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The Implementation and Evaluation of an Early Mobilization Program for Critically Ill Adult Oncology Patients

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Background:
In the summer of 2010, the intensive care unit (ICU) Clinical Practice Committee at the University of Texas MD Anderson Cancer Center was charged with developing and implementing an early mobilization program (EMP) for critically ill cancer patients in the ICU. The driving forces included the perception and observation of primary admitting services and the ICU service of infrequent mobilization of critically ill patients in the ICU. Additionally, early mobilization in critically ill patients was emerging as a potential prevention strategy for several complications associated with critical illness including reduced disability and dependence in survivors. Much of the critical care literature on EMP is focused on patients requiring mechanical ventilation. However, both ventilated and non-ventilated critically ill patients equally benefit from early exercise programs (Burtin et al, 2009). In patients requiring mechanical ventilation, EMP have been found to be safe and are associated with decreased intensive care unit (ICU) and hospital length of stay and improved functional status at hospital discharge (Bailey et al, 2007; Hopkins, Spuhler, & Thomsen, 2007; Morris et al., 2008; Schweickert et al, 2009). In addition, a decrease in mechanical ventilation days and need for tracheostomy has also been described (Hopkins, Spuhler, & Thomsen, 2007).

A multidisciplinary team including participants from ICU faculty, nursing, respiratory care, and rehabilitation services was formed to develop and implement an EMP specific for critically ill cancer patients in the ICU. The primary aim was to increase the average number of mobilization activities provided by a multidisciplinary team per patient per day by 40% after an eight week pilot.

Methods/Materials:

A quality improvement methodology employing the Plan, Do, Study, Act (PDSA) cycle was utilized to pilot the EMP.

A meeting with the leaders from the rehabilitation and ICU services was held to gain support and evaluate the availability of designated rehabilitation staff for the ICU. After establishing rehabilitation resources, a multidisciplinary team consisting of nurses, physical therapists, occupational therapists, physicians, respiratory therapists, and nursing assistants developed a 5-level mobilization program in the ICU based on published evidence. The mobilization activities were structured into five levels based on the patient's functional status and level of sedation.

Prior to implementation, baseline information was collected on type and rate of mobilization activities for one week on consecutive patients admitted to 16 of the 54 ICU beds (8 medical beds and 8 surgical beds). Concurrently, an education program on the benefits of early mobilization, proper techniques in mobilizing patients, as well as the components of the mobilization protocol was provided to the licensed and unlicensed nursing staff. Nursing knowledge and perception of early mobilization was also assessed pre and post implementation of the education program.

The program was then implemented on consecutive patients admitted to the pilot area where the baseline information was obtained. During the pilot period, the type and rate of mobilization activities were collected at two weeks, four weeks, and eight weeks after implementation.

Additionally, the team met every two to four weeks to discuss barriers to implementation. Based on the feedback, revisions to the program were made and re-education to staff was provided. Encouragement and acknowledgement of staff participation was provided as well.

The study was approved by the institutional Quality Improvement Assessment Board.

Results:
Following eight weeks of the EMP, the average number of total mobilization activities per patient day increased by 47%. Mobilization activities carried out by bed-side nursing staff increased by 31%. Mobilization activities carried out by physical therapists and occupational therapists increased by 86% and 78%, respectively. Additionally a trend towards decreased average length of stay and

