Flexible Endoscopic Evaluation of Swallowing

Improving feeding outcomes at the Jewish General Hospital

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Table 1. Patient Characteristics

Characteristics (n = 37)	Mean +/- Standard Deviation
GA at birth (weeks)	26.5 +/- 3.1
BW at birth (grams)	1174.9 +/- 642.3
GA at time of FEES (weeks)	39.6 +/- 2.1
Weight at time of FEES (grams)	3118.3 + 457.0
GA at complete oral feeds (weeks)	41.4 +/- 2.2
GA at discharge (weeks)	42.3 +/- 2.3

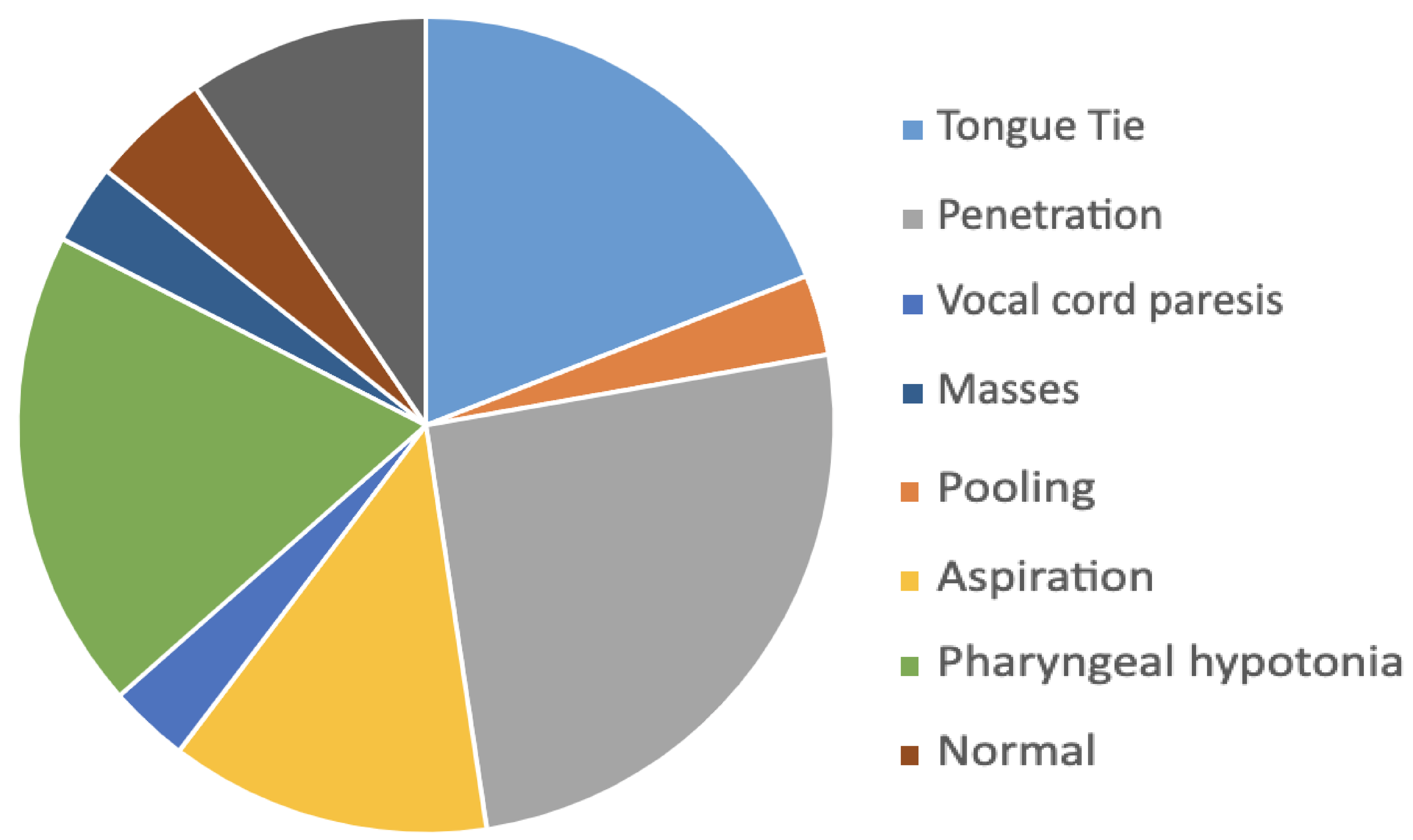


Figure 1. Findings during FEES

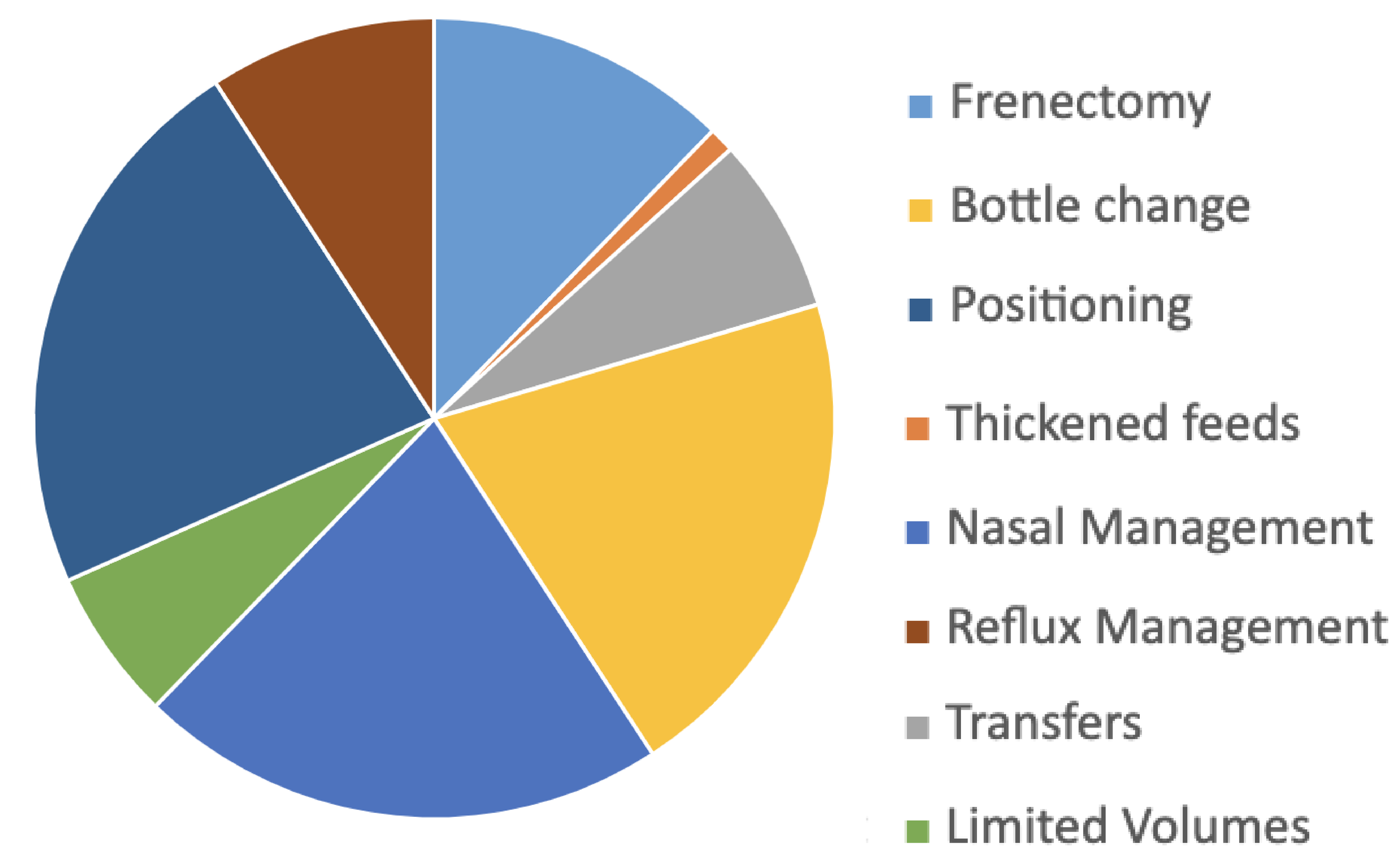


Figure 2. Interventions post FEES

Table 2. Reasons for transfer and findings at the referring hospital

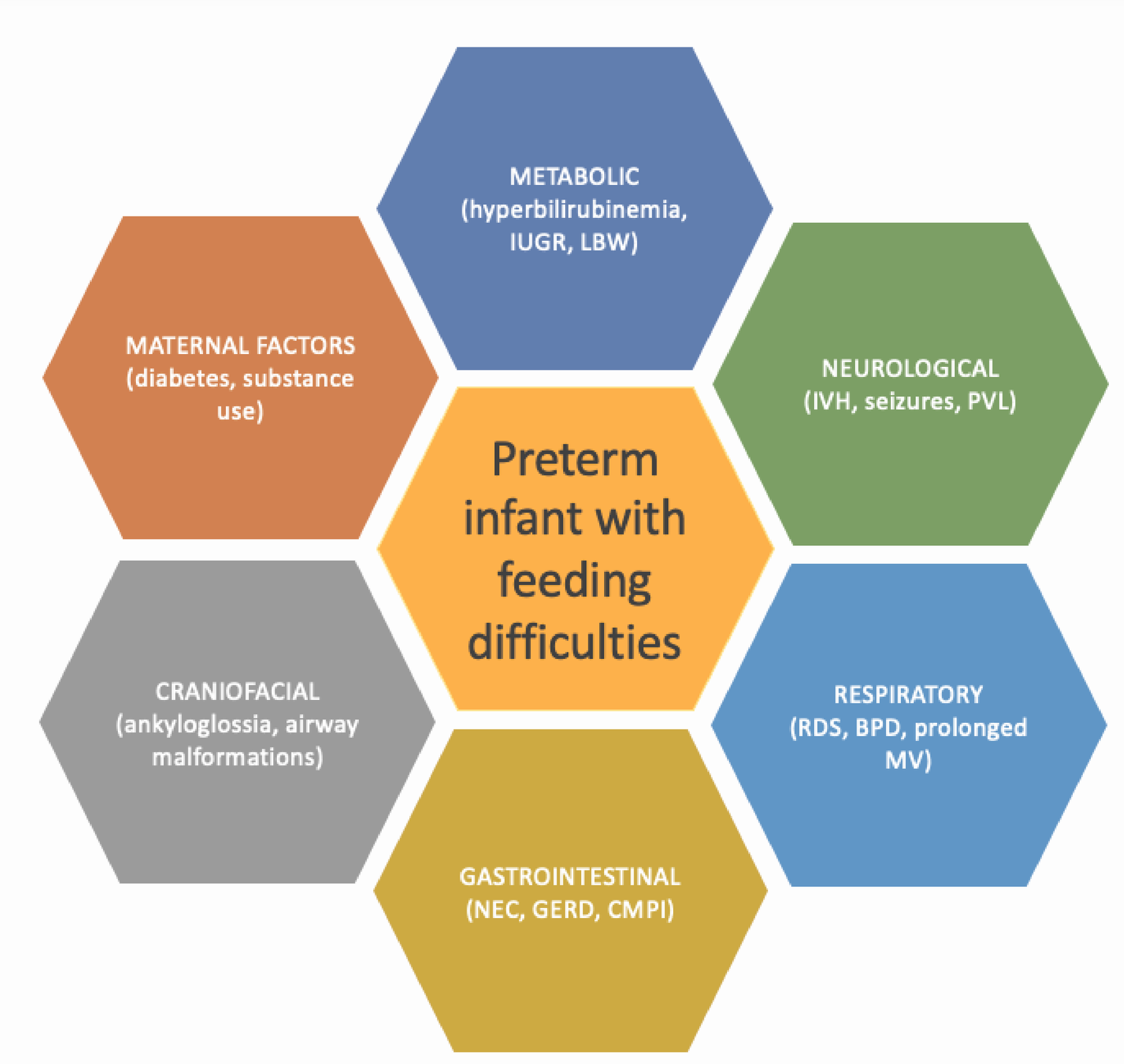
	Cause	Finding
Patient 1	Severe penetration	Triple scope with deep notch and severe GERD requiring multiple therapies
Patient 2	Subglottic cysts	Confirmed - Operation by ENT
Patient 3	Airway hemangiomas	Confirmed
Patient 4	Trisomy 21 Severe aspiration	Severe aspiration requiring thickening having two VFSS
Patient 5	Severe aspiration	VFSS showed also unsafe with penetration and silent aspiration, required neurological work up
Patient 6	Severe aspiration	VFSS showed fatigue with feeds and severe GERD requiring multiple therapies. Required neurological assessment
Patient 7	Severe aspiration	Data not available

