



# HELP REDUCE DELIRIUM AND IMPROVE LONG-TERM OUTCOMES FOR ICU PATIENTS

Your critical care guide to the ABCDEF bundle

This evidence-based guide may help you:

- Coordinate multidisciplinary patient care
- Reduce delirium<sup>1</sup>
- Improve pain management<sup>1</sup>
- Improve long-term outcomes for adult ICU patients<sup>1</sup>

The ABCDEF bundle incorporates measures to help improve or preserve patients' physical, functional, and neurocognitive status through awakening and breathing coordination, delirium management, and early physical mobility.<sup>2</sup>

## What ABCDEF means:

- Awakening and breathing coordination, delirium monitoring/management, and early exercise/mobility (ABCDE)<sup>3</sup>
- "F" was added for "family engagement"<sup>4</sup>

This approach offers a rubric to align and coordinate care — focusing on delirium, sedation and pain medications, breathing machines, and mobilization.<sup>5</sup>

## The objectives of the ABCDEF bundle:

- Optimize pain management<sup>6</sup>
- Break the cycle of deep sedation and prolonged mechanical ventilation<sup>6</sup>
- Reduce the incidence and duration of ICU delirium<sup>6</sup>
- Improve short- and long-term ICU patient outcomes<sup>6</sup>
- Reduce healthcare costs<sup>6</sup>

## Positive outcomes associated with the ABCDEF bundle:

- Resource optimization — supports well-rounded critical care and optimal use of resources<sup>1</sup>
- Earlier physical and cognitive activities — ICU patients with better-controlled pain can safely participate in higher-order physical and cognitive activities at the earliest point in their critical illness<sup>1</sup>
- Reduced ICU or hospital stay — implementing the bundle decreased average patient hospital length of stay by 1.8 days<sup>7</sup>
- Liberation from mechanical ventilation and sedation through early mobilization may improve patient outcomes.<sup>8</sup>

## Critically ill patients managed with the ABCDEF bundle:

- Spent three more days breathing without assistance
- Experienced less delirium
- Were more likely to be mobilized during their ICU stay than patients treated with usual care<sup>3</sup>

## How the ABCDEF bundle improves morbidity and mortality outcomes:

- For every 10 percent increase in partial ABCDEF bundle compliance, the odds of hospital survival increase 15 percent compared to patients receiving palliative care<sup>9</sup>
- Hospital-survival odds increase to 23 percent for patients not receiving palliative care<sup>9</sup>
- Both total and partial bundle compliance led to more days alive and free of delirium and coma<sup>9</sup>

## How the ABCDEF bundle improves delirium outcomes:

- Early mobility is an integral part of the ABCDEF bundle — and is the only intervention proven to decrease days of delirium<sup>10</sup>
- After implementing the ABCDEF bundle:
  - Prevalence of delirium decreased significantly (from 38 to 23 percent)
  - The mean number of days of delirium decreased significantly (from 3.8 to 1.7 days)<sup>2</sup>
  - The number of patients with delirium-free stays increased

1. Marra A, Ely EW, Pandharipande P, Patel MB. The ABCDEF bundle of critical care. *Crit Care Clin.* 2017;33(2): 225–243.
2. Bounds M, Kram S, Speroni KG, et al. Effect of ABCDE bundle implementation on prevalence of delirium in intensive care unit patients. *Am J of Crit Care.* 2016;25(6): 535–544.
3. Balas MC, Vasilevscki EE, Olsen KM, et al. Effectiveness and safety of the awakening and breathing coordination, delirium monitoring/management, and early exercise/mobility (ABCDE) bundle. *Crit Care Med.* 2014;42(5):1024–1036.
4. ICU Liberation Website. Family Engagement and Empowerment. <http://www.iculiberation.org/Bundles/Pages/Family-Engagement.aspx>. Accessed October 18, 2017.
5. ICU Delirium & Cognitive Impairment Study Group Website. Delirium Prevention and Safety: Starting with the ABCDEFs. <http://icudelirium.org/medicalprofessionals.html>. Accessed October 18, 2017.
6. ICU Liberation Website. Roadmap for Implementing the New ABCDEF Bundle in Your ICU. <http://www.iculiberation.org/SiteCollectionDocuments/ABCDEF-Bundle-Webcast.pdf>. Accessed October 18, 2017.
7. Kram S, DiBartolo MC, Hinderer K, Jones RA. Implementation of the ABCDE bundle to improve patient outcomes in the intensive care unit in a rural community hospital. *Dimen of Crit Care Nursing.* 2015;34(5): 250–258.
8. Morandi A, Brummel NE, Ely EW. Sedation, delirium and mechanical ventilation: the “ABCDE” approach. *Curr Op in Crit Care.* 2011;17(1): 43–49.
9. Barnes-Daly MA, Phillips G, Ely EW. Improving hospital survival and reducing brain dysfunction at seven California community hospitals: implementing PAD guidelines via the ABCDEF bundle in 6,064 patients. *Crit Care Med.* 2017;26(2):171–178.
10. ICU Delirium & Cognitive Impairment Study Group Website. Early mobility and exercise. <http://icudelirium.org/earlymobility.html> Accessed October 18, 2017

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