



Pediatric Clips

NURSING

Technology-dependent trach care
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Pediatric Nursing Clips from Pediatric Advanced Practice Nurses at Dayton Children's are quick reviews of common pediatric conditions.

The Children's Medical Center is the region's pediatric referral center for a 20-county area. As the only facility in the region with a full-time commitment to pediatrics, Children's offers a wide range of services in general pediatrics as well as in 35 subspecialty areas for infants, children and teens. We welcome your inquiries about services available — call 937-641-3666 or e-mail marketing@childrensdayton.org.

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CASE STUDY

Anna is a one-year-old female, former 24-week premature infant, with a history of tracheomalacia. She has a 3.5 pediatric Shiley tracheostomy tube that

requires a continuous positive pressure ventilation (CPAP) of 12. She arrives at the doctor's office today because she woke up this morning with a low-grade fever and in-

creased secretions that are slightly blood tinged, which have an odor. Her oxygen saturations are in the low 90s on room air.

CASE DISCUSSION

When Anna becomes sick, she requires immediate attention and is often hospitalized. She will require an intense respiratory assessment, which includes auscultation of her lungs, sputum culture from her trach tube and a chest x-ray to rule out pneumonia. Some lab work may be required to check her hydration and cell counts. Children with tracheostomies are at high risk for respiratory infections because the trach tube bypasses the natural defenses (nasal hair and mucus membranes) of the upper airway that filter out dust and bacteria. Any blood in the secretions requires the notification of Anna's pulmonary physician. The airway has superficial vessels that could cause significant problems if they rupture. Blood tinged secretions can also be the result of inflammation from suctioning of the airways.

A child with complex technology dependence requires continuous monitoring and immediate response to changes in his or her condition. It may be necessary to provide increased oxygenation and pressure support in order to maintain his or her respiratory status. Caregivers are carefully trained in all aspect of his or her child's care. A trained caregiver is required to be with the patient at all times and be prepared to respond to any need that the child may have. Taking a child home who is technology

dependent is challenging for caregivers. Many resources are needed such as home nursing, home care equipment companies, therapies and numerous doctor appointments. These children are difficult to transport, secondary to their medical conditions and necessary medical equipment.

DEFINITION

Tracheostomy refers to the opening created by the tracheotomy procedure. Sometimes this term is used interchangeably, but tracheotomy usually refers to the operation itself. A tube is inserted through the opening in the neck (trachea) to allow passage of air and removal of secretions. Instead of breathing through the nose and mouth, the child will now breath through the tracheostomy tube. After a child has a trach, he or she is unable to vocalize. The major purposes for the tracheotomy procedure in children are subglottic stenosis (blockage or narrowing in the airway), tracheomalacia (collapse in the airway), airway occlusion (secretions and mucus which cause aspiration), long-term ventilation, neuromuscular disease, hypoventilation or central apnea and obstructive sleep apnea.

DAILY CARE OF TRACH

Suctioning is performed to clear the trach tube of mucus, so that the trach tube itself will not become blocked, therefore making it

difficult to breathe. This is done with a catheter that is inserted into the trach to a premeasured length determined by the depth of the tracheostomy tube. Signs that a child needs suctioning include moist noisy breathing, increased coughing, increased work of breathing, appearance of mucus in the tip of the trach tube and/or decreased oxygen saturations. It is important to always have the humidification device attached to the trach to help keep the secretions moist and prevent mucus plugging in the trach. Normally, the nose serves to moisten the airway but when a trach tube is inserted the anatomy and function is interrupted.

Suctioning too deeply may injure the lining of the airway. The tissue on the inside lining of the trachea is sensitive. If the suction catheter adheres to the tissue and pulls away, inflammation results and eventually a granuloma may form. A large granuloma may block the airway or cause bleeding and require surgical intervention. Thus, caregivers are taught to suction only to the end of the trach tube.

The trach tube and tracheal secretions may irritate the skin around the stoma. Daily care of the trach site is needed to prevent infection and skin breakdown under the tracheostomy tube and ties.

Continued

Continued from the front.

Trach care should be provided at least once a day, more often if needed. Be sure to keep the area free of moisture, drying well after cleaning with soap and water. Children with new trachs or children on ventilators may need trach care more often. Tracheostomy dressings are used if there is drainage from the trach ostomy site or irritation from the tube rubbing on the skin. It is important that the trachs are changed every week and all equipment meticulously cleaned on a routine basis. Discarding equipment according to manufactures guidelines and handwashing are valuable in preventing infection.

EMERGENCY CARE

A major complication that children with tracheostomies have is thickening of the secretions causing blockage of the trach tube, which causes respiratory distress. Another complication is accidental dislodgement of the trach tube, which causes respiratory distress due to the loss of the airway. Caregivers are taught how to emergently change the trach tube in these situations. Caregivers must know how to perform CPR via the trach if distress causes respiratory and/or cardiac arrest. Every child that is sent home from Dayton Children's will receive a "Go-Bag" with all necessary medical and emergency equipment in it. The

importance of taking the stocked "Go-Bag" with the child anytime he/she is not at home is emphasized and is required for safety in all trached children. The "Go-Bags" were provided by a grant from The Children's Medical Center Foundation. References and resources are available at Dayton Children's. For more information, contact riedela@childrensdayton.org.

BIBLIOGRAPHY

Aaron's Tracheostomy Page, Bissel, Cynthia. (2007, Feb). Retrieved from <http://www.tracheostomy.com>.

FEATURED NURSE SPECIALIST



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CRITICAL CARE AT DAYTON CHILDREN'S

The Wallace Critical Care Complex at Dayton Children's houses the regional pediatric intensive care unit and intermediate care unit. This state-of-the-art area set a new standard of care for the region's critically ill or injured children when it opened in June 2006. At Dayton Children's, the pediatric experts in

the critical care complex care for more than 1,600 children every year. No other intensive care unit in our region offers this level of experience. The nursing staff all have pediatric advanced life support training and all complete the trauma nurse core curriculum. An advanced practice nurse and a clinical nurse specialist work closely with families to make sure children get the very best care. Members of the PICU staff are part of Dayton Children's transport team. This team is specially trained to transport infants and children in mobile intensive care units.



For further information about The Children's Medical Center of Dayton or its nursing program contact the nursing recruiter at 937-641-3666 or marketing@childrensdayton.org.



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