HCPro HOSPITAL SAFETY CENTER

Emergency Preparedness Solutions

Customizable Paper Patients

Mary Russell, EdD, MSN

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ABOUT THE AUTHOR

Mary Russell, EdD, MSN

Mary Russell, EdD, MSN, is involved in a spectrum of emergency preparedness planning and response activities at the local, county, regional, and state levels in Florida. Her experiences have included emergency responses to events such as a hospital explosion and fire resulting in evacuation, major hurricanes, wildfires, tornadoes, chemical incidents, transportation-related mass casualty incidents, a terrorist attack involving anthrax, contamination of food and water supplies, and outbreaks of influenza, norovirus, and other biological agents, among other threats.

As an emergency room nurse who has also served in the Hospital Incident Command System structure of her community hospital, Russell is fully aware of the need to constantly prepare, conduct exercises, and learn from every experience. Her background includes serving as the 2006–2007 chairperson for the Healthcare Emergency Response Coalition in Palm Beach County, FL, which includes membership from all 15 hospitals in the county and other emergency response partners. Together, they have worked on strategic planning and shared activities, including participation in countywide and regional drills in addition to responding to real disasters.

Russell currently works under a part-time contract at the Florida Department of Health's Office of Public Health Preparedness as a senior hospital project manager for hospital preparedness projects (including the development of hospital toolkits for emergency evacuation, radiological emergency response, and chemical emergency response), helps with state healthcare workforce planning, and serves on catastrophic health and medical planning and medical surge capability teams. On weekends, she works per diem night shifts in the emergency department as an RN at Boca Raton Community Hospital. She also volunteers for Palm Beach County's Medical Reserve Corps. Her perspective allows her to understand federal and state guidance and align it with local planning and response.

Russell has a multidisciplinary educational background, including a bachelor's degree in physical therapy from Russell Sage College in Troy, NY; a master's in nursing from the Lienhard Graduate School of Nursing at Pace University in Pleasantville, NY; and a doctorate in education from Florida International University in Miami. She has worked in numerous settings, including critical care, burn units, community health, and other areas of practice beyond the emergency department.

In addition, Russell is certified in the Department of Homeland Security's Homeland Security Exercise and Evaluation Program training and has multiple National Incident Management System certifications. She also has completed a range of basic through advanced disaster courses, including basic awareness level, operations level, and advanced courses in disaster burn care, disaster life support, psychological first aid, hazardous materials, biological prevention and response, radiological response, triage training, and incident response to terrorist bombings.

ACKNOWLEDGMENTS

Illustrations in this publication were created by Karen S. Russell. Russell is a graduate of the University of Central Florida. Her artistic work includes traditional oil painting, as well as a more recent expansion to the digital realm. She is able to depict through her art an assortment of human afflictions.

USING YOUR PAPER PATIENTS

Hospital emergency management coordinators have expressed the need for a set of "paper patients" to use in tabletop exercises with staff members. These paper patients can be used to review basic response roles and responsibilities as part of regular reviews of disaster processes and training and as part of preparation for a scheduled functional or full-scale exercise. The need for simulated casualties includes scenario-specific patients in addition to a set of commonly seen "everyday" patients that present to emergency departments. This is because people continue to have everyday emergencies even during disasters, and hospitals must accommodate and provide a medical screening for every patient that arrives at the facility.

This resource goes above and beyond that request by offering insight into the types of casualties that might present in disaster scenarios, typical clinical presentations, and special considerations that can be anticipated for the care of these simulated patients and management of the scenario overall, in addition to the desired paper-patient templates.

Developing Exercises

During a disaster event, people seek care from hospitals for physical and psychological support. Hospitals must also deal with an influx of other groups, including family members, friends, media, and onlookers. As a result, hospitals need the full range of support personnel to accommodate the casualties, the family and friends who come looking for them, and anyone else who arrives at the facility. During exercises, putting a face on illness and injury can introduce more realism and allow evaluators to observe how participants manage the triage process from a human perspective. A minimum of details, such as mental status, chief complaints, and vital signs, allows observers to evaluate clinical staff members on their triage decisions and assignments to treatment areas. Exercise organizers can give paper patients names to allow for patient tracking through the hospital or alternative medical treatment sites and for family notification and reunification purposes.

A surge in patients can come from a range of disaster scenarios that result in an imbalance in which the demand exceeds available resources. Such events will affect the entire hospital organization and activate the Hospital Incident Command System (HICS). Local emergency management and emergency responders will provide support to the extent that they are able.

