Project Echo for Pediatric Care 2018-2020
Care of Infants and Children with Bridled Nasogastric Feeding Tubes in the Outpatient Setting
December 19, 2019
Laura Brunner, BSN, RN and Elizabeth McBride, MD
Provided by the University of Wisconsin–Madison Interprofessional Continuing Education Partnership (ICEP)

Intended Audience:
Pediatric emergency care professionals

Objectives:
As a result of this educational regularly scheduled series, learners will be able to:

1. Utilize new skills and guidelines determined to be safe for children when accessing pediatric trauma.
2. Identify proper tools and standardized practices in order to improve the diagnosis and treatment of pediatric patients.
3. Define roles and responsibilities of team members who triage pediatric emergencies in order to identify communication strategies that result in effective patient care.

Policy on Disclosure
It is the policy of the University of Wisconsin-Madison ICEP that the faculty, authors, planners, and other persons who may influence content of this CE activity disclose all relevant financial relationships with commercial interests* in order to allow CE staff to identify and resolve any potential conflicts of interest. Faculty must also disclose any planned discussions of unlabeled/unapproved uses of drugs or devices during their presentation(s). For this educational activity, all conflicts of interest have been resolved and detailed disclosures are listed below.

- *The University of Wisconsin-Madison ICEP defines a **commercial interest** as any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients The University of Wisconsin-Madison ICEP does not consider providers of clinical service directly to patients to be commercial interests.*

Name/Role	Financial Relationship Disclosures	Discussion of Unlabeled/Unapproved uses of drugs/devices in presentation?
Jonathan Kohler, MD Presenter, Chair	No relevant financial relationships to disclose	No
Veronica Watson Coordinator	No relevant financial relationships to disclose	No
Randi Cartmill, Coordinator	No relevant financial relationships to disclose	No
Benjamin Eithun, MSN, RN, Coordinator	No relevant financial relationships to disclose	No
Kim Sprecker, OCPD Staff	No relevant financial relationships to disclose	No
Laura Brunner, BSN, RN, Presenter	No relevant financial relationships to disclose	No
Elizabeth McBride, MD, Presenter	No relevant financial relationships to disclose	No

Accreditation Statement
In support of improving patient care, the University of Wisconsin–Madison ICEP is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

Credit Designation Statements
American Medical Association (AMA)
The University of Wisconsin-Madison ICEP designates this live activity for maximum of 1.0 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.
American Nurses Credentialing Center (ANCC)
The University of Wisconsin-Madison ICEP designates this live activity for a maximum of 1.0 ANCC contact hours. The University of Wisconsin-Madison School of Nursing is Iowa Board of Nursing provider 350.
Continuing Education Units (CEUs)
The University of Wisconsin–Madison ICEP, as a member of the University Professional & Continuing Education Association (UPCEA), authorizes this program for 0.1 CEUs or 1 hours.

Disclaimer: All photos and/or videos included in the following presentation are permitted by subjects or are not subject to privacy laws due to lack of patient information or identifying factors

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Claiming credit

Follow the instructions below, and contact us at projectecho@surgery.wisc.edu with any questions.

1. Create account with the UW Interprofessional Continuing Education Partnership

https://ce.icep.wisc.edu

2. During the live presentation, and in the follow-up email, you will be provided a code. Text that code to a number we provide you, using a cell phone associated with your account.

Text **SACBOV**
to 608-260-7097
(save this number as **ECHO Credit**, it will never change)

3. All done!! Log onto ICEP to view or print your credit letter.

Care of Infants and Children with Bridled Nasogastric Feeding Tubes in the Outpatient Setting

Laura Brunner, BSN, RN
Nurse Specialist, Pediatric Specialty Clinics, University of Wisconsin-Madison
Elizabeth B. McBride, MD
Fellow, Department of Pediatrics, University of Wisconsin-Madison
December 19, 2019

UW Health
American Family Children's Hospital

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Objectives

- Identify patient population(s) requiring Assisted Home Feeding (AHF)
- Describe nasal bridle securement for nasogastric feeding tubes
- Identify the risks & benefits of nasal bridling
- Describe contraindications to nasal bridling
- Recognize & prevent potential device related issues
- Describe method(s) of device removal
- Identify key points for patients and families

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN-MADISON

Patient Population

- Assisted Home Feeding (AHF)
- 1 in 3 infants with medical complexity are discharged with assisted home feedings (AHF) (White, 2018)
  - 33% of AHF patients visit the ED within 6 months of discharge
  - 48% of AHF patients are re-admitted within first 6 months after discharge

