# **DECISION ON CATHETER SIZE AND INSERTION DEPTH: CRITICAL ISSUES IN PEDIATRIC / NEONATE SUCTION** MANAGEMENT

Distinct differences exist in physiology and pathology of the pediatric and adult patients thus limiting in them the use of adult-derived airway clearance and maintenance modalities.<sup>1</sup>

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### **DIFFERENCES BETWEEN ADULT AND NEONATE/PEDIATRIC AIRWAYS**



Immature respiratory and cardiovascular systems affecting compensatory mechanisms<sup>2</sup>



Decreased respiratory reserve<sup>2</sup>



Developing airway until around 8 years of age<sup>2</sup>



High metabolic and oxygen requirements<sup>2</sup>



Lower lung volumes at end expiration<sup>2</sup>



Increased susceptibility to muscle fatigue, leading to respiratory failure<sup>2</sup>

### ASPECTS TO CONSIDER WHILE SUCTIONING INTUBATED INFANTS: SUCTION CATHETER SIZE AND INSERTION DEPTH



leads to:

- Considerable reduction in airway pressures<sup>3</sup>
- Considerable reduction in tracheal tidal volume  $(V_T)^3$
- Mucosal trauma and atelectasis<sup>4</sup>

### **Insertion depth**

Passage of the suction catheter beyond the ETT may lead to risks such as:

 Stimulation of vagus nerve causing bradycardia and hypotension<sup>4</sup>

Deep ETT suctioning may cause:

- Irritation to respiratory epithelium, resulting in inflammation and infection<sup>4</sup>
- Trauma to mucosa<sup>4</sup>

Diameter of the suction catheter must provide an internal-to-external diameter of 0.5-0.66 in infants and pediatric patients. 4,5

- Nasal swelling and epistaxis<sup>1</sup>

Appropriate depth to be achieved while suctioning by inserting the catheter to the predetermined depth and colour marking on the suction catheter when using a closed suction system.4,5

## DID YOU KNOW

As per the AARC guidelines, the use of a shallow suction is recommended to prevent trauma to the tracheal mucosa.<sup>5,6</sup>

Moreover, the use of a closed suction technique facilitates continuous mechanical ventilation and oxygenation during the suctioning event. It may prevent lung derecruitment associated with open suction systems in patients with higher risk of desaturation, for instance in premature newborns. <sup>5,6</sup>

## **OUR SOLUTION**

Avanos Closed Suction Systems designed for neonates and pediatric patients.





#### Improves patient care

Number and color-coded graduations for controlled depth suctioning helps prevent unnecessary tracheal trauma.<sup>7</sup> Catheter sizes ranging from 5Fr up to 12Fr.<sup>7</sup>

#### **Reduces infections**

Closed suction systems reduce the chances for contamination and resultant bacterial colonization within the circuit.<sup>7</sup>

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