

Caring for the Student with a Tracheostomy and/or Gastrostomy Tube in the School Setting

Tuesday, January 14, 2025

8:30 am to 4:30 pm

Mt. Yale | Mt. Princeton | Mt. Harvard Conference Rooms

Children’s Hospital Colorado | Anschutz Medical Campus | Conference and Education Center 2nd floor

OVERVIEW, TARGET AUDIENCE AND LEARNING OUTCOMES

This program is recommended for nurses who care for children with tracheostomy and/or gastrostomy tubes in the school setting. Didactic training will be provided for both tracheostomies and gastrostomies followed by skill stations. Tracheostomy skills stations will include general tracheostomy care, tie/tube changes, suctioning, emergency bag/trach ventilation, ventilator basics, and emergency simulation. Participants will also rotate through gastrostomy skills stations to include accidental dislodgement, tube care, feeding, venting, giving medications, and troubleshooting. After attending this event, participants will report increased knowledge and intent to change practice related to caring for children in the school setting with tracheostomies, ventilator dependence, and gastrostomy tubes. During this event, participants will demonstrate skill competence with tracheostomies, ventilators, and gastrostomy tubes.

OBJECTIVES

- Describe medical indications for needing a tracheostomy or gastrostomy tube.
- Explore the role of delegation and care coordination and the importance of building resource capacity when caring for children with tracheostomies and gastrostomy tubes in the school setting.
- Demonstrate skills related to tracheostomy care, including daily cares of suctioning, cleaning, and tracheostomy tie/tube changes to prevent complications of skin breakdown/infection, plugging and decannulation, emergency ventilation, and the basics of the ventilator operations.
- Demonstrate skills related to gastrostomy tube accidental dislodgement, tube care, feeding, venting, giving medications, and troubleshooting.
- Identify practice changes that nurses can implement in their daily practice when caring for children with a tracheostomy or gastrostomy tubes, including those related to delegation and care coordination.

PROGRAM

8:30am	Check-in and Light Breakfast	12:00pm	Gastrostomy Care and Stoma Preservation in School Catherine Doernbrack, MSN, RN, CPNP-PC
9:00	Welcome and Instructions	12:30	Breakout Sessions
9:15	Tracheostomy: It Takes a Team Jessica Dawson, MSN, RN, CPN Meagan Watton, RRT	2:00	Break
9:45	Tracheostomy Complications Jessica Dawson, MSN, RN, CPN	2:15	Breakout Sessions
10:05	Care Coordination and Delegation Erin Bluth, BSN, RN	3:15	Break
10:35	Ventilators Meagan Watton, RRT	3:30	Pulling It All Together
11:30	Lunch (provided)	4:15	What Will You Do Differently? Q&A
		4:30	Closing and Evaluation
			*Program subject to change



BREAKOUT SESSIONS

Learners will rotate through the following sessions with the color group assigned to them:

BLACK			
Times	Session	Location	Table
12:30 - 1:00 pm	Emergency Ventilation	Mt. Yale	A1
1:00 - 1:30	Tracheostomy Care	Mt. Yale	B1
1:30 - 2:00	Tracheostomy Suctioning	Mt. Yale	C1
2:15 - 2:45	G-Tube/Stoma	Mt. Yale	D1
2:45 - 3:15	Vents	Mt. Harvard	E1
3:30 - 4:15	Putting It All Together	Mt. Yale	F1

PURPLE			
Times	Session	Location	Table
12:30 - 1:00 pm	Emergency Ventilation	Mt. Yale	A2
1:00 - 1:30	Tracheostomy Care	Mt. Yale	B2
1:30 - 2:00	Tracheostomy Suctioning	Mt. Yale	C2
2:15 - 2:45	G-Tube/Stoma	Mt. Yale	D2
2:45 - 3:15	Vents	Mt. Harvard	E1
3:30 - 4:15	Putting It All Together	Mt. Yale	F2

BLUE			
Times	Session	Location	Table
12:30 - 1:00 pm	Emergency Ventilation	Mt. Yale	A3
1:00 - 1:30	Tracheostomy Care	Mt. Yale	B3
1:30 - 2:00	Tracheostomy Suctioning	Mt. Yale	C3
2:15 - 2:45	G-Tube/Stoma	Mt. Yale	D3
2:45 - 3:15	Vents	Mt. Harvard	E1
3:30 - 4:15	Putting It All Together	Mt. Yale	F3

CYAN			
Times	Session	Location	Table
12:30 - 1:00 pm	Tracheostomy Care	Mt. Yale	B1
1:00 - 1:30	Tracheostomy Suctioning	Mt. Yale	C1
1:30 - 2:00	Emergency Ventilation	Mt. Yale	A1
2:15 - 2:45	G-Tube/Stoma	Mt. Yale	D4
2:45 - 3:15	Vents	Mt. Harvard	E2
3:30 - 4:15	Putting It All Together	Mt. Yale	F4

GREEN			
Times	Session	Location	Table
12:30 - 1:00 pm	Tracheostomy Care	Mt. Yale	B2
1:00 - 1:30	Tracheostomy Suctioning	Mt. Yale	C2
1:30 - 2:00	Emergency Ventilation	Mt. Yale	A2
2:15 - 2:45	G-Tube/Stoma	Mt. Yale	D5
2:45 - 3:15	Vents	Mt. Harvard	E2
3:30 - 4:15	Putting It All Together	Mt. Yale	F5



YELLOW

Times	Session	Location	Table
12:30 - 1:00 pm	Tracheostomy Care	Mt. Yale	B3
1:00 - 1:30	Tracheostomy Suctioning	Mt. Yale	C3
1:30 - 2:00	Emergency Ventilation	Mt. Yale	A3
2:15 - 2:45	Vents	Mt. Harvard	E1
2:45 - 3:15	G-Tube/Stoma	Mt. Yale	D1
3:30 - 4:15	Putting It All Together	Mt. Yale	F6

ORANGE

Times	Session	Location	Table
12:30 - 1:00 pm	Tracheostomy Suctioning	Mt. Yale	C1
1:00 - 1:30	Emergency Ventilation	Mt. Yale	A1
1:30 - 2:00	Tracheostomy Care	Mt. Yale	B1
2:15 - 2:45	Vents	Mt. Harvard	E1
2:45 - 3:15	G-Tube/Stoma	Mt. Yale	D2
3:30 - 4:15	Putting It All Together	Mt. Yale	F7

