

Tracheostomy Tubes: Components and Clinical Implications

What is a Tracheostomy?

A tracheostomy is a surgically created opening (stoma) in the anterior neck that provides direct access to the trachea. A tracheostomy tube is inserted into this opening to maintain airway patency and support breathing. Tracheostomies may be temporary or permanent and are performed for a variety of indications, including airway obstruction, facilitation of weaning from mechanical ventilation, long-term ventilatory support, and pulmonary hygiene.

Parts of a Tracheostomy Tube:

Outer Cannula:

The primary tube that is inserted into the trachea and maintains airway patency.

Inner Cannula:

Fits inside the outer cannula and can be removed for routine cleaning and maintenance.

Standard Connector (15mm):

A universal connector that allows attachment of ventilator circuits and other airway devices, such as speaking valves and heat and moisture exchangers (HMEs).

Neck Flange:

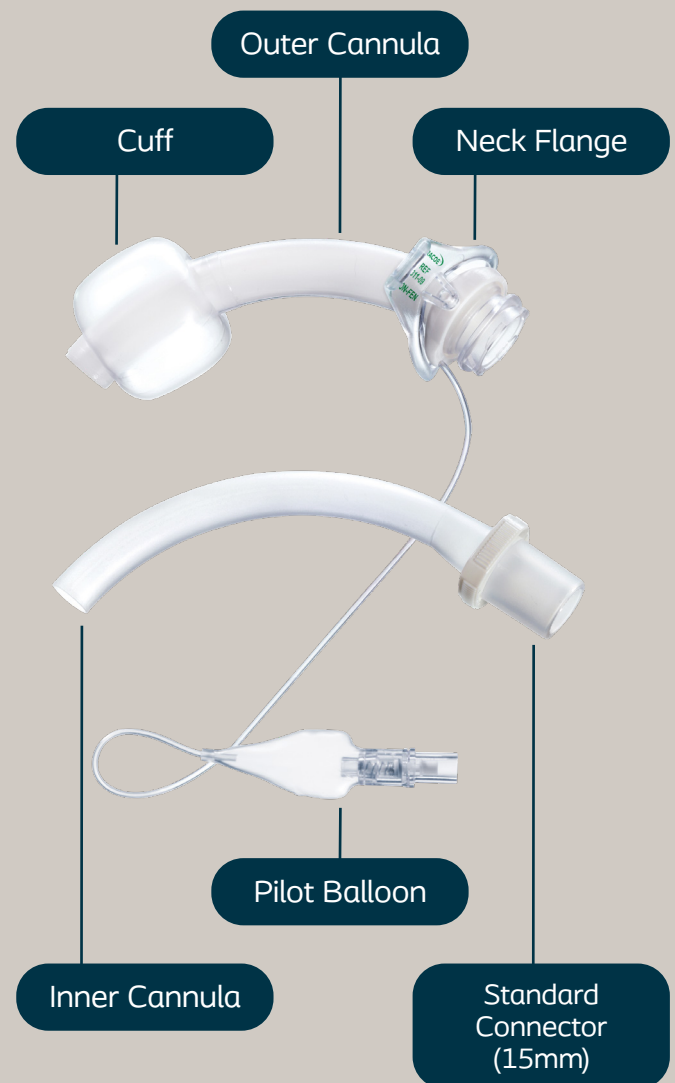
External plate that rests against the patient's neck. It provides stabilization of the tracheostomy tube, tracheostomy tube information (e.g., size and dimensions) and has small openings on each side for attaching tracheostomy ties (neckband).

Cuff:

A balloon-like structure on the outer cannula that can be inflated or deflated. When inflated, it creates an airtight seal for mechanical ventilation and offers a degree of protection against material entering the lower airway.

Pilot Balloon:

Indicates cuff inflation status and allows for cuff inflation and deflation.



Tracoe Twist Plus Tracheostomy Tube

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Airflow Changes After a Tracheostomy

Following a tracheostomy, airflow bypasses the upper airway (nose, mouth, pharynx, and larynx) and enters the lungs directly through the tracheostomy tube.

Physiologic Changes After Tracheostomy

Filtration and Humidification

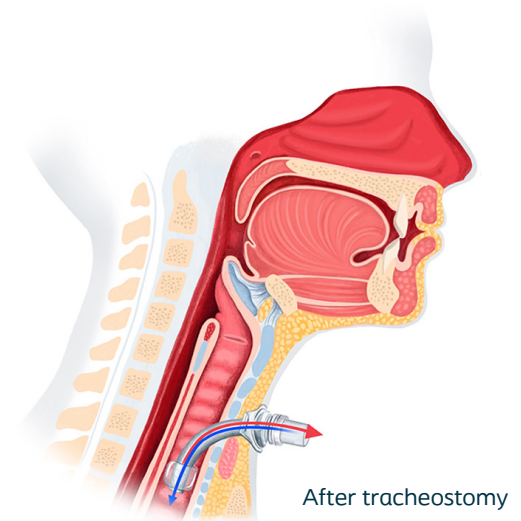
Bypassing the upper airway results in reduced humidification and filtration, impaired mucociliary function, thickened secretions, and increased risk of respiratory complications and infection.

Speaking:

Airflow no longer passes through the vocal folds, preventing audible phonation.

Swallowing:

Swallowing may be affected due to reduced subglottic air pressure, decreased cough effectiveness, altered upper airway sensation, and changes in breathing–swallow coordination.



Multidisciplinary Management

- Restoration of airflow, humidification, and upper airway function requires a multidisciplinary approach, including physician, respiratory therapy, speech-language pathology, and nursing.
- Devices such as speaking valves and heat and moisture exchangers (HMEs) play a critical role in supporting voice, swallowing, cough effectiveness, and pulmonary health.

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