

Preventing and Troubleshooting Feeding Tube Occlusion

Presented by
Cynthia Reddick, RD, CNSC
National Tube Feeding Manager
Coram/CVS Specialty Infusion

Oley Conference
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Objectives

1. Discuss the recommended flushing guidelines for hydration and keeping the tube clean from the inside out.
2. Discuss recommendation for medication administration through an enteral feeding tube.
3. Review troubleshooting techniques for enteral feeding tube occlusion.
4. Review hospital and home care studies on the subject of tube clogging.

Common Patient Questions

- How do I flush my tube?
- How do I put medication through the tube?
- How do I keep my EN Fit tube clean?
- What do I do if my tube gets clogged?

Flushing the Tube

Critical to providing needed free water and keeping the interior of the tube clean. Most tube feeding formulas are 70 to 80% water so additional water is needed everyday

- ✓ At least 30 ml of water before/after each feeding
- ✓ If continuous feeding, flush the tube at least every 4 hours with continuous pump feeding
- ✓ “Water Sandwich”
- ✓ Flush before and after intermittent, bolus, or gravity feeding
- ✓ Flush before and after each medication administration



Safe Administration of Medications at Home

- Do not add medication directly to formula
- Administer each medication separately
- Dilute the medication
- Flush feeding before and after each medication
- Use a clean syringe to measure and administer medication



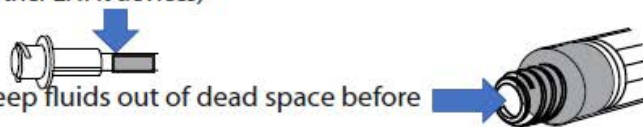
ENFit® Cleaning Procedures

Feeding Tubes with Male ENFit Connectors





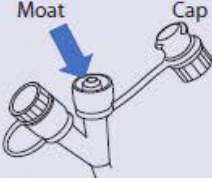
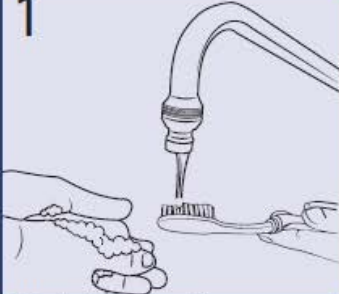

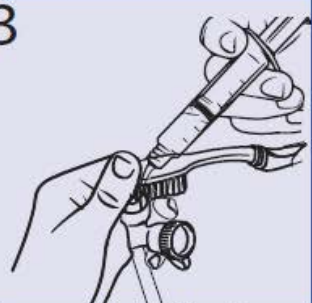

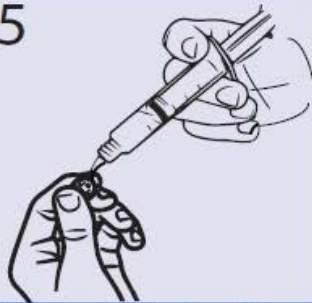
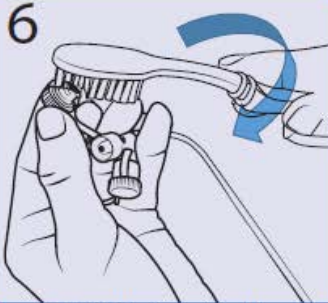
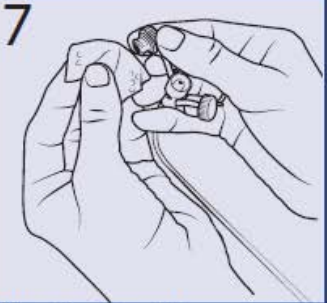
(e.g. Nasogastric, Transpyloric, Orogastric, Percutaneous Endoscopic Gastrostomy Tubes and other ENFit devices)

Tips for keeping ENFit feeding tube ports clean. Inspect before you connect!

- **Priming Feeding Sets** - Stop priming before fluid reaches the end of the tube.
- **ENFit Syringe Draw Up** - Wipe medication and nutrition from tip/outer threads, keep fluids out of dead space before connecting to feeding tube.



For best results, follow these instructions to clean tubes at least once a day or whenever material is visible.

