SPECIAL REPORT

Management of Evacuee Surge from a Disaster Area: Solutions to Avoid Non-Emergent, Emergency Department Visits

Charlene B. Irvin, MD, FACEP; Jenny G. Atas, MD, FACEP

Wayne State University School of Medicine, Detroit, Michigan USA

Correspondence:
Charlene Irvin
50572 Jefferson Ave.
New Baltimore, Michigan 48047 USA
E-mail: cbi@123.net

Keywords: evacuees; management; medical screening; non-emergent; reception center

Abbreviations:
ED = emergency department
EMS = emergency medical services
FEMA = Federal Emergency Management Agency
NIMS = National Incident Management System

Received: 22 June 2006
Accepted: 09 October 2006
Revised: 16 November 2006

Web publication: 19 June 2007

Abstract

Introduction: Many emergency departments (EDs) in the United States experience daily overcrowding, and a rapid influx of evacuees fleeing a disaster area can pose a substantial burden. Some of these evacuees may require ED care. However, others lack an alternative to the ED to address non-emergent medical concerns (prescription refills or outpatient referral).

Objective: The objective of this study was to describe a successful multidisciplinary Hurricane Katrina Evacuation Center, explain the services offered, and determine the center's effects on referrals to local EDs.

Methods: Data were collected concerning the number of patients utilizing the medical evaluation center and compared to the total number of evacuees to determine the proportion that utilized medical care. The data concerning patients given prescriptions was obtained by the estimation of the two medical directors of the Center, and therefore, is inexact.

Results: During the five weeks the center was operational, 631 of 716 evacuees (88%) requested medical evaluation, and >80% of those had prescriptions written. Only four (<1%) patients were transported to local EDs.

Conclusion: An evacuee evaluation center provides a convenient non-ED alternative for evacuees to address their non-emergent medical concerns and can be used to ease their transition to a new location.

Irvin CB, Atas JG: Management of evacuee surge from a disaster area: Solutions to avoid non-emergent emergency department visits. *Prehosp Disast Med* 2007;22(3):220–223.

Introduction

Although numerous studies of patient management during disasters have been published, there is little information describing the management of evacuees not requiring immediate medical interventions.[1–3] The needs of these individuals, sometimes evacuated with little more than the clothes on their backs, can be substantial. Evacuee needs regarding housing, immunizations, postal and identification issues, immediate prescription medication needs, school enrollment, and basic necessities such as food all must be addressed. While most of these needs fall within the realm of public health and social services, people with medical demands (e.g., prescription medications, outpatient referral information for patients with chronic medical conditions, etc.) are likely to go to the emergency department for assistance if those needs are not met through alternative resources. Even basic necessities, such as food and shelter, may result in an emergency department visit if no other access to health resources is available. As emergency departments (EDs) in the United States often are overcrowded, it is likely that the rapid influx of large number of evacuees would result in a more substantial burden.

Currently, there is no one place designed to streamline the coordination of all of the basic needs for evacuated individuals. Given that the needs of many evacuees are urgent but non-life threatening, establishing a reception center to address these needs is a logical alternative solution. When properly implemented, these centers, can bridge the gap that currently exists in the US

