Chief Complaints, Diagnoses, and Medications Prescribed Seven Weeks Post-Katrina in New Orleans

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Abstract

Background: In the aftermath of Hurricane Katrina, widespread flooding devastated the New Orleans healthcare system. Prior studies of post-hurricane healthcare do not consistently offer evidence-based recommendations for re-establishing patient care post-disaster. The primary objective of this study is to examine associations between patient characteristics, chief complaints, final diagnoses, and medications prescribed at a post-Katrina clinic to better inform strategic planning for post-disaster healthcare delivery (e.g., charitable donations of medications and medical supplies).

Methods: This study is a retrospective chart review of 465 patient visits from 02 September 2005 to 22 October 2005 at a post-Katrina clinic in New Orleans, Louisiana that was open for seven weeks, providing urgent care services in the central business district. Using logistic regression, the relationships between patient characteristics (date of visit, gender, age, evacuation status), type of chief complaint, final diagnosis, and type of medication prescribed was examined.

Results: Of 465 patients, 49.2% were middle-aged, 62.4% were men, 35% were relief workers, and 33.3% were evacuees; 35% of visits occurred in week five. Of 580 chief complaints, 71% were illnesses, 21% were medication refill requests, and 8.5% were injuries. Among 410 illness complaints, 25% were ears, nose, and throat (ENT)/dental, 17% were dermatologic, and 11% were cardiovascular. Most requested classes of medication refills for chronic medical conditions (n = 121) were cardiovascular (52%) and endocrine (24%). Most illness-related diagnoses (n = 400) were ENT/dental (18.2%), dermatologic (14.8%), cardiovascular (10.2%), and pulmonary (10.2%). Thirty-six percent of these diagnoses were infectious. Among 667 medications prescribed, 21% were cardiac agents, 13% pulmonary, 13% neurologic/musculoskeletal/pain, 11% antibiotics, 10% endocrine, and 9.3% anti-allergy. The likelihood of certain chief complaints, diagnoses, and medications prescribed varied with patient characteristics.

Conclusions: Donations of certain classes of medications were more useful than others. Prevalence of select co-morbidities, the nature of patient involvement in recovery activities in the disaster area, and post-disaster health hazards may explain variations in chief complaints, diagnoses, and medications prescribed by patient characteristics.

Introduction

On the morning of 29 August 2005, one of the strongest hurricanes ever to hit the US passed over New Orleans, Louisiana. In the aftermath of the storm, widespread flooding devastated the healthcare infrastructure, leaving most hospitals and clinics inoperable. Within days of Hurricane Katrina, a team of Tulane University doctors and volunteers constructed makeshift clinics throughout the city to provide healthcare services to first responders, relief workers, and local citizens. Numerous organizations donated medical supplies and medications to many of these clinics. However, many of the supplies received were not needed, while other supplies were in high demand with limited availability.

Given the apparent random donation of medications and supplies, the authors conducted a literature search of other US hurricanes to determine whether there are formal recommendations to guide disaster relief organizations in their efforts. Agencies such as the [US] Centers for Disease Control and Prevention and other researchers published surveillance studies in the immediate aftermath of Hurricane Katrina and other storms.[1–9] These studies frequently describe common illnesses diagnosed and treated; however, details regarding specific chief complaints, final diagnoses, or types of medications prescribed for treatment of these conditions or medication refills were not reported routinely. Unfortunately, this is crucial information that could help direct better medical care in future post-disaster situations. Therefore, the primary objectives of this study are to describe and to examine the relationship between patient characteristics, chief complaints, final diagnoses, and medications prescribed post-Katrina and to provide the post-disaster medical assistance community with evidence-based recommendations regarding how to direct their aid and donations in future disaster situations.

Methods
Study Design
A post-disaster clinic located in downtown New Orleans was selected to perform a retrospective chart review using all 471 existing charts collected between the opening and closing dates of the clinic (04 September 2005 to 22 October 2005). The clinic was operational during the time after which the city had undergone a massive evacuation facilitated by the military. It was chosen for review because it was centrally located within the metropolitan area, easily accessible to the public, and near a temporary military hospital that could be used if emergency services were needed. The clinic started under a tent, was open for service five days/week, and was staffed mostly by Tulane University Internal Medicine residents and faculty. There were few local citizens that accessed the clinic until the mayor opened the surrounding area in early October 2005. The clinic closed when nearby permanent clinic sites re-opened to serve the returning population. The Tulane University Health Sciences Center Institutional Review Board approved this study.

Chart Review
Each patient chart was randomly assigned a number used on all data collection forms to protect patient confidentiality. Data abstraction and coding were based on a coding schema agreed upon by study investigators. Two investigators (EH, DV) independently reviewed and coded the charts, and entered all data into a database.

Study Variables and Coding Schema
A standardized form was created for all patient charts upon opening the clinic. For patients who presented for multiple clinic visits, each visit was coded separately. Throughout the coding process, if information was not provided for a variable category, it was coded as "unknown".

