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Implementation of a Remote Software Platform for Pediatric Patients Ready to Wean from Tube Feeding: CHAMP® For the Feeder

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Background

- Enteral tube feeding (TF) is a lifesaving measure, but the prolonged use of TFs is taxing on the child’s and family’s well-being.
- The goal is to wean from TF once a child can achieve weight stabilization and improved safety in eating by mouth.
- However, the current standard of care requires a high degree of care coordination and is only reactive to patient concerns.
- Remote patient monitoring (RPM) for pediatric chronic conditions promotes proactive healthcare communication and may improve the rate of tube feeding (TF) weaning success.
- The CM feeding team utilizes best practices for tube weaning success; an interdisciplinary approach and weaning algorithm using hunger provocation.
- This research’s objective is to evaluate the expansion of the CHAMP App software on TF weaning success at CMKC.

Methods

- Single-site observational study evaluating the success rate (%) and frequency of children (n) that were able to successfully wean from TF (100% of calories by mouth) while maintaining age-appropriate growth using the CHAMP App, compared with those using only a standard outpatient feeding tube weaning algorithm (pre-implementation 6-month period) for children aged 1 month to 6 years scheduled in the Interdisciplinary Feeding Clinic.
- CM IRB approved Evaluating IDC (STUDY00002718), CHAMP For the Feeder (NCT06052891), and CHAMP App Feeding Difficulties Repository (NCT06129877) studies
- Demographic and descriptive data is recorded and stored in the CHAMP Database.
- SPSS used for statistical analysis. Mann Whitney U test used to compare distribution across categorical variables or proportions confidence intervals; Independent samples Median tests for continuous variables.

Demographics

Table 1. Demographics of pre- and post-CHAMP implementation IDC patients.

| Median (IQR), % (n) | Pre (n=17) | Post (n= 16) | p value |
|---|-------------|--------------|---------|
| Male sex assigned at birth | 52.9% (9) | 56.3% (9) | .849 |
| Parent reported race | | | .325 |
| White | 76.5% (13) | 93.8% (15) | |
| Black/African American | 5.9% (1) | 6.3% (1) | |
| Multi-Racial | 5.9% (1) | . | |
| Asian | 5.9% (1) | . | |
| Native Hawaiian/Pacific Islander | 5.9% (1) | . | |
| Parent reported Hispanic ethnicity | 5.9% (1) | 12.5% (2) | .509 |
| Insurance payor | | | .157 |
| Medicaid | 41.2% (7) | 50.0% (8) | |
| Private Insurance | 41.2% (7) | 31.3% (5) | |
| Two or More Insurances | 17.6% (3) | 18.8% (3) | |
| Primary Language English | 100% (17) | 87.5% (14) | .133 |
| Gestational age (weeks) | 38.6 (6.5) | 37.5 (3) | .364 |
| Birth weight (kg) | 2.79 (1.85) | 3.17 (1.4) | .605 |
| NICU stay | 70.6% (12) | 62.5% (10) | .622 |
| Number of pediatric specialists | 6 (6.5) | 5 (3) | .858 |
| Number of hospitalizations prior to wean | 3 (1.5) | 3 (2.75) | .567 |
| Age at initiation of weaning attempt (months) | 23.2 (11.1) | 24.0 (21.5) | .858 |
| Wean to all calories by mouth | 41.2% (7) | 100% (16) | <.001 |

Image 1. CHAMP App patient-view home screen (iPad).

