The impact of tidal volume on the effectiveness of small HMEs for humidifying the airway remains to be determined. Gas sampling for respiratory gas analysis is, however, desirable in the operating room especially at larger tidal volumes, but that potential difference remains to be determined.

In small infants, even a small increase in dead space will increase PaCO2 or the minute ventilation required to maintain a normal PaCO2. Moreover, as the tidal volume increases, so does the dead space impact on PaCO2. It is possible that HMEs with greater dead space also offer better humidification, especially in very small infants or those at risk for hypercarbia.

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