Implementing Use of American Sign Language (ASL) Signs into Neurodevelopmental Care to Enhance Outcomes in Pediatric Cardiology

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Introduction

- Children with critical congenital heart disease (CHD) are at increased risk for Neurodevelopmental (ND) delays due to prolonged hospitalizations and medical interventions.
- Communication is vital for early cognitive, linguistic, and emotional development, and hearing children in intensive care units (ICUs) may struggle to vocalize due to decreased interactions, intubation, fatigue, or sedation.
- The CINCO program at Children's Hospital Colorado provides ND support through volunteer-based interventions. This poster expands on preliminary findings originally presented at the 8th World Congress of Pediatric Cardiology and Cardiac Surgery (Hunter et al., 2023), examining the implementation of ASL signs as a neurodevelopmental tool for young pediatric patients.
- **Rationale**: ASL signs support early communication and caregiver-infant interaction (Anthony, 2008; Lindert, 2006). Infants as young as 4 months can recognize and pay close attention to signing (Dewer, 2018).

Objective

- To assess the feasibility and acceptability of implementing ASL signs as a neurodevelopmental tool for hearing pediatric cardiac patients (ages 0–2) with congenital heart disease, within the CINCO volunteer framework.
- **Goals:**

1. **Introduce** 12 high-impact ASL signs to enhance communication with hospitalized pediatric patients.
2. **Measure** volunteer use of ASL signs and corresponding patient engagement.

Methodology

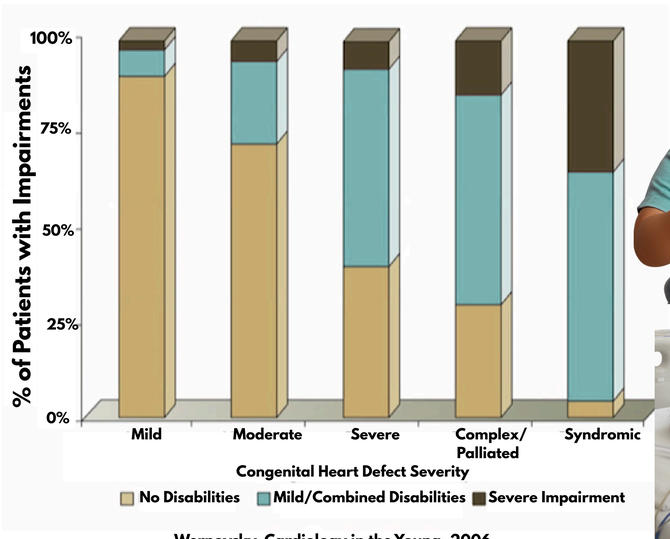
01 **Sign Selection**: Twelve high-impact ASL signs were chosen, including those useful to the adult and those interesting to the child, such as MORE, ALL-DONE, PLAY, PAIN, MUSIC, etc.

02 **Volunteer Training**: Interactive ASL sign training and support was provided to CINCO volunteers via live videoconference. Volunteers learned to use ASL signs during developmental interactions with patients in the CICU and CPCU.

03 **Data Collection:**

- After each shift, volunteers self-reported the use of signs and patient engagement via electronic surveys.
- Patient engagement was assessed by noting the frequency of signs used and patient responses (e.g., reciprocal signing).

04



Wernovsky, Cardiology in the Young, 2006

Prevalence of Neurodevelopmental Impairment Among Children With CHD

Strategic ASL strengthens neurodevelopmental, linguistic, and cognitive growth.

Results

- In the first 3 months after training, ASL signs were used in 12% of interactions (12 out of 94 volunteer–patient interactions).
- **Patient Engagement**: 92% of patients were engaged when ASL signs were used.
- **Sign Usage**: The most frequently used signs were MORE, ALL-DONE, and PLAY.
- **Reciprocal Signing**: In 16% of interactions, patients responded with signs such as MORE and ALL-DONE.

Discussion

- The pilot study demonstrates that ASL signs can be successfully implemented by trained volunteers within the CINCO program.
- **Feasibility**: Use of ASL signs is a low-cost, non-invasive, easily implemented intervention for improving communication and developmental outcomes with hospitalized pediatric patients.

Future Directions:

- Investigate the impact of ASL sign use on patient engagement, emotional regulation, and developmental outcomes.
- Expand ASL sign integration into the CINCO volunteer onboarding process for all future volunteers.
- **Next Steps**: Ongoing research to evaluate developmental outcomes and caregiver feedback; expand programming.

Conclusion

- Use of ASL signsrepresents a promising ND tool for young pediatric cardiac patients, particularly for children who may struggle with speech development due to CHD treatments.
- **Early findings** indicate that use of ASL signs enhances communication, development, engagement, and emotional well-being in hospitalized patients.
- **Future Research**: Longitudinal studies to assess the impact of ASL signs on developmental outcomes in pediatric cardiac care.

Acknowledgements & Key Sources

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Hunter et al., 2023, 8th World Congress of Pediatric Cardiology & Cardiac Surgery; Anthony, 2008; Lindert, 2006; Dewer, 2018; Wernovsky, 2006; Caprarola, Kelly, Wolfe, et al., 2025 (includes Hunter)