Blowin' a blizzard in Brissie

Tim Young, Cheryl Scott and Rebecca McLachlan

We describe a novel use for continuous positive airway pressure (CPAP) to decrease levels of daytime sleepiness without the need for concomitant use of a CPAP mask. We used CPAP machines to create a snow-dome appearance in our hospital's annual Christmas decorations competition.

CPAP therapy is the currently recommended treatment for moderate to severe obstructive sleep apnoea. Treatment is applied by a CPAP pump (air-pressure generator), which is transmitted to the patient's upper airway via tubing and a CPAP mask.

All CPAP masks have an exhalation port to prevent rebreathing. Modern CPAP machines reliably generate a pressure of 20 cm H_2O, but can generate slightly higher pressures to partially compensate for living at high altitude.

The Prince Charles Hospital is located in Brisbane. The climate is subtropical.

The Sleep Scientists' office window measures 112 cm wide by 104 cm high, with a 9.5 cm internal recess. A plastic sheet was adhered to the sides of the window frame, except at the top right corner — to act as the exhalation port. Tape was applied to provide additional reinforcement to prevent billowing out while the CPAP machines were in use. It also gave the appearance of a timber window frame. Cardboard was used at the bottom to provide a solid support and create an entry for the CPAP tubing. Beanbag balls (small polystyrene spheres of 4 mm diameter) were poured into the recess between the glass window and plastic sheet. They were blown about by three CPAP machines to give the appearance of a snow dome. The central CPAP machine produced a maximum pressure of 55.4 cm H_2O — achievable using the original Vortex CPAP machine; the CPAP machines at each corner generated pressures of 22.9 and 21.3 cm H_2O, respectively.

The theme was "I'm dreaming of a white Christmas".

The Stanford Sleepiness Scale (SSS) is a subjective measure of momentary daytime somnolence ranging from 1 to 7, with 1 indicating minimal daytime sleepiness and 7 representing difficulty staying awake.[1] In our single-centre crossover study, SSS scores of spectators were noted to reduce to 1 (alert, wide awake) when the CPAP snow dome was on. SSS scores returned to the participant's baseline soon after the CPAP snow dome was turned off. (Yes, the CPAP has to be actually *on* for this clinical effect.)

We suspect the treatment effect will be somewhat blunted in colder climates where it snows, but await clinical data from other centres.

The snow-dome effect with three continuous positive airway pressure (CPAP) machines in action.

The three CPAP machines used to create the snow-dome effect. The Vortex blower is centre, with modern CPAP machines on either side. ◆

Author details

Tim Young, MB ChB, GradDipClinEpi, FRACP, Thoracic and Sleep Medicine Physician
Cheryl Scott, BSc, RPSGT, Sleep Scientist, now Manager, Sleep Unit, Liverpool Hospital, Sydney NSW
Rebecca McLachlan, BAppSc(Hons), Sleep Scientist
"The Dream Team" Sleep Disorders Centre, Prince Charles Hospital, Brisbane, QLD.
Correspondence: timyoung1@optusnet.com.au

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