CLINICAL EVIDENCE SUMMARY

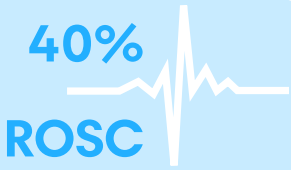
Introduction

In the EMS setting, hypoventilation is a prevalent challenge during manual ventilation, with factors such as resuscitator size, mask seal and clinician training playing pivotal roles.

Standard vs. Pediatric/Small Adult Resuscitators:

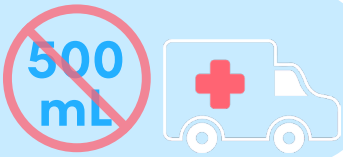
Snyder et al. (2023)

Analysis of 1,994 OHCA patients shows standard adult-sized resuscitators yield higher ROSC (40% vs. 33%), survival to admission (42% vs. 35%), and discharge rates (12% vs. 9%), with lower mortality (88% vs. 91%) when compared to small adult-sized resuscitators.



Sun et al. (2022)

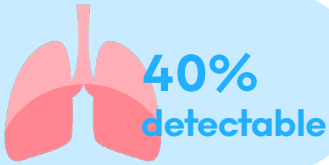
In a moving ambulance simulation, pediatric resuscitators failed to deliver the minimum threshold of 500 mL tidal volume, indicating inadequate ventilation for adults.



Ventilation Quality and Outcomes:

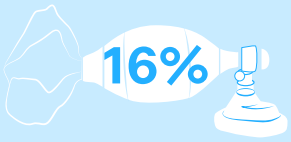
Idris et al. (2023)

In OHCA cases, only 40% of patients had detectable lung inflations in more than half of the pauses during CPR, suggesting suboptimal oxygenation and ventilation.



Neth et al. (2020)

A simulation study found that only 16% of BVM ventilations reached the target tidal volume range of 500-600 mL for adults, with a median volume of just 345 mL.



EMS Training and Technique:

Justice et al. (2024)

EMS clinicians often struggle to provide adequate ventilation without advanced airways, with both adult and pediatric BVMs delivering insufficient tidal volumes.

Conclusion

The evidence underscores the need for improved training and technique in manual ventilation, as well as the importance of selecting the appropriate resuscitator size to enhance patient outcomes in OHCA scenarios.

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