

CRITICAL CARE MEDICINE

Where we've been...

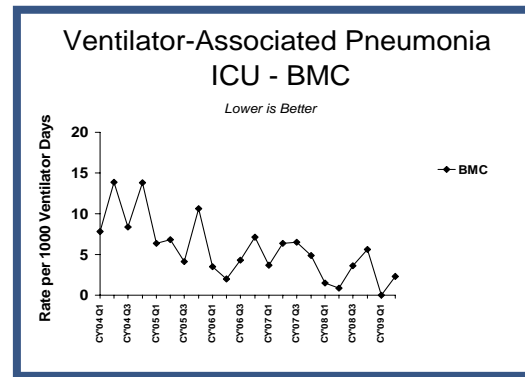
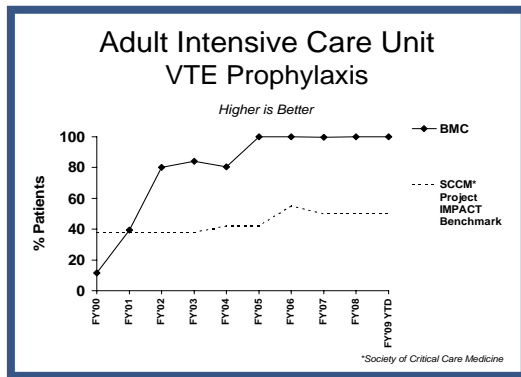
One of the key recommendations made in 1999, as outlined in the Leapfrog Initiative, was to staff Intensive Care Units (ICU) with dedicated critical care trained physicians to optimize care and reduce hospital errors. Baystate Medical Center (BMC) has used this model to provide care to patients in the Adult Intensive Care Unit since 1982. Additionally, the BMC ICU was an early adopter of evidence-based practices, such as standardized admission orders, weaning and extubation protocols, venous thromboembolic (VTE) disease prophylaxis, peptic ulcer prevention, and careful glycemic control. Computerized Physician Order Entry (CPOE) has been in use since 1991. In May 2009, BMC inaugurated the use of APACHE-IV, replacing Project IMPACT as the primary tool for benchmarking, quantitative self-assessments, and identification of areas of focus for performance improvement activities. A large amount of the APACHE data is captured electronically via CIS (Clinical Information System), allowing us to generate information on every ICU patient. To date, results from the APACHE data demonstrate a Standardized Mortality Ratio (observed vs. predicted death) of 0.56, comparable to the ratio observed with Project IMPACT. The combination of APACHE and CIS databases is a valuable resource for applied research in critical care, supplementing research activity in National Institutes of Health (NIH) and several large clinical research trials. BMC's Adult ICU is a five-time recipient of the Beacon Award for critical care excellence; the only ICU in the country to achieve this distinction.

Where we are now...

BAYSTATE HEALTH AMBULANCE In conjunction with BMC's CPOE, BHA uses computer-based patient report generation which gives a clear document of a patient's history, condition, assessment, and treatment. This in turn helps to promote rapid assessment and treatment of the critically-ill patient. The BMC CPOE also aids in the expedition of critical patient inter-hospital transports, thereby ensuring continuity of care.

BAYSTATE MEDICAL CENTER The Adult ICU at BMC admits patients with a very high severity of illness; the average APACHE score on ICU Day 1 is 54.8, which translates to an expected hospital mortality rate of 18.78% in similar hospitals. Observed hospital mortality, however, is 10.58%, which generates a standardized mortality rate (SMR) at Baystate of 0.56. SMRs significantly below 1.0 indicate a patient will do significantly better than predicted after consideration of patient risk factors. We attribute these excellent results to a multidisciplinary model of patient care, extensive use of protocols, and a high level of computerization with 100% computerized provider order entry (CPOE) that allows for drug dose-range checking, numerous clinical alerts and reminders, and plan of care modification based on organ system dysfunction. Careful attention is paid to reliably applying the ventilator care bundle and head-of-bed elevation, a daily sedation "vacation," peptic ulcer and deep venous thrombosis prophylaxis, glycemic control, and frequent mouth/oral care. Compliance with recommended ICU safety measures is nearly 100%, and has resulted in a significant year-to-year decrease in both ventilator-associated pneumonia (VAP) and central line-related bloodstream infections (CL-BSI).

Bedside charting is now 100% electronic, following the installation of the Cerner I-Net system during the past year. Physician, nursing and other clinician progress notes are now almost entirely electronic within the ICU. Patient volume has been steady: 43% of ICU admissions arrive from the Emergency Department, 17% are postoperative, 15% come from step-down areas, 4% from other hospitals, and the remainder by direct admission or ward transfer. Our process of admission review, based on explicit criteria, has helped to maintain an average ICU LOS of 4.13 days; and total hospital stay for ICU patients of 10.28 days, below the 12.42 days seen at similar hospitals in the APACHE database.



Where we are going...

Higher than expected survival, top performer rates of clinical interventions, and low rates of complications of critically-ill patients are reflections of the excellent care provided by the staff in the Baystate Medical Center Adult Intensive Care Unit. Further reductions or elimination of preventable hospital-acquired events, such as ventilator-associated pneumonia and central line-related bloodstream infections, will continue to be a BMC critical care top priority. The ICU team, in conjunction with Medical Informatics, is now developing real-time reporting tools to provide immediate feedback of “bundle” compliance. Additional displays and reports will achieve “meaningful use” of the electronic medical record (EMR) within the ICU by early 2010.