

The Nontraditional Role of Pharmacists After Hurricane Katrina: Process Description and Lessons Learned

MICHAEL D. HOGUE, PHARM^D^a
HEATHER B. HOGUE, PHARM^D^b
ROGER D. LANDER, PHARM^D^a
KIRK AVENT, MD^b
MICHAEL FLEENOR, MD, MPH^b

SYNOPSIS

In the week before Hurricane Katrina's landfall in August 2005, emergency management officials in Jefferson County (Birmingham), Alabama, began to make plans for the potential influx of evacuees from the Gulf Coast. No pharmacy component to the plan was in place at that time. The Jefferson County Department of Health (JCDH) discovered that local pharmacies and hospital emergency departments were dealing with significant requests for medication refills. JCDH, in cooperation with a local school of pharmacy, developed a plan for addressing the unforeseen need for routine prescription refills by evacuees. This article discusses this novel pharmacy plan and lessons learned from the event, and may serve as a model for other municipalities and/or states interested in preparing a pharmacy response to future natural disasters.

^aMcWhorter School of Pharmacy, Samford University, Birmingham, AL

^bJefferson County Department of Health, Birmingham, AL

Address correspondence to: Michael D. Hogue, PharmD, McWhorter School of Pharmacy, Samford University, 800 Lakeshore Drive, Birmingham, AL 35229; tel. 205-726-4472; fax 205-726-4214; e-mail <mdhogue@samford.edu>.

©2009 Association of Schools of Public Health

On August 24, 2005, just five days before the landfall of Hurricane Katrina on the Gulf Coast, the director of pharmacy for the Jefferson County Department of Health (JCDH) in Birmingham, Alabama, received a telephone call from the chief of emergency medicine at a local hospital. The physician was concerned that throughout the day, the hospital had been receiving individuals from the Gulf Coast of Alabama, Mississippi, and Louisiana in the emergency department (ED) who did not have true emergencies, but were simply requesting refills of their routine prescription medications. The physician reported that many people had forgotten to retrieve their prescription bottles from home while evacuating and now found themselves without medication. At this point, the physician did not feel that there was a tremendous strain upon their resources, but he was fearful that with the hurricane's imminent landfall, the trend of nonemergency visits to the ED could place a tremendous strain on the hospital's ability to respond to true emergencies. He requested that JCDH evaluate whether a solution to this possible problem could be designed.

After being notified of this issue, the director of pharmacy at JCDH requested that faculty from the McWhorter School of Pharmacy (MSOP) at Samford University in Birmingham, who were affiliated with JCDH, contact local community pharmacies to determine if pharmacists were being asked to provide three-day prescription refills for patients under the state's existing 72-hour emergency refill provision. This legal provision allows a pharmacist to provide an emergency supply of non-narcotic medications to any patient who presents a prescription bottle from any pharmacy, if the pharmacist is unable to contact the original prescriber for complete refill authorization. The pharmacist is permitted to dispense up to a 72-hour supply of medication.¹

MSOP faculty placed calls to four pharmacies, all affiliated with national chain drugstores, located in the southwestern section of the county along the major interstate highways leading from the Gulf Coast. All four pharmacies had noticed a sharp rise in the number of emergency refills requested from Gulf Coast residents, with one pharmacy in particular reporting more than 100 requests in an eight-hour period. Community pharmacists also were concerned about their ability to care for patients, given such a sharp increase in prescription volume. Upon receiving this assessment from MSOP faculty, the JCDH director of pharmacy brought this challenge to the hurricane response team at the department's emergency meeting on August 25.

As a result of this meeting, the director of pharmacy along with MSOP faculty members (who were

all pharmacists as well) drafted a collaborative practice agreement (Figure 1), which was then signed by the health officer. Through this agreement and an expansion of pharmacists' roles into nontraditional areas such as providing evacuee triage in local shelters, the JCDH was able to offset potential negative impacts on community EDs, local pharmacies, and physicians, while providing the assistance that Hurricane Katrina evacuees required.

