THE TRANSITION TO SMALL BORE CONNECTORS
OBJECTIVES

1. Describe rationale for small bore connectors.
2. Review the processes than can help with the transition to small bore connectors.
3. Discuss potential challenges and solutions when transitioning to small bore connectors.
WHY WAS ENFit CREATED?

Traditional, or legacy, enteral connectors use a universal stepped adapter (left) to connect to feeding tubes. This means there is the possibility for an inadvertent connection between an enteral feeding system and a non-ental system. The ENFit connector (right) was developed to reduce the likelihood of misconnections and accidental disconnection by creating a unique design that does not allow connectivity with connectors for any other clinical use.
MISCONNECTIONS

WHY?--To prevent misconnections
- errors have resulted in patient injury and deaths, and they are widely recognized as underreported.

Earliest case of misconnection 1972
- Cow’s milk intended to be given in the stomach accidentally given IV
- Patient survived the hypersensitivity event but had a coagulopathy

116 other cases of misconnection identified
- 21 deaths and numerous other serious consequences reported

Joint Commission has recognized the serious nature of misconnections
THE TRANSITION

First heard about small bore connectors (ENFit®) in 2013

- The rollout of these products as been delayed many times however the Global Enteral Device Supplier Association (GEDSA) has announced that legacy feeding tubes will no longer being manufactured after July 1 2021.
- Likewise, the transition sets and adaptors sold separately from other devices will no longer be manufactured January 1 2022.

Estimated 20% of hospitals have made the change

- Mayo Clinic enterprise converted to small bore connectors in 6/2019 for all feeding tubes and supplies

California Law (HB 1867) Effective January 11, 2016

- Law will prohibit acute hospitals, acute psychiatric and special hospitals from using an enteral feed connector that fits into a connection port other than the type for which it was intended.
To reduce the risk of wrong route delivery of fluids and gases (tubing misconnections) there is an ongoing effort led by the International Organization for Standardization (ISO) to address small bore connectors for healthcare applications. The objective of the ISO 80369 series of standards is to specify designs of small-bore connectors for various clinical applications to reduce the likelihood of tubing misconnections. The Final Draft International Standard 80369-6 that focuses on Neuraxial connectors has been approved and recognized.

<table>
<thead>
<tr>
<th>Respiratory</th>
<th>Enteral</th>
<th>Urological</th>
<th>Limb Cuff</th>
<th>Neuraxial</th>
<th>Intravascular</th>
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<tbody>
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<td>-2</td>
<td>-3</td>
<td>-4</td>
<td>-5</td>
<td>-6</td>
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ENFIT

WHY THE DELAY?

- Enteral Nutrition
- Medication Administration
- Fluid Administration
- Venting

- Hospital
- Care Facility
- At Home

- Gravity Feeds
- Syringe Feeds
- Pump Feeds

- Standard Polymeric
- Specialty Formulas
- Peptide Based Diet
- Blenderized
For a push mode of feeding, patients will largely be unimpacted after the transition to ENFit ®.

For a gravity mode of feeding, some ENFit ® users may need higher-powered blenders and could expect increased feeding times.
STEPS

- EDUCATION
- DOCUMENTATION
- PUBLICITY
- HOSPITAL SUPPLY NEEDS
- ADDITIONAL HOME NEEDS
EDUCATION

- Staff
  - Hands-on and written
  - Emphasis on areas that place tubes
- Patient
  - Update print materials
- YouTube Video: [https://www.youtube.com/watch?v=1qMbxF8nEys](https://www.youtube.com/watch?v=1qMbxF8nEys)
Medical record
Tube cards
Updating supply codes in home orders
PUBLICITY

- Local care facilities
- Group homes
- Pharmacies
- Home medical equipment companies
HOSPITAL SUPPLY NEEDS

- Feeding sets-no change needed
- Syringes-remove enteral syringes, bring in ENFit® syringes
- Cleaning brushes (single use)
- Additional supplies:
  - Medication straws
  - Adaptors
  - Extension sets for low profile tubes
  - New pill crushers
ADDITIONAL HOME NEEDS

- Medication syringes (now available OTC)
  - https://www.neomedinc.com/neoconnect-at-home/
  - https://www.udelivermedical.com/store/-c58559166?gclid=EAIaIQobChMIls9-r_Yn38AlVhgtBh2_jQCEAAAYASAAEgLLbPD_BwE
- Caps
- Straws
- Multi use cleaning brushes
- Work with home medical equipment providers
SUCCESS

- Multidisciplinary work group, including supply chain management
- Make a list of all enteral tubes
  - Obtain ENFit® cross references from the manufacturer
  - Discuss alternatives for devices that aren’t made in ENFit®.
- Start early, meet often, even after the transition
- Formulary didn’t change, we still use home blended feedings and viscous formulas.
CHALLENGES