Tube Cleaning Supplies & Terms				
 Cup of sterile or clean tap water	 Syringe	 Gauze	 Brush* or ENFit specific cleaning tool	 ENFit Feeding Tube
Note: Use a disposable brush or follow manufacturer's instructions if using ENFit specific cleaning brush.				
1 	2 			
3 	4 	5 	6 	7 

Repeat steps 3 through 6 until cap and tube are thoroughly clean.

* A manual toothbrush is regulated as a medical device intended to remove debris from the teeth in some jurisdictions. Consult your licensed healthcare provider or Risk Manager regarding recommended use for cleaning feeding tube ports. Dispose of single use devices as instructed. Cleaning procedures courtesy of Children's Mercy Kansas City.
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Troubleshooting a Tube Clog

- The best way to troubleshoot tube clogs is with PREVENTION!
 - Consistent flushing
 - Proper medication administration

What may worsen the probability of a clog

- Carbonated soda and/or cranberry juice can worsen clogs and should not be used.
- Inadequate flushes
- Wrong form of medication
- Pulling gastric residuals can cause a clog
- Feeding flow rates below 50 mL/hr; viscous/calorically dense formulas

Troubleshooting a Tube Clog

What can you do at home when a tube is clogged?

- Gently massage the tube and try to break up the clog
- Fill a 60 ml syringe with warm water and gently rock the plunger back and forth to loosen the clog
- Use a smaller syringe (6 or 10 ml) to flush water through the medication port
- Use an enzymatic de-clogging agent or device

