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**Evidence-Based Decision Making:  
EBP Basics and  
Tools for Practicing Clinicians**

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ASHA PROFESSIONAL DEVELOPMENT TAKE FIVE

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**Speaker Disclosure**

- Financial:
  - ASHA's National Center for Evidence-Based Practice in Communication Disorders (NCEP)
- Nonfinancial:
  - Certified ASHA member



Cheryl Swit, M.S., CCC-SLP  
Clinical Research Associate  
ASHA

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**Objectives**

- Define and identify evidence-based practice (EBP) components
- Describe steps in the EBP process
- Identify factors that influence clinical decisions
- Highlight ASHA resources for informed clinical decisions

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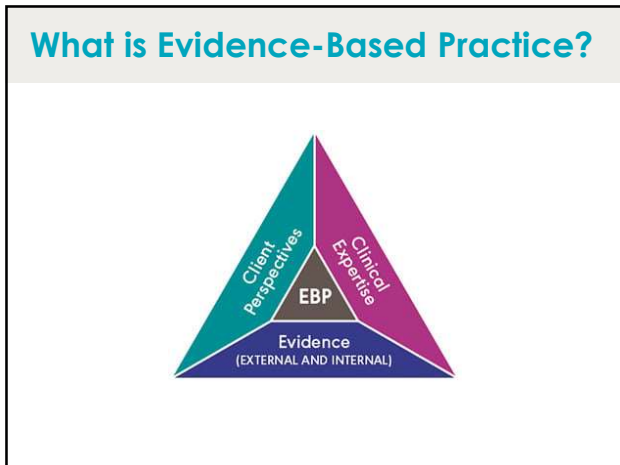
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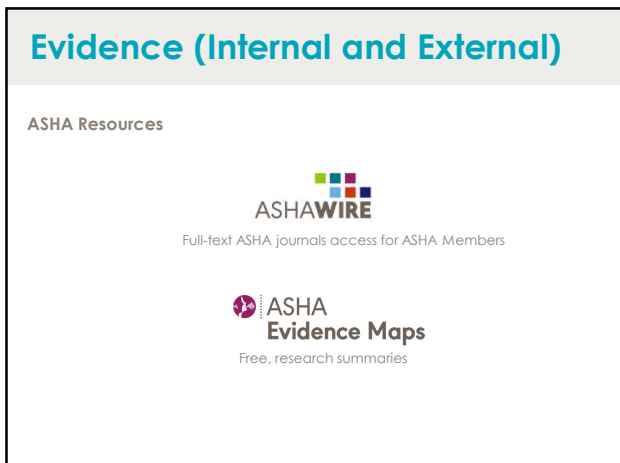
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### Clinical Expertise



#### Practice Management

**THE PRACTICE PORTAL**

ASHA's Practice Portal offers one-stop access to resources to guide evidence-based decision-making on clinical and professional issues.

See ASHA policy documents for practice policies and additional information.

[Enter the Practice Portal](#)

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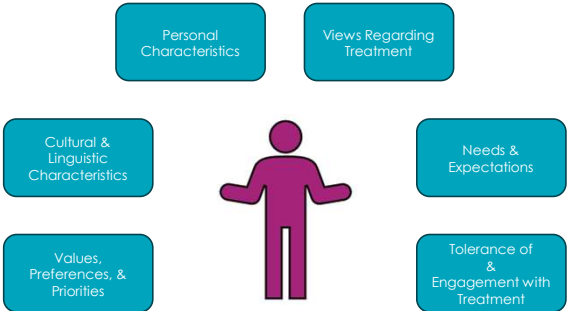
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### Client Perspectives



Personal Characteristics

Views Regarding Treatment

Cultural & Linguistic Characteristics

Needs & Expectations

Values, Preferences, & Priorities

Tolerance of & Engagement with Treatment

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### Considering EBP Components