Recently, it has become more common for hospitals to exercise together in preparation for major disasters and to assist with catastrophic planning. Multiple hospitals could have infrastructure damage in addition to being surged with arriving casualties seeking care. In some emergency events, hospitals may have to manage arriving casualties without full support of their emergency partners. This concept is being built into current exercise planning to inject a level of stress and to demonstrate the need for flexibility and adaptability. There is a recognized need for accountability on the part of the hospital to achieve capacity and capability using its own internal and external resources and assets, and to achieve an appropriate balance when planning and exercising with community partners.

Gone are the days when disasters were viewed as a problem to be managed only by the emergency department. The Joint Commission (formerly JCAHO) has developed emergency management standards that promote executive leadership and accountability for the organization to support a disaster threat or response. The efficiency, communication mechanisms, and decision support of administrators and the HICS team can also be evaluated for disaster exercises in addition to the provision of clinical treatment.

Hospitals need to conduct exercises that focus on providing surge capacity and capability to provide for patient care through the continuum of an event. Surge capacity is defined as the ability to respond to a significant increase in the number of patients. Surge capability is the ability to provide for specialized care of patients as needed.[1] The outcomes for managing a medical surge include rapid and appropriate care for the ill or injured from the event and maintenance of continuity of care for non-incident-related illness or injury.

The U.S. Department of Homeland Security has identified 15 planning scenarios as part of its National Preparedness Guidelines.[2] These include terrorist attacks, major disasters, and other emergencies. Hospitals that are accredited by The Joint Commission are familiar with these disasters as external hospital incident command scenarios.

Of the 15 scenarios, 13 of them involve a surge of patients arriving at hospitals, including:

1. Improvised nuclear device (IND)
2. Aerosol anthrax
3. Pandemic influenza
4. Plague
5. Blister agent
6. Toxic industrial chemicals
7. Nerve agent
8. Chlorine tank explosion
9. Major earthquake
10. Major hurricane
11. Radiological dispersal device (RDD)
12. Improvised explosive device
13. Food contamination

Note: The two scenarios that do not directly create a surge of patients include a cyber attack and a foreign animal disease incident.

Hospitals tend to focus on the most likely scenarios as identified by their Hazard Vulnerability Analysis; however, they must also be prepared for the major disasters listed above. In Florida, for example, annual preparation and exercises occur for hurricanes; however, other scenarios are rotated to ensure institutional memory of how to manage them.

Every disaster event can be unique in multiple ways. For example:

- The onset of the disaster can be either a sudden-onset or "no-notice" mass casualty incident (MCI) or have more of an insidious pattern, such as with a biological incident that might begin with a few patients and grow exponentially.
- The magnitude of the event can range from relatively few casualties presenting at one hospital to a catastrophic event involving hundreds of patients distributed to several facilities.

- Disasters can be unintentional or intentional, and sometimes that designation may not be initially known. Earthquakes are an example of a natural disaster and can have secondary fire events, the occurrence of a tsunami, or other incidents. Terrorists often use a multiple-occurrence method with a primary event followed by a timed secondary incident as emergency responders arrive on scene or an additional incident targeted to designated receiving hospitals. Healthcare providers need to be aware that they may be providing care to the person or persons who caused the incident in addition to those who were their targets.
- The complexity of the event will increase with the presence of contaminants or an explosive event with or without a secondary agent release (e.g., biological, chemical, or radiological).
- The hospital itself can be the scene of an incident or part of a larger event with hospital or community infrastructure damage significant enough to trigger a partial or full-facility evacuation of patients. Hospitals might also experience a concurrent loss of utilities, a hostage situation, or other concerns.
- The duration of the event can vary from a few hours to being a sustained event that lasts days, weeks, or longer.
- The time of day, day of the week, and month of the year can make a big difference in terms of available resources and initial response capability.
- The types of casualties involved can add challenges for responders, including vulnerable populations (e.g., non-English speaking, very young, elderly, or persons with disabilities), injured terrorists, persons with weapons, injured law enforcement, fire rescue, or healthcare workers.
- The need for bed space may reach critical levels. It is not uncommon for a hospital to have no open beds, with the emergency department holding admitted patients while waiting for persons to be discharged from the inpatient areas. Certain types of beds might also be needed, such as ICU beds, burn beds, or pediatric capacity. Also, specific departments might be stressed disproportionately, such as respiratory services, nursing, lab, radiology, and pharmacy.
- Unique supplies might be needed, such as ventilators or alternative oxygen delivery equipment, blood products, or pharmaceuticals (e.g., antidotes, antivirals, antibiotics, or countermeasures).
- There might be a healthcare workforce shortage due to illness; inability to access the hospital due to weather, debris, road closures, or a chemical plume; or other issues.
- Hospital or community subject matter experts may be needed for agent detection and identification, epidemiologic investigation, forensics, or advice.
- Depending on the type of disaster event, crowd control management and security issues may vary in terms of restriction of access to protect the facility, its staff, and patients already being cared for at the hospital.

