

Report Documentation Page

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all the mechanically ventilated patients are treated in the ICU. However, the epidemiological data of the patients who were treated outside the ICU has not been reported. The aim of this study was to clarify the epidemiological data of mechanically ventilated patients who were treated outside the ICU. **Methods:** The data source was derived from the Quality Indicator/Improvement Project, which is a voluntary data administration project from more than 300 acute care hospitals in Japan. Data of mechanically ventilated patients treated in or outside the ICU from Apr 2010 to Mar 2012 were analyzed. Data of adult patients who were ventilated for more than 3 days was analyzed. Patients whose diagnosis was related to cancer were excluded. Patients' demographic data and the rate of standard critical care provided were compared. **Results:** In the study period, 17,775 mechanically ventilated patients were treated only outside the ICU (non-ICU group) while 20,516 patients were treated once in the ICU (ICU group) (46.4% vs 53.6%). The average age was higher in non-ICU group patients than ICU group patients (72.8 vs 70.2, $p<0.001$). The mean ventilation days were longer in non-ICU group patients than in ICU group patients (11.7 vs 9.5, $p<0.001$). Hospital mortality was higher in non-ICU group patients than in ICU group patients (41.4% vs 38.8%, $p<0.001$). Standard critical care, such as arterial line placement, enteral nutrition and stress ulcer prevention, were provided significantly less often in non-ICU group. **Conclusions:** We have described the current practices of the mechanically ventilated patients in Japan. Patients treated in the ICU have a better survival with a higher rate of critical care compared to those treated outside the ICU.

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LESSONS LEARNED FROM A PICU SURGE CAPACITY EXERCISE IN A NEW YORK CITY CHILDREN'S HOSPITAL

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Learning Objectives: A full scale exercise (FSE) sponsored by the NYC Pediatric Disaster Coalition (PDC) and incorporating scenario-driven, operations-based activities was held to assess our Pediatric ICU's surge plan. **Methods:** An introductory seminar, a table top exercise (TTX), a TTX after action (AA) meeting, the FSE, a hot wash and a FSE AA meeting were organized by a planning team over a span of 7 months. The PICU surge plan was revised and integrated into the hospital comprehensive emergency management plan (CEMP). **Results:** 48 staff members signed in but many more participated in the FSE. The census of the 26 bed PICU was set at 22 (85%). Upon notification of the imminent arrival of 10 patients, a triage area was established. Surge space was operationalized in the PACU and on an inpatient unit with monitoring and utilities adequate to support mechanical ventilation. Mannequins with written scenarios arrived by EMS. Realistic complications (extubation, vasoactive drips stopping, chest tube mishaps and EVD malfunction) were incorporated. Additional stress was imposed by increasing the number of arriving patients from 10 to 15. Two real emergency PICU admissions occurred during the FSE. In less than 2 hours, 15 critically ill children were triaged and admitted to the PICU or surge spaces. **Conclusions:** Identified strengths included knowledge of the surge plan, rapid establishment of triage and surge spaces, teamwork, engagement, identification and transfer of patients and mobilization of staff. Almost all aspects of communication needed improvement. FSE notification through electronic and overhead paging systems did not work. The HCC couldn't receive faxed status reports. The triage area had poor cell phone coverage and the nearest landline was 15 feet away. Frustrations arose when the HCC dictated bed decisions to the PICU. A tie line system was difficult to use. Planning the FSE allowed us to refine a surge plan and build interdisciplinary teams. The FSE tested our plan under realistic conditions. Communication was the area in need of most improvement.

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A COMMUNITY HOSPITAL TELEMEDICINE PROGRAM-INCREASING UTILIZATION OVER A 4 YEAR PERIOD