The issues we confronted regarding ED use, prescription drug demand, and triage services created the backdrop from which our plan developed and may serve as important considerations for other municipalities and/or states interested in preparing a pharmacy response to future natural disasters.

MITIGATING A SURGE IN ED USE

Displacement of a populace from their home area to a new geographical area, as happened with Hurricane Katrina, presents temporary challenges for EDs—it may acutely exacerbate the situation of ED overcrowding and potentially hinder the ability of ED staff to respond to true emergency situations. Overcrowding of EDs has been a topic of considerable study and discussion in the primary care literature. One recent study analyzing the 2003 National Hospital Ambulatory Medical Care Survey showed that a significant number of ED visits during nondisaster periods were nonemergent.² Lack of insurance and, thus, a primary care physician provider, is acknowledged as one of the primary reasons for these unnecessary visits.

Evacuees will likely find themselves in at least a temporary situation similar to that seen by individuals seeking care in the ED with nonemergent problems during nondisaster periods. These individuals, while sometimes having insurance, may have been unable to access their insurance records prior to evacuation and may not have access to them for some period of time following the event. These individuals additionally are displaced typically to a city or region where health-care provider relationships are not established. Thus, hospital EDs may be seen as a convenient access point for solving any health-care need, regardless of emergent status.

While this hypothesis has not been tested, we believe it is this phenomenon that occurred in Birmingham, leading up to and immediately following Hurricane Katrina's landfall. Prescription refill requests were reported anecdotally to public health officials during the days leading up to Katrina's landfall as negatively impacting access to ED services in our area. Because this information was reported a few days in advance of

the most significant influx of evacuees into Birmingham, JCDH was able to develop a response that likely reduced the impact of evacuees on area ED services.

At the time, the Jefferson County health officer was engaged in pre-event planning with the county's emergency management services command and control center and was also engaged in state-level planning with the Alabama Department of Public Health. The JCDH was designated primarily to set up and operate a shelter for medical-needs patients (i.e., ambulatory patients requiring regular medical or nursing care and supervision), accept such medical-needs patients at the Birmingham International Airport after they had been evacuated from the hurricane-ravaged area, and monitor for any public health issues that might emerge as a result of the disaster. Prescription drug access for evacuees was not considered in pre-event planning as a possible significant public health issue. However, the county was fortunate to have pharmacists on the department's staff and pharmacists from MSOP, a local school of pharmacy already engaged in other department activities, who were available to develop an appropriate response to this issue, the collaborative practice agreement described in Figure 1.

MEETING PRESCRIPTION DRUG DEMAND

According to the National Center for Health Statistics of the Centers for Disease Control and Prevention, in any given month from 1999 through 2002, about 136.8 million people, approximately 45% of the U.S. population, were taking at least one prescription drug.³ Further, national ambulatory-care prescribing data for 2005 (the most recent year for which data were available) showed that at least one prescription is issued to a patient at more than 70% of the ambulatory-care visits that occur in the U.S. At more than 40% of these visits, a patient receives prescriptions for two to seven medications, and at nearly 6% of visits, a patient receives eight or more prescriptions; that's a total of slightly more than 2 billion prescription drugs having been ordered by physicians in the ambulatory-care setting in 2005.⁴ The most frequently prescribed categories of drugs were antidepressants, antihypertensives, hyperlipidemics, antiarthritics, and antiasthmatic drugs, perhaps indicating that many of the prescriptions being issued in the U.S. are for chronic conditions that require long-term medication compliance to ensure appropriate patient outcomes.⁴

Two areas in which pharmacists have been utilized to improve health care and access to select health services are (1) managing already-prescribed therapies within specific treatment protocols in inpatient and

outpatient settings, and (2) initiating a prescription under collaborative agreement with a physician for immunization of patients.⁵⁻⁸ In an effort to document any additional roles of pharmacists during disaster situations, we conducted a PubMed search using the broad search terms *pharmacist* or *pharmacy* and *disasters* and could find no published references following other natural disasters in previous years that discussed the prescription drug needs of individuals displaced by disasters or that described pharmacists engaged in collaborative practice protocols that resulted in initiation of emergency prescription orders in such situations.