It is recommended that hospitals use the Federal Emergency Management Agency's Homeland Security Exercise and Evaluation Program (HSEEP) tools to design their exercises, preferably in partnership with their local emergency responders and emergency management team. HSEEP is considered the national standard and has a capabilities- and performance-based exercise program that provides a standardized methodology and terminology for exercise design, development, conduct, evaluation, and improvement planning.

Features of the HSEEP design include identification of objectives and having observers and evaluators present to independently assess performance and capabilities. As part of the after-action review process, strengths and areas for improvement are identified, corrected, and shared with the staff prior to a real incident. Even if the hospital is participating with a municipal, county, or regional exercise, it is still acceptable that it can choose the objectives that it wants to evaluate for the facility. For more information on HSEEP, go to *www.hseep.dhs.gov*.

Upon further review of the national scenarios, we can narrow it to four broader categories, in terms of paper patients:

- MCI (e.g., major earthquake, major hurricane, or improvised explosive device)
- Radiological incident (e.g., IND, RDD, or food contamination)
- Biological incident (e.g., aerosolized anthrax, pandemic influenza, plague, or food contamination)
- Chemical incident (e.g., chlorine, toxic industrial chemicals, blister agent, nerve agent, or food contamination)

Customizing Your Paper Patients

The paper patients that have been provided can be reproduced to expand the number of casualties coming from an incident. All major age ranges have been represented, so if a hospital wants to stress its response to a certain age group, such as children, this would be easy to accomplish. Hospitals have attempted to create their own paper patients by simply writing a description—often with too much information—in addition to vital signs.

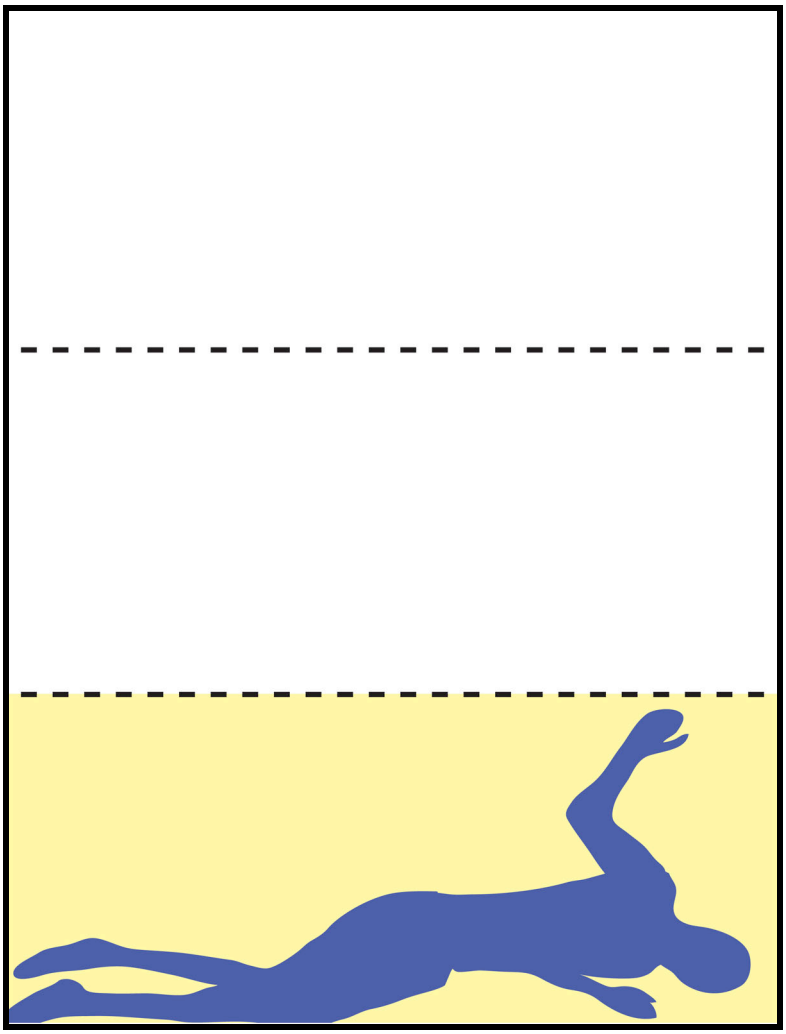
The challenge is that simpler triage processes need to be exercised first to sort acuity by groups of casualties. Vital sign assessment and a secondary triage process will occur following the initial sort. The paper patient templates that are offered with this book reflect updated thinking related to how triage is conducted as an initial process and further reassessments.

