

Transforming Pediatric Care with Telehealth Technology

Kirby Farrell, Lindsey Koshansky, RN, MSN

Remote patient monitoring has transformed healthcare, with evolving technology allowing physicians and patients to connect in ways never before possible. But as telehealth has evolved, most platforms have focused on serving aging populations. Pediatrics is a population that has been overlooked by telehealth developers and where an opportunity exists to fundamentally change the way young patients are treated. This is why the Locus Health platform was created.

Locus Health bridges the gap between hospital and home with an RPM platform that connects parents with their child's care team after they have been discharged following NICU stays. Locus' HIPAA-compliant modular construction allows for configuration of both the app and dashboards, providing effective remote monitoring for any population -- from chronic to complex. Locus provides a fully managed, SaaS solution that utilizes an iOS-based application to improve the home monitoring of medically complex pediatric patient populations. The platform was designed specifically to create operational efficiencies by seamlessly integrating with the providers' EMR. Most importantly, it allows doctors to spend more time caring for their patients.

Locus has been proven to [reduce the length of hospital stays](#) (1), lower readmission rates, reduce in-person clinic visits, and lower the overall cost of care. These results have led to implementation of the Locus platform at more than 25 leading Children's Hospitals in the U.S. and Canada. This rapid growth has been possible because the platform was developed by experienced healthcare professionals, notably a team of former NICU nurses, who understand the complexities of daily healthcare and the pressing need to integrate telehealth into care regimens. Building a platform that integrates into existing workflows for doctors, nurses, CIO's and hospital administrators was vital.

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Locus Health was [developed in conjunction](#) (2) with doctors and nurses at the University of Virginia Health System (UVA) in Charlottesville, VA. where Locus is also headquartered. In early 2018, Dr. Brooke Vergales, a Neonatologist at UVA, met with the clinical innovation team at Locus Health. Her goal was to tailor the Locus platform for premature infants admitted to the UVA Children's Hospital's NICU unit who could be discharged home sooner than the average NICU stay of about 24 days. Locus had been supporting a wide range of pediatric patient populations at UVA with its remote care management solution, and had already achieved strong improvement in clinical outcomes, including improved mortality and oral feeding rates among pediatric patients discharged home with congenital heart disease (CHD).

Dr. Vergales had several key objectives: to improve the quality and timeliness of transition home while ensuring that these pre-

mature infants thrived more quickly; to keep the care team connected in the same way they would if the infant had remained in the hospital; and to help the NICU improve its ability to admit more complex cases and maintain its high census. Dr. Vergales and the Locus team immediately focused on key metrics for evaluating the success of the program, developing targets for:

- Enrollment, targeting 10-12% of NICU admissions in the first year of the program, typically infants viewed as “feeders and growers” that did not require more complex NICU care in the hospital.
- Length of Stay (LOS), targeting more than a 5-day decrease in average length of stay.
- Transition to Oral Feeding, using nasogastric (NG) tube placement in the home (3), aiming to transition to full oral feeding more quickly than in the hospital-setting, while maintaining targeted weight gain metrics.
- Quality and clinical satisfaction with a new “Virtual Rounding” approach, as measured by daily family adherence to program tasks and the quality of data/trends collected.

Parents of the infants enrolled in the program were provided a personalized iPad with the Locus platform and mobile app installed. They were shown how to enter key metrics (e.g. daily weights, daily feeding intake, output, SpO2). In addition, the UVA team provided educational content directly through the Locus iPad app that otherwise would have been sent home in an infrequently used binder of printed papers. Parents were able to utilize secure photo and video capabilities through the Locus app to support critical interaction with the care teams, including support for lactation consults.

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Neonatology teams at UVA used the Locus platform to both round virtually on a daily basis and review alert notifications through the mobile app for clinicians, helping them manage by exception, and identify trends outside of acceptable parameters well in advance of an emergent event.

Since UVA and Locus launched the program in late spring of 2018, UVA has enrolled more than 50 infants in the program and seen a significant reduction in LOS. The reduction in LOS associated with this approach to home discharge of premature infants from the NICU is dramatic. Industry estimates indicate an average cost to payers of more than \$3,000 per day in the NICU, indicating an average payer savings of nearly \$25,000 per infant discharged to the Locus platform. At UVA's initial target enrollment rate of 10-12% of NICU discharges, this equates to about \$1.5 to 2M in payer savings annually.

However, the economic benefits of this approach do not only accrue to payers. At UVA, and many other Level III/IV NICUs

where capacity constraints exist throughout the year, the benefits to the UVA Children's Hospital associated with discharging these "feeders and growers" more quickly include an increase in average reimbursement per day in the range of \$1,500 to \$2,000, the result of making a NICU bed available to an infant with more complex care needs. Analysis of UVA reimbursement indicated an incremental revenue opportunity of up to \$1M annually as a result of this shift toward more complex admissions in the NICU. And while the program has been discharging more families sooner, the UVA NICU has maintained its census consistently above 90%.

Most importantly, the quality of care in this approach to NICU discharge management has only improved at UVA Children's Hospital: infants that would otherwise be monitored for the same potential issues in the hospital clearly are thriving more at home from a feeding and oral skills perspective, they bond with their parents more quickly in a nurturing home environment, and the care teams at UVA have been able to manage and monitor at the same quality standard while making more of the NICU available to infants that truly need in-hospital care.

The [feedback from both the care teams](#) (4) and the parents of these infants has been overwhelmingly positive. Flossie Horace, the guardian and grandmother of Elliyon Horace, told [CBS News in a report](#) (5) that aired nationally in May 2019, that the Locus Health platform has made her grandson's home recovery more manageable and reduced the number of times she has had to make the 4-hour round trip journey from her home in Roanoke to UVA in Charlottesville.

"I love the iPad. It helps out a lot. It gave me more assurance that I know what I'm doing," said Horace.

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Figure 1: A family using the dashboard.

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Disclosures: Kirby Farrell is CEO, Locus Health and Lindsey Koshansky, RN, MSN is VP Clinical Innovations, Locus Health

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Corresponding Author:



Kirby Farrell
Chief Executive Officer
Locus Health
Locus Health
501 Locust Ave. Suite 100
Charlottesville, VA 22902
Tel: 888-517-9339
www.locushealth.com
kirby.farrell@locushealth.com

Corresponding Author:



Lindsey Koshansky, RN, MSN
Vice President Clinical Innovations,
Locus Health
Locus Health
501 Locust Ave. Suite 100
Charlottesville, VA 22902
Tel: 888-517-9339
www.locushealth.com
lindsey.koshansky@locushealth.com