

# NOVEL News aspEN

## New Opportunities for Verification of Enteral Tube Location Project

### Letter from the Chair

Greetings all and welcome to the 4th edition of our newsletter. It is my hope that we can keep you engaged in the NOVEL project by updating you on our accomplishments and current projects. This is our 4th year for the NOVEL project and most of the original members are still with us along with a few additions.

Here is a list of the current NOVEL project members in alphabetical order:

**Lori Duesing, PNP**, Medical College of Wisconsin (representing NASPGHAN)

**Karie Falder-Saeed, MSN, RN, PCNS-BC, VA-BC**, Children's Health<sup>SM</sup> Children's Medical Center Dallas (representing NASPGHAN)

**Peggi Guenter, PhD, RN, FAAN**, ASPEN staff liaison and advisor

**Sharon Irving, PhD, RN, FAAN**, Children's Hospital of Philadelphia and the University of Pennsylvania School of Nursing (representing AACN)

**Carol Kemper, PhD, RN**, Children's Mercy Kansas City (representing Patient Safety Officers)

**Beth Lyman, MSN, RN, CNSC**, Children's Mercy Kansas City (representing ASPEN)

**Candice Moore, BSN, RN**, Cincinnati Children's Hospital (representing home care)

**LaDonna Northington, RN, DNS**, University of Mississippi School of Nursing (representing the Society of Pediatric Nursing)

**Gina Rempel, MD, FRCPC, FAAP**, Children's Hospital Winnipeg (representing ASPEN and international members)

**Wednesday Sevilla, MD, MPH, CNSC**, Children's Hospital of Pittsburgh of UPMC (representing ASPEN)

**Kerry Wilder, RN, MBA**, Texas Scottish Rite Hospital (representing NANN)

**Deahna Visscher**, Parent Representative and Safety Advocate, Denver, CO

Our 2017 Action Plan is now being developed as there continues to be more that needs to be done. I hear from nurses all over the country about issues they face regarding implementing pH testing including:

1. A lack of belief that it works
2. Issues about point-of-care testing
3. Apathy due to: "We don't know of any misplaced tubes at our hospital, so why change?"

I am sure the NOVEL project members will take on point-of-care testing in the next year, but YOU can help with reasons 1 and 3 above. If we replicate our 2015 study about NG tube placement verification in 2020, will you help us get 100% compliance with the use of an evidence informed method of bedside placement of NG tubes? This is a nursing practice issue that needs to be addressed at all levels of practice.

Beth Lyman, RN, MSN, CNSC  
NOVEL Project Chair and Sr. Program Coordinator for the Nutrition Support Team, Children's Mercy Hospital, Kansas City, MO, [blyman@cmh.edu](mailto:blyman@cmh.edu)

### THE NEED FOR NOVEL

*My name is Deahna Visscher and I am the mother of Grant Lars Visscher. He passed away at 11 days old due to a misplaced NG feeding tube. I became a part of the NOVEL project in hopes of finding a national standard for feeding tube placement so that no other parent has to endure the fate that we did. Grant died in 2008 and there still isn't a universal golden method for feeding tube placement. Our research has shown that many facilities across the U.S. use a variety of different methods, and many of them aren't even using the current approved standard for accurate placement verification. Our work is going to put a change to that. It is my hope that the NOVEL project will find THE universal golden method and that ALL facilities and people will utilize it so that no more children are harmed or die from misplacement.*

– Deahna Visscher, NOVEL Parent Representative and Safety Advocate

## HOME CARE SURVEY COMPLETED

There is very little literature on how parents manage nasogastric (NG) tubes in the home. A survey study was conducted of parents and medical equipment/home care companies. The results of this study mirrored what was found in the original hospital study. Parents are taught how to insert, trouble-shoot, and replace the NGT by nurses in the hospital prior to discharge. Most families use the NEMU (nose, earlobe, midway umbilicus) as the method of insertion. Results indicated that parents routinely replaced these tubes anytime from once weekly to monthly. The procedure for replacing the tube and checking for correct placement varied greatly. Methods used included pH paper measurement, listening with a stethoscope, withdrawing stomach contents, or some combination. There was no consistency. The results also indicated that complications experienced by children when tubes are misplaced include coughing, choking, gagging, and turning blue. Sometimes these complications warranted follow-up with health care providers. Because of this finding, the NOVEL group continues to explore the best practices that can be taught to families to minimize complications at home.

– LaDonna Northington, RN, DNS

## NICU STUDY GROUP FORMED

A national NICU research team has been identified to minimize the risk of complications due to misplaced oral and nasal gastric feeding tubes. They have worked closely together for the past 24 months to develop a research proposal. The team represents NICUs from San Diego, Dallas, Colorado Springs, Kansas City, Duke University and the University of Florida—all Level III to IV nurseries.

