Introduction

- The presence of cleft palate in children can cause decreased speech intelligibility and velopharyngeal port dysfunction (VFD).
- Children with cleft palate are at risk of developing compensatory and obligatory articulation errors as well as velopharyngeal dysfunction, which in turn may impact school performance and interpersonal relationships.
- Children who are born with a cleft palate must receive a corrective surgery, or palatoplasty, in order to improve speech intelligibility and velopharyngeal port function.
- Surgeons select two different times to perform palatoplasty to repair the hard and soft palate.
- Research has shown that an early cleft palate repair, or one that occurs before speech develops, may improve speech intelligibility and decrease the likelihood of the child developing compensatory articulatory errors and velopharyngeal port function.
- While other research has argued that the palate should be repaired later in the child’s life, or after speech has developed, because a palatoplasty may hinder the growth and development of facial structures, such as the maxilla.
- The purpose of this study is to discover if the potential benefits and harms of surgery at an earlier stage or later stage will yield better articulation and VP function.

Research Question

Do preschool aged children (2) who were born with a cleft palate and received an early cleft palate repair (E) have better speech intelligibility (I) than those who receive a late stage palate repair (C)?

Case Scenario

Clinician Background:
- Amanda is a graduate student clinician at the University of Nevada, Reno Speech and Hearing Clinic.
- Her caseload consists of children with articulation, phonological, and language disorders.
- She is currently gaining clinical experience with children who were born with a cleft lip or palate by volunteering at the Cleft Palate Clinic at UNR.

Client Background:
- Two-month-old female presents with a unilateral cleft lip and palate.
- Her parents are concerned about the affect the cleft palate will have on the development of her speech and are curious as to when her palate should be repaired in order to have the best speech outcome.
- Their main concerns include how intelligible she will be when she is school aged and how it will affect future social relationships and her performance in school.
- She is scheduled to receive a repair of her lip when she is 10 weeks old and at least 10 pounds.

Methodology

Search Terms: speech intelligibility, children, cleft palate, speech development, and timing of palatal repair.

- Ten research articles were located from these databases and appraised for importance, validity, and reliability using the Clinical Appraisal of Treatment Effectiveness (CATE) Form.
- Five articles were selected due to their high inter-rater reliability and appropriateness to the purpose of this study.

Results

<table>
<thead>
<tr>
<th>Authors</th>
<th>Participants</th>
<th>Purpose</th>
<th>Dependent Variables</th>
<th>Results</th>
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<tbody>
<tr>
<td>Chapman, Hardin-Jones, Goldstein, Halter, Havlik, &amp; Schulte (2008)</td>
<td>Non-Experimental Correlational (longitudinal) Study</td>
<td>N = 40</td>
<td>To examine the impact of age and lexical status at the time of primary palatal surgery on speech outcome for preschoolers with cleft palate.</td>
<td>Group 1 vs. Group 2: Group 1 exhibited larger consonant inventories (true consonant inventories) and more accurate production of nasals and liquids compared to children in Group 2.</td>
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<tr>
<td>Chapman, K., Hardin-Jones, M., Goldstein, J., Halter, K., &amp; Schulte, C. (2007)</td>
<td>Experimental Study</td>
<td>N = 28</td>
<td>To examine the speech production abilities of children with cleft palate before and after palate repair.</td>
<td>Speech production abilities: Canonical babbling ratios, size of consonant inventories, frequency of early developing sounds (p, b, t, d, k, g, m, n, l)</td>
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<tr>
<td>Scherer, D., Antonio, J., &amp; McGahey (2008)</td>
<td>Experimental Study</td>
<td>N = 20</td>
<td>To examine whether parents can be trained to deliver an early intervention (EI) program for children with cleft palate.</td>
<td>Use of specific targeted language acquisition strategies: Speech and language characteristic</td>
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<td>Wilfors (2008)</td>
<td>Experimental Study</td>
<td>N = 34</td>
<td>To investigate the influence of timing of hard palate closure on early speech development for children aged 18 months to 3 years.</td>
<td>Specific targeted language acquisition strategies: Percent of consonants produced correctly (PCC)</td>
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<tr>
<td>Hodge &amp; Gotzle (2007)</td>
<td>Experimental Study</td>
<td>N = 15</td>
<td>This study described a preliminary evaluation of the construct and concurrent validity of the Speech Intelligibility Probe for Children With Cleft Palate.</td>
<td>Speech intelligibility in children with cleft palate</td>
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Discussion

- External Evidences: Earlier surgical repair results in better speech intelligibility and velopharyngeal function than waiting to do surgery until after facial structures have developed more.
- Internal Evidence to Patient: Parents want daughter to have better speech intelligibility and prefer earlier palatal repair.
- Internal Evidence to Clinical Practice: I am a student at the UNR Speech and Hearing Clinic and I have a good working relationship with surgeons who will perform surgery at early or later ages.
- EBP Decision: From experience with working with this population and working with surgeons in the area, I will recommend that the family receive an early palatal repair for their daughter.