

Evaluation of the Performance of CPAP Heated Humidifiers for use in Sleep Apnea Therapy; A Comparative Study of Humidification Effectiveness

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In submission

KEY FINDINGS:

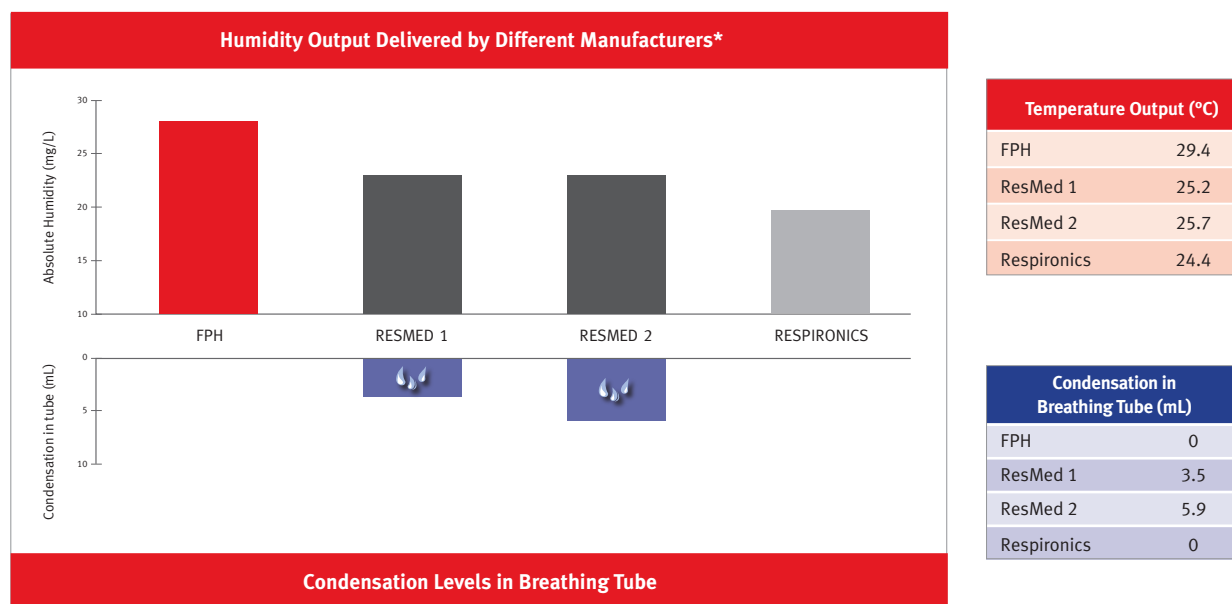
- **ThermoSmart®** is the only CPAP humidifier in this study to deliver average absolute humidity greater than 27 mg/L.
- **ThermoSmart®** is the only CPAP humidifier in this study to deliver high levels of humidity, without causing any condensate.

AIM:

To compare the temperature and humidity performance of different CPAP humidifiers under simulated real-use conditions.

METHODS:

- Four humidified CPAP devices from different manufacturers were side-by-side bench-tested over seven hours.
- Test conditions included a CPAP pressure of 12 cmH₂O, 40 L/min airflow, maximum humidifier settings, ambient temperature of 67.3 °F (19.6 °C), and ambient humidity of 9.3 mg/L.
- End-of-hose temperatures were recorded hourly for each device.
- Two methods were used to record humidity: a) Gravimetric method using ISO 8185; b) Hygrometry.



* Data displayed from Gravimetric results

KEY:

FPH – Fisher & Paykel Healthcare SleepStyle™ 608 with ThermoSmart®
Resipronics – REMstar® Pro M-Series with heated humidifier
 REMstar® is a registered trademark of Resipronics Inc

ResMed 1 – S8 Elite™ HumidAire 3i™ version 1
ResMed 2 – S8 Elite™ HumidAire 3i™ version 2
 S8 Elite™ and HumidAire 3i™ are trademarks of ResMed Ltd

CONCLUSION:

- **ThermoSmart®** outperformed the other devices in this study in all areas of heat and humidity delivery, with zero condensation.

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