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FACILITATING PANDEMIC RESPONSE WITH MOBILE FACILITIES

A White Paper

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When a pandemic strikes, responders must be prepared to care for victims while protecting the public from further outbreak. Isolation of infected patients is crucial and surge facilities must be in place to expand response efforts.

For many departments, the answer to controlling a widespread incident is mobile facilities - from isolation systems to medical surge facilities to command and control centers. Transportable and flexible, these facilities ensure that agencies can respond to a health crisis no matter where, or when it occurs.

Lack of Proper Facilities

Though responders have always needed the proper facilities to serve a plethora of purposes, a pandemic would leave agencies in exceptional need of three types of facilities – medical surge facilities, isolation systems and command and control centers.

Medical Surge Facilities to Solve the Bed Capacity Crisis

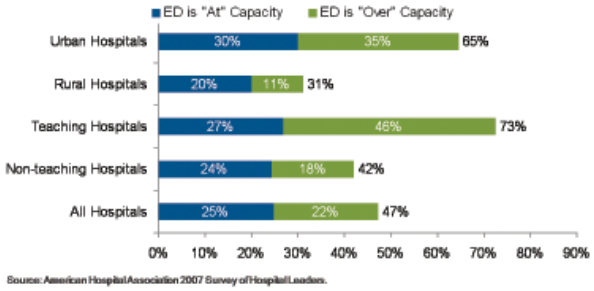
During the three major pandemic outbreaks of the twentieth century – the Spanish Flu, the Asian Flu and the Hong Kong Flu – nearly half of those infected sought medical treatment. Though it is still unclear whether or not a health crisis today would produce such statistics, history has proven that medical surge facilities need to be in place to treat an influx of patients.

The U.S. Department of Health and Human Services has predicted that a large-scale pandemic outbreak today could cause 90 million Americans to become sick, and as many as 9.9 million people to seek hospital care. With only 970,000 staffed hospital beds currently in the United States, most of which are occupied, however, many of these people would be unable to receive medical treatment.

Some agencies have tried to implement plans that would convert public buildings, such as schools and gymnasiums, into temporary treatment facilities. These plans often prove to be inefficient.

Pre-existing, permanent structures usually lack the power, ventilation and environmental infrastructure that would be needed to treat infected patients. Furthermore, many states have found that the public is often wary of reopening facilities once used to house sick, contagious patients.

Percent of Hospitals Reporting Emergency Department Capacity Issues by Type of Hospital, 2007



Source: American Hospital Association 2007 Survey of Hospital Leaders.

Isolation Systems to Quarantine Infected Patients

Equally important as expanding bed capacities during a pandemic is isolating infected patients to protect the public, as well as health officials, from the virus.

Unlike medical personnel who created “tents” made of bedding sheets to isolate patients during the Spanish Flu of 1918, responders now have the proper technology to prevent the spread of disease at their fingertips. Personnel must be able to set up isolation wards quickly and easily, however, if they hope to avoid further outbreak.

Command and Control Centers to Centralize and Organize Efforts

The final piece to effective pandemic response is a centralized location from which personnel can organize and execute response efforts.

Officials need a command post from which they can perform command operations and that can hold communications equipment and other needed tools. The command post should also be close enough to the incident scene to allow for easy transmission of information and directions.

The Soft-Walled Shelter Solution

Soft-walled shelter systems offer one possible solution to the need for mobile facilities. These systems are often more cost effective than permanent structures, and are flexible enough to be used for numerous applications.

The benefits of soft-walled shelter systems also include:

- **Mobility.** Soft-walled shelter systems can be transported from one location to the next, ensuring that responders have the proper workspace no matter where the incident takes place. Unlike rigid-walled shelters, these systems can be quickly set up or taken down and pack down to a fraction of their deployed size.
- **Adaptability.** Generators, environmental control units (ECUs) and heaters can be integrated into shelter systems, allowing responders to complete their operations regardless of the surrounding environment and weather conditions.
- **Scalability.** Soft-walled shelters can easily be added or removed to increase or decrease the structure's overall size depending on the scale of the incident.