RED

Times	Session	Location	Table
12:30 - 1:00 pm	Tracheostomy Suctioning	Mt. Yale	C2
1:00 - 1:30	Emergency Ventilation	Mt. Yale	A2
1:30 - 2:00	Tracheostomy Care	Mt. Yale	B2
2:15 - 2:45	Vents	Mt. Harvard	E2
2:45 - 3:15	G-Tube/Stoma	Mt. Yale	D3
3:30 - 4:15	Putting It All Together	Mt. Yale	F8

PINK

Times	Session	Location	Table
12:30 - 1:00 pm	Tracheostomy Suctioning	Mt. Yale	C3
1:00 - 1:30	Emergency Ventilation	Mt. Yale	A3
1:30 - 2:00	Tracheostomy Care	Mt. Yale	B3
2:15 - 2:45	Vents	Mt. Harvard	E2
2:45 - 3:15	G-Tube/Stoma	Mt. Yale	D4
3:30 - 4:15	Putting It All Together	Mt. Yale	F2

CONTINUING EDUCATION

Registration, attendance, and submission of the **evaluation,** including a written response to questions related to any change in practice that you may make as a result of learning that took place at this activity, are required for successful completion and receipt of the certificate of attendance. Claim only those hours you attend.

ATTENDANCE

Participants are required to sign-in for this NCPD activity to verify participation in the program. Signing-in: Sign-in opens 30-minutes prior to the event. There are two sign-in options:

Code: **STUDENT25** Text to 720-790-4423
Enter at ce.childrenscolorado.org/code



COURSE EVALUATION

To obtain your NCPD certificate, the online evaluation must be completed by midnight, Tuesday, January 28, 2025. After completing the evaluation, you will be promoted to claim your NCPD credits. Any questions or concerns with access should be directed to ce@childrenscolorado.org.

CONTINUING EDUCATION CREDIT

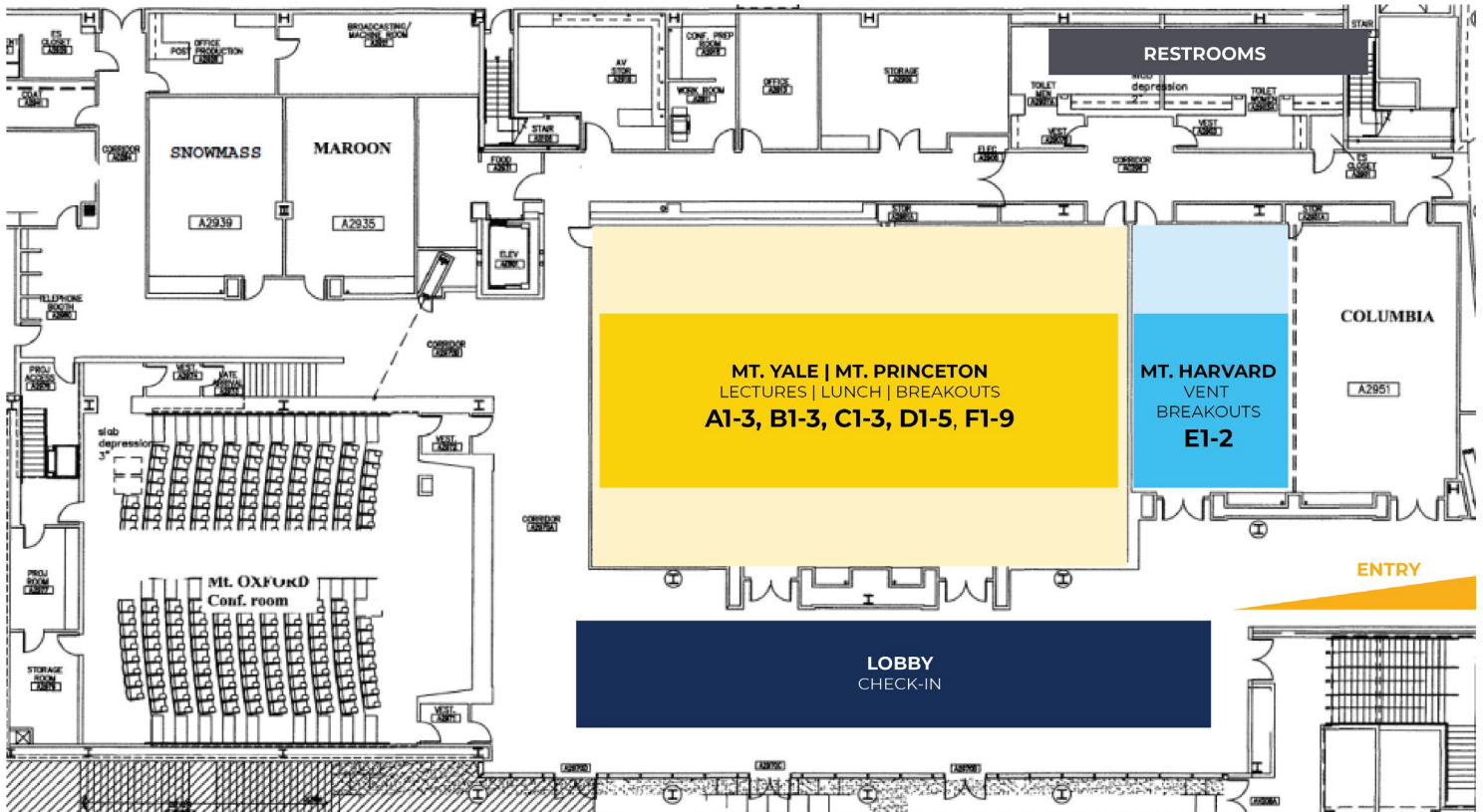
Children's Hospital Colorado is approved with distinction as a provider of nursing continuing professional development by the Colorado Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation. This educational offering for 5.75 nursing contact hours is provided by Children's Hospital Colorado.

Others: A general certificate of attendance will be provided to all other attendees.

DISCLOSURE FOR CONFLICT OF INTEREST

Planners, faculty, and others in control of content (either individually or as a group) have no relevant financial relationships with ineligible companies.