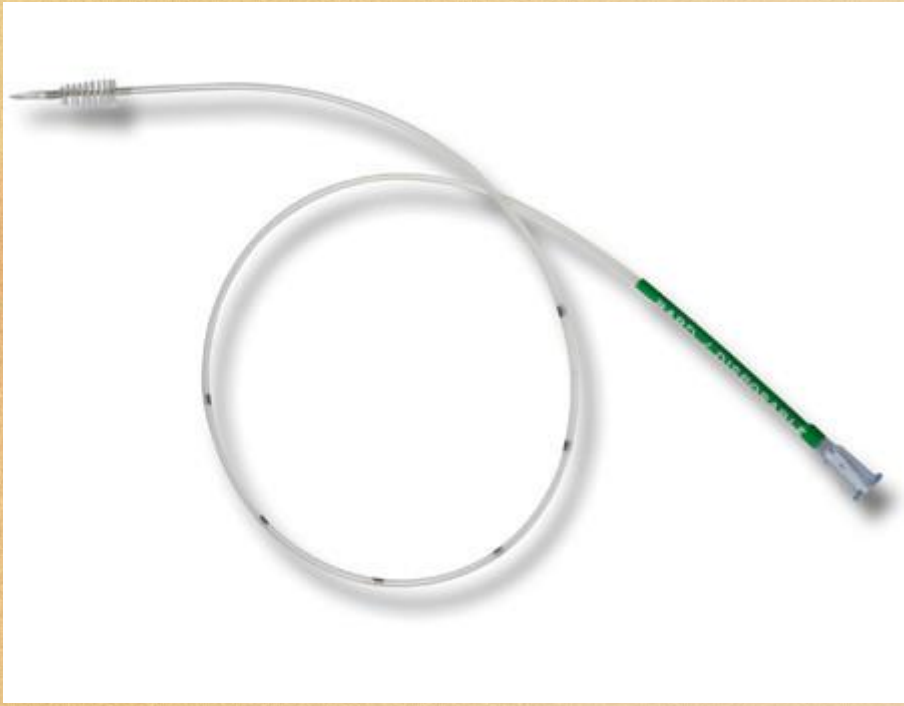
Declogging Agents and Devices

Enzymatic Declogging Agents

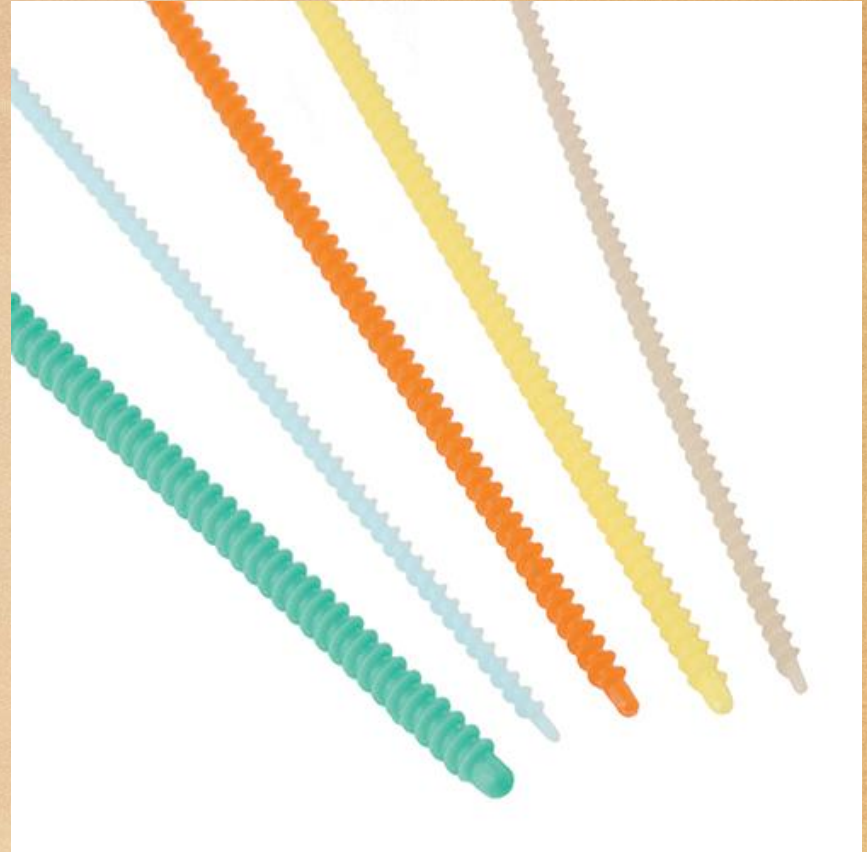
- Clog Zapper (commercial formula from Corpak)
- Viokace mixed with 324 mg non-enteric coated sodium bicarb (or 1/8 teaspoon of baking soda) mixed into 5 mL H₂O
- Creon and Zenpep (pancreatic enzymes) are enteric coated so cannot be used

Mechanical Declogging Devices

- Bard PEG cleaning brush (designed to fit 20 Fr or larger tubes). Recommended for prophylactic cleaning rather than clearing a clog.
- Bionix Feeding Tube Declogger (use for short tubes gastrostomy or jejunostomy and not nasoenteric). Specifically used to declog tubes but must have a trained professional in a medical setting.
- TubeClear[®] (Can be used with gastrostomy, jejunostomy and nasoenteric tubes)



Bard PEG Cleaning Brush



Bionix Feeding Tube Declogger

What does the literature tell us?

The best way to manage clogged tubes is to prevent them.

- Regular irrigation with at least 30 mL of water every 4 hrs and before and after administration of TF and meds.
- Use of appropriate medications (i.e. liquid form and or crushable forms approved to be administered via FT) is effective.

Literature Review continued

- Small bore tubes have higher incidence of clogging. One article noted they only place 12 French Nasoenteric tubes now in their adult population.
- Viokace proved to be superior to water or coca cola in one study.
- Commercially available Clog Zapper (papain and digestive enzymes) shown effective in unpublished company research
- Pancreatic enzyme solution administered prophylactically every 4 hours significantly increased the time to occlusion of small bore feeding tubes.

Tube Clogging Research

IRB 16-001975

- Retrospective review of occluded feeding tubes in the hospital
- Minimal risk study
- Reviewed Nutrition Support Service RN charting of consults received for tube occlusion
- Study location: Mayo Clinic Rochester, MN only

Continued

- Target accrual number: 50
- Actual data collection: 37
- Inclusion criteria:
 - 1.) Adults only (18 years or older) with feeding tubes
 - 2.) Hospitalized at Mayo Clinic Rochester and were seen by Nutrition Support Service from January 1, 2011 to March 1, 2016