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Patient Population

- Reasons infants and children require assisted home feedings (AHF)
- High medical resource utilization for this unique population
  - Complex congenital heart disease
  - Maxillofacial abnormalities
  - Chronic lung disease
  - Significant intra-ventricular hemorrhage

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Devices used for Assisted Home Feeding (AHF)

Nasogastric Tube (NGT)

- Placed bedside

Gastrostomy Tube (GT)

- Requires surgery

Photo credit: saintlukeskc.org

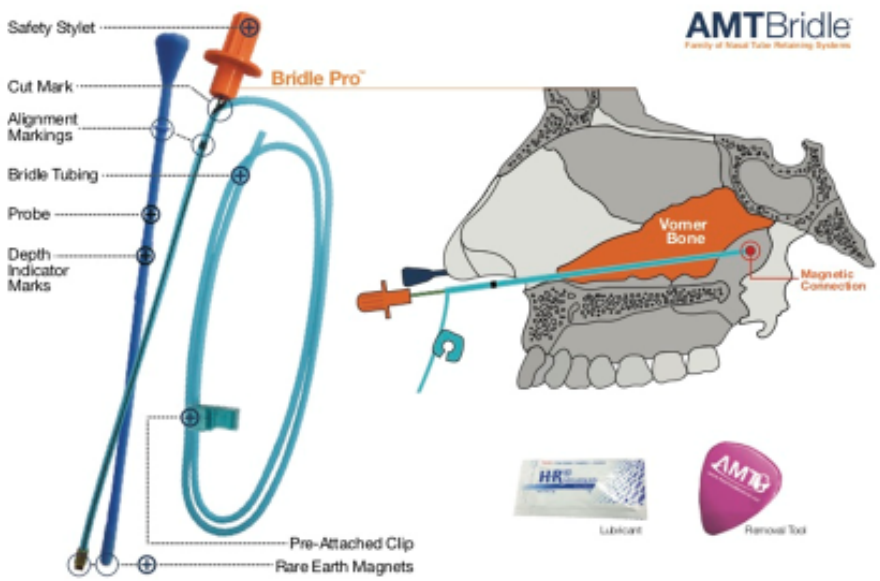
UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasogastric Tube (NGT) Securement

What is a Nasal Bridle?

- Retaining device to secure nasogastric tubes (NGT)
  - Tape has been the traditional method
- 1980s debuted in medical literature (McGuirt & Strout)
  - Described in the pediatric patients in 2016 (Newton)
- FDA approved for all ages for 30 days of continuous use



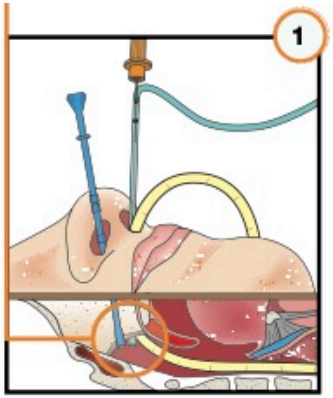
UW Health

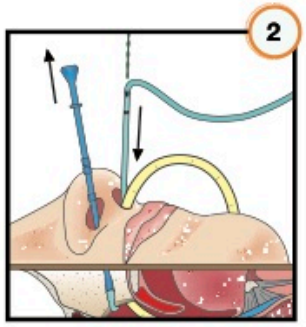
School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasal Bridle Basics

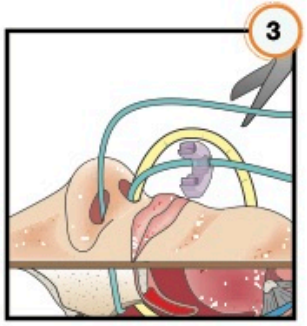
Additional loop of flexible material behind the vomer bone of the nasal septum:

- Inserted in 1 nostril & exits the other
- Uses magnets (removed at end of procedure)
- External clip sits near philtrum & contains NGT + bridle loop

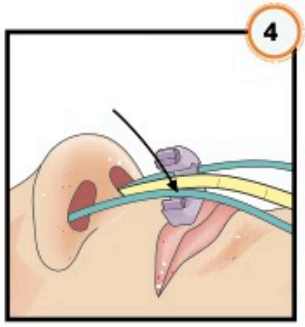




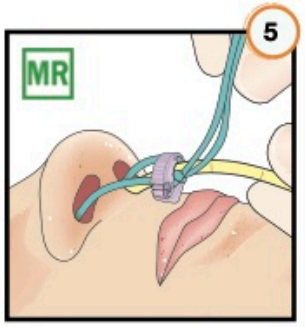
Slowly remove probe, drawing the bridle catheter around the vomer bone and out the patient's right nare.