The hospital emergency management coordinator can choose exercise elements that include:

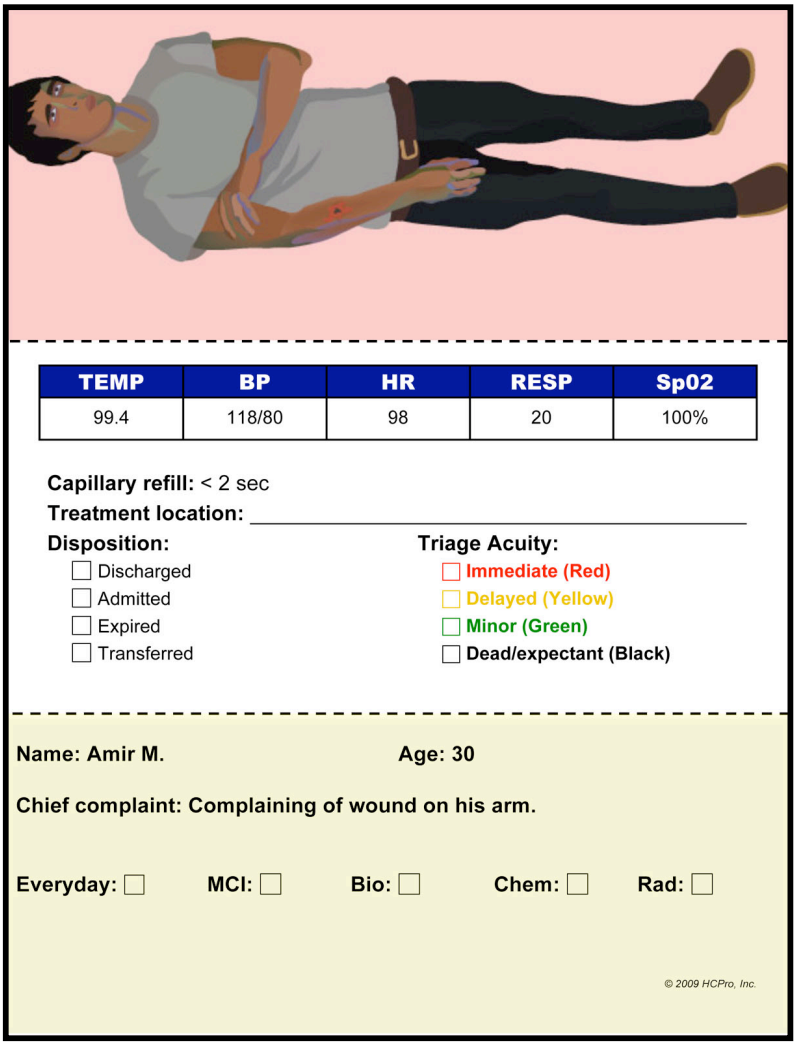
- Scenarios with high fatalities prompting activation of the hospital's fatality management plan.
- Contagious illnesses that result in the need for isolation space, personal protective equipment, special laboratory handoff, packing and shipping practices, and/or staff prophylaxis.
- Scenarios that require the need for subject matter experts. Examples include surgeons for a mass casualty exercise, nuclear medicine technicians and radiation physicists for an IND or RDD event, infectious disease specialists for a biological outbreak, and hazardous materials personnel for chemical events. The emphasis should be to use internal experts in addition to supportive personnel from local, state, or federal emergency response partners.

Three formats are provided:

- **Triage Paper Patients:** Use these generic versions of adult, child, and infant disaster victims to exercise the group sorting process. These generic casualties are in various positions and can be replicated to any number to use for small- to large-scale disaster events. They can be positioned in 3-D to visualize the magnitude of persons that will need mass triage. These files are named with a "TP_".



- **Disaster-Specific Paper Patients:** These are incident-specific patients that are likely to present in specific disaster scenarios with the applicable physical and psychological needs. You can customize the patient templates to create multiple victims with similar profiles, and many disaster-specific paper patients can be used for more than one type of drill. These files are named with a "DP_".