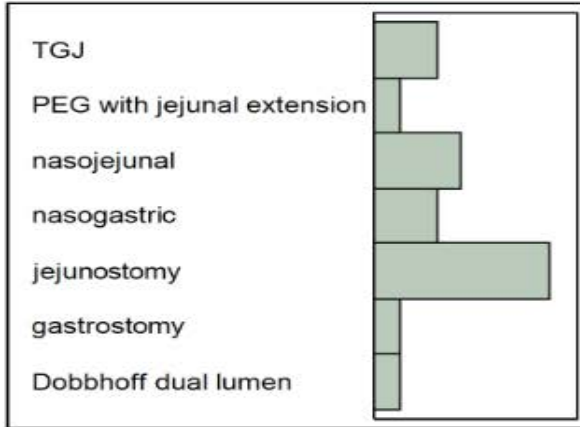
Chart Review and Data Collection

- Tube characteristics (size and type)
- Medication review
- Formula review and rate of infusion
- Water flushes
- What was thought to have clogged the tube
- Was the tube successfully cleared and if so, with what?

General Results

Distributions

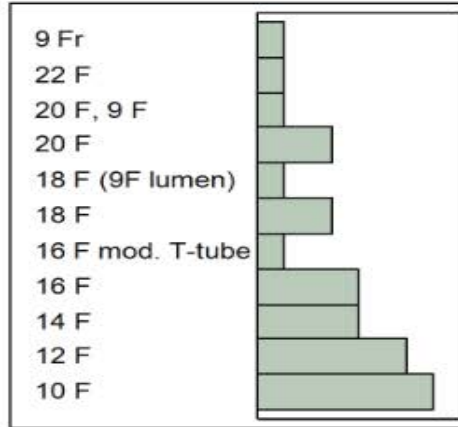
NAME



Frequencies

Level	Count	Prob
Dobbhoff dual lumen	2	0.05405
gastrostomy	2	0.05405
jejunostomy	14	0.37838
nasogastric	5	0.13514
nasojejunal	7	0.18919
PEG with jejunal extension	2	0.05405
TGJ	5	0.13514
Total	37	1.00000
N Missing	6	
	7 Levels	

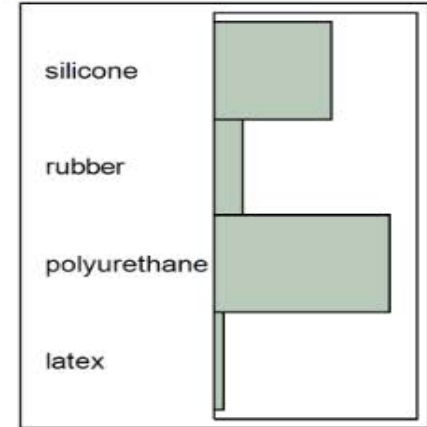
SIZE



Frequencies

Level	Count	Prob
10 F	7	0.21875
12 F	6	0.18750
14 F	4	0.12500
16 F	4	0.12500
16 F mod. T-tube	1	0.03125
18 F	3	0.09375
18 F (9F lumen)	1	0.03125
20 F	3	0.09375
20 F, 9 F	1	0.03125
22 F	1	0.03125
9 Fr	1	0.03125
Total	32	1.00000
N Missing	11	
	11 Levels	

MATERIAL

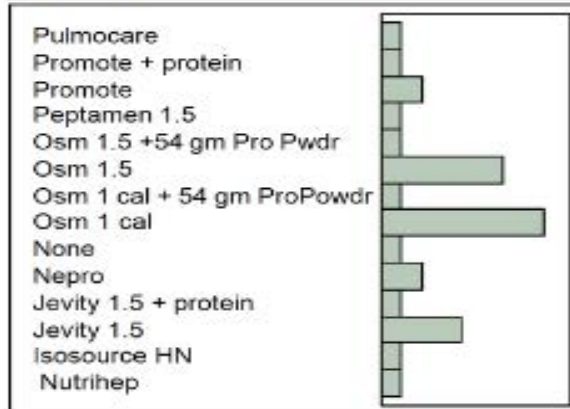


Frequencies

Level	Count	Prob
latex	1	0.02941
polyurethane	18	0.52941
rubber	3	0.08824
silicone	12	0.35294
Total	34	1.00000
N Missing	9	
	4 Levels	