Cut the excess bridle catheter off, leaving enough length to tie a knot, and then discard.



Place nasal tube in groove of clip. Place bridle catheter in hinge of the clip.



Secure clip 1cm below nose. Below the clip, tie both strands of the bridle catheter in a simple knot and cut excess tubing.

UW Health

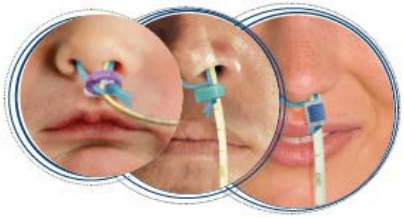
School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasal Bridle Benefits

Significantly reduces risk of NGT dislodgement

- 0.26 pull-outs / 100 tube days with bridle vs 5.12 pull-outs / 100 tube days with tape (Newton, 2016)

- Less ED & clinic visits
- Less x rays
- Less nutrition disruption
- Less delayed medication

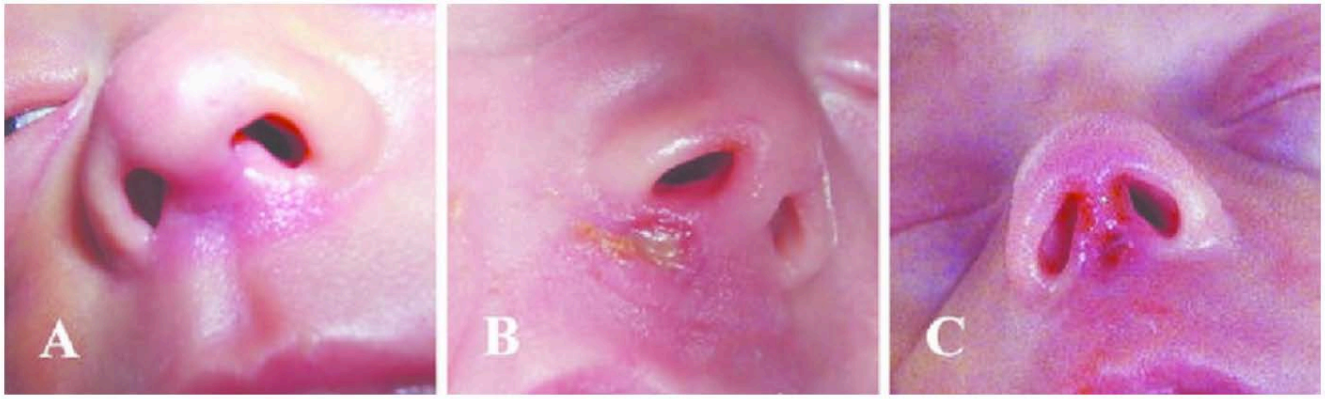


UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasal Bridle Risks

- Epistaxis during placement
- Nasal Congestion
- Discomfort
- Nasal septal irritation or erosion



Classifi cation of nasal trauma. (A) stage I (non-blanching erythema), (B) stage II (superfi cial erosion), (C) stage III (necrosis of full thickness of skin).

(*from CPAP. Fischer Fumeaux, 2010)