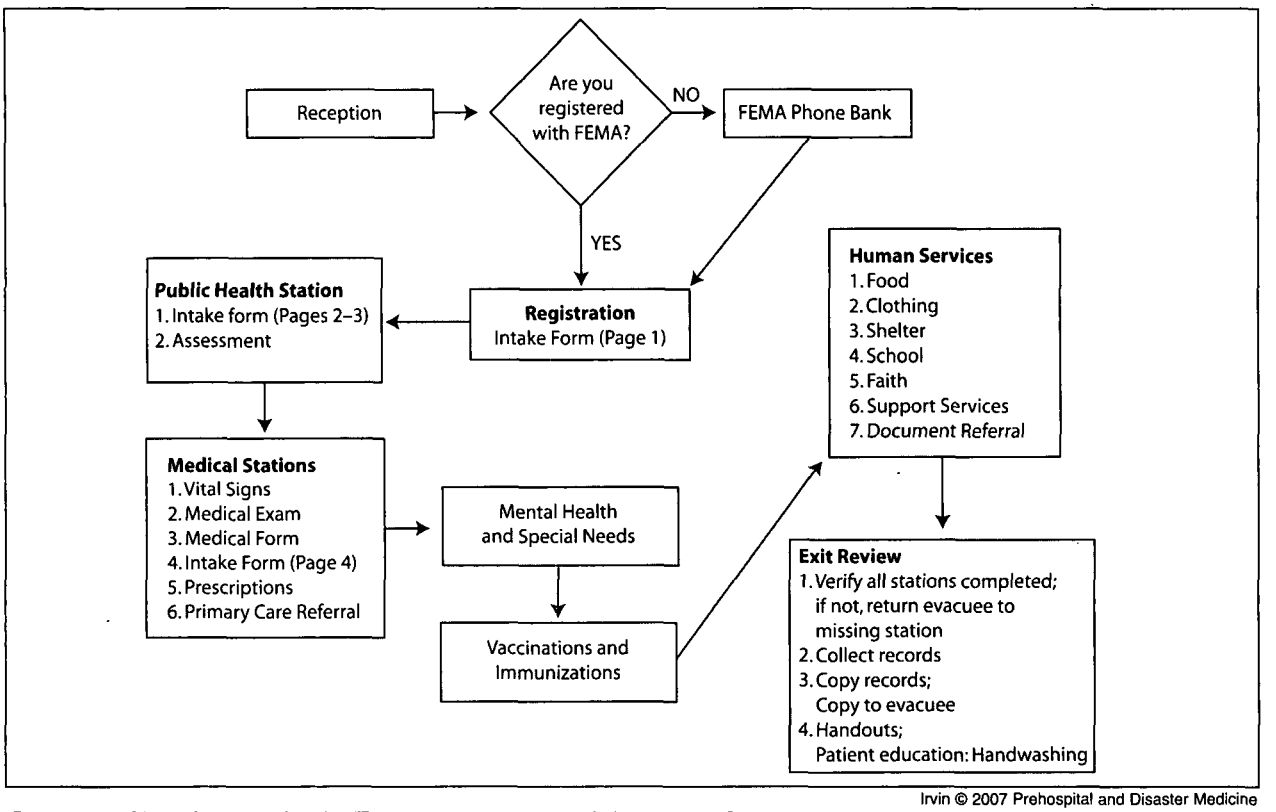

Figure 1—Flow diagram for the Evacuee Reception and Assistance Center

healthcare system. By rapidly providing evacuees access to basic resources, including medical care, their transition into the infrastructure in a new location can be eased. In order for the Center to operate in a coordinated fashion, multiple agencies must collaborate in the planning. It is ideal for emergency medicine physicians to be part of the initial design team for these centers, because of their expertise in the evaluation, triage, and treatment of large numbers of patients.

During the period immediately following Hurricane Katrina, evacuees were transported to many different states. In Detroit, Michigan, an Evacuee Reception and Assistance Center was established to address critical needs and coordinate donations. The center operated from 10:00–18:00 hours Monday through Friday for five weeks. This report describes this center, the partnerships between multiple agencies, the successful management and treatment of >700 individuals during a five-week period, and the number of people requiring an actual ED referral for emergent care.

Background

When the state of Michigan volunteered to receive up to 2,000 evacuees by bus or private vehicle, the need to coordinate resources for these individuals became apparent. A multi-disciplinary effort between the City of Detroit and Wayne County's Departments of Homeland Security, Detroit's Public Health Department, Region 2 South Medical Bio-Defense Network, Red Cross, the United Way, Salvation Army, Human Services, and other volunteer agencies resulted in the creation of a comprehensive reception center intended to address all of the needs of the evacuees in one facility. The Center met the requirements of the nationally recognized National Incident Management System (NIMS).[4] This management system, developed by the Department of Homeland Security as required by Homeland Security Presidential Directive/HSPD-5,[5] is a standardized approach for local, state, and federal emergency response. It also integrates effective practices in emergency preparedness into a comprehensive framework for incident management.

The purpose of the Evacuee Center was to establish a central, coordinated point-of-contact for evacuees, distribute information and resources to evacuees, and provide direct, non-emergent care, prescriptions, and referrals for basic medical and mental health needs. Evacuees with emergent medical needs were transported to local emergency departments for definitive care.