CONFERENCE CENTER MAP



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FURTHER INFORMATION



For further information related to the course, contact Ray Cuellar at Children's Hospital Colorado at ray.cuellar@childrenscolorado.org or 720-777-6101.

January 14, 2025

Care of the Student with a Tracheostomy in the School

Care Coordination and Delegation


Erin Bluth, BSN, RN

1

Disclosures



Erin Bluth has no financial relationships with ineligible companies.

2

Objectives

- Identify strategies used to plan effective care coordination and delegation for the student with a tracheostomy in the school setting
- Describe process required to ensure safe and competent performance of delegated tasks by UAPs

3



How do we make this happen?

- Gather information:
 - Communicate with family
 - ROI and orders
 - Communicate with school staff and health care team
- Develop IHP
- Plan training and delegation
- Models of Care May Include:
 - Delegation of School Staff
 - Private Duty Nursing Services
 - District/Program may hire for Student

4

<p>CO Nurse Practice Act</p> <p>CO Department of Education Delegation Considerations</p>	<p>CO Nurse Practice Act The delegating nurse shall be solely responsible for determining the required degree of supervision the delegatee will need, after an evaluation of the appropriate factors which shall include but not be limited to the following:</p> <p>(a) The stability of the condition of the patient; (b) The training and ability of the delegatee; (c) The nature of the nursing task being delegated; and (d) Whether the delegated task has a predictable outcome.</p>	<p>CDE Delegation Considerations</p> <p>Delegation is determined on case-by-case basis by the professional RN</p> <ul style="list-style-type: none"> <input type="checkbox"/> Scope of RN practice <input type="checkbox"/> Scope of RN skills, knowledge, ability <input type="checkbox"/> Does task require an order <input type="checkbox"/> Routine, repetitive nature of the task <input type="checkbox"/> Is the RN able to provide appropriate and adequate supervision <input type="checkbox"/> Factor in district policies, protocols, and standards <input type="checkbox"/> Additional considerations on CDE website
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5

Delegation: What can we do?

- Emergency Tracheostomy Changes- Yes
- Manual Resuscitation with Bag- Yes
- Tracheal Suctioning- Yes
- Bulb or Yankauer Suctioning-Yes
- General Tracheostomy Care-Yes (Rarely done during the School Day)
- Ventilator Management-No

6

Delegation – How do we begin?

1


2

3

Meet
with the
school
team

Identify
staff
and
back-up



Plan
times to
delegate
by task



7

Delegation Tips


- Determine level of comfort among school staff
- Choose one procedure at a time i.e. suctioning during one session and emergency trach change another session
- Review procedure guidelines
- Set a schedule for training and delegation
- Consider the student's day from start to finish
- Establish system for documenting all training, delegations, and supervisions

8

More Delegation Tips


- Demonstrate the procedure as many times as needed
- Utilize training tools such as videos and trach training doll
- Consider partnering with family for training supplies and procedures
- When delegatee is ready, return demonstrate
- Remember as the delegating RN you do not have to complete the delegation until you feel the delegatee has demonstrated competency!



9

Supervision


- 🔍 Determine frequency of supervision visits
- 👤 This may vary depending on the competency and confidence (and the stability of the student)
- ✕ Periodic trainings for the entire delegatee group using training tools




10

Time and Patience

- Tracheostomy training and delegation takes time
- Remember to share this with staff and family in preparing for the return to school
- Consider need for back-up delegated staff even with a PDN
- Remember the Transportation Department!!




11



Standard Precautions and Privacy

- Ensure access to and proper use of PPE, such as gloves and eye protection
- Clean vs sterile procedures
- Move to separate area when suctioning, ensure student privacy



12

Resources

CO Nurse Practice Act:
<https://dpo.colorado.gov/Nursing/Laws#:~:text=The%20Nurse%20Practice%20Act%20defines,on%20the%20present%20curriculum%20criteria>

CDE Training and Delegation Resources:
https://www.cde.state.co.us/healthandwellness/nurse_delegation

Children's Hospital Colorado - School Nurse Resources:
<https://www.childrenscolorado.org/community/community-health/school-health/school-nurse-resources/>



13

Questions???



14

Tracheostomy: It Takes a Team

Jessica Dawson, MS, RN, CPN, ACM-RN
Ventilator Care Program Clinical Specialty
Coordinator

Meagan Watton, RRT, Respiratory Chronic
Care Specialist



1

Indications for a Tracheostomy

2


What is a Trach?



A tracheotomy is a surgical procedure that creates an opening in the neck and windpipe (trachea). A tube is then placed in the opening to keep it open so air gets to the child's lungs. The terms tracheotomy (the surgery), tracheostomy (the hole), and tracheostomy tube (the actual tube) are all sometimes referred to as the "trach."



3



Indications for a Tracheostomy

Alterations in upper airway anatomy

- Congenital
- Acquired
- Trauma

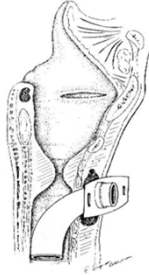
Need for chronic ventilation

- Lung disease
- Muscle weakness/paralysis
- Alteration in neurological function
- Alterations in spinal cord function

4

Subglottic Stenosis

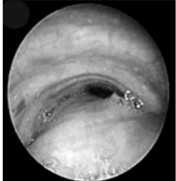
- A narrowing of the larynx usually at the level of the cricoid cartilage.
- Congenital: Congenital subglottic stenosis is usually not diagnosed until the airway is challenged: i.e. respiratory illness.
- Acquired: Caused by long-term intubation
- For significant subglottic stenosis a tracheostomy or tracheal reconstructive surgery may be indicated.



5

Tracheomalacia

- Tracheomalacia is when the tracheal cartilages collapse during the respiratory cycle.
- Can be more pronounced during illness.
- Diagnosed with a bronchoscopy.
- Severe tracheomalacia may require tracheostomy and sometimes ventilation.



6

Vocal Cord Paralysis

- Vocal cord dysfunction is usually the consequence of other problems such as surgical trauma to the laryngeal nerve during cardiac surgery, Arnold-Chiari malformation of the brain stem, or prolonged intubation.
- Sometimes dysfunction will resolve spontaneously
- Tracheostomy is sometimes required for bilateral vocal cord paralysis



Vocal cords open during breathing to allow air into lungs.



