Patient Distribution Tool for Mass Casualty Incidents in a Large Metropolitan Setting

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Introduction: During a mass casualty incident (MCI), activating resources for response and equitable patient distribution is paramount. The Regional Hospital Coordination Center (RHCC) of a large US city lacked an objective tool readily available to manage patient distribution to area hospitals during an MCI. In a hospital-rich community, spreading the patient distribution throughout the region decreases the impact to one hospital. A tool was needed to equitably distribute patients across the healthcare system without added burden or demand to the hospitals nearest the MCI.
Method: This tool was developed using Excel and regional hospital capability information including trauma or burn center status, pediatric designation, etc. These capabilities and geographic distances from the MCI were the driving factors of the tool development.

The city has several high-visibility, large event locations. These locations were added into the tool and can be selected as MCI origin points. From here, the tool organizes hospitals by distance from the designated point. Since the formulas were programmed into the tool, it can be easily and quickly adapted to any MCI in the area and reflect relevant resources and limitations.
Results: Equitable patient distribution to area hospitals during an MCI is a best practice. Advance preparation is key to ensuring quick response and effective utilization of resources. Having a custom tool pre-programmed with relevant, regional hospital capabilities expedited this process and streamlined patient distribution efforts and, ultimately, improved emergency care coordination and patient outcomes.
Conclusion: During a Mass Casualty Incident, distributing patients equitably across the healthcare system without added burden to the hospitals nearest the event is critical. Having a custom tool pre-programmed with regional hospital capabilities expedites and streamlines patient distribution efforts, ultimately improving emergency care coordination and patient outcomes.

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Temporal Trends of Ambulance Times for Suspected Stroke/Transient Ischemic Attack (TIA) Before and During the COVID-19 Pandemic in Ireland: A Retrospective Cohort Study

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Introduction: International reports suggest there have been prehospital delays for time-sensitive emergencies like stroke and TIA during the COVID-19 pandemic. The aim was to investigate the impact of the COVID-19 pandemic on ambulance times and emergency call volume for adults with suspected stroke and TIA in Ireland.
Method: We conducted a retrospective cohort study of patients ≥ 18 years with suspected stroke/TIA, based on data from the National Ambulance Service. We included all cases assigned code 28 (suspected stroke/TIA) by the emergency call-taker, from 2018-2021. We compared ambulance times and emergency call volume by week, the four COVID-19 waves (defined by the Health Protection Surveillance Centre) and annually. The COVID-19 period was from March 1, 2020 - December 19, 2021 and the pre-COVID-19 period January 1, 2018 - February 29, 2020. Continuous variables were compared with t-tests and categorical variables with Pearson's $\chi 2$ tests.
Results: 40,012 cases were included: 20,281 in the pre-COVID-19 period and 19,731 in the COVID-19 period. Mean patient age significantly decreased between the two periods, from 71 years (±16.5) to 69.8 years (±17.1); $p<0.001$. Mean ambulance response time increased between the two periods from 17 minutes 31 seconds to 18 minutes 59 seconds ($p<0.001$). The number of cases with symptom onset to emergency call time of >4 hours significantly increased from 5,581 to 6,060 during the COVID-19 period ($p<0.001$). Mean calls/day increased from 25.1/day to 30.1/day during the COVID-19 period.
Conclusion: Early findings from the study suggest an increase in call volume for stroke/TIA between the COVID-19 and pre-COVID-19 periods. An increase in response times during the same periods was also found. We concluded that longer symptom-to-call times indicate a change in healthcare-seeking behavior. Sustaining high levels of compliance with stroke code protocols is crucial during healthcare crises. Future research will involve further analysis including controlling for confounders.

