Figure 2: NCHAM Model of Change for Service Delivery Using Teleintervention for Infants and Toddlers with Hearing Loss

<table>
<thead>
<tr>
<th>Contextual Factors</th>
<th>Over-arching Listening and Spoken Language Early Intervention Principles</th>
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| • Transportation and scheduling challenges in both urban and rural/remote locations  
  • Difficulty accessing early intervention services in natural environments  
  • Increasing early identification of hearing loss and need for early intervention services  
  • Improvements in hearing technologies, e.g., hearing aids, cochlear implants  
  • Limited access to and shortages of highly-qualified DHH providers, particularly with LSL skills  
  • Limited program funding  
  • Improvements in and decreasing costs of communication technologies, e.g., broadband, Skype- or Facetime-like video calling | • Communication-focused parent-coaching intervention with skilled early intervention providers  
• Natural environments to promote family-centered services incorporating family culture and routines  
• Full-time use of appropriately fit hearing technology  
• Ongoing developmental assessments to monitor progress and outcomes |

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<tr>
<th>Teleintervention Service Delivery (Treatment)</th>
<th>Service Delivery Outcomes</th>
<th>Provider Skill Outcomes</th>
<th>Child Outcomes</th>
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| • Services provided using Skype- or Facetime-like video-based communication  
  • 2 TI sessions + 1 F2F visit/ month  
  • Recorded TI sessions | • Decreased travel time & intervention costs  
  • Fewer cancelled sessions  
  • More flexible scheduling  
  • Increased number of program service hours available  
  • Greater adherence to intervention principles (increased fidelity of implementation) | • Greater use of parent coaching  
• Increased use of natural environments, including family culture, routines  
• Services more family-focused instead of provider-directed  
• Increased self-assessment, feedback with recorded sessions | • Improved child language, cognitive, and social outcomes  
• Increased child responsiveness to caregivers, family members |

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<th>Caregiver Outcomes</th>
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| • Increased caregiver engagement in intervention  
  • Increased self-efficacy in meeting needs of child who is DHH  
  • Increased positive family/child interaction  
  • Increased use of natural environments to improve child outcomes  
  • Increased family participation using recorded sessions  
  • Increased caregiver satisfaction with services / delivery  
  • Decreased time and travel costs |