Velazquez and colleagues previously described the efforts of eight U.S. Public Health Service pharmacists who were part of a team response in establishing field operations on the Gulf Coast of Louisiana following Hurricane Katrina.⁹ Velazquez and colleagues described the efforts of the pharmacists to establish a dispensing pharmacy, provide pharmaceutical care services, and reach out to the community; however, the initiation of prescription orders under collaborative practice agreement was not discussed as an activity in which these pharmacists engaged.⁹ It may be that such an agreement was largely unnecessary in a field hospital situation where physician team members were readily accessible to provide written orders to care for those in the heart of the storm's landfall. However, the prescription drug needs of the community in more distant sites away from the central disaster zone to which local residents may evacuate, such as was the case in Hurricane Katrina, is an important and perhaps overlooked consideration.

When the Katrina event unfolded, the mechanism for handling the issue of emergency prescriptions to evacuees appeared also to be hampered by state laws that allow pharmacists to issue only a 72-hour emergency supply of medications, and then only if the patient can provide evidence of a valid prescription (e.g., a medication bottle or pharmacy computer retrieval system). This law was later suspended by an order of the governor to extend the emergency supply to 30 days, but again was not planned for in advance.

PHARMACISTS' ROLE IN EVACUEE TRIAGE

The Red Cross provides essential services during disasters, including food, water, shelter, connection with social services, financial assistance, and referral to community providers, but generally does not establish emergency or triage health services in its distant evacuee shelters (such as Birmingham in the case of Katrina). However, the Red Cross does have a history

Figure 1. Description of emergency prescription refill protocol in Birmingham, Alabama, following Hurricane Katrina



of allowing volunteers to establish such services on the premises if volunteers are available, and it certainly provides for these services in the immediate disaster zone.

Two Red Cross shelters operated in Birmingham during the days before and after Katrina, with three

other sites being made available, although they were not ultimately utilized. The largest such shelter was located near the medical center district in Birmingham and had a small group of physicians, nurses, and pharmacists who volunteered, provided drug product samples with the assistance of several pharmaceutical

manufacturers, and successfully triaged and treated minor illnesses. Additionally, the local Wal-Mart pharmacy set up a prescription fax and delivery service to the shelter for any prescriptions that were written by the volunteer physicians, and provided a seven-day supply of any prescribed medication at no charge to the evacuee.

Due to the volume of evacuees coming to this shelter, the Jefferson County health officer felt that some degree of triage of health needs should occur. The health officer also felt that meeting patients as they arrived at the shelter would allow for the evacuees' important but nonurgent needs to be addressed without overwhelming the local health-care system. Although availability of physician personnel was limited, many pharmacists were readily available and capable of providing a solution to this problem. Pharmacists from JCDH and MSOP were available to issue prescriptions, perform triage assessment, and refer evacuees in need of other health-care and social services to facilities and organizations within the community. Thus, the pharmacists in this environment were

engaged more actively in primary patient screening activities in addition to issuing prescriptions to those in need of this service. A listing of the wide range of activities in which pharmacists were engaged during this event is provided in Figure 2. The pharmacists also had a supply of commonly used over-the-counter drugs (Figure 3) for treatment of minor, self-limiting injuries or illnesses. JCDH physicians were available by telephone if a pharmacist encountered a situation that required discussion or assessment beyond the pharmacist's capabilities and scope of practice so that appropriate decisions could be made.

