

Accuracy of 7-8-9 Rule: Neonatal Endotracheal Intubation

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Sakhuja P¹, Whyte H², Finan E³

¹Dr. Pankaj Sakhuja, Clinical fellow, Acute Care Transport Service, Division of Neonatology, The Hospital for Sick Children, Toronto, Ontario, Canada. ²Dr. Hilary Whyte (Medical Director), Acute care transport service, Division of Neonatology, The Hospital for Sick Children, Toronto, Ontario, Canada, ³Dr. Emer Finan, Neonatologist, Mt Sinai Hospital, Toronto, Ontario, Canada

Address for correspondence: Dr. Pankaj Sakhuja, E-mail: Pankaj.sakhuja@sickkids.ca

Dr. Paudel's observational study highlights the challenges encountered in placement of endotracheal tube in neonatal ICU especially in extreme premature infants where the trachea is much shorter, leaving little margin of error.

The rule of 7-8-9 was suggested by Tochen in 1979 with reference to T1-T2 as a midtracheal position⁴. The newborn larynx is positioned higher in the neck, it extends from C3 to C5 and carina is situated between T3-T5 and most commonly at T4^{1,5,6}. If this information is to be collated then the midpoint of the airway would be somewhere between T1-T2. Wong et al in 2008 published that the sternal notch to the carina represents 60% of the vocal cord to the carina distance⁷. T1 is located just below the sternal notch, it can thus be assumed that T1 is the mid point of the airway (vocal cord to the carina) Rotschild et al in 1999 suggested that the midtracheal position (midpoint of vocal cord to carina distance) is safe for both <1000gm and >1000 gms infants based on 90th centile of changes in ETT position with maximum flexion and extension².

It is widely accepted that the midtracheal position is the ideal. Some have used a point halfway between inferior clavicle and carina on a chest radiograph^{3,5} while others have defined it at the level of the 1st or the 2nd thoracic vertebrae^{1,4}.

The problem with estimating the midtracheal position as a midpoint between the clavicle and carina is that this will not be midtracheal and will insert ETT deeper than required into the airway that might increase the risk of complications. Moreover the level of

the clavicle varies with position at different times in the same patient¹ thus making the estimation inaccurate.

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