

Does managing patient shivering make you lose your patience?



Surface cooling in general increases shivering, and some types of surface pads may contribute to it even more. Some patients may exhibit more shivering than others, depending on the amount of skin contact from the surface cooling system. In a fever control study, patients showed a statistically significant higher rate of shivering when cooled with gel pads compared to traditional surface water circulating cooling blankets, which had limited skin contact.¹

Intravascular temperature management has proven to be a more precise and efficient² means of cooling when compared to surface methods, and results in significantly less shivering.



ZOLL's Intravascular Temperature Management System, Thermogard XP®:

- Results in a lower rate of shivering (4% vs 85% with surface),^{3,4} which may require less sedation and can be used in awake, non-intubated patients⁵
- Does not over or under shoot the target temperature; maintains target temperature within $\pm 0.2^{\circ}\text{C}$ ⁶
- Reduces nursing workload by 74%;² no constant monitoring of temperature, managing shivering, checking pads, etc.

You need a system that efficiently manages the patient's temperature from the core, like ZOLL's Thermogard XP.

IVTM System Thermogard XP®

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¹Mayer SA, Kowalski RG, et al. *Crit Care Med*. 2004; 32(12):2508-15.

²CEREA Daye N, et al. *Circulation*. 2015;132:182-193.

³Dringer MN, et al. *Critical Care Medicine*. 2004;32(2):559-564.

⁴Caruaspoma JR, et al. *Journal of Neurosurgical Anesthesiology*. 2003;15(4):313-318.

⁵Erlinge D, et al. *Circulation*. 2010.

⁶Hoedemakers CW, et al. *Critical Care*. 2007;11.R91.

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ARE YOU IN THE ZONE?



Did you know that the shivering zone is 34°C-36°C?¹ With targeted temperature management, shivering is a common side effect and must be controlled so that it does not become counter-productive to the cooling therapy. Avoiding the shivering zone and managing shivering can be a challenge.

Clinical evidence shows 35% better long-term neurological outcomes² with intravascular temperature management than with surface cooling.

ZOLL



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IVTM System Thermogard XP®

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¹Lopez M, Sessler DL, et al. *Anesthesiology*. 1994;80:783-788.

²ICREA Daye N, et al. *Circulation*. 2015;132:162-169.

³Strong ML, et al. *Critical Care Medicine*. 2004;32(2):259-264.

⁴Charasopna JR, et al. *Journal of Neurological Anesthesiology*. 2003;15(4):313-318.

⁵Tringo D, et al. *Circulation*. 2010.

⁶Woodemakers DM, et al. *Critical Care*. 2007;11:P91.

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