The research team chose to implement a cluster randomized controlled trial to determine the most accurate method of calculating gastric feeding tube insertion length, and to determine the ability of pH to predict gastric placement in VLBW premature infants. Data will be collected for 8 weeks, or until the infant no longer requires a feeding tube. A cluster randomized design will maximize intervention fidelity by limiting each site to one insertion method and still increase generalizability through a multi-site design. We hope to obtain grant approval from NIH in 2017, and we anticipate that the strong support from ASPEN will facilitate the successful completion of this study.

– Kerry Wilder, RN, MBA

## STUDY PROJECTS

A small, interdisciplinary team is completing a research project to evaluate the use of pH measurement of the aspirate from an enteral tube as a method to verify tube placement in infants and neonates. The use of enteral feeding tubes in this population is commonplace within the inpatient setting, and the consequences of misplacement are significant. Use of pH is a recommended bedside method for evaluating enteral tube placement, however, questions remain regarding the utility of the use of pH measurement with infants and neonates. Concerns about use of pH often focus on various factors that are thought to influence the pH of gastric aspirate in infants, including the presence of formula in the aspirate, the maturity of the neonatal, and ability to produce gastric acid and the impact of gastric acid-reducing medications. Generally, a pH of  $< \text{ or } = 5$  is the cut-off used to verify that the tube is correctly placed, while a pH above 5 indicates that the tube may be misplaced.

Greater than 6,500 readings within over 1,000 patients are being analyzed to determine the distribution of readings above 5 and those that were  $< \text{ or } = 5$ . In addition, the relationships between pH measurement and various factors such as gestational age, time since last feeding, and administration of acid reducing medications is being analyzed to evaluate patterns.

– Carol Kemper, PhD, RN

## EDUCATION PROJECT

In keeping with the goal of the NOVEL project—to promote consistency of practice in using existing bedside methods for verification of nasogastric (NG) tube location after placement and before each NG tube use—and in response to questions surrounding how we teach these safe practices, in both the hospital and the home environment, the NOVEL project established a subgroup to look at educational materials that support this important patient safety initiative. Teaching materials from one Australian and one Canadian site that used pH measurement as one of the methods to verify tube location served as the framework for the teaching template that was developed. An article was written that contained the Safe Practices for NG Placement Verification template. This teaching package/template can be adapted in a variety of care settings in different countries to make it relevant and promote patient safety.

The work of the NOVEL Project Team and the development of these teaching materials have been of interest to many international colleagues who may work in rural and remote settings, and require information regarding safe feeding practices. At the previous two Clinical Nutrition Week Conferences, the NOVEL project team hosted international colleagues to explain the work of the project and begin forming collaborations that will hopefully lead to improved standards for hospital and home NG tube verification procedures in a widening circle of care settings around the world.

– Gina Rempel, MD, FRCPC, FAAP

## NOVEL SUCCESS STORY

A few years ago, our pediatric organization noticed a rise in safety events related to NG tube misplacements. That spurred a workgroup of CNSs, quality, and education to evaluate current practice. The workgroup thought it would be a quick fix with reeducation on our organization's current practice. Current EBP recommendations and best practice alerts from the NOVEL workgroup and other expert organizations quickly redirected the workgroup's plans. Major changes had to be made.

Our organization effectively removed auscultation as a verification method and placed emphasis on pH as the recommended method for bedside verification. The policy, order sets, staff education, patient education, and unit supplies were all standardized to streamline the change. With the change to best practice recommendations, our organization has effectively reduced events related to NG tube misplacements and improved patient safety. If we can do it, so can you! – Karie Falder-Saeed, MSN, RN, PCNS-BC, VA-BC

## ASPEN SUPPORT

The issue of safety and quality is one of the high priorities for ASPEN, and the ASPEN Board of Directors is very supportive of the work done by the NOVEL Project. NOVEL's mission to decrease adverse events by developing and disseminating best practices fits in quite well with the goals of ASPEN. The ASPEN Rhoads Research Foundation also looks to fund exceptional scientific research projects submitted by early-career investigators of clinical nutrition and metabolic support in alignment with the priorities outlined in the [ASPEN Research Agenda](#), in which safety is an important research priority.

## NOVEL IN LITERATURE

*The Journal of Parenteral and Enteral Nutrition* [Use of Temporary Enteral Access Devices in Hospitalized Neonatal and Pediatric Patients in the United States](#). Beth Lyman, MSN, RN, CNSC; Carol Kemper, PhD, RN, CPHQ; LaDonna Northington, DNS, RN; Jane Anne Yaworski, MSN, RN; Kerry Wilder, BSN, RN, MBA; Candice Moore, BSN, RN, CPN; Lori A. Duesing, MSN, RN, CPNP-AC; Sharon Irving, PhD, RN May 2016, vol 40 (4)