Client Perspectives

Clinical Expertise

Internal and External Evidence

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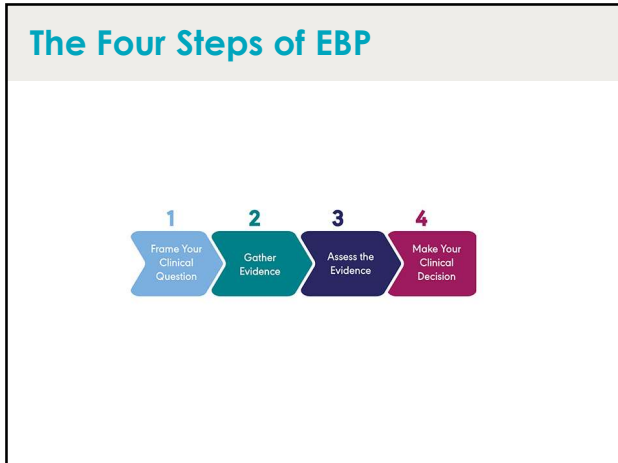
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### Coming up next

We've provided an overview of EBP. In the next section, we'll discuss the **first two steps of the EBP Process.**

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## 2 The EBP Process: Steps 1 and 2

Framing the Clinical Question and Gathering Evidence

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### Case Scenario

You have a new, three-year-old client on your caseload with a severe developmental delay. He is currently unable to effectively express his wants and needs to others. His parents have expressed the goal that their son will develop spoken language.

As you consider treatment plan options, you'd like to learn what the research evidence says about the effects of incorporating a speech-generating device (SGD) to support his current communication skills on his language development and verbal expression.

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### 1. Frame Your Clinical Question

	General Examples	Case Scenario
<b>P</b> opulation	age; linguistic or hearing status; primary diagnosis; comorbidities; biological sex and/or gender identity; educational level	young children with a severe developmental delay
<b>I</b> ntervention	treatment; screening and assessment tools; service delivery (e.g., dosage, format)	speech-generating devices (SGD)
<b>C</b> omparison	alternative specific treatment techniques; reliability or validity of comparable assessment tools	spoken language interventions without the use of SGD
<b>O</b> utcomes	increasing function or skills; learning and implementing new strategies; improving quality of life	overall verbal expression and expressive language development

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### PICO Question

What effects do interventions incorporating speech-generating devices have on verbal expression compared to interventions without SGDs in children with developmental delays?

Population  
Intervention  
Comparison  
Outcome

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## 2. Gather Evidence

Use components of your PICO question to develop a search string:

	Population	Intervention	Comparison	Outcomes
Key words	<ul style="list-style-type: none"> <li>child developmental delay</li> </ul>	<ul style="list-style-type: none"> <li>speech-generating devices</li> </ul>	<ul style="list-style-type: none"> <li>spoken language interventions without SGD</li> </ul>	<ul style="list-style-type: none"> <li>verbal expression</li> <li>expressive language development</li> </ul>
Alternative key words	<ul style="list-style-type: none"> <li>language delay</li> </ul>	<ul style="list-style-type: none"> <li>SGD</li> <li>multimodal communication</li> <li>augmentative and alternative communication</li> <li>AAC</li> </ul>	<ul style="list-style-type: none"> <li>treatment</li> <li>therapy</li> <li>intervention</li> </ul>	<ul style="list-style-type: none"> <li>spoken language</li> </ul>

AND

**NOT examples:** adults; low-tech AAC; cognition

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## Developing a Search String

child\*  
 AND  
 ("language delay" OR "developmental delay")  
 AND  
 ("speech generating devices" OR SGD OR "multimodal communication" OR  
 "augmentative and alternative communication" OR AAC)  
 AND  
 (treat\* OR therapy OR intervention)  
 AND  
 ("verbal expression" OR "expressive language development" OR "spoken  
 language")

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## Adjusting Search Parameters: Broad and Narrow PICO Questions

Too Broad

*"What are the effects of treatment on communication?"*

- Problem: Unfocused, too general → many irrelevant results
- Solution: Add or refine keywords, include more limiters

Too Narrow

*"What is the effect of using fixed display speech-generating devices with synthesized speech compared to the effect of dynamic display SGDs with digitized speech on the expression of verbs in 3-year-old children?"*

- Problem: Too specific → unlikely to capture relevant results
- Solution: Reduce required keywords and other limiters

Balanced

*"What effects do interventions incorporating speech-generating devices have on verbal expression when compared to interventions without speech-generating devices in children with developmental delays?"*