LESSONS LEARNED

Without a plan for handling the influx of a significant number of patients requiring prescription drugs in a disaster situation, community EDs and physician practices may find their ability to care for the local community's ongoing needs disrupted by the important, but not urgent, needs of displaced individuals. We had not planned adequately for this issue, and our review

Figure 2. Public health activities performed by pharmacists in Birmingham, Alabama, following Hurricane Katrina

Medication-related activities

- Assessed evacuees' needs for prescription medications
- Developed and executed a collaborative practice agreement
- Assessed individual medication (prescription and nonprescription) needs
- Wrote prescription orders (under collaborative practice agreement) for medications used to treat chronic diseases (maximum 30-day supply)
- Transported patients to local pharmacies and/or transmitted via fax prescriptions to local pharmacies for delivery back to the shelter
- Secured limited on-site supply of over-the-counter medications
- Designed medication intake form, collected data, and issued prescriptions for special-needs patients
- Designed security procedure for patient-carried controlled substances at the special-needs shelter

Triage activities

- Assessed evacuees' injuries and health needs as they presented to local shelters
- Assessed and treated minor illnesses with over-the-counter medications when available
- Assessed immunization needs (e.g., tetanus-containing vaccine)
- Triage patients to local physicians, hospitals, and/or pharmacies based upon specific needs

Communication/administrative activities

- Recruited and scheduled volunteer clinical pharmacists for prescription refill and triage service
- Obtained limited supply of over-the-counter medications for use in shelters
- Communicated with local emergency department staff regarding refill services
- Established communication fax network with community pharmacies for continual event assessment
- Participated in county public health emergency response team meetings
- Participated in state-level emergency response conference calls
- Coordinated pharmacy response with state department of health
- Served as media resource for medication-related issues
- Assisted health officer in assessing general health situation at evacuee shelters
- Served as an additional communication link between Red Cross and department of health
- Coordinated local monetary donations for pharmaceutical assistance for evacuees
- Provided "hands-on" education and training to doctor of pharmacy candidates on disaster response

Figure 3. Suggested over-the-counter products for availability in evacuee shelters^a

<i>Pain relievers/antipyretics</i>	<i>Yeast infection and topical antifungal treatments</i>
Acetaminophen	Clotrimazole cream for vaginal application
Adult formulation	Anti-itch creams for vaginal application
Chewable formulation	Miconazole cream or tolinaftate cream or topical administration
Liquid formulation	<i>Eye care</i>
Ibuprofen	Contact lens solution
Adult formulation	Contact lens carrying cases
Liquid formulation	Contact lens rewetting drops
<i>First aid supplies</i>	Reading glasses (various strengths)
Waterproof bandages (variety of sizes)	Moisture drops/artificial tears
Butterfly bandages	Eye wash kits
Antibiotic ointment	<i>Gastrointestinal preparations</i>
<i>Allergy medications</i>	Calcium carbonate tablets
Diphenhydramine capsules and liquid	Milk of magnesia liquid
Loratadine tablets and liquid	Loperamide tablets
<i>Contact dermatitis agents</i>	Bismuth subsalicylate
Hydrocortisone cream 0.5% and 1.0%	Calcium carbonate tablets, children's chewable formulation
Petroleum jelly	Anti-nausea liquid (e.g., Emetrol)
Calamine lotion	<i>Diabetic supplies</i>
Zinc oxide paste (e.g., diaper rash formulation)	Glucose tablets
<i>Cough and cold symptom relief</i>	Insulin syringes/needles
Pseudoephedrine tablets ^b	Insulin
Dextromethorphan-only liquid formulations	Alcohol prep pads
Adult strength	<i>Otic preparations</i>
Pediatric strength	Swimmer's ear preparation
Throat lozenges/cough drops	Ear wax removal kits
Sore throat spray	Cotton balls
<i>Miscellaneous</i>	
Fine point tweezers	

^aBased upon the experiences of a distant site (Birmingham, Alabama) shelter. Needs in the center of a disaster area are likely to be much greater. Products are listed once, but may fit within multiple categories.