General Results

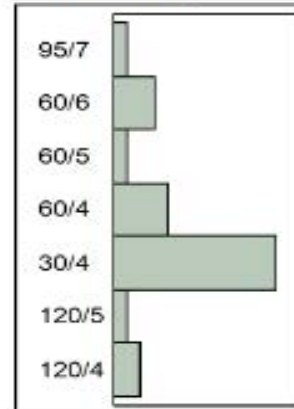
FORMULA



Frequencies

Level	Count	Prob
Nutrihep	1	0.03226
Isosource HN	1	0.03226
Jevity 1.5	4	0.12903
Jevity 1.5 + protein	1	0.03226
Nepro	2	0.06452
None	1	0.03226
Osm 1 cal	8	0.25806
Osm 1 cal + 54 gm ProPowdr	1	0.03226
Osm 1.5	6	0.19355
Osm 1.5 +54 gm Pro Pwdr	1	0.03226
Peptamen 1.5	1	0.03226
Promote	2	0.06452
Promote + protein	1	0.03226
Pulmocare	1	0.03226
Total	31	1.00000
N Missing	12	
14 Levels		

FLUSHES (mL/times per day)

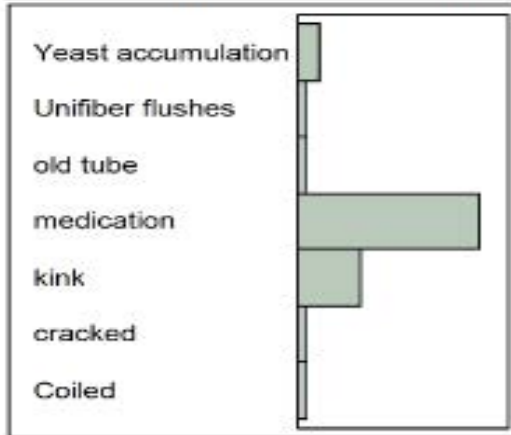


Frequencies

Level	Count	Prob
120/4	2	0.08333
120/5	1	0.04167
30/4	12	0.50000
60/4	4	0.16667
60/5	1	0.04167
60/6	3	0.12500
95/7	1	0.04167
Total	24	1.00000
N Missing	19	
7 Levels		

General Results

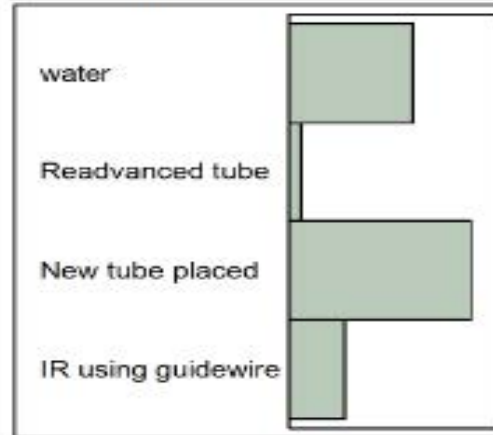
WHAT CAUSED OCCLUSION



Frequencies

Level	Count	Prob
Coiled	1	0.03448
cracked	1	0.03448
kink	6	0.20690
medication	17	0.58621
old tube	1	0.03448
Unifiber flushes	1	0.03448
Yeast accumulation	2	0.06897
Total	29	1.00000
N Missing	14	
	7 Levels	

