

Fact Sheet

New Opportunities for Verification of Enteral tube Location (NOVEL)

Project Overview

There currently isn't a universal approach to verification of enteral tube location in pediatric patients. Misplacement of these feeding tubes into the lung with inadvertent administration of enteral formula into it has resulted in death and/or serious consequences for the patient. While some hospitals perform an X-ray to confirm the nasoenteric (NG) tube location, there is a strong effort in pediatrics to avoid radiation exposure. In addition, pediatric patients can remove their NG tubes several times per day which would involve repeated X-rays and loss of feeding.

In 2012, the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.), a world leader in safe nutrition support, created a NOVEL project task force to:

1. Work with biomedical engineers and industry to develop non-radiologic method(s) to verify NG tube placement and to allow for re-verification of placement
2. Collaborate with specialty nursing organizations to determine best practices for determining NG tube location working with existing technology and accepted procedures such as pH measurements
3. Foster the discovery of new knowledge and science and its application to the field of nutrition support (NS) therapy
4. Disseminate knowledge that improves clinical practice pertaining to NG tube placement verification
5. Advocate on behalf of the field of NS to improve patient outcomes and clinical practice
6. Promote consistency of practice among individual nurses and pediatric acute care centers

To date, the Task Force has:

- Conducted a multi-center one-day prevalence study where participating hospitals counted the number of nasogastric, orogastric, and post-pyloric tubes present in their pediatric and neonatal in-patient population. 63 hospitals participated. The conclusion is that the use of nasogastric feeding tubes is common in pediatric care with most of those patients being in a neonatal intensive care unit. There is wide variation, however, in how the placement of the tubes is verified.
- Published a review article on the current status of feeding tube placement verification techniques used in pediatrics.
- Created a desired features document addressing specific needs of each of the target populations

- Worked with several inventors to help them with the transition from concept to prototype to bedside use.
- Brought awareness of the project to the US Food and Drug Administration (FDA).
- Engaged universities including the University of Cincinnati's biomedical engineering college for this project.
- Launched a new study to address the homecare population.
- Formed a research workgroup to develop a pilot project involving NICU patients.
- Presented at 8 regional, national or international professional nursing meetings to disseminate information about NG tube placement.

Project Participants

Professional Organizations Represented on the NOVEL Project Leadership

- American Association of Critical Care Nurses (AACN)
- American Association for Medical Instrumentation (AAMI)
- American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.)
- Children's Healthcare Associates Patient Safety Officers
- National Association of Neonatal Nurses (NANN)
- Society for Pediatric Nurses (SPN)

Healthcare Organizations and Others Represented on the NOVEL Project Leadership

- Children's Hospital of Philadelphia
- Children's Hospital of Pittsburgh
- Children's Hospital of Wisconsin
- Children's Medical Center of Dallas
- Children's Mercy Kansas City
- Cincinnati Children's Hospital
- Oregon State Health Sciences
- University of Cincinnati
- University of Mississippi School of Nursing
- A parent whose child died after receiving enteral formula in the lung from an incorrectly placed NG tube

Getting Involved

1. **Serve** as local consultants to biomedical engineering schools who have expressed an interest in working on the NOVEL Project.
2. **Analyze** your own institution and how nasogastric tube location is determined.
3. **Volunteer** to help as needed in work groups. Contact **Beth Lyman** at blyman@cmh.edu

Publications and Resources

- A Call to Action: The Development of Enteral Access Safety Teams, *Nutrition in Clinical Practice*, June 2014
- Nasogastric Tube Placement and Verification in Children: Review of the Current Literature Copublished in *Nutrition in Clinical Practice* and *Critical Care Nurse* June 2014
- Use of Temporary Enteral Access Devices in Hospitalized Neonatal and Pediatric Patients in the United States *JPEN Journal of Parenteral and Enteral Nutrition* online
- **www.nutritioncare.org/NOVEL**