^bFederal and state laws restrict the dispensing of pseudoephedrine. Special arrangements that are in compliance with existing laws must be considered. Pseudoephedrine has been shown clinically to be superior to other existing over-the-counter decongestants, and is preferred for availability.

of national documents for emergency preparedness indicate that it is likely many communities have not considered this issue. In our situation, the pharmacists were a readily available solution. Historically, pharmacists have been viewed as keepers of the nation's drug supply, dispensing prescriptions on a physician's order. While this is a vital function provided by pharmacists to ensure reasonable and safe access to medications, pharmacists' training has advanced over the years to include the development of skill sets well beyond those traditionally described. Our experience in Birmingham in having pharmacists engaged in triage of evacuees, assessment of immunization needs, and provision of prescriptions under a collaborative practice agreement was positive and may serve as a model for other state and county health departments and other agencies engaged in disaster planning and response.

Additionally, we learned through this event that remote evacuation cities such as Birmingham cannot

depend upon the existing health-care providers in the community to be available to volunteer to assist in shelters and emergency clinics. By definition, remote evacuation cities are not directly affected by the disaster itself; thus, health-care professionals (including physicians, nurses, pharmacists, and others) in those cities must continue to maintain their existing practices and care for the existing health-care needs of the community. This presents a challenge in determining how best to provide vital health-care services efficiently for displaced individuals, without taxing the existing health-care resources. Our experience in partnering with a local university with a doctor of pharmacy program provided us a solution when we were faced with such an event. These faculty members, many of whom had practice responsibilities as part of their academic appointment, were able to be more flexible with their schedules than pharmacists who were working full-time in hospitals or community pharmacies.

While this experience was with pharmacy school faculty, we believe the same concept would hold true with schools and colleges of other health-care professionals. Our experiences may provide insight for other communities similarly situated to coastal areas that may experience an influx of evacuees during and after a coastal natural disaster and should be considered in pre-event planning.

REFERENCES

1. Alabama Statute 34 Act 205 §680-x-2-.26.
2. Li G, Lau JT, McCarthy ML, Schull MJ, Vermeulen M, Kelen GD. Emergency department utilization in the United States and Ontario, Canada. *Acad Emerg Med* 2007;14:582-4.
3. National Center for Health Statistics (US). Therapeutic drug use [cited 2008 Jul 17]. Available from: URL: <http://www.cdc.gov/nchs/FASTATS/drugs.htm>
4. Cherry DK, Woodwell DA, Rechtsteiner EA. National ambulatory medical care survey: 2005 summary. *Adv Data* 2007;(387):1-40.
5. Kiel PJ, McCord AD. Pharmacist impact on clinical outcomes in a diabetes disease management program via collaborative practice. *Ann Pharmacother* 2005;39:1828-32.
6. Rehring TF, Stolcpart RS, Sandhoff BG, Merenich JA, Hollis HW Jr. Effect of a clinical pharmacy service on lipid control in patients with peripheral arterial disease. *J Vasc Surg* 2006;43:1205-10.
7. Beatty SJ, Rodis JL, Bellebaum KL, Mehta BH. Community and ambulatory pharmacy: evaluation of patient care services and billing patterns before implementation of Medicare part D. *J Am Pharm Assoc* (2003) 2006;46:707-14.
8. Hogue MD, Grabenstein JC, Foster SL, Rothholz MC. Pharmacist involvement with immunizations: a decade of professional advancement [published erratum appears in *J Am Pharm Assoc* (Wash DC) 2006;46:308]. *J Am Pharm Assoc* (2003) 2006;46:189-203.
9. Velazquez L, Dallas S, Rose L, Evans KS, Saville R, Wang J, et al. A PHS pharmacist team's response to Hurricane Katrina. *Am J Health Syst Pharm* 2006;63:1332-5.
10. American Red Cross. Disaster services [cited 2007 Aug 30]. Available from: URL: http://www.redcross.org/services/disaster/0,1082,0_319_,00.html