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## **Clarifying Minimum Atropine Dosing Across Pediatric PALS Algorithms**

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## Letter:

We read with great interest the 2025 American Heart Association and American Academy of Pediatrics Pediatric Advanced Life Support (PALS) guidelines, which continue to serve as a globally adopted and authoritative framework for pediatric resuscitation practice.<sup>1</sup>

We seek clarification regarding atropine dosing recommendations, specifically the continued divergence in guidance on minimum dosing across different clinical contexts within the same guideline document. In the section addressing atropine use during intubation, no minimum dose is specified. In contrast, the bradycardia treatment algorithm explicitly retains a minimum atropine dose of 0.1 mg.<sup>1</sup>

Historically, earlier iterations of the Pediatric Advanced Life Support guidelines emphasized a minimum atropine dose of 0.1 mg across pediatric indications, reflecting longstanding concerns regarding paradoxical bradycardia associated with very low doses.<sup>2</sup> Beginning with the 2015 guideline update, the minimum dose was removed from intubation-related recommendations while being retained within the bradycardia treatment algorithm.<sup>3</sup> This divergence has persisted through subsequent updates, including the 2020 and 2025 guidelines, without an explicit articulation of the underlying rationale.<sup>1,4</sup>

This raises an important clinical and educational question: whether the retention of a minimum atropine dose in the bradycardia algorithm represents a deliberate, context-specific distinction—suggesting that the risk of paradoxical bradycardia is considered relevant only in the treatment of symptomatic bradycardia—or whether this element reflects a legacy component that may warrant reconsideration or harmonization.<sup>5</sup> Given that atropine is administered in both contexts to counteract vagally mediated bradycardia, differing minimum dose recommendations may lead to uncertainty in bedside decision-making.

Such ambiguity is particularly relevant in high-stress clinical environments, where clinicians frequently rely on algorithm-based guidance rather than narrative text. Moreover, the PALS guidelines are directly translated into educational curricula, cognitive aids, and resuscitation algorithms used worldwide. As a result, even subtle inconsistencies in medication dosing recommendations may have disproportionate downstream effects on training and clinical practice.

We acknowledge that the evidence base and clinical intent may differ between prophylactic atropine use during airway management and therapeutic administration in established bradycardia. Nonetheless, an explicit statement clarifying whether minimum atropine dosing is intentionally context-specific, or whether future harmonization across algorithms is anticipated, would substantially enhance clarity and support consistent, safe clinical application.

Given the global influence of the PALS guidelines, we believe that such clarification would be of meaningful value to clinicians and educators alike.

**Conflict of interest:** None declared.

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