

Major Incidents in Region Västra Götaland, Sweden, during 25 years

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Region Västra Götaland was created in 1999 by merging three former county councils and Göteborg's decision-making functions concerned with health care. The Region's main responsibility is to provide its 1.5 million inhabitants with adequate health care. Within Västra Götaland, the vulnerability is high, as Västra Götaland together with Stockholm and Malmö are the most densely populated regions in Sweden. The infrastructure is complex with high industrial activity and intense communication network.

Over the last 20 years, the region has had several major incidents, including:

Year	Incident	Dead	Injured
1977	Landslide, Tuve	9	62
1980	Bridge collapse, Tjörn	8	
1987	Train accident, Lerum	9	130
1990	Passenger ship (Scandinavian Star) Fire	158	30
1992	Tram accident, Gothenburg	13	37
1998	Discotheque fire, Gothenburg	63	213
1999	Passenger ship (Princess Ragnhild) Fire	1	10
2001	EU-meeting, Gothenburg	143	
2002	Gas leak, Skara Sommarland	39 to hospital	

Questions:

How can we prevent such events? What conclusions can be drawn? What have we learned?

Keywords: communications; incidents, major; infrastructure; injured; lessons learned; networks; outcomes; prevention; Sweden

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The Impact of Emergency Medical System Design on Performance of Response and Treatment for Disaster Patients

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Objective: Disasters generating multiple or mass numbers of casualties pose diverse and complex challenges to the medical component of response. The purpose of this study was to identify factors of Emergency Medical System Design (EMSD) that can improve response performance and potentially reduce morbidity and mortality during and immediately following an event.

Methods: To ensure a diversity of designs, 18 Emergency Medical Services Systems (EMSS) from five countries were reviewed. More than 25 structural characteristics of each EMSS were studied, including dispatch sophistication, response methodology, resource deployment and redeployment strategies, communication capabilities, staffing requirements, and level of training. Surveys were completed by all participants with demographics from each site collected as a baseline.

Results: Specific structural characteristics that affect level of performance to the typical medical or traumatic event were identified. Comparison with critical indicators from

evidenced-based data was then made to identify EMSD variables that will directly maximize the utilization of the medical response component. Clear patterns emerged that can provide strategies for the development of the EMSD best able to respond and manage the disaster that incorporates the existing political structure with operational, clinical, and economic variables.

Conclusion: The design of the EMS system is the most influential factor in its ability to respond rapidly, and effectively treat and transport patients from a disaster. The dynamic use of performance indicators to analyze, modify, and refine structural characteristics on an ongoing manner will optimize the EMSD and its organizational capabilities to enhance a successful disaster medical response.

Keywords: emergency medical system design (EMSD); indicators; patterns; politics; response; structure

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Breakthrough in Mass and Multiple Casualty Triage May Increase the Savings of Lives during a Disaster

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This evidence-based triage and resource management system may maximize the savings of lives in multiple and mass-casualty incidents. The method is designed to provide real-time triage decisions for emergency first-responder and hospital personnel. The model uses the first evidence based triage process, and is based on an analysis of data on 102,000 victims of blunt and penetrating trauma.

This method was demonstrated during a multi-agency, disaster exercise in a large US city, and yielded results ranging from a 40% increase in survivors under an abundance of resources, to a 500% increase in survivors when transport and treatment resources were more constrained. Results from mass casualty simulations indicate the potential to increase victims' survivability by as much as 800% as compared to current triage methods. The system provides a formal methodology for prehospital and hospital triage that maximizes survivability.

Field data drive the method and real-time triage decisions that can change as conditions change within the emergency site and EMS system. Implementation is flexible: from rule-based field decisions to fully automated and integrated PDAs that can be linked with incident command to help coordinate resource management, patient tracking, and all other communication systems/processes.

Keywords: automation; communications; data; emergencies; field; first responders; hospital; management; prehospital; resources; survival; tracking; triage

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High Risk Areas for Public Health Emergencies: A Risk Assessment Model for Conducting Vulnerability Analysis of Hazard-Prone Areas in Bangladesh

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Introduction: Approximately 40–50% of the population of