

ED annual census of 10,000. These EDs were evaluated to compare the effects of health care reform on different populations. Admissions data were collected from both hospitals during the period of March 2009 and September 2013. In order to assess influence of the ACA on admission rates, a multi-variable binary logistic regression model was computed.

Results:

Time Period	Response	Suburban Hospital	Urban Hospital
Pre-ACA	Admit	17 (0.16%)	21,067 (23.61%)
	Non-Admit	10,321 (99.84%)	68,145 (76.39%)
Post-ACA	Admit	39 (0.12%)	68,654 (22.41%)
	Non-Admit	32,536 (99.88%)	237,736 (77.59%)

Table 1. Summary of admission rates by hospital and period. For patients visiting the suburban hospital, those who visited after the ACA came into effect had a (nonsignificant) 27% (OR: 0.73; 95% CI, 0.42–1.32; P value = .275) reduced likelihood of being admitted as compared to before the ACA came into effect. Finally, there was a (non-significant) 28.4% (OR: 1.28; 95% CI, 0.71–2.23; P value = .391) increase in the odds ratio of admitting post-ACA for the urban hospital as compared to post-ACA for the suburban hospital.

Conclusion: There was not a significant change in admissions rates post-ACA implementation for either hospital. Total annual census at both sites decreased the year post-ACA. While there has been a change in ED utilization in the short-term, it may be too early to see the long-term impact of the ACA.

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Hemin Microglia NLRP3 Protein N-methyl-D-aspartic Acid Receptor 1 Inflammasome

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Study/Objective: In this study, we aim to test the hypothesis that NLRP3 signaling pathway takes a vital position in ICH-induced secondary inflammatory damage, and detect the role of N-methyl-D-aspartic acid receptor 1 (NMDAR1) in this progress.

Background: Inflammation plays a critical role in secondary brain damage after intracerebral hemorrhage (ICH). However, the mechanisms of inflammatory injury following ICH are still unclear, particularly the involvement of NLRP3 inflammasome, which are crucial to sterile inflammatory responses.

Methods: ICH was induced in mice by microinjection of hemin into the striatum. The protein levels of NMDAR1, NMDAR1 phosphorylation, NLRP3 and IL-1b were measured by Western blot. The binding of NMDAR1 to NLRP3 was detected by immunoprecipitation.

Results: The expression of NMDAR1, NMDAR1 phosphorylation, NLRP3 and IL-1b were rapidly increased after ICH. Hemin treatment enhanced NMDAR1 expression and NMDAR1 phosphorylation, as well in cultured microglial cells treated by hemin. Hemin up-regulated NLRP3 and IL-1b level, which was reversed by MK801 (NMDAR antagonist) in vitro. Hemin also promoted the binding of NMDAR1 to NLRP3.

Conclusion: Our findings suggest that NMDAR1 plays a pivotal role in hemin-induced NLRP3-mediated inflammatory damage through synergistic activation.

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Improving Efficiencies with Real Time Locating Systems in Emergency Departments

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Study/Objective: To demonstrate improved efficiencies in Emergency Department patient flow and performance metrics using Real-Time Locating Systems.

Background: Efficiency is key in managing ED overcrowding. Utilizing a Real-Time Locating System (RTLS), our ED effectively manages ever-increasing volumes and acuity of emergency patients, including Mass-Casualty Event (MCE) victims.

Methods: RTLS systems are fully automated; they continually monitor locations of patients, staff, and assets, giving instantaneous visual status, measuring key metrics, and reporting key performance indicators. In addition to displaying patients' locations, RTLS measures and displays milestones based on time, location, acuity, and interaction; these are automated via customizable, intuitive software and low maintenance hardware. RTLS allows to identify treatment, space status, and availability, management of waiting room times, wait time to the physician's initial assessment (PIA), and overall length of stay (OLOS). Key assets are easily located when needed. Enhanced RTLS safety features include ability to track staff contacts with Infectious patients, as well as button-press alerts when staff need help urgently. The system displays data in different formats, including overhead floor-plan views displaying treatment space status, patient name, staff locations, and patient assignments. List views give information concerning complaint, acuity, disposition, location, and length of stay. Color flags provide visual warnings when approaching mandated targets for PIA and OLOS. This system is particularly useful in MCE's, where victims can rapidly be tagged and assigned triage levels.

