From Reactive to Best-in-Class: Scaling Pediatric TPN & Intestinal Rehabilitation in Oregon

Project Background

The Pediatric Total Parenteral Nutrition (TPN) and Intestinal Rehabilitation (IR) program at Oregon Health & Science University (OHSU) Doernbecher Children's Hospital provides complex, long-term nutrition support for medically fragile children across Oregon and the surrounding region. As advances in pediatric gastroenterology, improved survival rates, and increasing regional demand have expanded both patient volume and clinical complexity, operational workflows, staffing structures, and coordination processes have adapted incrementally to meet immediate needs. This evolution presents ongoing opportunities to further standardize workflows, clarify roles, strengthen interdisciplinary coordination, and support operational sustainability.

To address these challenges, this capstone project evaluated the current structure and operations of the Pediatric TPN and IR program to identify opportunities for improved scalability, sustainability, operational efficiency, and continuity of care. The assessment incorporated stakeholder interviews, workflow analysis, literature review, and external benchmarking with nationally recognized pediatric intestinal rehabilitation programs. Internal interviews included physicians, nursing staff, pharmacists, dietitians, care coordinators, social workers, and administrative stakeholders.

Assessment and Key Findings

Internal stakeholder interviews demonstrated a committed, multidisciplinary team with a strong patient focus. However, rapid growth has increased complexity and exposed the need for improved workflow standardization, discharge coordination, communication, and clearer roles. Current workflows remain highly dependent on individual effort and fragmented communication pathways rather than on standardized systems.

External benchmarking and literature review revealed key features of high-performing pediatric intestinal rehabilitation programs: multidisciplinary integration, structured discharge planning, standardized workflows, dedicated nursing support, clear operational ownership, and effective use of electronic health record infrastructure to support longitudinal care management. Structured multidisciplinary programs correlate with improved survival, fewer complications, and higher rates of weaning from parenteral nutrition (Diamanti et al., 2024; Dreesen et al., 2022). Standardized workflows and EHR optimization further enhance reliability, reduce variation, and support scalability (Toussaint & Berry, 2013).

The literature emphasizes that clearly defined roles, multidisciplinary communication, and standardized care transitions are essential. Ambiguity in team responsibilities can lead to duplicated work, communication breakdowns, and reduced efficiency (Brault et al., 2014;

Bittner, 2018). Transitions of care are a major risk for medically complex pediatric patients when workflows and responsibilities lack structure (Berry et al., 2014).

The findings show that operational challenges stem from increasing complexity in a rapidly growing, highly specialized pediatric healthcare environment, not from deficiencies in clinical care. This leads to continued reliance on individualized coordination, informal communication, and evolving workflows rather than standardized operational infrastructure.

Recommendations and Future State

Building on these findings, this project proposes a future-state operating model to improve coordination, scalability, and long-term sustainability. Key recommendations include strengthening interdisciplinary alignment through a phased partnership model, clarifying physician and team responsibilities, redesigning interdisciplinary conference workflows, enhancing inpatient-to-outpatient discharge coordination, optimizing Epic-based workflows and reporting tools, evaluating integrated advanced practice provider staffing models, and developing standardized clinical pathways aligned with national best practices.

These recommendations support gradual operational advancement while recognizing current organizational resources and clinical structures. The future model emphasizes scalable systems, differentiated expertise, and coordinated communication over large-scale structural changes.

Furthermore, the project emphasizes the importance of transitioning from a person-dependent to a system-dependent model, supported by standardized workflows, clearly defined roles, structured communication pathways, and integrated operational infrastructure. External benchmarking consistently demonstrated that mature intestinal rehabilitation programs achieve sustainability not solely through additional staffing but through intentional operational design, multidisciplinary integration, and coordinated longitudinal care models.

Conclusion

In conclusion, this project highlights the growing importance of intentional operational design within complex pediatric specialty programs. As healthcare systems face increasing patient acuity, workforce limitations, and multidisciplinary care demands, sustainable program growth will rely on aligning clinical excellence with coordinated systems, standardized workflows, and integrated care infrastructure. With these recommendations, the OHSU Pediatric TPN and IR program is positioned to strengthen continuity of care, improve operational sustainability, and support long-term access to specialized nutrition services for children and families throughout Oregon and the surrounding region.

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