



Reducing the need for gastrostomy (G) tube placement following pediatric cardiac surgery by creating a home Naso-Gastric (NG) tube feeding program

Reema Patel, MD, Benton Ng, MD, Courtney Hogan, DNP, Kerrin Fair, MSN, RN, Rachel Jager, APRN, Danielle Chintella, BSN, RN, Micayla Johnson, DNP, RN, Sondra Boatman, MSN, RN, Arabela Stock, MD

Heart Institute/Cardiovascular Intensive Care Unit, Johns Hopkins All Children's Hospital, St. Petersburg FL

Background

- Neonates/infants with congenital heart disease have difficulties with feeding and weight gain pre-operatively secondary to congestive heart failure.
- Struggles with oral feedings after surgery are often the reason patients remain hospitalized.
- Our institution's practice has been to move forward with G-tube placement for feeding support.
- Most patients need time to develop strength and skills to reach full oral feeds and more likely will not need feeding assistance for an extended period.
- NG to home programs are present at several institutions; however, there is currently no published data regarding outcomes.

Aim of the Project

- To create an NG tube to home program with the goal of decreasing G-tube placement by 80%, and ability to wean from NG feeds within 1 month after hospital discharge in 80% of patients.
- To achieve 90% family satisfaction with NG to home program education.
- To keep ER/Clinic visits and readmissions to less than 3 visits/patient.
- To decrease hospital length of stay once patient is medically cleared.

Description of the Intervention

- A multidisciplinary work group was developed to identify inclusion/exclusion criteria and develop the education content for families to ensure successful transition to home. Education included reading materials, hands on training for families in the cardiac ICU, trouble shooting tips, and when to contact a provider. The education was carried out by nursing staff. To test the change, we utilized a Model for Improvement.

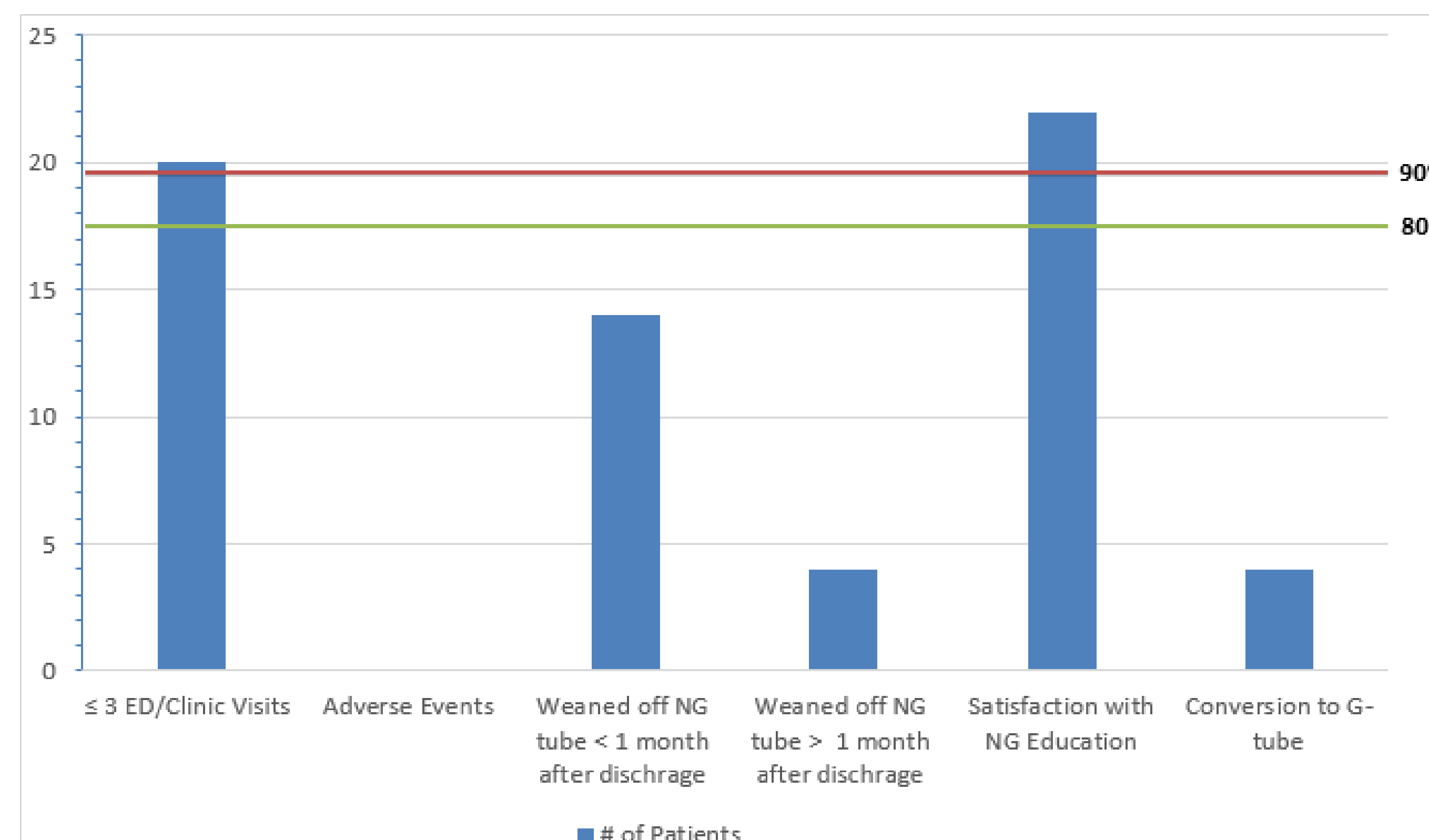
Description of Data Collection and Analysis

