

Patient Centered Considerations when Selecting an Oscillating Positive Expiratory Pressure (OPEP) Device

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INTRODUCTION

Efficacy is a major aspect when selecting an OPEP device for airway clearance.

However, **usability of the device** is also another very important aspect to consider in device selection as this may affect adherence to the therapy.

This study compares patient use factors for several different OPEP devices (covering design improvements introduced over time) with the aim of highlighting usability differences, as it may help with device selection.

METHODS

Four different OPEP devices were evaluated. These were:

1. **Aerobika**[®] (Monaghan Medical)
2. Acapella Choice Blue[†] (Smiths Medical)
3. Flutter[†] and similar (multiple manufacturers – e.g. Pari OPEP, AirPhysio, Gelomuc[†])
4. vPEP[†] (DR Burton).

Previous studies have outlined the performance differences between devices, due to **differences in mechanical action**, which are likely to result in different patient outcomes.

The **patient 'friendly' factors that were assessed** to evaluate usability of each device were:

- A. Orientation independent use,
- B. Ability to change exhalation resistance,
- C. Ease of cleaning,
- D. Ease of disinfecting,
- E. Life span of device, and
- F. Ability to use connected to a nebulizer.

For each factor, a score of either 1, 3 or 5 (the higher the better) was assigned, enabling a total score to be calculated.

The scoring justification is supported from device leaflet content and previous publications.



RESULTS

	AEROBIKA [®]	ACAPELLA CHOICE BLUE [†]	FLUTTER [†] and Similar	vPEP [†]
Orientation independence Does device angle impact performance?	5 Mechanism not gravity dependent	5 Mechanism not gravity dependent	1 Internal metal ball mechanism -gravity dependent	3 Mechanism only allows some angle or pitch movement
Exhalation resistance variability Does adjustment change resistance?	5 5 resistance settings / good differentiation	5 Multiple resistance settings / good differentiation	1 Needs to be held at specific angles	3 3 resistance settings / poor differentiation
Ease of cleaning Are there multiple cleaning methods?	5 Easy to take apart and reassemble (4 parts). Dishwasher safe	5 Easy to take apart and reassemble (4 parts). Dishwasher safe	3 Easy to take apart and reassemble (3 parts). Dishwasher safety not always assured	3 Easy to take apart and reassemble (4 parts). Dishwasher safety not noted for cleared device
Ease of disinfection Are there multiple disinfection methods?	5 Includes steam sterilization, microwave, boiling, alcohol, hydrogen peroxide, bleach	3 Includes boiling, alcohol, hydrogen peroxide (contains metal parts)	1 No disinfection methods noted for most versions (contains metal parts)	3 Includes alcohol and hydrogen peroxide (contains metal parts)
Life span of device 12 mo., 6 mo. or undocumented lifespan	5 12 months	3 6 months	3 Variable – from no information to 6 months	1 No information - unclear
Ability to use with nebulizer Delivery of aerosol equal to nebulizer alone?	5 Yes - with good neb delivery	3 Yes - but potential to lose drug	1 Not possible	3 Yes - but not included in the intended use
Total Scores	30	24	10	16

CONCLUSIONS

The many differences in device ease of use and flexibility that are shown in the table will hopefully provide some guidance when selecting the best device for each patient.

Combining usability findings with evidence of likely efficacy when adherent will enable a more objective selection of device. Notwithstanding that the patient themselves will provide good validation of the correct choice.