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Learning Objectives: ICU telemedicine has proven to be a useful modality to improve access to Intensivist directed care. Previous experience has shown that implementation is not uniform. This study details increasing telemedicine utilization during a 4 year period and outlines program structural changes that improved utilization. **Methods:** The study hospital has a 16 bed medical surgical ICU. It is staffed by a 12 hour day Intensivist program with telemedicine coverage at night. There is a mandatory intensivist consult for all admissions. The telemedicine system utilizes a portable cart that allows visualization of the patient and connectivity to the EMR and PACS systems. Patients seen by telemedicine

are managed by direct communication and by order entry into the CPOE system. Data was collected for a four year period. At the beginning of year 4 program structural changes were put in place. **Results:** During the initial 3 year period studied there were a total of 297 new patient seen by the teleintensivist. This increased to 265 in year 4, a 265% increase ($p<0.01$). At the beginning of year 4 several structural changes were made to increase utilization and compliance with a mandatory consultation on admission to the ICU of new patients. The following initiative was put in place: 1. A mandatory evening MDR rounds with the ICU charge nurse with "walk rounds" on all critical patients. 2. Immediate activation of the teleintensivist once the decision for ICU admission was made. 3. Case review daily by program medical director and review with physicians, nursing and administration. The common diagnoses were respiratory 31% of cases in the first 3 years, 39% in year 4. In years 1-3 sepsis 13%, cardiac 12%, neuro 11%. In year 4 neuro 26%, GI 11%, sepsis 8%. ICU LOS during the study was 4.6 days not significantly different from all ICU admissions (4.4). ICU mortality was 8.8% for the study period vs. 8.4% for all ICU admissions. **Conclusions:** The use of telemedicine in critically ill patients improves outcomes. An improvement in utilization can occur if a strong structural process is put in place to manage ICU admissions.

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COMPARISON OF PROVIDER TYPES WHO PERFORMED PREHOSPITAL LIFESAVING INTERVENTIONS: A PROSPECTIVE STUDY

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Learning Objectives: Life Saving interventions (LSIs) are important procedures that reduce morbidity. In the combat theater, providers with different levels of training now operate in the prehospital setting. Our objective was to describe prehospital LSIs performed, performed incorrectly, and missed (procedures not performed, but were indicated) by provider type to facilitate future practice guidelines. **Methods:** We prospectively recorded LSIs performed on patients transported to 6 combat hospitals. Trained site investigators evaluated patients on arrival and recorded demographics, vital signs, LSIs performed, if the LSI was performed correctly, and if the LSI was missed. LSIs included airway, thoracic, extremity, vascular access procedures, and resuscitation techniques. From a larger dataset, we analyzed which provider type was recorded. Provider types were Medic (emergency medical technician); Advanced Medic (Pararescuer/ Special Ops/IDMT); Doctor/Nurse; or Other. Incidence and proportions were compared with chi-square or Fisher's exact tests. A $p<0.05$ was considered significant. **Results:** 529 LSIs were performed on 170 patients. 49% of LSIs were performed by Medics, 19% Advanced Medics, 11% Doctor/Nurses, and 21% Other ($p=0.008$). Of complex LSIs, Medics performed 43% of intubations, 33% of cricothyrotomies, 33% of blood infusions, and 60% of chest needles. Advanced medics performed 14% of intubations, 33% of cricothyrotomies, 11% of blood infusions, and 20% of chest needles. Doctor/Nurses performed 14% of intubations, 28% of blood administrations, and no cricothyrotomies or chest needles. Doctors/nurses performed 50% (5/10) of chest seals, $p<0.0001$. Fluid infusion was performed more by medics (70%, $p<0.0001$) as was hypothermia prevention (58%, $p=0.04$). 3.4% of LSIs were incorrectly performed. 3% of the LSIs were missed. LSIs performed incorrectly or missed was not different among provider types. **Conclusions:** In a combat prehospital setting, 50% of LSIs are not performed by medics. Combat medics did perform complex LSIs. Missed LSIs and incorrectly performed LSIs were rare and similar among provider types.

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OPTIMAL THRESHOLDS FOR A PICU VENTILATOR ALLOCATION ALGORITHM IN A PANDEMIC

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Learning Objectives: A global pandemic may overwhelm ICU capacity, activating crisis standards of care (CSC) in which scarce resources will be diverted from selected patients to ensure maximum population survival. CSC ICU resource-allocation algorithms (ALGs) exist for adults. Our goal was to evaluate a CSC pandemic ALG for children. **Methods:** 150,000 records were obtained from the Virtual PICU Systems database, from which prediction equations for probability of death (POD) and duration of ventilation (DOV) were derived (SCCM Congress 2014, Abst 602). We estimated pandemic ICU activity by proportionally assigning peak weekly deaths caused by the 1918 influenza pandemic, using projected numbers in Ohio as an example. PICU capacity was taken as the number of surge beds in Ohio PICUs. Discrete Event Simulation (DES) was used to