- Since the start of the program in March 2021, 66 patients had feeding difficulties. 22 of those met criteria for nasogastric tube to home program, and all (100%) were enrolled and discharged home successfully. The remainder were not considered eligible, 43 due to associated comorbidities, and 1 patient was discharged to medical foster family.

Outcomes Measures or Results

We chose the following measures to assess the impact of the program:

- Outcome measures: Successful enrollment and discharge home of eligible patients; Successful wean within 1mo; Family perception with the education program.
- Process measures: % Patients with > 3 ER/Clinic visits; % Patients converted to G-tube.
- Balancing measures: Adverse events including aspiration, readmissions, and death.
- Follow up phone calls were made post discharge to assess family satisfaction.



Outcome Measures:

- 22/22 (100%) enrollment and successful discharge home
- 22/22 (100%) family satisfaction with education
- 14/22 (64%) weaned off NG < 1mo; 4/22 (18%) weaned off NG >1 mo

Process Measures:

- 2/22 (9%) patients had > 3 ER/clinic visits
- 4/22 (18%) Required conversion to G-tube
- No readmissions related to NG to home program

Balancing Measures: No adverse events/death

Implications for Practice

- The program thus far has been proven to be safe and effective by avoiding an unnecessary procedure in 18/22 patients who ultimately weaned off NG feeds successfully with 14/22 being weaned within 1mo post discharge. We had no adverse events.
- Our next steps are to evaluate the impact on the hospital length of stay as well as continue to build the outpatient support that will ensure successful weaning from NG feeds.

References

- Khalil, S. T., Uhing, M. R., Duesing, L., Visotcky, A., Tarima, S., & Nghiem-Rao, T. H. (2017). Outcomes of Infants With Home Tube Feeding: Comparing Nasogastric vs Gastrostomy Tubes. *JPEN. Journal of parenteral and enteral nutrition*, 41(8), 1380–1385. <https://doi.org/10.1177/0148607116670621>
- Northington, L., Lyman, B., Moore, C., & Guenter, P. (2018). Pediatric Nasogastric Tubes in the Home: Recommendations for Practice. *Home healthcare now*, 36(3), 148–153. <https://doi.org/10.1097/NHH.0000000000000650>.
- Page B., Nawaz, R., & Haden, S. (2019). Paediatric Enteral Feeding at Home: An Analysis of Patient Safety Incidents. *Archives of Disease in Childhood*, 104, 1174-1180.