WHAT UNCLOGGED TUBE



Frequencies

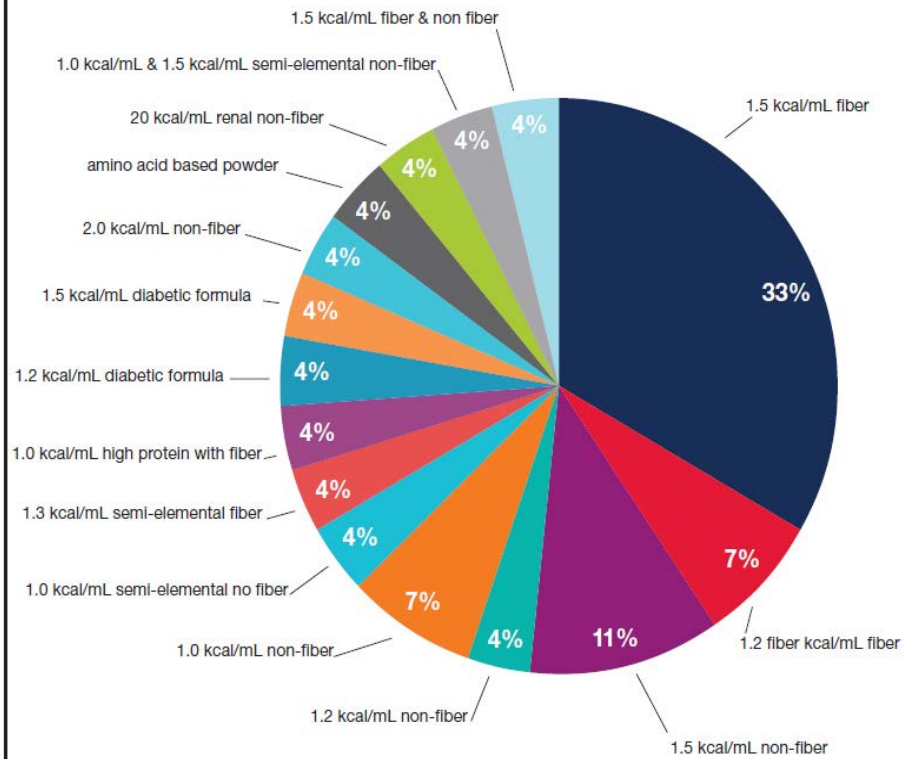
Level	Count	Prob
IR using guidewire	5	0.15152
New tube placed	16	0.48485
Readvanced tube	1	0.03030
water	11	0.33333
Total	33	1.00000
N Missing	10	
	4 Levels	

Tube Clogging Research

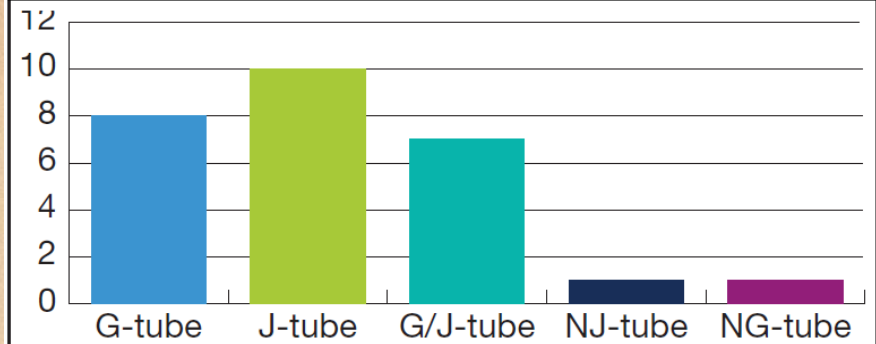
- Retrospective review of occluded feeding tubes in the home setting on service with Coram/CVS Specialty Infusion
- Charts reviewed: 209
- Home patients in a 4 state region from June 2015 through June 2016
- 78% <90 days on service
- 22% >100 days on service
- Incidence of tube clog: 27 (12.9%)
 - Formula type
 - Tube type
 - Feeding method