Results: Despite the annual volume of ED patient growth of 35% since introduction of RTLS (in addition to other efficiencies), PIA time dropped by 85%. Patient and staff satisfaction improved dramatically. RTLS has been shown to be a useful modality in mass-casualty events.

Conclusion: RTLS is a low-cost, highly effective solution to help manage ED overcrowding by increasing efficiency, safety, and satisfaction among ED patients and staff by continuous

real-time monitoring in an often chaotic environment, including MCEs.

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Emerging Mobile Health (mHealth) in KATH ED: Assessing its Strengths, Weaknesses, Opportunities and Threats (SWOT Analysis) among Healthcare Workers

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Study/Objective: To assess the behavioral attitudes of ward nurses at Komfo Anokye Teaching Hospital (KATH) towards the use of mobile phone app for monitoring bed occupancy to reduce ED overcrowding.

Background: Emerging Mobile Health (mHealth) is a component of electronic health which refers to the use of mobile communication technology to promote health by supporting health care practices. Round-the-clock patient transfers to admitting wards using mHealth tools have been found to address the challenge of overcrowding and improve quality care given by physicians to patients in some EDs. KATH ED has these challenges of overcrowding due to long boarding hours of patients. mHealth tools could be useful in addressing them.

Methods: We adopted an observational study to critically observe nurses' attitudes towards the use of a mobile phone app to send bed states. Twenty-three mobile phones were dispatched to the various wards that receive patient transfers from KATH ED. Nurses on these wards were trained on how to use the mobile app to send bed state; two hourly, nine times a day.

Results: Using Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis model, we found that mHealth enabled a strong teamwork among staff. This tool enabled better communication between the ED and admitting wards, encouraging patient flow in the ED. However, its use was limited by network challenges; there was apathy among ward nurses because they perceived the technology as extra responsibility.

Conclusion: The mHealth re-echoes the importance of an institutionalized and functioning Electronic Medical Records (EMR) in KATH, but it will be important to consider a behavioral model that will encourage acceptance and compliance among staff of KATH.

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Creating a National Capacity for Mass Mechanical Ventilation in Disasters: A Methodology of Capability-building Under Stress

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Study/Objective: To describe a structured, reproducible method of a national mass mechanical ventilation capacity building.

Background: The threat from disasters due to terrorism, war, and nature producing massive numbers of patients requiring mechanical ventilation requires that governments prepare a surge capacity location for multiple ventilated casualties. A structured methodology for creating such a capability has not been published. We present the approach used in Israel for creating a national mechanical ventilation capacity in a very short period of time.

Methods: Sequence of activities:

- Development of relevant scenarios;
- Creation of a multi-disciplinary task force;
- Government guiding document detailing requirements and budget;
- Guiding principles (medical, technical, ethical);
- Concept of operations (system components, manpower, monitoring, command & control);
- Infrastructure (patient units, their distribution, ventilators, monitors, supplies, oxygen);
- Manpower requirements and training;
- Storage and technical support;
- Standard Operating Procedures (SOP) and an ethical framework;
- Request For Proposals (RFP);
- Structured assessment tools for the hardware;
- Structured decision process for choosing the hardware;
- Hardware purchase, storage, and distribution;
- Training of relevant hospital personnel; and
- Ongoing maintenance of hardware and training.

Results: Within three months, a comprehensive capability for mass mechanical ventilation was created, including ventilators, monitors, spares, disposables, personnel, SOP, and ethical framework. The system comprises of a mix of low-end and high-end ventilators, monitors, staff, and care locations. It is capable of simultaneously ventilating and monitoring 2,000 patients. It has been maintained and periodically refreshed.

Conclusion: It is possible to rapidly create mass mechanical ventilation capacity for disasters via a structured, reproducible methodology. We submit that the methodology we created may help other nations desiring to create such a capacity, and offer this description, as well as access to the relevant documents and gained expertise to anyone interested in so doing.

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Effect of Multivariate Factors on the Complication of Infection in Lushan Earthquake Victims: A Retrospective Analysis

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Study/Objective: In order to reduce the infection rate of victims after an earthquake, resulting in helping doctors make accurate medical decisions, we conducted this study via clarifying the factors associated with the complication of infection in Lushan Earthquake victims.

Background: Our previous study indicated that infection played a critical role in predicting the length-of-stay in hospital,