember randomized control trials use group averages, but often individual scores are important for clinical considerations

- EBP is a cookbook approach
  - Even if eventually we get a clinical practice guideline it will NEVER replace clinical judgment
Clinical Bottom Line

Based on the research evidence and specific patient needs, what clinical services are you going to provide?

- Keep in mind, there is no magic formula for determining how much research evidence is enough
- Should consider the following:
  - potential for harm
  - cost effectiveness
  - availability of alternative treatments
  - patient/family preference
Summary of Evidenced-Based Practice

Integration

External Scientific Evidence

Clinical Expertise/Expert Opinion

Client/Caregiver Values

GOAL

Optimal clinical services
Questions????

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Ferguson, N. & Estis, J. (2011). Transitioning the premature infant to oral feeding: Integrating evidence–based research with clinical practice. MSHA, Jackson, MS.