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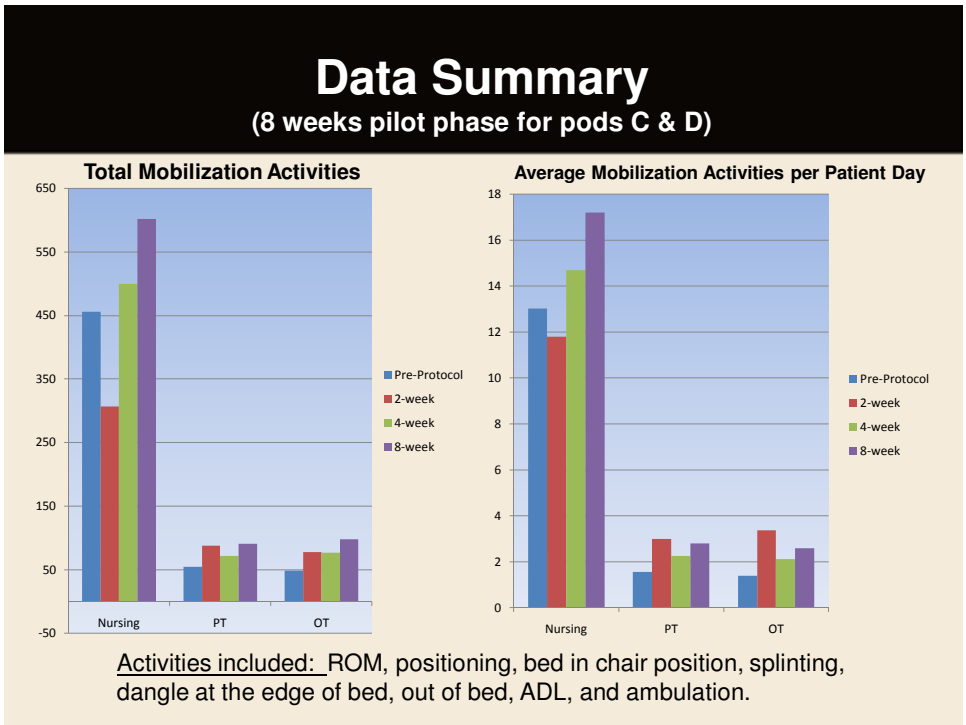
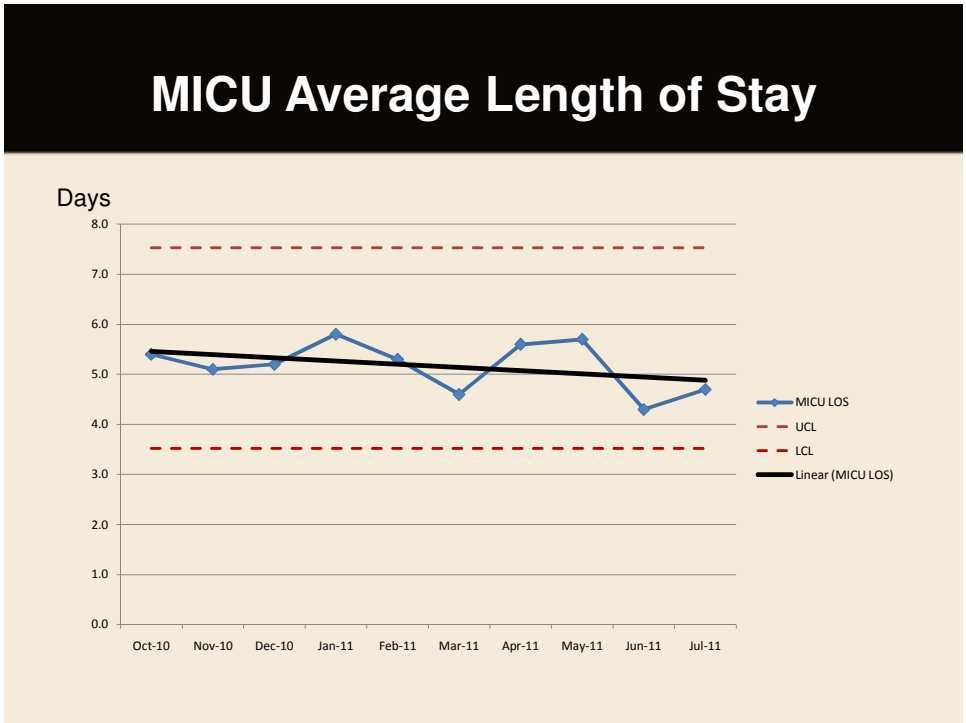
average time on invasive mechanical ventilation for all medical and surgical patients were also noted.