UW Health

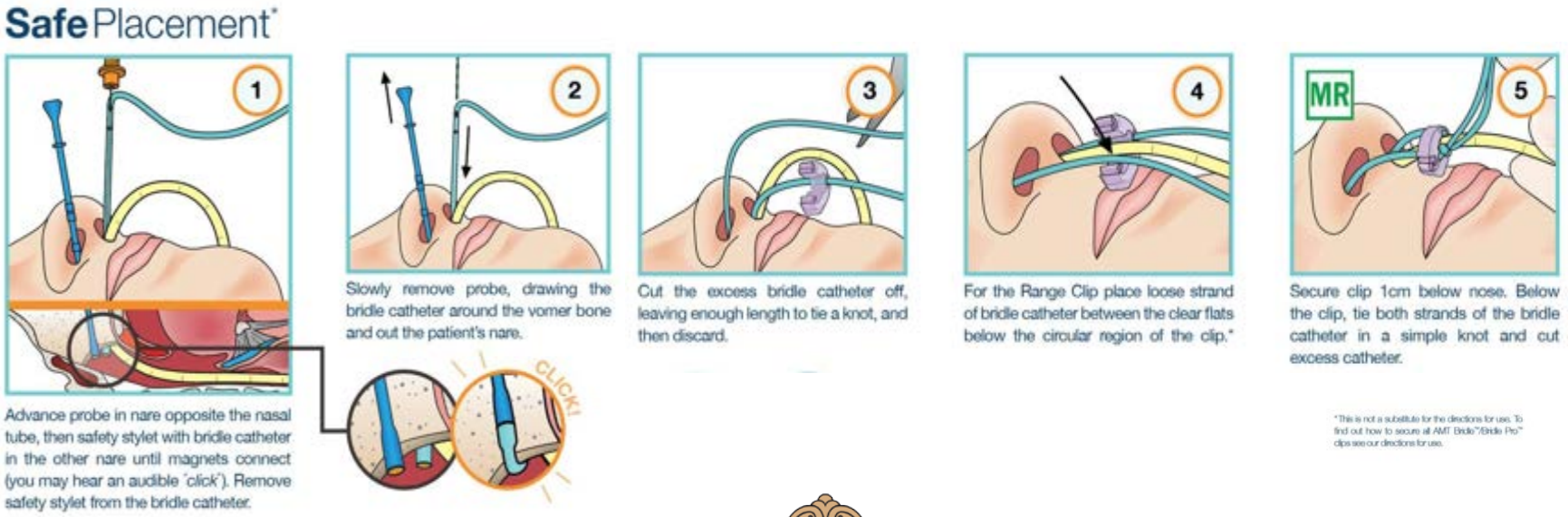
School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasal Bridle Contraindications

- Mechanical obstruction of the nose (i.e. choanal atresia)
- Maxillofacial or basilar cranial fractures
- Coagulopathy
  - INR > 2.5
  - Platelets < 35

Nasal Bridle Placement

- Bedside procedure that typically takes 10-15 min
- No or minimal analgesia / sedation needed
  - May use intra-nasal Afrin-lidocaine 0.01%-3%
  - Optional intra-nasal midazolam



UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasal Bridle Placement Demonstration

- Video Placing a bridle (1:40 min) practice placement on the product rep.

- Placing the AMT Bridle Pro® Nasal Tube Retaining System (8:55 min) full instructional video

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasal Bridle Placement Tips & Tricks

- Insert probe & stylet straight back, aiming for ears (not upwards)
- Let go of stylet & gently wiggle probe to see if magnetic connection has occurred (should move together). May hear an audible “click”.
- Use a gentle push-pull technique to pull tubing through to externalize magnets
- Off-center position of clip is helpful in neonates
- Bridle clip should be 1 cm from nare and should not touch lip
- Bridle should be placed prior to NGT in pediatric patients
- Alternate naris with each NG/bridle replacement/change

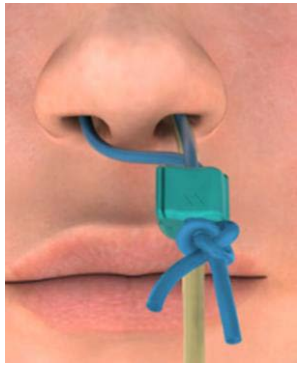
UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasal Bridle - Key Points

Bridle Key Points:

- Both tubings should be through the Bridle & double knotted underneath (Fig.1)
- Ensure Bridle clip is not touching child's nare or lip (Fig. 2)



(Fig.1)