Vocal cords close when speaking so air from the lungs passes between them to cause the vibrations that produce sound.

Adapted from: <https://ent-surgery.com.au/throat-surgery/vocal-cord-paralysis/>



7

Other Alterations in Upper Airway Anatomy

- Syndromes
 - Pierre Robin Syndrome
 - Treacher Collins Syndrome
 - Golden-Har Syndrome
 - CHAOS (congenital high airway obstruction syndrome)
- Trauma: Facial/Neck



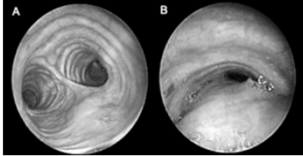
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Indications for Chronic Ventilation

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Bronchomalacia

- Collapsing of the airways below the trachea
- Children with bronchomalacia may need a trach and ventilation



10

Bronchopulmonary Dysplasia (BPD)

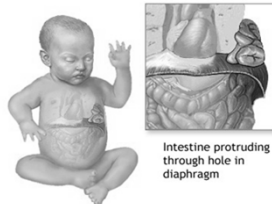
- BPD is a chronic lung disease resulting from acute respiratory disease in the neonatal period.
- Risk factors include prematurity, high inspired oxygen concentrations, positive pressure ventilation, and PDA.
- BPD results in bronchiolar and interstitial changes resulting in thickened walls and fibrosis.
- BPD, tracheomalacia, and bronchomalacia are often comorbid



11

Congenital Diaphragmatic Hernia (CDH)

- Abnormal development of the diaphragm during fetal development causes one or more of the abdominal organs to herniate through the diaphragm
- Results in underdevelopment of the affected lung
- Surgical intervention in the first few hours to days of life is required
- Severe cases may result in need for chronic ventilation



Adapted from: <https://www.mountsinai.org/health-library/diseases-conditions/diaphragmatic-hernia>



12

Other Indications for Chronic Ventilation

- Muscle weakness/paralysis
 - Duchenne's muscular dystrophy
 - Spinal muscular atrophy (SMA)
 - Guillain-Barre syndrome
 - Transverse myelitis
- Alterations in neurological functioning
 - Traumatic brain injury
 - Brain tumors
- Alterations in spinal cord functioning
 - Spinal cord injuries
 - Spinal cord tumors



13

Nursing Priorities

14

Go Bag: Supplies that Must be with Student at all Times

- Extra tracheostomy tubes with obturator
 - One of the same size
 - One half a size smaller
- Syringe for cuffed trach
- Extra trach ties
- Scissors/chain cutters
- Lubrication packets
- Saline (if ordered)
- Suction machine
- Suction catheters
- Self inflating bag
- Pulse ox machine and probe (if ordered)



15

Humidification

- Proper humidification is essential to the tracheostomy dependent child
- Without proper humidification a mucus plug is inevitable
- Humidification at school:
 - Heat Moisture Exchanger (HME)
 - Ventilator
 - Saline for instillation if indicated



16

Suctioning

- Suction Machine
- Gloves
- Suction Catheter
 - Length
 - Diameter
- Saline (not for routine use)
- Suction at least every 12 hours and as needed
- Monitor quantity and quality of secretions
- Important to suction to ordered depth to effectively clear secretions and prevent airway trauma



17

Preventing Emergencies

- Know the child
 - History: Why do they have a trach?
 - Baseline status
- Equipment: Be familiar with use and maintenance
 - Ensure student always has emergency equipment with them (go bag)
- Monitor the child's status
 - Awake, alert, trained caregiver 24/7
- Note changes to status
 - Secretions
 - Oxygenation
 - Position of trach
- Provide Routine care
 - Suctioning
 - Proper humidification

18

When Prevention Does Not Work

- **BE SYSTEMATIC WHEN ASSESSING FOR A PROBLEM**
 1. Is the trach in the stoma?
 2. Is the trach patent?
 - If child is stable attempt to suction trach. Saline can be used if secretions are thick.
 - If child does not improve with suctioning, is not stable, or mucus plug is suspected, change the trach.
 - **IT IS NEVER WRONG TO CHANGE THE TRACH! WHEN IN DOUBT CHANGE IT OUT**
 3. Start manual ventilation: use self inflating bag
- **Call 911 if student is not improving or actions do not solve the problem**
- **Monitor CV status and start CPR if it becomes indicated**



19

Tracheostomy Complications

20

Mucus Plugs

Mucus plugs are secretions that are thick and plug the tracheostomy tube. This can occur from lack of humidity or illness. These can cause the tracheostomy tube to completely occlude leading to a medical emergency.

Preventing a plug = HUMIDIFICATION



21

Skin Breakdown

Some redness is to be expected, but careful assessment, routine repositioning and thorough cleaning usually will prevent it from becoming a problem.



22

Skin Breakdown

Yeast is a common finding in children with tracheostomy tubes and is characterized by a red area with a raised pinpoint rash.

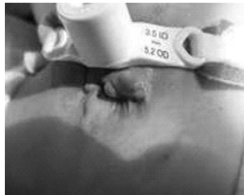


Keeping skin dry and clean is the best prevention for yeast overgrowth.

23

Granuloma

Granulomas are overgrowth of scar tissue often caused by excessive moisture and/or friction at the trach site

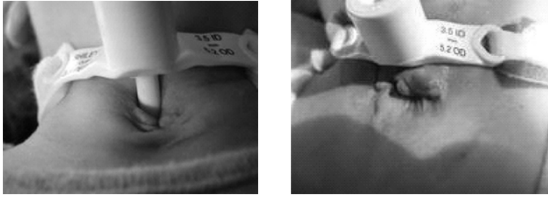


Keeping the trach site clean and dry and reducing friction will help prevent granulomas from forming

24

Granuloma?