DO

- Our unit is a level III NICU that is outside of a pediatric center, requiring transfer of patients for VFSS.
- In 2020-2022, our Occupational Therapy (OT) team noted that patients were being transferred whose interventions for dysphagia (thickening of feeds, gastroesophageal reflux management, positioning, bottle type, etc.) could be done in the unit.
- Along with adequate ongoing evaluation by OT, we decided that with the addition of FEES we could likely better identify and treat the infants with feeding difficulty and avoid unnecessary transfers.
- FEES were officially introduced in November 2022.

PLAN

- Evaluation of feeding in preterm infants is important as these patients can have dysphagia that presents as clinically silent aspirations [3, 5, 6].
- Studies have shown that FEES is safe and effective at assessing dysphagia [2].
- Historically, Videofluroscopy Swallowing Studies (VFSS) was considered the gold standard; however, it has many limitations (positioning, bottle feeding only, barium, radiation etc.).
- FEES is a radiation free, bedside evaluation at the breast or bottle that allows for adjustments to be made in real time to optimize oral feeds.
- For these reasons, FEES was thought to be more compatible with our NICU setting.
- FEES is more accurate at detecting penetration in this specific population [12] and has a 80% sensitivity and specificity for aspiration [9].



STUDY

- After OT assessment 50% of infants born <29 weeks required further investigations for feeding issues and received a FEES; of note, none of the patients who were not evaluated had Bronchopulmonary dysplasia (BPD).
- We have not yet seen a reduction in the number of transfers for dysphagia evaluation since starting FEES – averaging 7/year since 2019.
- However, all infants transferred for home O2 or feeding issues had a FEES beforehand.
- These transfers resulted in significant work up at the referring hospital and likely quicker assessment and intervention given the FEES input.
- Most of these infants would go home after 6 days of being full oral feeds, leading to the idea that feeding is one of the last steps to develop adequately .

ACT

- The team has acquired a tower to videotape the FEES for more objective assessment and for research purposes.
- The team is developing other interventions (GERD management, early oral feeding, feeding on respiratory support, etc.) to improve the oral feeding rates in our NICU.
- We will continue to collect data on our FEES and correlate our findings with that of VFSS when transferred.
- We will start to collect data on parent satisfaction and comfort with oral feeds pre and post FEES.
- Further studies on length of hospitalization and cost saving analysis will be done.
- Gather information on re-admission post discharge for failure to thrive and feeding issues to see if there is a reduction.

CONCLUSION

- We believe assessment of dysphagia should be standard of care for all extreme preterm infants, and in particular those with BPD.
- Those infants with BPD may have a compounded image with silent aspiration causing some of the respiratory symptoms.

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Special thank you to all the MDs, RNs, RTs, Dietician, Pharmacy, and allied health professionals that work in the JGH NICU