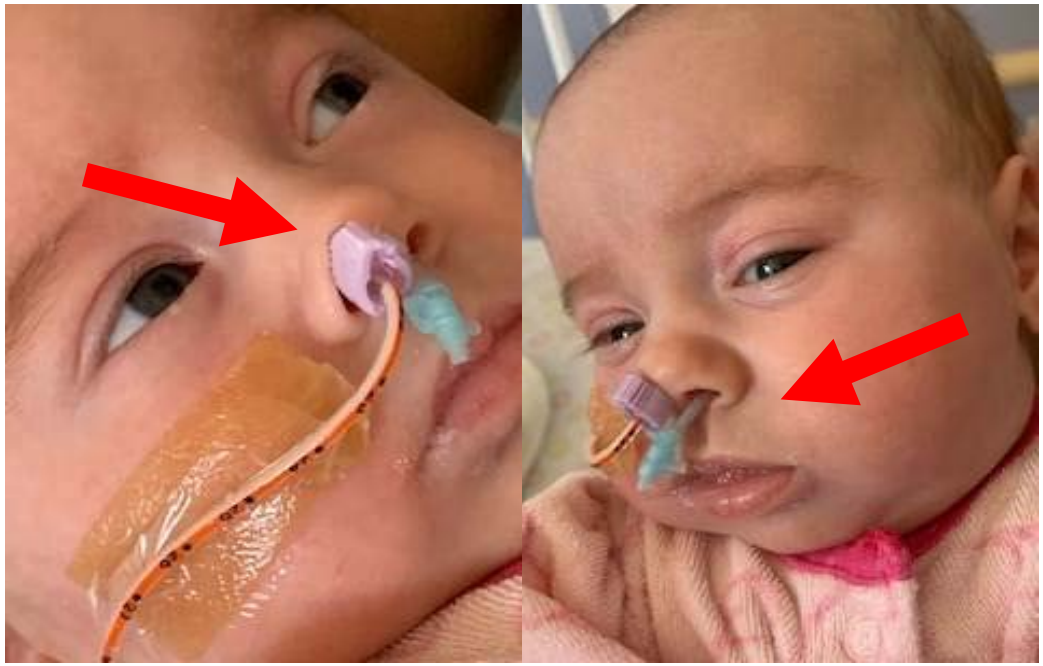
(Fig. 2)

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN-MADISON

Spotting Issues

- Need gap between nostril & clip (1 cm)
- Clip should contain **both** blue loops
- Inspect for columella irritation or ulceration



UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Nasal Bridle Removal

- To adjust or remove NG tube without removing bridle (use supplied AMT clip opening device) (Fig. 1 & 2)

(Fig. 1)

(Fig. 3)

- To remove bridle and NG tube: Clip one strand of tubing. Gently pull bridle and nasal tube out of nose (Fig. 2)

(Fig. 3)

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Anticipatory Guidance for Patients/Families with Bridled NGT

- Patient/family should inspect the skin for signs of pressure, irritation, and/or breakdown related to the feeding tube and/or bridle
  - Skin Barrier protection
    - Duoderm® to nasal columella
    - Aquaphor® with cotton tipped applicator to nostrils
- Routine saline nasal spray & bulb suctioning may help minimize congestion
- Check cm depth marking of NGT prior to each feed
  - If different don't use tube for feeds or meds & follow contact instructions provided
- Oral intake typically declines in first 24-48 after bridle placement & should then return to baseline

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN-MADISON

Anticipatory Guidance

- 30 days of continuous use
  - Both NGT & bridle should be replaced if tube feeding is required beyond 1 month
  - “re-clipping” the bridle is not recommended

2018 Systematic Review

- Lynch et al in the Australian Journal of Otolaryngology
- 18 studies
  - 2 RCTs
  - 1 meta-analysis
  - Only 1 in pediatric-specific population
- Included data from > 1000 patients

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

2018 Systematic Review of Bridles

- Significantly reduce tube dislodgement compared to conventional methods
  - increase delivery of nutrition
  - Reduce # of x rays
  - Higher incidence of epistaxis
  - Skin complications in 13% of bridled group
  - No cases of sinusitis
  - Less day-to-day discomfort in bridled group (28%) compared with control group (41%)

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

In Summary

Key points –

- Nasal bridling is a safe & effective method of feeding tube securement
- Nasal bridles are placed by trained nurses and providers
- Nasal bridles are FDA approved for all ages up to 30 days of use (or the life of the tube)
- Patients/families should be instructed to inspect skin for signs of pressure, irritation, and/or breakdown related to feeding tube and/or bridle
- If indicated, the nasal bridle can be unclipped or removed by patient/family/caregiver/or healthcare professional per manufacturer's instructions: https://www.appliedmedical.net/enteral/bridle/

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Selected References

- Khalil et al. “Outcomes of Infants with Home Tube Feeding: Comparing Nasogastric Versus Gastrostomy Tubes.” *J Parenter Enteral Nutr*. 2017; 41(8): 1380-1385.
- White et al. “Prevalence and outcomes for assisted home feeding in medically complex neonates.” Journal of Pediatric Surgery. 2019; 54: 465-470.
- Guerriere, Denise et al. “Mothers’ decisions about gastrostomy tube insertion in children: factors contributing to uncertainty.” *Developmental Medicine & Child Neurology* 2003; 45: 470-6.
- Lynch et al. “A systematic review of the effectiveness and complications of using nasal bridles to secure nasoenteral feeding tubes.” Aust J Otolaryngol. 2018; 1.

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON

Questions?

UW Health

School of Medicine and Public Health
UNIVERSITY OF WISCONSIN–MADISON