Some irregular skin folds around the stoma are normal and may be confused with granulomas



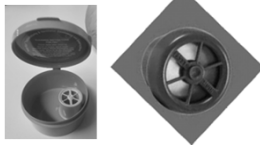
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Developmental Support

26

One-way valve (speaking valve)

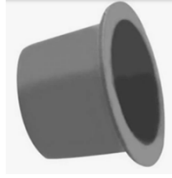
- One way valve placed on trach or in ventilator circuit that allows inhalation through the trach but closes during exhalation, forcing air out of the mouth and nose
- Helps facilitate speaking and swallowing and may restore physiological PEEP
- May be used as a tool to progress toward decannulation
- **Must be used under direct supervision of a trained caregiver**
- Use may be paused or limited during acute illness
- Remove valve to suction or for signs of acute respiratory distress
- Must be removed for sleep



27

Tracheostomy Cap

- Placed directly on tracheostomy tube
- Occludes tracheostomy tube to facilitate inhalation and exhalation through mouth and nose
- Often used as a tool to progress toward decannulation
- **Must be used under direct supervision of a trained caregiver**
- Use may be paused or limited during acute illness
- Remove cap to suction or for signs of acute respiratory distress
- Must be removed for sleep



28

Implications for School Nurses

29

Know your student

- Why do they have a trach?
- Do they have the supplies they need at school?
- Are you familiar with equipment and how to use it?


Skill knowledge

- Following delegation guidelines
- Ensuring skills are within scope of practice
- IHP development



30


Questions?





31

References

Baker, C. D., Martin, S., Thrasher, J., Moore, H. M., Baker, J., Abman, S. H., & Gien, J. (2016). A standardized discharge process decreases length of stay for ventilator-dependent children. <i>Pediatrics</i> , 137(4). doi:10.1542/peds.2015-0637
Credland, N. (2016). How to perform a tracheostomy dressing and inner cannula change. <i>Nursing Standard</i> , 30(30), 34-36. doi:10.7748/ns.30.30.34.s44
Kozin, E., Straton, J., & Kapo, J. (2012). Tracheostomy care #250. <i>Journal of Palliative Medicine</i> , 15(3), 359-360
Morris, L. L., Whitmer, A., & McIntosh, E. (2013). Tracheostomy care and complications in the intensive care unit. <i>Critical Care Nurse</i> , 33(5), 18-30. doi:10.4037/ccn2013518
Parker, L. C. (2014). Tracheostomy Care. <i>Nursing Critical Care</i> , 9(6), 38-41. doi:10.1097/01.ccn.0000453466.57833.dd
Schreiber, M. (2015). Clinical 'how to': tracheostomy: site care, suctioning, and readiness. <i>MEDSURG Nursing</i> , 24(2), 121-124.
Sterni, L. M., & Carroll, J. L. (2016). <i>Caring for the ventilator dependent child: a clinical guide</i> . New York: Humana Press.



32



Ventilator 101
 Meagan Watton, RRT
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 720-777-6195

1

Common Ventilator Models

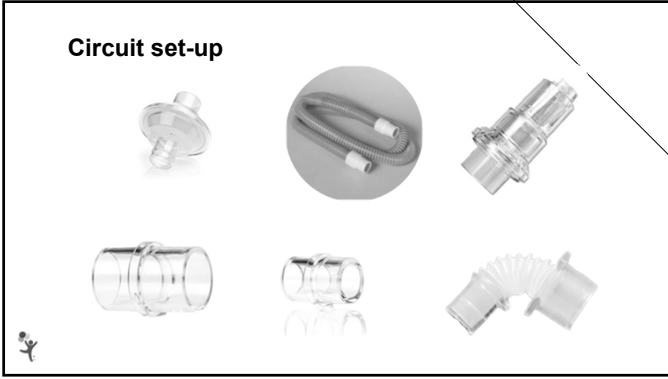


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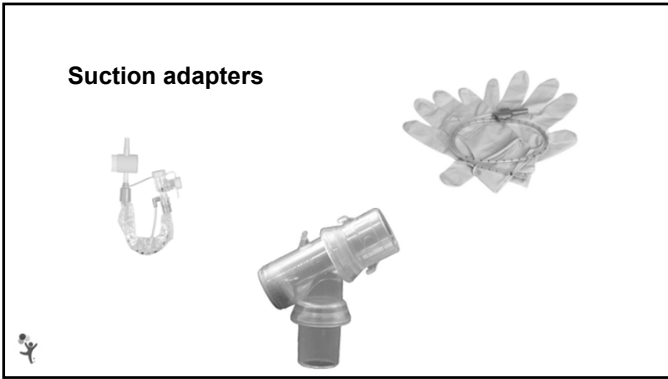
Power cords and Internal batteries

<p>1</p> <p>Each ventilator has internal batteries and will display battery usage</p>	<p>2</p> <p>Please ensure that power cord comes to school with the child.</p>	<p>3</p> <p>If you have concerns about battery life or the machine, please contact caregivers.</p>
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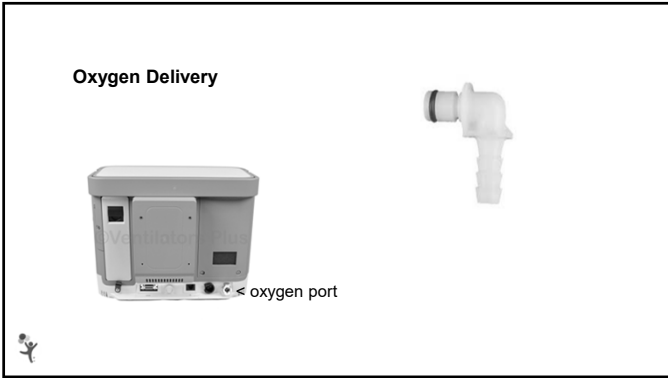
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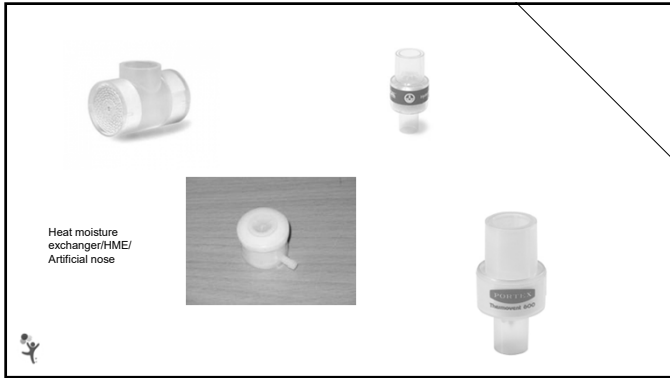
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6



7

Common ventilator modes:

- AVAPS (ST & PC)
- SIMV (VC & PC)
- Bipap (ST)
- CPAP

A small stick figure icon is in the bottom left corner.