Utilizing Soft-Walled Shelter Systems during a Pandemic

Easily configured for a wide range of applications, soft-walled shelter systems can serve as many of the facilities needed during a pandemic.

- **Medical Surge Facilities.** Able to be scaled up or down based on the scale of the epidemic, soft-walled shelter systems can also easily be stored and transported to the site of an outbreak. Additionally, these facilities can often be outfitted with generators, environmental control units, lighting and other accessories to create the proper treatment area.
- **Mobile Dispensing Sites.** Another answer to the bed capacity crisis, mobile dispensing sites allow responders to provide patients with medicine, water and other needed supplies from a location in the field.
- **Isolation Systems.** Mobile isolation shelter systems can be outfitted with HEPA filtration and HVAC systems to create a climate-controlled, pressurized patient treatment area. Easily set up in the field, these systems allow responders to treat patients without the risk of infecting entire hospitals.
- **Fatality Management Centers.** Fatality management centers provide responders with a space in which to identify, process and view casualties following a health crisis. Able to be set up at the scene of an outbreak, soft-walled fatality management centers allow health officials to complete operations without requiring workspace in already overcrowded hospitals or risking the infection of patients and medical staff.
- **Command Centers.** By investing in a soft-walled shelter system as a mobile command and control or emergency operations center, officials have the space needed to direct personnel, allocate supplies and receive continuous updates from the scene, all while in the field. These mobile centers are also often flexible enough to be equipped with communications equipment, ensuring that all the different departments involved can coordinate operations.

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What Others Are Doing

While many agencies across the country lack the proper facilities to handle a large-scale disaster, some departments have already made a concerted effort to guarantee that they are prepared to manage an incident, no matter how widespread.

In 2005, Connecticut's Department of Public Health purchased the Ottilie W. Lundgren Mobile Field Hospital – a 14,000 square foot facility comprised of various sized soft-walled shelters that can also be used independently. While officials plan to only deploy the entire system during a large-scale emergency, the Department of Public Health has already used many of the system's shelters in response to smaller incidents across the state.

Similarly, in 2008, the City of New Orleans Office of Emergency Preparedness purchased several shelter systems in hopes of preventing the devastating effects of Hurricane Katrina during future disasters. The soft-walled systems, ranging in size from 413 to 1,250 square feet, have already been used for triage, treatment and command and control during such large-scale events as the city's 2009 Mardi Gras celebration.

Both Connecticut's Department of Public Health's and the City of New Orleans Office of Emergency Preparedness' facilities were purchased from DHS Systems LLC. The company manufactures and sells Reeves Shelter Systems, a full line of soft-walled shelter packages.

Part of the 14,000 square foot Ottilie W. Lundgren Mobile Field Hospital outside of the Connecticut State Capitol.

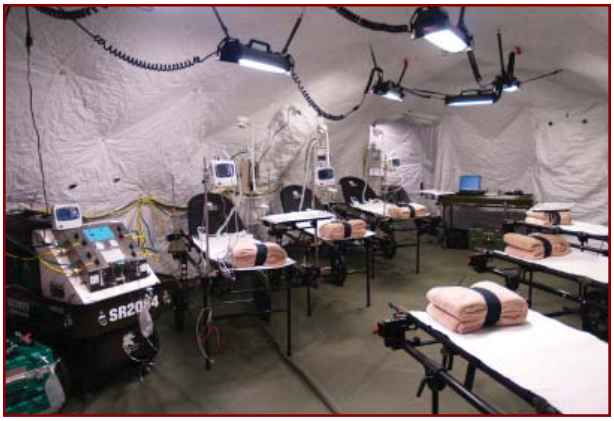
New Orleans EMTs roll a patient into the City's soft-walled medical facility during Mardi Gras.

