

## BVM VENTILATION

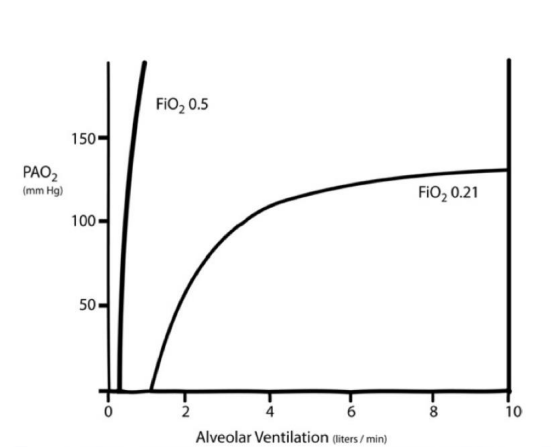
The question at hand: “Can we use utilize a pediatric BVM to deliver safe and adequate oxygenation/ventilation to an adult patient?”

The Problem with the Adult BVM:

- No consistency with delivered Vt's (Dosed off the size of providers hand & technique)
- Potential to deliver >1200cc's
- No standard on whether this is a one hand or two hand squeeze.
- Dynamics change drastically once the patient is intubated and dead space is reduced

What questions come up when we discuss utilizing a pediatric BVM?

1. Will it deliver enough alveolar ventilation to efficiently oxygenate an adult patient?



The alveolar ventilation/PAO<sub>2</sub> graph shows how many liters per minute of alveolar ventilation are needed to adequately oxygenate the alveoli. At an FiO<sub>2</sub> of approximately .5 we only need 1 liter/minute to generate a PAO<sub>2</sub> >150! Now obviously 1 Lpm doesn't take care of the ventilation side of the equation, but we can see how little minute ventilation is needed to oxygenate.

2. Does the pediatric BVM deliver consistent Vt's?

In my research and anecdotal experience, I have seen Vt's range from 500-600cc's with a pediatric BVM. These were however tested on a Michigan Instrument 5600i dual test lung. The BVM was directly connected to the machine and standard compliance was set. Providers were blinded to the measurements and asked to squeeze the bag with one hand. The interesting aspect of this was not only the consistent volumes with providers, but a very small change when providers were to use two hands. This is drastically different from the adult BVM with higher deviation from one hand to two.

## MANUAL RESUSCITATOR BAG

### DISPOSABLE BAG RESERVOIRS AND CLEAR CUSHION FACE MASKS

The Rüscher Manual Resuscitator Bag comes fully assembled and is designed to meet ASTM standards. It is fully collapsible for easy and convenient storage. The Rüscher Manual Resuscitator is available with kink-resistant oxygen tubing or bag oxygen reservoirs, a clear cushion mask and a textured bag for a sure grip. Additionally you have the availability of a medication port for use with a Metered Dose Inhaler (MDI) or syringe.

### PRODUCT SPECIFICATIONS

	ADULT	PEDIATRIC	INFANT
Approximate Bag Volume	1500 ml	900 ml	320 ml
Average Stroke Volume (1 hand)	600 ml	600 ml	250 ml
Average Stroke Volume (2 hand)	975 ml	690 ml	300 ml
Storage and Operating Temperature	0° to 123°F	0° to 123°F	0° to 123°F
Inspiratory Resistance (@50 lpm)	6 cm H <sub>2</sub> O	6 cm H <sub>2</sub> O	6 cm H <sub>2</sub> O
Expiratory Resistance (@50 lpm)	5 cm H <sub>2</sub> O	5 cm H <sub>2</sub> O	5 cm H <sub>2</sub> O
Dead Space	7 ml	7 ml	7 ml
FI <sub>O2</sub>	96%	99%	94%

## Specifications

Description	Adult	Paediatric	Neonate
Stroke volumes	700 ml	450 ml	150 ml
Patients weight	> 30 kg (10 years)	10-30 kg (1-10 years)	< 10 kg (1 year)
Total bag volume	1475 ml	635 ml	220 ml
Dimensions (length x diameter)	291 mm x 128 mm (11.45 in. x 5 in.)	245 mm x 99 mm (9.65 in. x 3.9 in.)	165 mm x 70 mm (6.49 in. x 2.7 in.)
Oxygen reservoir volume	1500 ml	1500 ml	1500 ml
Patient connector Outside	22 mm (ISO)		
Patient connector Inside	15 mm (ISO)		
Expiratory connector (for PEEP valve attachment)	30 mm male (ISO)		
Forward and backward leak	Not measurable		
Operating temperature	-18° C to 50° C (-4° F to 122° F) at humidity between 15% and 95%		
Storage temperature	-40° C to 60° C (-40° F to 140° F) at humidity between 40% and 95%		

Ambu Oval Plus Silicone Resuscitators can be autoclaved repeatedly at 134°C

This product does not contain natural rubber latex.

The bags are made of silicone rubber