8

Common ventilator alarms

- Circuit disconnect
- Low circuit leak
- High inspiratory pressure
- Low inspiratory pressure
- High Vte
- Low Vte
- High RR
- Low RR
- Check circuit
- Starting on battery power or switching to internal battery

A small stick figure icon is in the bottom left corner.

9

How to trouble shoot ventilator alarms

1. Always ensure the trach is in place.
2. Do they need to be suctioned?
3. Did something become disconnected?
4. Could there be a leak?
5. If none of these fit, is there something wrong with the vent?



When in doubt, change it out!!



10

Manual ventilation

- Is your patient struggling to breathe despite being on the ventilator?
- Are they turning blue or using accessory muscles?
- Are they oxygen saturations below normal?
- Is the ventilator malfunctioning?



When in doubt, bag it out!!



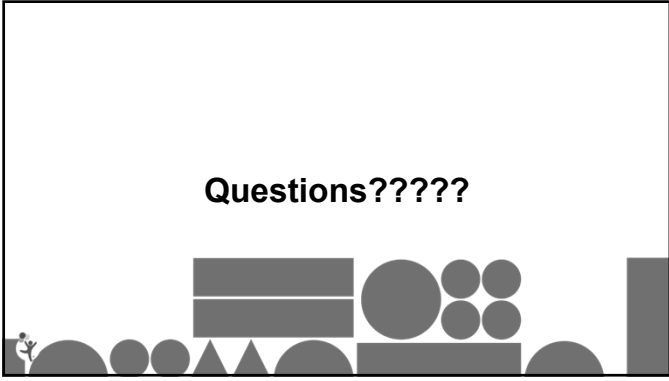
11

Emergency "GO BAG"

- Self inflating bag
- Trach change supplies
- Spare trachis
- Suction supplies



12



The ABC's of Gastrostomies in School

Catherine Doernbrack MSN, RN, CPNP-PC
Caring for the Student with a Tracheostomy or Gastrostomy Tube in the School Setting
January 14, 2025
Aurora, Co

The Children's Hospital
University of Colorado

1

Financial Disclosures

I have no financial disclosures to announce

2

Objectives (ABC's)

Appliance and Anatomy

- Why Children Have Gastrostomies
- How they are placed
- Common Types of G-tubes

Basics of Care Maintenance

- Stoma Site Care
- Supplies
- Feeding

Complications and Care Coordination

- Troubleshooting
- Stoma preservation
- Delegation
- Resources

3

3

Why Children Have Gastrostomies (G-tubes)

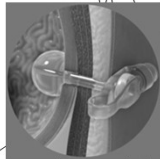
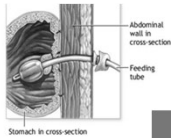
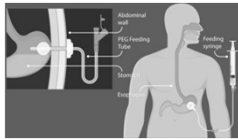
- Gastrostomies provide nutrition and hydration necessary for growth and development when a child does not have the ability to do so safely or adequately by mouth
- Used for long-term feeding supplementation > 3 months duration
- Children require g-tubes for a variety of reasons
 - failure to thrive
 - Aspiration
 - anomaly of the GI tract
 - fundoplication surgery
 - poor oral skills
 - medication compliance



4

Placement of a Gastrostomy

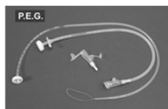
- ▶ Open, laparoscopic, or endoscopic procedure
- ▶ Typically involves suturing the outside of the stomach to the inside of the abdominal wall to facilitate tract development



5

Long Gastrostomy Tubes

- Mic
- Peg
- Foley (temporary)




6

The Balloon Buttons


Features




- Low profile skin level device
- Made of clear silicone
- Internal balloon
- External anti-reflux valve
- Extension tubes lock into place
- Extension tube for feeding and venting
- changed at home every 1-6 months.

Mini One Button



Mic-Key Button



7

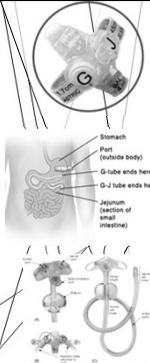
Jejunostomy tubes (J-Tubes)
Gastrojejunal Tubes (GJ-Tubes)

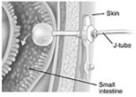
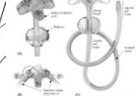
Jejunostomy Tubes J-tube

- ▶ J-tubes go directly into the jejunum (first part of small intestines)
- ▶ Placed to help with feeding intolerance
- ▶ Never give a bolus feed through a j-tube, only slow continuous feeds

Gastrojejunal Tube GJ-Tube

- ▶ GJ tubes go into both the stomach and the jejunum
- ▶ G-port ends in the stomach for venting, feeds, meds
- ▶ J-port ends in the small intestine and only tolerates small volumes
- ▶ Note if medications/feeds are given via g-tube or j-tube and administer through correct port
- ▶ Never turn a GJ tube
- ▶ Changed every 3 months in radiology



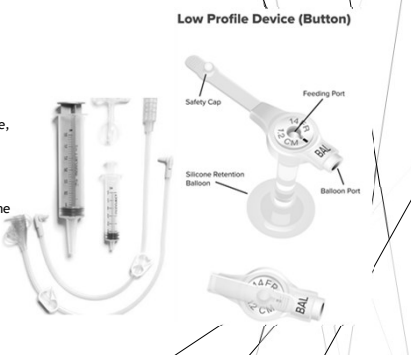



8

G-tube Supplies

- Come in many different sizes - diameter of the tube ("French"), length ("cm")
- Generally diameter will not change, but length does as the child grows
- Supplies: replacement g-tubes or Foleys, extension sets, syringes, gauze, pump, feeding bags, tape,
- Supplies provided by patient's home care company.