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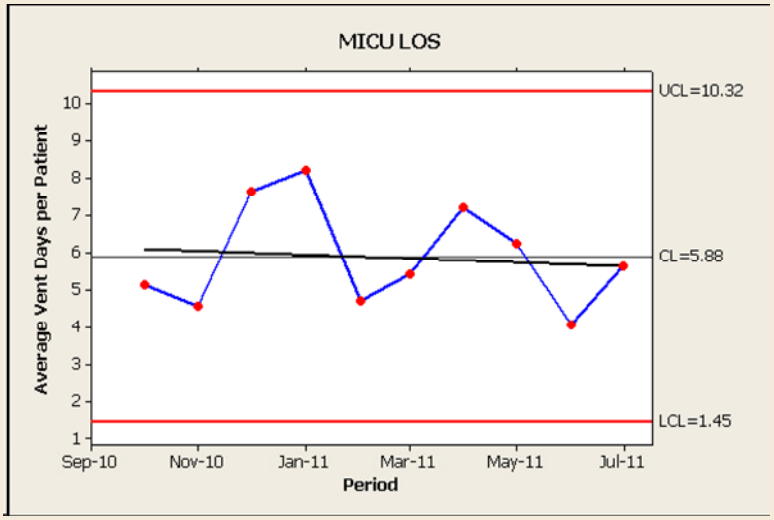
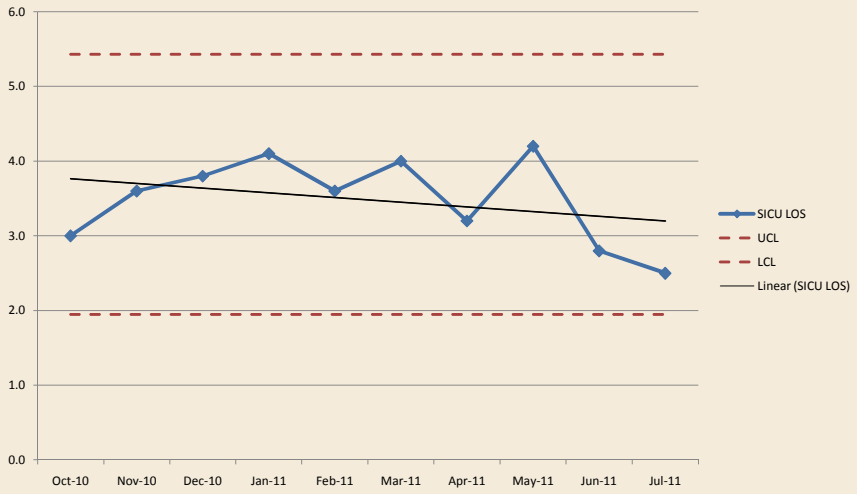
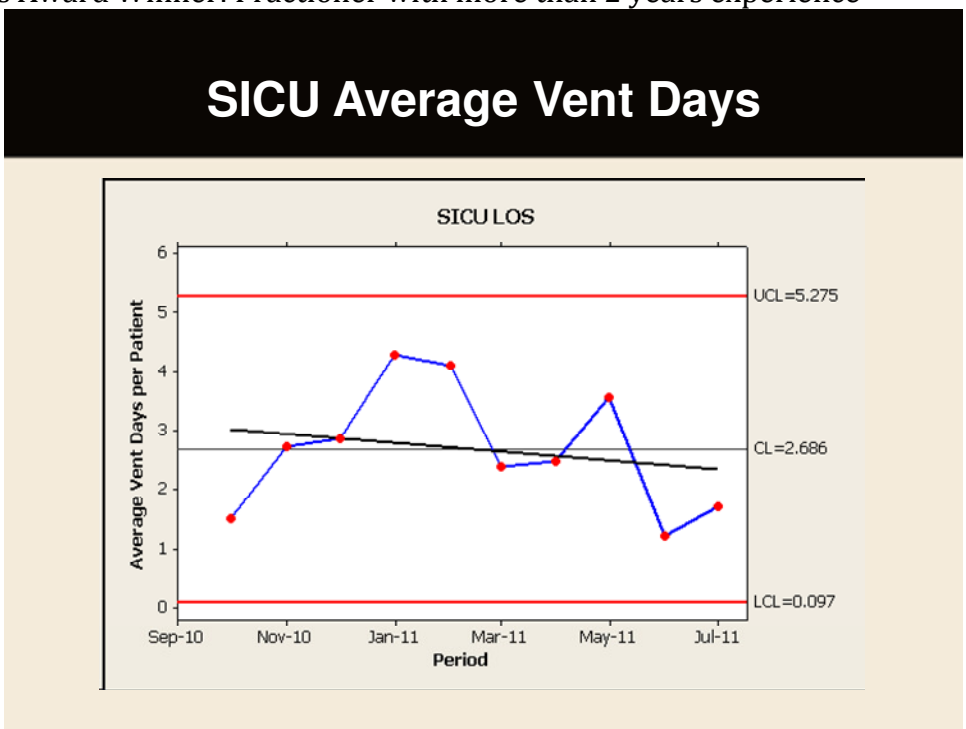
MICU Average Vent Days



SICU Average Length of Stay





Based on the successful results of the pilot EMP, the decision was made to expand the EMP to all ICU beds. During this time, a full-time physiotherapist and a full-time occupational therapist were appointed to the ICU when previously only one part-time physiotherapist was available.

Nursing feedback following the pilot program indicated the need for a simplified EMP. In practice, the initial 5-level standard EMP was noted to lack clear differentiation of levels and proved cumbersome to the nursing staff. In order to encourage, facilitate, and sustain mobilization activities by bed-side nursing staff, a simplified 3-level EMP was developed. The 3-levels of mobilization activity included: total assist, maximum to moderate assist, and moderate assist to supervision.

Additionally, visual aids were developed to assist the nurse, the patient, and their family in identifying the assigned mobility level for the patient. The simplification of the EMP has led to its implementation from 16 ICU beds to the entire 54 ICU beds. Data on nursing specific mobilization activities after implementation of the 3-level protocol are currently being evaluated.

Conclusions:

The implementation of a multidisciplinary EMP in critically ill patients led to an increase in the number of mobilization activities per patient day. The use of a

patient centered, interdisciplinary team approach and a quality improvement process ensured success and sustainability of the program. The next steps of the EMP include the development of a compliance monitor to evaluate if the 3-level program is being implemented as outlined. Additionally, periodic evaluation of the average number of mobilization activities per patient will be conducted. ICU LOS and ventilator days will also be monitored. Another goal of the initiative includes a research study to evaluate the impact of the EMP on patient outcomes including ICU and hospital LOS, quality of life, and activities of independent living. These next steps continue to support the institutional goals of Institutional Metrics and Improvement Plans, and Employee Engagement.

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