- Balanced: Captures the scenario → returns relevant results

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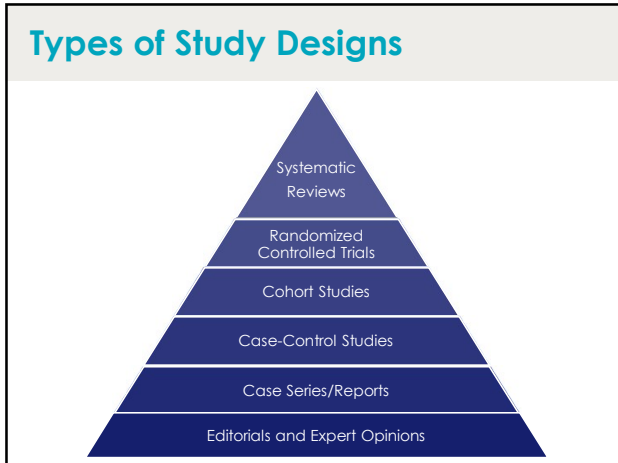
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**2. Gather Evidence**

Cochrane Library, ERIC Institute of Education Sciences, PubMed, ASHAWIRE, THE PRACTICE PORTAL, ASHA Evidence Maps

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**Our Search**

PubMed search results for: chRP AND ("language delay" OR "developmental delay") AND ("speech gen...  
 2 results  
 Filters applied: Randomized Controlled Trial. Clear all

RESULTS BY YEAR: 2019, 2020

TEXT AVAILABILITY:  Abstract,  Free full text,  Full text

ARTICLE ATTRIBUTES:  Associated data

ARTICLE TYPE:  Books and Documents,  Clinical Trial,  Meta-Analysis,  Randomized Controlled Trial,  Review

1. Spoken Vocabulary Outcomes of Toddlers With Developmental Delay After Parent-Implemented Augmented Language Intervention.  
 Cite: Waller C, Seick RA, Romik M. *Am J Speech Lang Pathol.* 2021 May 18;30(3):1023-1037. doi: 10.1044/2020-AJSLP-20-00993. Epub 2021 Mar 25.  
 PMID: 33789427 Free PMC article. Clinical Trial.  
 Purpose: Early intervention using augmentative and alternative communication (AAC) supports both receptive and expressive language skills... Results support using AAC interventions for very young children with...

2. Intervention focus moderates the association between initial receptive language and language outcomes for toddlers with developmental delay.  
 Cite: Barker RA, Romik M, Seick RA, Adamson LB, Smith AL, Bakeman K. *Agreement Assess Commun.* 2019 Dec;3(3):203-219. doi: 10.1080/25743463.2019.1686776. Epub 2019 Dec 25.  
 PMID: 31980037 Free PMC article. Clinical Trial.  
 In all 62 toddlers with developmental delay were randomly assigned to augmented communication input (AC-I), augmented communication output (AC-O), or spoken communication (SC) interventions. AC-I provided augmented language...

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**Coming up next** .....

We've explored the first two steps of the EBP process. In the *next* section, we'll discuss the last two steps: **assessing the evidence and making a clinical decision**

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**3** **The EBP Process:  
Steps 3 and 4**  
Assessing the Evidence and Making a Clinical Decision

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**3. Assess the Evidence**

**Consider:**

- Were the participants representative of the clinical population of interest?
- How large was the sample size?
- Were subjects randomly assigned to the intervention and control groups?
- Were the assessors and clinicians blinded to the treatment condition?
- Were assessment outcomes compared to a gold standard assessment?

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## Assess the Evidence



AGREE II





**ASHA**  
**Evidence Maps**

QUALITY APPRAISAL

Indicators of Review Quality 1

YES	The review states a clearly focused question/aim.
YES	Criteria for inclusion of studies are provided.
YES	Search strategy described in sufficient detail for replication.
YES	Included studies are assessed for study quality.
NO	Quality assessments are reproducible.
YES	Characteristics of the included studies are provided.