Low Profile Device (Button)

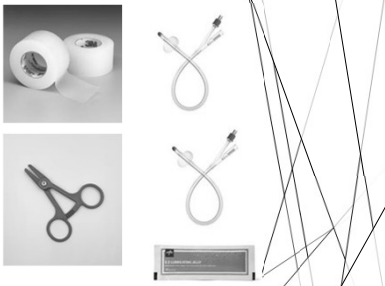


9

Go-Bag Emergency G-tube Supplies

- All students with a g-tube should have an emergency kit available
 - Tape
 - water soluble lubricant
- Foley catheters, and/or spare g-tubes
 - same size and a size smaller
- 5-10mL syringe
- clamps


Caregivers should always have these emergency supplies with them in case of accidental dislodgement to save the tract



10

Skin Care at the Stoma Site

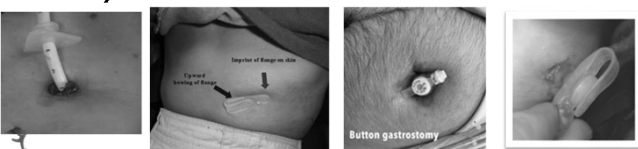
- 1 The skin around the G-tube should be cleansed 1-2 times daily
- 2 Cleanse with warm soapy water, let the area dry
- 3 Do not rotate the g-tube in the first 8 weeks
- 4 If the site leaks, apply gauze with tic tac toe tape pattern
- 5 Remove extension tube after each use (after first 2 weeks)



11

Evaluate Fit (Goldilocks Method)

1 Too Long 2 Too Short 3 Just Right



12

Feeding The Child With a Gastrostomy

- ▶ Bolus Feedings - syringe, gravity bag, or pump-assisted
- ▶ Continuous Feedings - pump

Illustration credit: <http://healthguides.abc.org/parenting/childcare/feeding/feeding-a-child-with-a-gastrostomy>

13

Bolus feedings

- Syringe
- Gravity bag
- Pump assisted
- Method of feeding depends on child's tolerance – i.e. reflux, vomiting, upset stomach
- In general, bolus feeding should be given over the same time period a child would normally eat (~20min)
- Prime the tubing
- Flush with Water
- The higher the syringe, the faster it goes

14

Continuous feedings

- May be given 20+ hours a day if child has severe intolerance or J-tube feeds
- May be continuous feeding for 8-12 hours overnight with bolus feedings during the day
- Always given by pump

15

Tube Feeding Tips

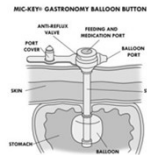
- ▶ Feeding via g-tube should be as "normal" as possible
 - ▶ Hold infants in semi-reclined position, provide oral stimulation with pacifier if recommended
 - ▶ If indicated, give oral feedings before g-tube feedings
- ▶ Older children seated in high chair or at the table if possible
 - ▶ Provide food to touch, smell, taste if safe/recommended
 - ▶ Provide cups, plate, bowl, utensils, or other toys to mouth if food is unsafe



16

Troubleshooting: Leaking from the center of the G-tube

- ▶ Caused by a broken anti-reflux valve
 - ▶ Entire tube must be replaced
 - ▶ Do not put syringes directly into button, use the extension set provided
 - ▶ If port cover is broken, then may attach feeding extension set to g-tube and clamp shut
- ▶ Not an urgent problem



17

Troubleshooting: Leaking around the G-tube site


- ▶ Causes: Granulation tissue, coughing, constipation, poor G-tube fit, leaking balloon
- ▶ Determine cause and treat if necessary
- ▶ Stabilize tube to prevent excessive movement
 - ▶ Use 2x2's under g-tube to help with fit and to absorb drainage, secure with tic tac toe tape
 - ▶ Have parents check the water in the balloon after school
- ▶ Appointment to evaluate size if unclear
- ▶ Protect the skin with barrier cream
- ▶ Not an urgent problem



18

Troubleshooting: Granulomas

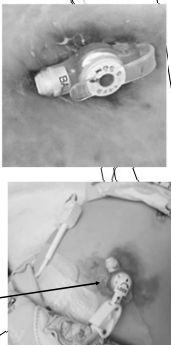
- ▶ Granulation tissue
 - ▶ Caused by manipulation of the tube, body's reaction to a foreign object, incorrectly sized tube
 - ▶ Determine cause and eliminate if possible
 - ▶ Treated with topical Rx steroid medications
 - ▶ If not improving with topical treatment have family call clinic for silver nitrate treatment
 - ▶ Secure tube with gauze and tape to prevent movement



19

Troubleshooting: Skin irritation at the site

- ▶ Skin is red, excoriated, sore, weepy
- ▶ Determine cause and treat
- ▶ Possible Causes:
 - ▶ leaking of gastric contents around g-tube site
 - ▶ tape sensitivity
 - ▶ manipulation of the G-tube
 - ▶ wrong size g-tube
 - ▶ Fungal overgrowth
- ▶ Clean with warm soapy water
- ▶ Apply topical skin barrier cream
- ▶ Keep Site Clean and Dry



Candida satellite lesions

20

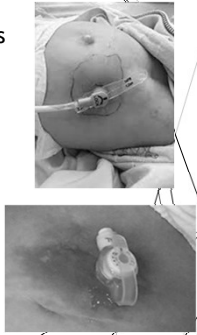
Troubleshooting: Bleeding at G-tube site

- ▶ Causes
 - ▶ Granuloma
 - ▶ Manipulation of tube
 - ▶ Tube was dislodged (pulled out)
 - ▶ Skin breakdown
- ▶ small amount of bleeding can be normal and is not an emergency, determine source of bleeding
- ▶ Apply pressure with gauze or a soft cloth x 5-10 minutes
- ▶ If bleeding does not stop, send them in

21

Troubleshooting: G-tube Cellulitis

- ▶ Infection of the skin around the tube (cellulitis) is rare
- ▶ Skin around G-tube is reddened, firm, and warm to the touch
- ▶ The redness spreads by the hour
- ▶ The child may run a fever
- ▶ The G-tube site is VERY painful
- ▶ May require treatment with oral or IV antibiotics (need same day appointment)



22

Troubleshooting: The G-tube came out

- ▶ Don't Panic
- ▶ Remain Calm
- ▶ Preserve the Stoma
- ▶ Call the Parents



23

Stoma Preservation

- ▶ If balloon button (Mic-Key, Mini One, etc.)
 - ▶ Balloon intact and filled → deflate balloon, put g-tube back in stoma, tape in place, call parent/emergency contact
 - ▶ Balloon broken/empty → put g-tube back in stoma, tape in place, call parent/emergency contact
 - ▶ If RN is comfortable, district policy allows, and the g-tube was placed > 8 weeks ago, RN may inflate balloon
- ▶ If unable to replace button, insert a Foley catheter or a smaller size g-tube, tape in place, and call parent or emergency contact.
- ▶ If GJ tube, or Long g-tube use balloon button or Foley for stoma preservation, they will need to go in to the hospital for replacement
- ▶ Stoma can close within hours if button is left out.
- ▶ If the stoma narrows or closes, the child will need a painful dilation or another surgery to replace the tube.



