How Implementation of the ABCDE Bundle Affects Functional Outcomes

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Purpose/Hypothesis: To determine how incorporating an interdisciplinary bundle focused on Awakening and Breathing Coordination, Delirium Monitoring and Management, and Early Mobility (ABCDE) in the Intensive Care Units (ICU) at University of Tennessee Medical Center (UTMC) affects patients’ functional outcomes and length of stay (LOS). It was hypothesized that the focus on early mobility as part of the ABCDE bundle implemented in collaboration with nurses, pharmacists, respiratory therapists, physical therapists, occupational therapists, and physicians would improve patient function and decrease LOS.

Number of Subjects: 315, Group A: 149, Group B: 166

Materials/Methods: Subjects were patients aged 18 years or older who were evaluated by a physical therapist while in the UTMC ICU. Excluded cases included patients with terminal diagnosis; diagnosis of tetraplegia, paraplegia or Guillian-Barre Syndrome; non-weight bearing status of both legs or one arm and one leg; or baseline status requiring physical assistance for gait. Using the Functional Status Score-Intensive Care Unit Tool (FSS-ICU), physical therapists scored patients’ functional mobility on the initial visit, and physical therapists or physical therapist assistants scored each subsequent visit. Data was collected for a one month period before the ABCDE Bundle was implemented (Group A) and for a one month period six months following implementation (Group B). All statistical assumptions were tested. Mixed-ANOVA was used to assess differences in change of FSS-ICU and LOS across time between groups. Results: Statistical assumptions were met. Significant increases in FSS-ICU were experienced for all participants, (Δ= 8.5, SD 1.1), p < .001. There was not a significant interaction between Group A (Δ = 4.17, SD = 1.7) and Group B (Δ = 3.5, SD = 1.2) in change of FSS-ICU across time, p > .05. ICU and hospital LOS were not significant between groups, p>.05.

Conclusions: Significant improvements from initial visit to discharge were observed for all participants. The difference in initial scores between groups (0.97) suggests clinical improvements in patient function resulted from implementation of the ABCDE bundle increased focus on early mobility. Group B demonstrated a decrease in ICU LOS of 0.59 days and hospital LOS of 0.65 days. While this change may not be statistically significant, it is clinically relevant in light of the
high cost of care, especially in the ICU environment. Further study may be warranted.

**Clinical Relevance:** Prolonged immobility in an ICU can increase a patient’s functional impairment and increase the risk for additional complications. An interdisciplinary approach to initiate early mobility in the ICU improves functional status and shortens LOS. Application of the ABCDE bundle promotes improved interdisciplinary communication and increases focus on early mobility. Results of this study suggest the ABCDE bundle may be an effective instrument used to improve patient outcomes and decreased ICU LOS.