Reeves Shelter Systems - The Total Shelter Solution

From mobile incident command to medical applications, Reeves Shelter Systems come in a variety of sizes and configurations to fit any situation in which mobile facilities are necessary.

Most Reeves Shelter Systems utilize DHS Systems' Deployable Rapid Assembly Shelter (DRASH) that has been used for more than 20 years by military and NATO forces, as well as emergency medical responders and receivers, for countless applications. DRASH Shelters can be set up in minutes by two to six personnel, depending on the size of the shelter. While no special tools are required, an optional small bladder and blower system eliminates the need for heavy lifting when putting up or taking down the shelters.

In addition to its user-friendly design, Reeves Shelter Systems also include a full line of mobile support products, such as hardened flooring, cots and furniture, lighting and power generation, to help build a complete, fully equipped workspace.



DRASH generators allow medical equipment to run indepenent of any external power sources.

A Reeves 25-Bed Medical Surge Facility offers 1,285 square feet of usable space.

Reeves Shelter Systems include:
- Casualty Collection Points
- Emergency Operations Centers
- Incident Command Posts
- Fatality Management Centers
- Incident Camps
- Medical Surge Facilities
- Mobile Field Shower Systems
- Outdoor Patient Isolation Systems
- Decontamination Systems

DHS Systems also has emergency management representatives available to work with customers to create a customized shelter system based on a department's or hospital's unique needs.

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Using Reeves Shelter Systems during a Pandemic

During a health crisis, responders will need facilities to expand bedding capacities, isolate infected patients and run command and control operations. Reeves Shelter Systems can be used for all of these purposes.

- **Reeves Medical Surge Facilities** are available in 10-bed and 25-bed models. While basic packages include heating, cooling and lighting, optional power generation and distribution, flooring, patient bedding and medical equipment are available to create a fully equipped treatment center. Reeves Medical Surge Facilities have been used by San Bernardino County in California.

- **Reeves Outdoor Patient Isolation Systems** fuse state-of-the-art shelter technology with a technologically superior combination HEPA filtration and HVAC unit to form a portable, all-weather solution to biological outbreak isolation. The system, available in 6-8 and 10-14 bed models, features a biologically secure staff anteroom, zippered entry and exit doors and heat-sealed viewing windows. Reeves Outdoor Patient Isolation Systems have been used by the New York City Office of the Chief Medical Examiner (NYC OCME).

- **Reeves Fatality Management Centers** provide up to 902 square feet of insulated space in which to identify and process casualities from a temporary location in the field. The Centers can be equipped with power generation, flooring and fatality management accessories, such as mortuary trays and body bags. Reeves Fatality Management Centers have also been used by the New York City Office of the Chief Medical Examiner (NYC OCME).

- **Reeves Emergency Operations Centers** offer up to 519 square feet of usable space from which emergency operations can be directed and coordinated from a centralized location in the field. Optional power generation is available to run computers, communications equipment and other necessary tools. Reeves Emergency Operations Centers have been used by the Marion County Health Department in Indiana.

- The **Reeves Incident Command Post (ICP) Trailer**, DHS Systems' newest shelter system, is a trailer and shelter combination that can be deployed directly at the incident scene. The Reeves ICP's trailer is designed to travel off road, while its military-grade shelter can withstand harsh weather conditions. Additionally, the ICP features a console that can be used to store everything from medical supplies to communications equipment – allowing it to serve multiple applications, including as a mobile point of distribution (POD) or command post. The Reeves Incident Command Post has been used by the Westchester County Department of Public Safety in New York.

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Conclusion

While it is impossible to predict when the next pandemic outbreak will occur, responders must take steps now to prepare for future crises. Soft-walled shelter systems offer responders a workspace that is not only transportable, but that can easily be configured for any disaster with which they may be faced.

To learn more about Reeves Shelter Systems:

Visit
www.ReevesEMS.com

Contact a DHS Systems Representative
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