24

Can you Delegate it?

► Yes you can (provider order required, RN within scope, LPN, and UAP delegated)

1.6 Oral Feeding			
1.6.1 Nutritional Assessment		W	X
1.6.2 Oral Feeding	Y	W	T
		*	
1.7 Special Feeding			
1.7.1 Naso-Gastric Feeding	Y	W	S
		*	D
		*	*
1.7.2 Gastrostomy Feeding	Y	W	S
1.7.3 Jejunostomy Tube Feeding	Y	W	S
1.7.4 Total Parenteral Feeding (intravenous)	Y	W	X
1.7.5 Emergency Preservation of Gastrostomy stoma	Y	W	D
		*	*
		*	*
1.7.6 Retrieval of Gastrostomy button or tube for feeding	Y	W	X
		*	*



25

Revised Tube Feeding Authorization Form

- Prompt attention is important if a gastrointestinal feeding tube becomes dislodged. The tract can narrow or close in less than one (1) hour if it is not preserved. Do not use the G-tube or Foley catheter for feedings or medications until placement is verified by the parent. If stoma < 8 weeks old stoma preservation may only be performed by a RN, and placement must be verified by provider before the tube is used.
- School nurse or trained/delegated personnel will preserve the stoma:
- Using a G-tube: use new or dislodged balloon G-tube (Mic-Key) if available and undamaged. Deflate balloon, lubricate shaft with water-soluble lubricant if available (such as Surgilube) and insert into gastrostomy site. DO NOT INFLATE THE BALLOON. Secure in place with medical tape.
- Using a Foley Catheter: Use Foley catheter of the same diameter (French) or one size smaller than patient's dislodged G-tube. Lubricate the shaft with water-soluble lubricant if available. For a child that is less than one year old or if a child of any age has a tube you should insert the Foley catheter 1 inch. For a child over the age of one year that has a G-tube or a GI-tube you should insert the Foley catheter 2 inches. Kink the tubing so that stomach contents does not leak out and tape it to the skin with medical tape. DO NOT INFLATE THE BALLOON.

Stoma Preservation Plan

- Clinic Name _____
- Phone Number: _____
- Provider's Name (Print): _____ Date: _____ Fax Number: _____
- Provider's Signature: _____
- <https://www.childrenscolorado.org/globalassets/community/school-nurse/gastroenterology/tube-feeding-authorization-form.pdf?v=4f4b7>

26

Troubleshooting:

Kids that pull out their g-tubes

- Is it possible to determine why is this happening? Determine the Root Cause
- Are there known triggers that can be avoided or minimized?
- Is this behavior related to an issue with the device, pain, itch, or is it a behavior that meets another need? For instance, does this happen when the student is generally frustrated and cannot communicate effectively? Is there an issue with the actual g-tube site?
- Can staff anticipate when this is going to happen and provide the student with a diversional activity that prevents him or her from pulling on the device?
- Before applying a physical barrier to prevent pulling, collaboration with the care provider and parent/guardian, in addition to investigating best practices, would need to occur to ensure that any techniques used are safe and appropriate.



27

Summary

- ▶ Gastrostomy tubes are important tools for long-term feeding supplementation for some children
- ▶ Many types of gastrostomy tubes exist - skin level buttons most common device in children
- ▶ Proper skin care and ability to troubleshoot problems is important
- ▶ In the event of dislodgment please preserve the stoma to avoid unnecessary expense, pain, trauma, surgeries
- ▶ We are here to support you, use your resources



Photo credit: <https://i2.wp.com/fitmag.com/fitmag/wp-content/uploads/2018/05/fitmag-003>

28

Resources

- ▶ One Call 720-777-3999
- ▶ Special Care Clinic
 - ▶ Nurse triage 720-777-6739
 - ▶ Care Coordination 720-777-2950
- ▶ Surgery G-Tube Clinic Nurses 720-777-8858
- ▶ Family Learning Center 720-777-5329
- ▶ CHCO Website
 - ▶ School Nurse Resources
 - ▶ <https://www.childrenscolorado.org/community/health/school-health/school-nurse-resources/> Community



29

The New School Nurse Resources Website!!!

<https://www.childrenscolorado.org/community/health/school-health/school-nurse-resources/>

Children's Hospital Colorado

Doctors & Department | Conditions & Advice | Your Visit | Community | Research & Clinical

Gastrointestinal (GI) Forms

- G-Tube Medication Log
- Procedure Guidelines and Competency Checklist: Accidental Removal of Mini-Key or Mini-One G-Tube Device From Stoma, WEP-Healed Stoma
- Training, Delegation, Authorization and Supervision Form: Accidental Removal of Bard-Lex Nasal Device
- Training, Delegation, Authorization and Supervision Form: Gastrostomy Feeding Slow Drip/Continuous Method
- Training, Delegation, Authorization and Supervision Form: Gastrostomy Feeding Bolus
- Training, Delegation, Authorization and Supervision Form: Medication Administration Via Gastrostomy Tube
- Training, Delegation, Authorization and Supervision Form: Venting Gastrostomy Tubes
- Tube Feeding Authorization and Action Plan


GI Handouts

- Care of a Gastrostomy Tube
- Cuidado de la Sonda de Gastrostomía
- How to Use G-Tube
- Cleaning and Dressing a G-Tube
- Escapes
- Escapes (Español)
- Gastrostomy Tube (G-Tube) Checklist
- Sonda de Gastrostomía (Sonda de Sonda) Lista de Verificación
- Venting a G-Tube / Viento Medications in a G-Tube
- Ventilación de una Sonda Gástrica / Administración de Medicamentos por una Sonda Gástrica

30

References

- Delegation Grid - CDE website
- Tube Feeding Authorization Form CDE website
- Supporting Students with Special Healthcare Needs - Guidelines and Procedures for Schools 3rd Edition
- PDFs Handouts published by CHCO attached to this conference
- Children's Hospital Colorado YOUTUBE channel has multiple videos on g-tube care



31



Questions?
Thank you so much for all you do to care for kids!

32

32