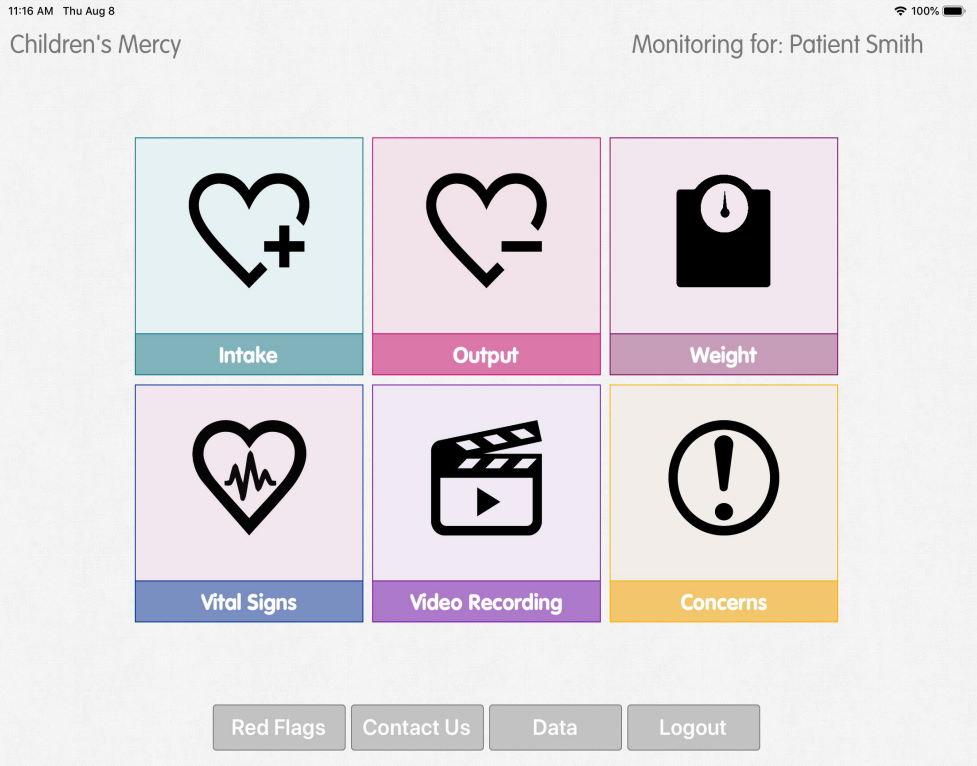
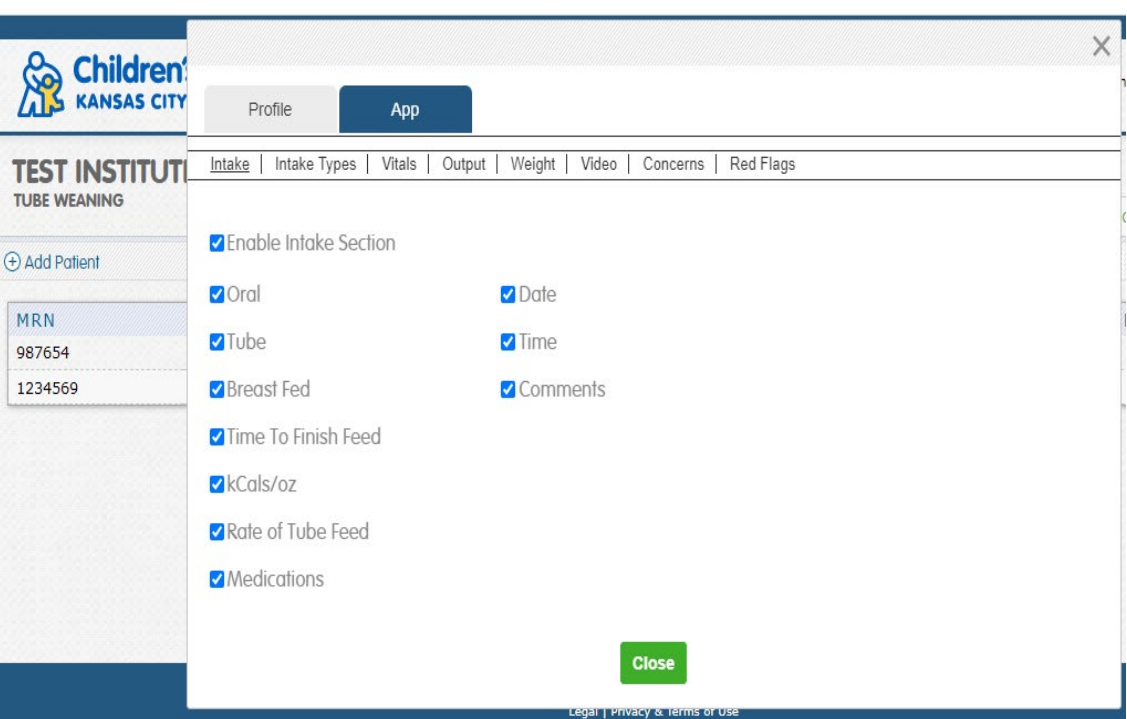
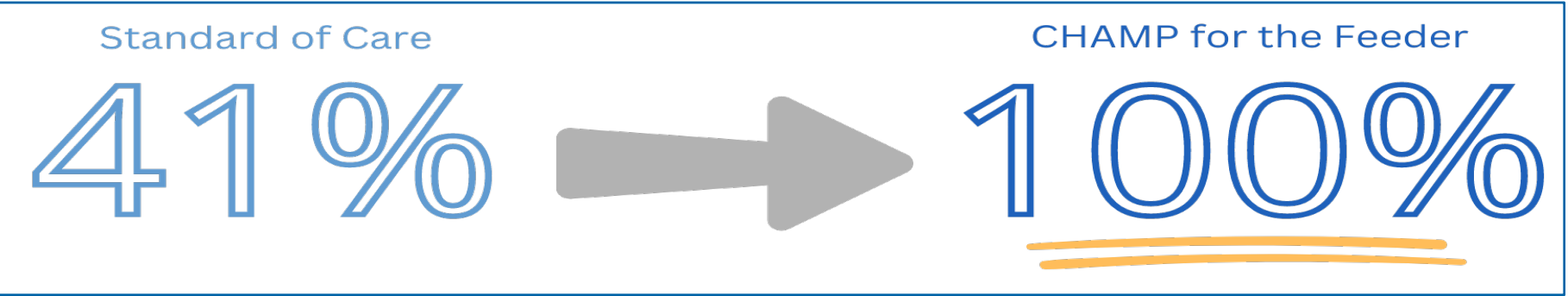


Image 2. CHAMP Intake administrator portal (web).



Results

- We have successfully weaned more children (n=16) in the first 4 months of CHAMP App implementation than the prior 6 months using standard of care TF weaning (n=7). This is facilitated by weekly interdisciplinary team meetings to review patients, which are led by the project nurses and dietician. CHAMP has dramatically improved our team’s capacity for TF weaning and our ability to proactively monitor, communicate, and intervene throughout the TF weaning process.
- The pre-group did not include any Spanish-speaking patients who were successfully weaned, but with CHAMP App we have now weaned 2 Spanish-speaking families.
- The patients in this clinic are complex, followed by an average of 5-6 pediatric specialists, and there was no difference in complexity across pre-post groups.



Conclusions

- We achieved a significant increase in the number of children able to get to all calories by mouth after implementing the CHAMP App remote tube weaning program. This has made a tremendous impact on patient outcomes.
- The proactive RPM care model has effectively provided timelier provider-parent interactions and promoted engagement with the healthcare team in a way that is not possible with the pre-existing standard of care.
- Enrollment is ongoing to evaluate the parent experience and the impact of CHAMP App on access to GI IDC team care.
- CHAMP has the potential to revolutionize outpatient TF weaning at CMKC and nationally.

References:

1. Killian et al., 2023
2. Edwards et al., 2016