Demographic data including gender, age, race/ethnicity, evacuation status, and relief worker status were coded based on patient-reported answers. The categories of each demographic variable were defined as listed in Table 1. Notably, a number of evacuees returned to New Orleans to become rescuers post-disaster. Patients who fit both categories were coded as "evacuee" and "rescuer." Date of visit was coded according to the week during which the patient was seen. Date of visit was dichotomized into weeks 1–4 versus weeks 5–7 since New Orleans began to repopulate at week 5.

The chief complaint for each visit was classified as an "injury", "illness", or "medication refill". If more than one illness, injury, or medication refill was present for a patient visit, and if the complaints were from different disease processes, each chief complaint was coded separately under the same patient visit. Injuries were categorized into subtypes and location, and then coded as self-inflicted or inflicted by another. For illnesses, each chief complaint was categorized according to organ systems. If one or more medication refills were listed as the chief complaint, the chief complaint was coded by the class of medication. Table 2 lists the organ systems and medication classes defined in this study. Duration of symptoms was defined as "acute" if they had occurred for less than one month, and "chronic" if they had lasted one month or more. The number of issues addressed during each patient visit was coded as "single" or "multiple".

The coding schema used to classify final diagnoses is listed in Table 3. If the final diagnosis was absent, the investigators determined the most likely diagnosis based on the description of the chief complaint, physical examination, assessment, and plan listed. If multiple chief complaints were addressed, then an equal number of final diagnoses were coded.

Complexity of medical decision-making was classified as "minor", "moderate", and "severe". "Minor" complexity implied that little to no medical knowledge was required to diagnose and treat. "Moderate" complexity implied a substantial need for medical knowledge in diagnosis and treatment, but no need for subspecialist knowledge or referral to another facility for more advanced care. "Severe" complexity of medical decision-making indicated that advanced medical knowledge and/or subspecialist care was required to effectively diagnose and treat the patient.

Table 4 lists the coding schema used to classify *medications prescribed to treat an illness/injury*. The medications are listed by class.

Inter-Rater Reliability
Inter-rater reliability (Kappa) was assessed for a random sample of 46 charts by determining reviewer agreement for coding of illness-related chief complaints and final diagnoses by organ system ($\kappa = 0.966$ and 0.952 respectively) and for coding of medication refill requests and prescriptions of medications for treatment by class of medication ($\kappa = 0.851$ and 0.928 respectively). The inter-rater reliability was in a range that experts consider to be in excellent or almost perfect agreement.[10]

Statistical Processing
Simple and multivariate logistic regressions were used to explore the presence, strength, and statistical significance of the association between the outcome variables of interest (type of chief complaints, final diagnoses, medications prescribed) and main covariates of interest (date of visit, gender, age). A subgroup analysis of patients for whom evacuation status was known was performed using multivariate logis-

	n (%)
Age (mean, SD)	44.0 (13.8)
Gender	
Male	287 (62.4)
Female	173 (37.6)
Race/ Ethnicity	
White	60 (12.9)
Black	83 (17.8)
Hispanic	46 (9.9)
Asian	5 (1.1)
Other	2 (0.4)
Unknown	269 (57.8)
Relief worker*	
Yes	163 (35.0)
No	172 (37.0)
Unknown	130 (28.0)
Evacuee	
Yes	155 (33.3)
No	176 (37.8)
Unknown	134 (28.8)
Date of Visit	
Week 1 to 4	211 (45.4)
Week 5 to 7	254 (54.6)

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Table 1—Patient characteristics (n = 465; SD = standard deviation)

Total Number of Chief Complaints (n = 580)*	n (%)
Injuries	49 (8.5)
Illness by Organ System	410 (70.7)
Cardiovascular	46 (11.2)
Dermatology	70 (17.1)
Endocrine	7 (1.7)
Ears, Nose, Throat Dental	104 (25.4)
Gastrointestinal/Genitourinary	31 (7.6)
General/ID	12 (2.9)
Hematology	3 (0.7)
Musculoskeletal	37 (9.0)
Neurology-Psychiatry	43 (10.5)
Pulmonary	36 (8.8)
Other	11 (2.7)
Medication refills	121 (20.8)
Total number of medication refills requested by drug class (n = 261)[†]	
Cardiovascular	123 (47.1)
Endocrine	57 (21.8)
GI/GU/GYN[‡]	20 (7.7)
Neurological/Musculoskeletal/Pain	15 (5.7)
Psychiatric	9 (3.4)
Pulmonary	17 (6.5)
Other	20 (7.7)
Acuity of symptoms per patient visit (n = 465)	
Acute	298 (64.1)
Number of issues per patient visit (n = 465)	
Single	357 (76.8)

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Table 2—Chief complaints, acuity of symptoms, and multiplicity of issues
*Each chief complaint category is not mutually exclusive as some patients presented with more than one type of complaint. [†]The total number of medication refills that were listed as a patient's chief complaint was 121. Since each patient may have requested more than one medication, the actual total number of medications requested was 261.
[‡]Gastrointestinal/Genitourinary/Gynecologic

tic regression to examine the association between the outcome variables of interest (type of chief complaints, final diagnoses, medications prescribed) and date of visit, gender, age, and evacuation status. All statistical analysis was performed using STATA 8.0 Intercooled (College Station, Texas).