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Ukraine War: How Humanitarian Medicine can Reduce Morbidity and Mortality in the Prehospital Space

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Introduction: The 2022 Russian invasion of Ukraine exacts a heavy death toll throughout Ukraine. Morbidity and mortality

of warfighters and vulnerable civilian communities are inversely proportional to quality access to a viable medical evacuation chain. The military inspector is one option to fill the gap in pre-hospital medicine to reduce morbidity and mortality by providing damage control resuscitation/surgery (DCR/DCS).
Method: Qualitative and quantitative methodologies are applied. Qualitatively describing the medical evacuation of Shane, providing death estimates of the point of injury to receipt of DCR/DCS. Provide interoperable care across the military-civilian and humanitarian sectors. Describe the standardized and consistent evacuation chains across the entire battlefront from the point of injury to the Role 1/Role 2 echelons of care.
Results: The medical evacuation chain for this current iteration of Russian violence is currently inadequate, not standardized, not well integrated at the military-civilian interface. Preventable morbidity and mortality from conventional Russian weapon systems have increased.
Conclusion: Armed Forces of Ukraine to engage with NATO and EU colleagues to acquire the methodology and practical applications to reduce preventable morbidity and mortality. Standardized approaches to the concept of damage control resuscitation and damage control surgery to the paradigm of tactical combat casualty care can help reduce morbidity and mortality. The Ukraine crisis and Russian war is killing people in Ukraine, prehospital medicine must address and focus on reducing preventable causes of morbidity and mortality.

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Developing Prehospital Care in India–A Potential Model for Low- and Middle-income Countries

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Introduction: Road traffic accidents and natural disasters cause significant numbers of deaths and life-changing injuries in low & middle-income countries. Most of these countries have limited resources for pre-hospital care and training. In 2021, there were 155,622 deaths due to road accidents and >18,000 railway-related deaths. Natural and manmade disasters also contribute to high numbers of serious injuries and deaths in the region. India is the pilot for developing an international training course for prehospital trauma care.
Method: A review of pre-hospital care training and ambulance services in Tamil Nadu and Kerala states of India was carried out in 2019. An international workshop on developing pre-hospital care in India was held in Chennai in October 2022. The workshop included experts from UK and India and 52 practitioners from various parts of India.
Results: India has developed a country-wide ambulance service sub-contracted to private providers under a public-private partnership initiative and in addition, there are private and charitable providers. In-transit care and resuscitation are limited and the vehicles are primarily a transport mechanism with a scoop-and-run policy. Infrastructure, traffic congestion, rural and hard-to-reach areas, poorly equipped ambulance services and variations in training and scope of practice contribute to the challenges of providing high quality pre-hospital care.
Conclusion: There is a need for high-quality pre-hospital care training, regulation and continuing professional development within the pre-hospital care sector. Delivery of pre-hospital care could be reinforced by wider involvement of doctors such as General Practitioners and other allied health care professionals. It was agreed by all delegates and speakers that an international course on pre-hospital care based upon an existing UK course from the Faculty of Pre-Hospital Care of the Royal College of Surgeons of Edinburgh, edited to take account of India's current resources, should be piloted in Chennai in 2023.

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Characteristics of Patients Treated by Helicopter Emergency Medical Services in Ireland from 2012 to 2022: A Retrospective Analysis of Ten Years of Data

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Introduction: A dedicated primary scene landing Helicopter Emergency Medical Services (HEMS) has been in operation in Ireland since 2012. Commencing with a unique collaboration between the Irish Aer Corps and civilian Emergency Medical Services (EMS) it has expanded to include a second charity funded model in the south west of the country. Both services operate under a single governance and dispatch system and provide an Advanced Paramedic level of care to the patients they serve. There is limited published literature on prehospital care in Ireland and to date no detailed descriptive study of patients treated by HEMS in Ireland. This research describes the characteristics of the patients treated by HEMS in Ireland.
Method: This retrospective study will investigate the data of an excess of 8000 patients responded to by HEMS (2012-2022) in the republic of Ireland. Descriptive statistics will be used to interpret patient demographics, geographical spread, receiving facilities, mechanism/etiology of disease or injury, vital trends, transportation decisions and clinical interventions and short-term clinical outcomes.
Results: Early stage data extraction shows seasonal variation in HEMS use with increased use in the summer months. Almost twice as many male patients vs. females were treated by HEMS while the most common age profile was 55-65 yrs. Trauma presentations have increased over the past 10 years and now account for over 60% of the overall caseload. The most common medical etiology was cardiac arrest or post resuscitation care