- Syringes for liquid medications
  - Syringes now available OTC
  - Many medication suppliers have pre-dosed meds drawn-up in ENFit® syringes for distribution in home use; pharmacy prescription would need to request ENFit® med syringe.
- Crushed medication difficult to pull into blunt tip ENFit® syringe
  - Pour crushed med into a syringe from top
  - Silent Knight pill crusher
- Supply back orders
- Venting
  - Home blended feeding has worked well
  - Modify venting diet recommendations
  - Drainage bag no longer being made.
- Tubes cracking
  - If the syringe or feeding bag are overtightened the ENFit® end on the feeding tube can crack.
  - Per GEDSA It may also happen that leftover formula can cause the connectors to stick firmly tougher and perhaps separating the two components
# Venting Diet—For Enfit® Tubes

*This is not an all-inclusive list. Contact your dietitian or primary care provider if you have specific questions.*

<table>
<thead>
<tr>
<th>Food</th>
<th>Food Unlikely to Clog a Venting Tube</th>
<th>Food Likely to Clog a Venting Tube</th>
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</thead>
<tbody>
<tr>
<td>Meat and other proteins</td>
<td>Puréed meats, baby food meats stage 1 and 2, cottage cheese</td>
<td>Steak, hot dogs, brats, chunky peanut butter, cheese</td>
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<tr>
<td>Milk products</td>
<td>Milk and milk beverages, yogurt or ice cream without seeds or nuts, plant milks</td>
<td>Yogurt or ice cream with seeds or nuts</td>
</tr>
<tr>
<td>Breads, cereals, and grain</td>
<td>Baby cereal, thinned cream of rice, cream of wheat, or Malt-O-Meal® cereals</td>
<td>Products made with nuts, seeds, and dried fruit</td>
</tr>
<tr>
<td>products</td>
<td></td>
<td>Wild rice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Granola</td>
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<tr>
<td></td>
<td></td>
<td>Popcorn</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Canned or well-cooked potatoes, carrots, squash, sweet potato, beets, cauliflower only if liquefied or puréed with no chunks or pieces Tomato sauce, paste or purée Vegetable juice Baby food stage 1 and 2 vegetables</td>
<td>All raw vegetables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cooked or canned not listed in the unlikely venting PEG tube list (see left hand column) Dried peas and beans (pinto, black) Lima beans</td>
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</tbody>
</table>
### Venting Diet Continued

<table>
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<tr>
<td>Fruits</td>
<td>- Fruit juices without pulp&lt;br&gt;- Juicing at home with a juicer is fine as long as there are no skins or seeds&lt;br&gt;- Cooked or canned fruits without seeds, skins or membranes such as peaches, applesauce, pears only if liquefied or puréed&lt;br&gt;- Peeled and skinned banana, apple, pear, peach&lt;br&gt;- Watermelon (no seeds)&lt;br&gt;- Baby food stage 1 and 2 fruits</td>
<td>- All other raw, cooked or canned fruits with seeds, skins, strings or membranes&lt;br&gt;- Melon (except watermelon)&lt;br&gt;- Dried fruits&lt;br&gt;- Berries&lt;br&gt;- Grapes</td>
</tr>
<tr>
<td>Fats and oils</td>
<td>- Butter, margarine, cream, oils, gravy, cream sauce, salad dressing without seeds, avocado</td>
<td>- Olives&lt;br&gt;- Salad dressing with seeds&lt;br&gt;- Bacon</td>
</tr>
<tr>
<td>Desserts and sweets</td>
<td>- Gelatin, sherbet, custard, pudding, sugar, honey, jelly, syrup, plain candies and chocolate without nuts, marshmallows</td>
<td>- Anything made with coconut, nuts, seeds, or fruits listed above as likely to clog the venting PEG tube&lt;br&gt;- Jams and marmalades</td>
</tr>
<tr>
<td>Beverages</td>
<td>- Coffee, tea, Kool-Aid™, lemonade, powered beverages mixes, artificial fruit drinks, carbonated beverages, alcohol (if approved by health care provider)&lt;br&gt;- Nutritional supplement drinks, such as BOOST® or Ensure®</td>
<td>- Any beverage with fruits, seeds, nuts, or skins</td>
</tr>
</tbody>
</table>
VENTING

Avanos drainage bag being discontinued

Potential solution (UK right now)
https://www.gbukgroup.com/brands/gbuk-enteral/drainage-venting/enteral-drainage-bags/

Potential solution
- Urinary drainage bags (not ideal)
In light of the Revised ENFit® Connector Conversion Schedule released from the Global Enteral Device Supplier Association (GEDSA), stating by July 1, 2021, “Legacy feeding tubes and cross-application adaptors will no longer be manufactured” and by January 1, 2022, “Transition sets and adaptors sold separately from other devices will no longer be manufactured” by GEDSA members, we would like to share that Applied Medical Technology, Inc. (AMT) will continue to offer a complete line of ENFit® products and a complete line of Legacy devices and accessories, pursuant to FDA regulations.