Although the main focus of this report is the medical screening and treatment process, the other resources provided will be described briefly in order to fully understand how it was integrated into the overall spectrum of assistance. Figure 1 is the flow diagram for the Center. The Center had the following sequential stations:

1. *Reception*—All of the evacuees not previously registered with the Federal Emergency Management Agency (FEMA) received a tracking number as they were processed through the Center, and were directed to dedicated telephone banks/Internet stations where they registered (technical assistance was provided, if necessary) with FEMA. This was a critical step to ensure that the evacuees had access to FEMA funding.[6]

https://doi.org/10.1017/S1049023X00004702 Published online by Cambridge University Press

2. *Registration*—Evacuees completed the US Centers for Disease Control and Prevention (CDC) Intake and Medical Assessment Form, and, when necessary, an advocate was assigned to assist evacuees through the process.
3. *Public Health Assessment*—Communicable disease screening was conducted along with vaccination status assessment. Additionally, the CDC intake form was reviewed by a public health nurse.
4. *Medical Triage*—Basic vital signs, a brief medical needs assessment, and prescription needs were documented. Any emergent concerns were diverted immediately to medical screening and treatment area. This station was staffed by volunteer nurses and paramedics.
5. *Special Needs Area*—Mental health screening was conducted by volunteer psychologists and trained staff. Additionally, Spanish translation services were available. Appointments were arranged for those individuals needing immediate access to psychiatric services and transportation to these appointments also was arranged.
6. *Medical Screening Examination*—Prescriptions were written when necessary and limited care was provided. Non-emergent acute conditions, such as administration of Albuterol, were treated, and prescriptions for chronic (diabetes, hypertension) and acute conditions (cellulitis, acute asthma exacerbation, otitis media) also were provided. Volunteer physicians (Emergency Medicine, Family Practice, Internal Medicine, and Pediatrics) provided the necessary care. A pharmacist also was available for consultation and medication identification. A list of area primary-care clinics willing to accept displaced evacuees also was provided to patients with ongoing health conditions.
7. *Vaccination*—Evacuees that needed Hepatitis B and tetanus vaccines received these after appropriate medical screening examinations.
8. *Human Services*—Information on access to basic services (i.e., food, clothing, shelter/housing, school enrollment/registration, postal service re-routing, faith, etc.) was provided. The Red Cross, Salvation Army, and United Way provided access to their resources and assisted the Department of Human Services in referring evacuees to sources of these basic services. Evacuees that needed new identification documents were referred to the Detroit Police Department. Background checks were conducted, and then, they were referred to the Secretary of State for provision of new identification documents.
9. *Exit Review*—An assessment was conducted with each evacuee prior to him/her leaving the Center to ensure that all of their needs had been met, to review resources referral information, and finally, to provide directions to clothes and food donation pick-up locations.

Medical Screening and Treatment Station

Although this station was only one part of the Evacuee Center, it was key in providing necessary, non-urgent medical attention and referral. Necessary staffing, charitable medical contributions, medical clinic referrals, and physician examination and equipment requirements will be discussed in more detail.

Personnel

Medical Volunteers were coordinated through a federal grant funded organization (Region 2 South Medical Bio-Defense Network (Region 2 South)) that represents five area hospitals in Southeastern Michigan and 85 emergency medical services (EMS) agencies along with volunteers from numerous essential public sectors.

A voluntary healthcare pool was recruited through multiple mass e-mails sent to members of this group. Nurses, EMS providers, and physicians wishing to volunteer contacted the Region 2 South Administrative Office and were assigned shifts during the time the Center was operational. Additional healthcare staff also was recruited through area medical training programs from Wayne State University and the St. John Healthcare System. Initially, there were more volunteers available than space allowed.

Because the Center functioned from 10:00–18:00 h, volunteers arrived at 09:30 h for registration, orientation, and credentialing. The credentialing process included obtaining a copy of their valid license to practice medicine in Michigan along with a picture identification. After appropriate credential review, volunteers were provided with a photograph badge for future identification at the Center. A volunteer log also was maintained, and each volunteer was required to sign in and sign out daily. Staffing at the Medical Station included one Medical Branch Leader (an emergency medicine-trained physician), two to four nurses, three physicians from various specialties, and one pharmacist.

Charitable Medical Contributions

Before the Center opened, healthcare charitable contributions were solicited over the phone by the Medical Branch Leader. A local drug store, CVS, agreed to provide pharmaceutical donations and fill all prescriptions written at the Center for evacuees free of charge. A stamp that identified the patient as a Hurricane Katrina evacuee was developed so that all prescriptions written at the Center were easily recognized and filled free of charge.

Medical Clinic Referrals

Primary healthcare clinics in the area were contacted. Those willing to provide free general and specialized medical care were identified, and a list was created of the available resources, their address, and specific types of care provided (i.e., pediatrics, obstetricians/gynecologists, surgery, family practice, dental). Evacuees that needed follow-up care within one to three days were provided a prescription for this care and referred to the appropriate medical clinics that had agreed to evaluate these evacuees in an expedited fashion. Finally, several optical centers also were contacted. These centers agreed to provide free vision evaluation and replacement glasses, as long as the prescription was identified utilizing the Hurricane Katrina Evacuee stamp. Information about these resources was detailed in a document that was provided to the evacuees at the conclusion of their medical screening for follow-up care.

