

## **Parent Feedback Leading to a Quality Improvement Initiative: A Digital Home Monitoring Program Application**

**Background:** For shunt dependent patients the use of home monitoring programs to reduce mortality is well documented. Our heart center has utilized a home monitoring program (HMP) since 2000 to detect subtle physiologic changes that may indicate declining clinical status. Effectiveness of this strategy relies on seamless sharing of data between parents and the HMP team. Currently parents obtain and track daily weights, oxygen saturations, and enteral intake, and manually calculate weight changes and record these data in a paper binder. Any identified concerns are communicated by parents to the HMP team via telephone. We sought to improve the experience of families participating in our HMP.

**Methods:** As a quality improvement initiative, a standardized questionnaire was developed with the goal of assessing strengths and possible areas of improvement within our HMP. The questionnaire was distributed to parents upon completion of their participation in the HMP. Responses were analyzed to identify potential areas for program enhancement through plan-do-study-act (PDSA) cycles.

**Results:** Responses from parents of 13 consecutive infants home-monitored between September 2015 and February 2016 were analyzed. Twelve out of thirteen families (92%) strongly agreed or agreed that the HMP was useful. However, a recurring theme in parent comments was to replace the current paper version with an electronic means of recording data and sharing it with the HMP team. In response to this parent feedback we implemented a project to develop innovative technology and create a more efficient and effective home monitoring system. Collaboration with a healthcare software technology company resulted in the development of a clickable prototype of the digitalized home monitoring application (app). Programmatic needs were dissected and thoughtfully applied to app customization. Following review of the prototype by HMP team members, feedback was solicited from previously home monitored families. The application was then further revised and a trial version of the app was shared with these same families for a pilot period. The response was overwhelmingly favorable.

**Conclusions:** A series of PDSA cycles greatly modernized our home monitoring program with the resulting mobile app. As of July, 2016, the mobile app has moved from the prototype development phase and pilot testing into production. The goal moving forward remains more efficient data recording for families, enhanced safety features to ensure the highest quality care, and the ability for real-time communication of data between families and members of the HMP team. Utilization of this HMP app by a family using home monitoring is planned for late 2016.