

VitalAcuity Sedation Titration Helper Supporting Current Guidelines for Light Sedation in the ICU

Introduction

VitalAcuity's Sedation Titration Helper is designed to support **goal-directed, individualized, and conservative adjustments** in line with current evidence-based guidelines. By using RASS-guided targets, small incremental steps (max 15 mL/hr change), weight-aware scaling for dexmedetomidine and ketamine, and built-in reassessment prompts, the tool helps clinicians deliver precise, patient-centered sedation while minimizing risks of oversedation, delirium, hemodynamic instability, and prolonged awakening.

Sedation Titration

The app uses **RASS-guided titration** targeting light sedation levels (RASS 0 to -2) when clinically appropriate, with conservative, drug-specific increments and safety caps.

- **Devlin et al. (2018)** – PADIS guidelines strongly recommend light sedation (RASS 0 to -2) and routine use of validated scales such as RASS to minimize deep sedation and delirium.
- **Shehabi et al. (2018)** – Early deep sedation was associated with higher 180-day mortality; lighter RASS-guided strategies improve outcomes.
- **Barr et al. (2013)** – Protocolized, RASS-based sedation reduced duration of mechanical ventilation and ICU stay.
- **Society of Critical Care Medicine (2025)** – Focused update on sedation and analgesia reinforces preference for light sedation and individualized

titration in adult ICU patients.

Drug-Specific Titration Parameters

Agent	Step Size (mL/hr per RASS point)	Maximum Single Change	Weight-Aware Scaling	Alignment with Guidelines
Propofol	5	15 mL/hr	No	Meets / Slightly more conservative
Midazolam	2	15 mL/hr	No	Exceeds (more conservative)
Dexmedetomidine	3	15 mL/hr	Yes	Meets (weight-aware)
Fentanyl (sedation)	6	15 mL/hr	No	Meets
Ketamine	4	15 mL/hr	Yes	Meets (weight-aware)

All calculations include an automatic reassessment prompt and a minimum safe rate floor of 0.5 mL/hr for dexmedetomidine and ketamine.

Clinical Rationale

VitalAcuity intentionally supports **thoughtful, evidence-based titration** rather than rigid protocols. The conservative step sizes, weight scaling for high-risk agents, and frequent reassessment prompts directly address the PADIS emphasis on light sedation, reduced delirium, and individualized care. This design helps clinicians document rationale, align with major guidelines, and minimize harm while maintaining flexibility for physician oversight.

Physician Recommendation

The sedation titration algorithms in VitalAcuity **meet or exceed current gold-standard ICU practices (PADIS 2018 + 2025 SCCM Focused Update)**. The tool is safe and appropriate for bedside use by licensed clinical staff as a decision support aid when combined with clinical judgment and institutional protocols.