Physician Examination and Equipment Requirements

The Center was located in a little-used municipal airport terminal. Because the examinations were brief screenings or specific, complaint-related examinations, the examination area was small. Each physical examination area was created using portable office dividers, a cot, a desk and two chairs. Certain durable medical equipment was shared among the examination areas including one portable otoscope, an ophthalmoscope, a portable nebulizer machine (for albuterol treatments), an electrocardiogram (ECG) machine, a pulse oximeter, a scale, and a glucometer. A pharmacist also was available near the examination area to assist with medication identification and information. This was helpful, particularly for evacuees that could not recall the names of their prescription medications.

Most of the evaluations resulted in prescription refills, referrals for follow-up care (with locations identified near their temporary housing location), and eyeglass replacement. Patients requiring ED evaluations, if stable, were transported by private car and, if unstable, were transported by EMS to the closest appropriate hospital. The medical information obtained at the Center was subsequently faxed and called-in to the accepting physician at the receiving ED.

Methods

Data were collected on the number of patients provided with medical evaluations from the number of medical evaluation forms collected. A running tally kept track of patients entering the Evacuee Center. Additionally, daily totals were collected on the number of patients passing through the medical evaluation center. These data were used to determine the total number of medical evaluations and the proportion of evacuees seeking medical attention. The actual number of patients given prescriptions however, was estimated by the two medical directors, and likely is an underestimation of the actual number of patients given prescriptions. Because this was not designed as a research project, and as only the total number of medical patients evaluated and the total number of patients treated in the Center are known, it is impossible to determine the exact number of patients given prescriptions. Data on the transfers were collected from recall of the two medical directors.

Results

There were 631 out of 716 (88%) patients who were evaluated medically, and approximately 80% of these required prescriptions. There were four evacuees transported to local emergency departments—two transported via ambulance, and two transported by private car. The four patients who required formal ED evaluation were:

1. 65 year-old male with chest pain;
2. 54 year-old female with uncontrolled hypertension;
3. 30 year-old female with symptoms consistent with pneumonia; and
4. 28 year-old obese male with hypertensive crisis (uncontrolled hypertension and possible renal failure).

Discussion

During any disaster, the focus has not been on research, but rather on treatment and management. Retrospective analysis can be useful in describing what was successful, even without absolute numbers. In this community, the Evacuee Center was a success; it provided medical screening and prescriptions to a majority of patients seeking help, and may serve as a template for other communities needing to rapidly develop a center of this type.

Conclusions

Although the initial disaster victims require immediate and sometimes life-saving treatment, the evacuees from disaster areas also have non-emergent needs. While the actual number of potential ED visits to provide resources, medical examinations, and the referrals that were aborted because of the Center cannot be determined, it is postulated that many of the evacuees evaluated at the Center would have utilized local emergency departments, the ultimate safety net for those with no direction or resources to get access to health care. The creation of a multi-disciplinary, reception center provides a comprehensive unified approach to address the immediate needs of the evacuees, and is a logical alternative to burdening the already overcrowded EDs for non-emergent medical concerns. Centers of this type play a potential role in a variety of disasters.

References

1. Fernandez LS, Byrad D, Lin CC, Benson S, Barbera JA: Frail elderly as disaster victims: Emergency management strategies. *Prehosp Disast Med* 2002;17(2):67–74.
2. Benson M, Koenig KL, Schultz CH: Disaster triage: START, then SAVE—A new method of dynamic triage for victims of a catastrophic earthquake. *Prehosp Disast Med* 1996;11(2):117–124.
3. Zibulewsky J: Defining disaster: The emergency department perspective. Proc (Bayl Univ Med Cent). 2001;14(2):144–149. Available at http://www.pubmedcentral.gov/articlerender.fcgi?tool=pubmed&pubmedid=16369605. Accessed 01 March 2006.
4. National Incident Management System: http://www.fema.gov/nims/ Accessed 05 October 2005.
5. Homeland Security Presidential Directive/HSPD-5. Available at http://www.whitehouse.gov/news/releases/2003/02/20030228-9.html, Accessed 28 February 2003.
6. Emergencies and Disasters, Hurricane Katrina: What government is doing. Available at http://www.dhs.gov/interweb/assetlibrary/katrina.htm. Accessed 01 March 2006.