

What difference does it make?

A comparison of conventional heated humidification and heated humidification with **Ambient Tracking™ PLUS**

Ambient
Tracking™
PLUS



Compare CPAP technology in two clinically

SCENARIO ONE

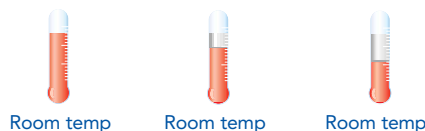
A 10° drop in room temperature

Depending on the season, ambient (room) temperatures can fall significantly during the night.

A drop in ambient temperature decreases the amount of water air can carry resulting in condensation or 'rain-out'.

Conventional CPAP with Heated Humidification

10pm 12am 3am



CPAP tubing



As the room temperature drops, water condenses in the CPAP tubing and causes 'rain-out'

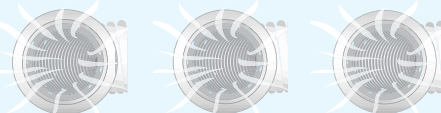
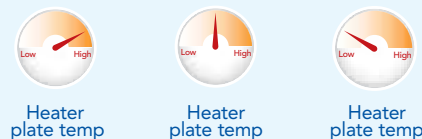
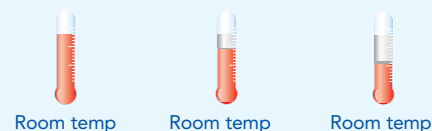
A room temperature drop of 10 degrees develops approximately **100ml of rainout over 8 hours**

The disruption of rainout breaking the sleep cycle

- Excessive rainout leads to water collecting in the tube
- The resulting gurgling noise & tube vibration wakes the patient
- The tube has to be emptied before the patient can return to sleep

Heated Humidification with Ambient Tracking™ PLUS

10pm 12am 3am



As the room temperature drops, there is no disruptive 'rain-out' or condensation in the tubing

A room temperature drop of 10 degrees develops approximately **0ml of rainout over 8 hours**

The benefits of Ambient Tracking™ PLUS

- Avoid disruptive gurgling noise from rainout
- Undisturbed sleep for patient and partner
- Maximizing humidity throughout the night
- Increased compliance levels
- No additional set up cost

important situations



SCENARIO TWO

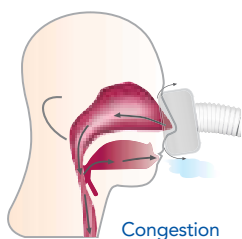
An air leak of 50 l/min

If the patient experiences mouth and/or mask leaks, the total air flow through the humidifier increases.

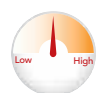
Increased airflow leads to less humidification² delivered to the patient when the heater plate temperature remains constant

Conventional CPAP with Heated Humidification

Leak: 50 l/min

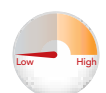


Congestion



Heater plate temp

NO CHANGE



Humidity

DECREASED

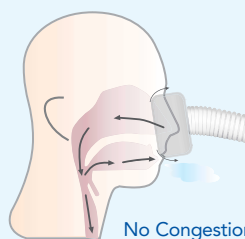
- Increased airflow leads to less humidification² delivered to the patient because heater plate temperature remains constant

The side effects of mouth/mask leaking with conventional heated humidifiers can result in:

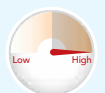
- Patient wakes to a dry, sore throat and nasal congestion
- CPAP dealer is called in the morning about the problem
- Efficacy of treatment is lowered and compliance drops^{6,7}

Ambient Tracking™ PLUS

Leak: 50 l/min

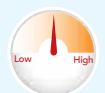


No Congestion



Heater plate temp

AUTO ADJUSTING



Humidity

MAINTAINED

- As air flow increases the humidifier increases the heater plate temperature automatically so the same level of humidity is delivered to the patient

Ambient Tracking PLUS - minimizes nasal dryness and congestion resulting in:

- An effective level of humidification is maintained
- Patient avoids problems with nasal dryness and congestion
- Effectiveness, and therefore, compliance is maintained

Fisher & Paykel Healthcare Ambient Tracking™ PLUS



HC220LE Series - Integrated CPAP System with Heated Humidification

Ambient Tracking™ PLUS at no extra cost

- Compensates for mouth and/or mask leaks by automatically adjusting heater plate setting to maintain humidity levels

True Integrated system

- Combined CPAP & Heated Humidifier increases acceptance and compliance
- Easy to set up and use, less patient follow up
- Small and robust for travel convenience

Patient Compliance Monitoring

- LCD report using quick phone call, or generate full download report

Quiet Operation

HC150 Heated Humidifier with Ambient Tracking

- Sophisticated humidifier system designed for use with any CPAP or bi-level machine
- Will increase acceptance and compliance of CPAP therapy
- Ambient Tracking will automatically adjust humidity setting to maximize humidity output and minimize 'rain-out'
- Easy to set up and use, less patient follow up
- Small and compact unit

Factors that help to ensure success

To avoid problems that could lead to the suspension of treatment, three factors need to be addressed:

1. Selecting a CPAP machine with Heated Humidification, such as the HC220LE Series, a truly integrated CPAP system.
2. User education – learning how to get it right.
3. Mask comfort – choosing the right mask, like the Aclaim 2 or Oracle, that are easy to use and provide greater comfort.



References: 1. Hoffstein V, Viner S, Mateika S, Conway J. Treatment of obstructive sleep apnea with nasal continuous positive airway pressure. Patient compliance, perception of benefits, and side effects. *Am Rev Respir Dis* 1992; 145 (4 Pt 1):841-5. 2. Martins De Araujo MT, Vieira SB, Vasquez EC, Fleury B. Heated humidification or face mask to prevent upper airway dryness during continuous positive airway pressure therapy [see comments]. *Chest* 2000; 117 (1):142-7. 3. Richards GN, Cistulli PA, Ungar RG, Berthon-Jones M, Sullivan CE. Mouth leak with nasal continuous positive airway pressure increases nasal airway resistance. *Am J Respir Crit Care Med* 1996; 154 (1):182-6. 4. Constantinidis J, Knobber D, Steinhart H, Kuhn J, Iro H. Fine-structural investigations of the effect of nCPAP-mask application on the nasal mucosa. *Acta Otolaryngol* 2000; 120 (3):432-7. 5. Hayes MJ, McGregor FB, Roberts DN, Schroter RC, Pride NB. Continuous nasal positive airway pressure with a mouth leak: effect on nasal mucosal blood flux and nasal geometry. *Thorax* 1995; 50 (11):1179-82. 6. Massie CA, Hart RW, Peralez K, Richards GN. Effects of humidification on nasal symptoms and compliance in sleep apnea patients using continuous positive airway pressure [see comments]. *Chest* 1999; 116 (2):403-8. 7. Rakotonanahary D, Pelletier-Fleury N, Gagnadoux F, Fleury B. Predictive Factors for the Need for Additional Humidification During Nasal Continuous Positive Airway Pressure Therapy. *Chest* 2001; 119 (2):460-5.

For more information, please contact your local Fisher & Paykel Healthcare representative

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