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Title: Time to adjust to changes in ventilation settings varies significantly between different T-piece resuscitators, self-inflating bags and manometer equipped self-inflating bags

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Body: Background: Resuscitation guidelines give no preference over use of self-inflating bags (SIB) or T-piece resuscitators (TPR) for manual neonatal ventilation. We speculated devices would differ significantly regarding time required to adjust to changed ventilation settings. Methods: Laboratory study. Time to adjust from baseline PIP (20 and 25 cmH₂O) to target PIP (25 and 40 cmH₂O), ability to adhere to predefined ventilation settings (PIP, PEEP and RR) and the inter-operator variability were assessed for a SIB without manometer, SIB with manometer (SIBM), and two TPRs. Results: Adjustment time was significantly longer with TPRs, compared to SIB and SIBM. The SIBM and TPRs were < 5% (median) off target PIP, the SIB was 14% off target PIP. Significant inter-operator variability (IQR: 71%) was seen with SIBs. Conclusions: PIP adjustment takes longer with TPRs, compared to SIB/SIBM. TPRs and SIBM allow satisfactory adherence to ventilation parameters. SIBs should only be used with manometer attached.