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## Quality of the Evidence

AJSLP

Research Article

### Spoken Vocabulary Outcomes of Toddlers With Developmental Delay After Parent-Implemented Augmented Language Intervention

Casey Walters,<sup>1</sup> Rose A. Sevcik,<sup>2</sup> and MaryAnn Romski<sup>3,4</sup>

**Purpose:** Early intervention using augmentative and alternative communication (AAC) supports both receptive and expressive language skills. However, many parents and clinicians still worry that augmented language intervention might delay or impair speech development. This study aimed to (a) characterize and analyze the speech sound development of toddlers with developmental delay who participated in a parent-implemented language intervention; (b) examine the accuracy of speech sounds among toddlers who participated in an augmented language intervention using speech-generating devices and toddlers who participated in a traditional, spoken language intervention; and (c) examine the relationship between baseline factors (i.e., receptive and expressive language skills, vocal imitation, and number of intelligible utterances) and the number of spoken target vocabulary words after intervention.

**Method:** This study used extant data from two randomized control trials of parent-implemented language interventions using AAC or spoken language. Out of 109 children who completed the intervention, 45 children produced spoken target

vocabulary words at the end of the intervention. We identified and phonetically transcribed spoken target vocabulary words for each child and then classified them based on Strieberg and Kwiatkowski's (1982) developmental sound classes.

**Results:** Children's speech sound accuracy was not significantly different across intervention groups. Overall, children who produced more words had more speech sound errors and higher baseline language scores. Intervention group and baseline receptive and expressive language skills significantly predicted the number of spoken target vocabulary words produced at the end of intervention.

**Conclusions:** Participation in AAC intervention resulted in significantly more spoken target vocabulary words and no statistically significant differences in speech sound errors when compared to children who received spoken language intervention without AAC. Results support using AAC interventions for very young children without the fear that it will delay speech or spoken language development.

**Supplemental Material:** <https://doi.org/10.23941/asha.14265365>

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## Quality of the Evidence

- Relevance and applicability:**
  - 2- to 3-year-old children
  - Significant developmental delay and no additional diagnosis
  - Limited expressive vocabulary less than 10 intelligible spoken words
  - Intentional communication skills
  - Upper extremity control
- Study characteristics:**
  - Robust sample size (109 children)
  - Random treatment group assignment
- Potential for bias:**
  - No mention of treatment or outcome blinding
  - Lacks consistent attrition (e.g., study withdrawal) reporting

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**4** **Plan Your Search**

Take 2-3 minutes to select a clinical scenario and question, generate related keywords, and create a search string.

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**5** **Search for External Scientific Evidence**

Take 5 minutes to search for external scientific evidence using the database of your choice.

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**6** **Assess the Evidence and Make a Clinical Decision**

Take 5 minutes to assess the quality of the research study that you located in the previous activity and make a clinical decision and treatment plan for your client.

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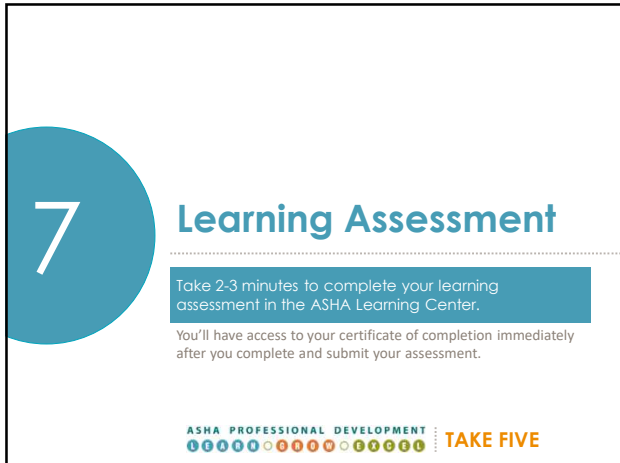
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7 Learning Assessment

Take 2-3 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.

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The graphic features a large teal circle on the left containing the number '7'. To its right, the title 'Learning Assessment' is displayed in a bold, teal font. Below the title, a teal rectangular box contains the text 'Take 2-3 minutes to complete your learning assessment in the ASHA Learning Center.' Underneath this box, a smaller teal box contains the text 'You'll have access to your certificate of completion immediately after you complete and submit your assessment.' At the bottom of the graphic, the text 'ASHA PROFESSIONAL DEVELOPMENT' is followed by a row of ten colored circles (teal, orange, teal, orange, teal, orange, teal, orange, teal, orange) and the words 'TAKE FIVE' in a bold, orange font.

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