Results

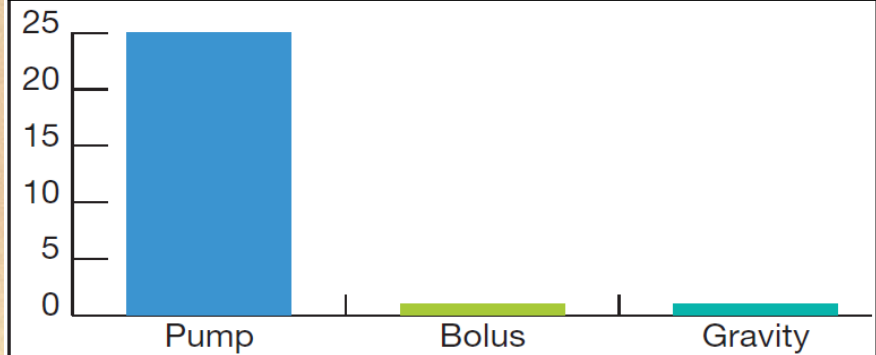
Formula Type



Tube Type

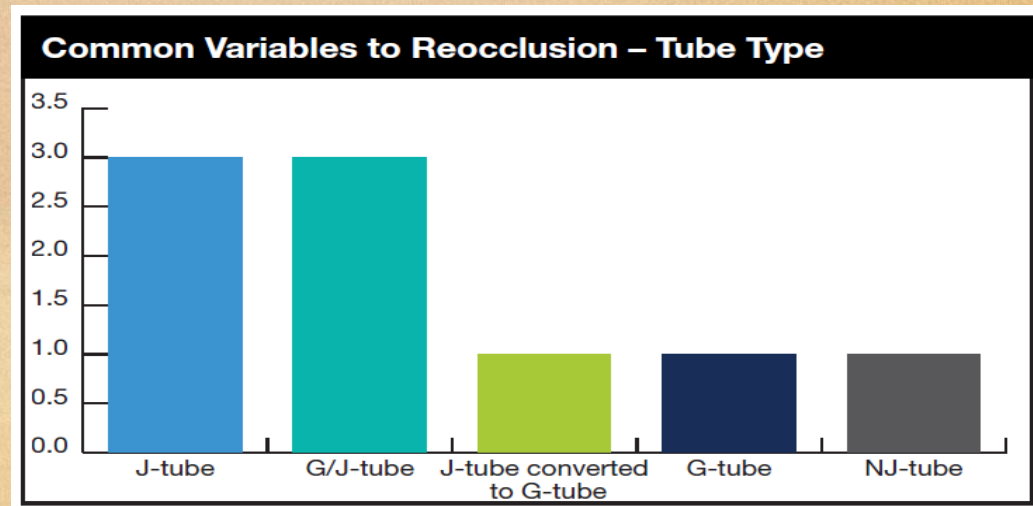
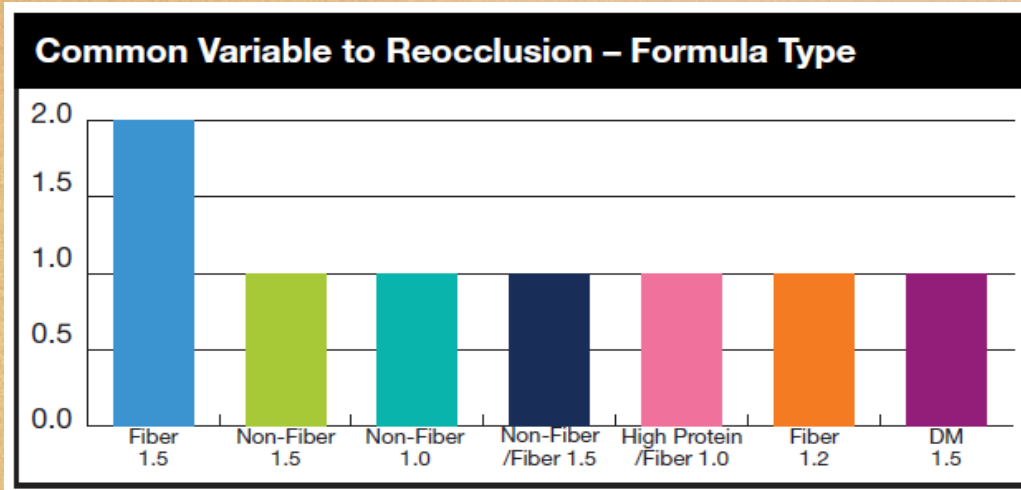


Feeding Method



Results

34% experienced a re-occlusion



Conclusions

- ✓ Prevention is the best solution
- ✓ Medication is the most probably cause
- ✓ Small bore feeding tubes clog more often than large bore
- ✓ Smaller volume flushes (30 ml) with low frequency (4 x day) clog more often
- ✓ Slow infusing, nutrient dense, fiber containing formulas, through a J tube are the most likely tube to clog

QUIZ
ANSWERS
QUESTIONS