TEMP	BP	HR	RESP	Sp02
99.4	118/80	98	20	100%

Capillary refill: < 2 sec

Treatment location: _____

Disposition:

- ☐ Discharged
- ☐ Admitted
- ☐ Expired
- ☐ Transferred

Triage Acuity:

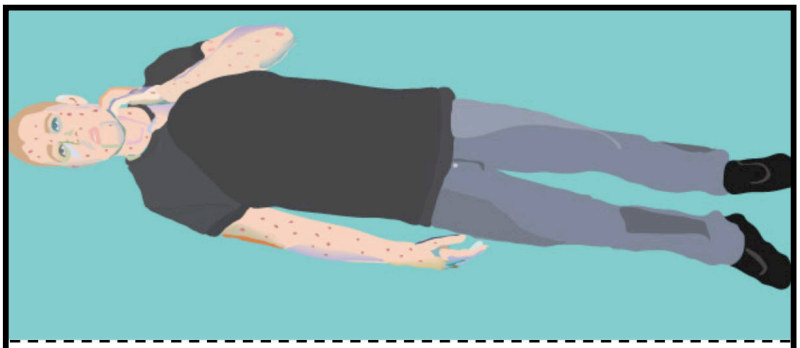
- ☐ **Immediate (Red)**
- ☐ **Delayed (Yellow)**
- ☐ **Minor (Green)**
- ☐ **Dead/expectant (Black)**

Name: Amir M. **Age: 30**

Chief complaint: Complaining of wound on his arm.

Everyday: ☐ **MCI:** ☐ **Bio:** ☐ **Chem:** ☐ **Rad:** ☐

- **Everyday Paper Patients:** These everyday emergency department patients are included to represent the types of conditions commonly seen in a hospital emergency room. They vary in age and severity level. These patients can be used to represent those that are already receiving treatment within an emergency department when a disaster occurs; they can also serve as non-incident-related arriving patients that present at the same time as notification is received of an incident, or even modified to fit specific disasters (as indicated on the template). In addition, this group includes figures that represent family members, persons searching for loved ones, media, onlookers, healthcare volunteers, or others. These files are named with an "EP_"



TEMP	BP	HR	RESP	Sp02
98	100/64	90	20	99%

Capillary refill: < 2 sec

Treatment location: _____

Disposition:

- ☐ Discharged
- ☐ Admitted
- ☐ Expired
- ☐ Transferred

Triage Acuity:

- ☐ **Immediate (Red)**
- ☐ **Delayed (Yellow)**
- ☐ **Minor (Green)**
- ☐ **Dead/expectant (Black)**

Name: Drew Z. **Age: 25**

Chief complaint: Generalized itching with hives. Flushed, voice hoarse.

Everyday: ☐ **MCI:** ☐ **Bio:** ☐ **Chem:** ☐ **Rad:** ☐

Each paper patient is positioned in a standing, sitting, or lying position. The perforations allow for the paper to be folded so that only the image is initially viewed by triage staff. This permits an opportunity for the first part of the sorting process. Additional details can be written on the flip side of the papers as needed for the purpose of the exercise. This could include level of consciousness, chief complaint, and vital signs. Names can be assigned to the casualties to evaluate patient tracking capabilities through treatment areas and, eventually, disposition.

Each Disaster-Specific and Everyday Paper Patient contains certain clinical and identifying information, including:

- Temperature (TEMP)
- Blood pressure (BP)
- Heart rate (HR)
- Respiratory rate (RESP)
- Pulse oximetry (SpO2)
- Capillary refill
- Name
- Age
- Chief complaint

In addition, each template has customizable areas to use during your drills, including:

- Disposition
    - Discharged
    - Admitted
    - Expired
    - Transferred

- Triage Acuity:
    - Immediate (Red)
    - Delayed (Yellow)
    - Minor (Green)
    - Dead/Expectant (Black)

Lastly, each Disaster-Specific and Everyday Paper Patient contains checkboxes (Everyday, MCI, Bio, Chem, and Rad) indicating which types of disaster event scenarios work for a particular patient. For example, EP_MildFlu could easily be used as a Disaster-Specific Paper Patient if you were conducting drills on H1N1.

Because they are available in an electronic format, the paper patients can be easily replicated to the number that is appropriate for the exercise or customized to the specific needs of your facility. The Joint Commission recommends that hospitals stress responders with an influx of simulated patients and an escalating event in which the community is unable to support the hospital. By practicing with smaller numbers of arriving patients in initial exercises and increasing the numbers as capability is demonstrated, staff members can learn how to accommodate their processes, adapt to various scenarios, and manage and recover from a major surge. The paper patients can also be used for just-in-time refresher training for hospital staff members to think through the challenges they will face from any scenario.

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