Results
Among the 471 charts, six were excluded. Five charts were incomplete, and one chart was misplaced from another clinic site. The remaining 465 patient charts were included. Of the 465 charts reviewed, 77 (16.5%) were adjudicated by the third investigator (EP).

Demographics
More than one-third (n = 165, 35.5%) of patients were seen during the fifth week. The average patient age was 44 ±13.8 years (Table 1); and patients 41–60 years of age accounted for nearly half of (49.2%) the population seen. Most patients were male (62.4%). Approximately 58% of charts did not identify the patient's race or ethnicity. Relief workers and evacuees each comprised approximately one-third of the population (35.0 and 33.3%, respectively); however, almost one-third of the charts were missing this information (28 and 28.8%, respectively).

Chief Complaints
Most of the visitors had one complaint that had been present for less than one month (Table 2). Among the 580 chief complaints, 49 (8.5%) were injury-related, 410 (70.7%) illnesses, and 121 (20.8%) requests for medication refills. Most illness chief complaints were ENT/dental (25.4%), dermatologic (17.1%), or cardiovascular (11.2%). Most commonly requested classes of medications were cardiovascular (52.3%) and endocrine (24.3%).

Final Diagnoses
Most illness-related diagnoses (n = 400) were ears, nose, and throat (ENT)/dental (18.2%), dermatologic (14.8%), cardio-

Final diagnosis (n = 580)	n (%)	
Injuries	49 (8.5)	
Medication refills	121 (20.9)	
Illnesses by Organ System	400 (69.0)	
Cardiovascular	53 (10.2)	Hypertension, hypertensive urgency/emergency, myocardial infarction, congestive heart failure, arrhythmia, stable/unstable angina
Dermatology	77 (14.8)	Sunburn, insect bites, shingles, folliculitis, contact dermatitis, electric burn, skin abscess, onchomycosis, boils, scabies, acne vulgaris, pityriasis, Candida skin infection, drug rash, psoriasis, cellulitis, athlete's foot, tinea capitis/corporis, skin ulcer, herpes zoster, hydradenitis suppurativa
Dressing changes	3 (0.6)	Dressing changes
Endocrine	7 (1.3)	Diabetes, blood sugar check, hyper/ hypoglycemia, hyper/hypothyroidism
Ears, Nose, Throat/Dental	95 (18.2)	Sinusitis, otitis, allergic rhinitis, conjunctivitis, pharyngitis, tonsillitis, seasonal allergies, corneal abrasion, oral herpes, dental abscess, caries, chipped tooth
Gastrointestinal/Genitourinary/Gynecologic	34 (6.5)	Gastroenteritis, gastroesophageal reflux, inguinal hernia, constipation, hemorrhoids, urinary tract infection/pyelonephritis, sexually transmitted disease, vaginitis, genital warts, balantitis, prostatitis
Hematology	3 (0.6)	Nosebleeds
Musculoskeletal/ Rheumatology	36 (6.9)	Muscle sprain/strain, disc herniation, tendonitis, ganglion cyst, rheumatoid arthritis, osteoarthritis, gout, joint strain
Neurologic/Psychiatric	34 (6.5)	Tension/cluster/migraine headache, stroke, seizure, neuropathy, vertigo, major depressive disorder, generalized anxiety disorder, acute stress reaction, psychosis, drug abuse, alcohol abuse, insomnia
Pulmonology	53 (10.2)	Asthma, chronic obstructive pulmonary disease, pneumonia, bronchitis, upper respiratory infection, chemical pneumonitis
Other	5 (1.0)	Pregnancy, claudication, loose sutures, dehydration
Final diagnosis infection-related (n = 400)	145 (36.2)	
Moderately complex decision (n = 465)	306 (65.8)	

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Table 3—Overall final diagnoses and complexity of medical decision making

vascular (10.2%), and pulmonary (10.2%) (Table 3). A large proportion of these diagnoses were infection-related (36.2%). Among the 465 patient visits, 65.8% required moderately complex decision-making.

Medications Prescribed
Table 4 lists the specific types of medications prescribed. The clinic prescribed 667 medications (261 refills; 406 treatments). The most commonly prescribed agents included cardiac (21.6%), pulmonary (12.9%), neurological/musculoskeletal/pain (12.7%), antibiotics (11.4%), endocrine (10.0%), and anti-allergy medications (9.3%).

Association between Patient Characteristics, Chief Complaints, Diagnoses, Medications
The probability of presenting with different types of chief complaints, being diagnosed with select conditions, or being prescribed certain medications varied with patient clinic visit date, gender, and age (Table 5).

Date of Visit—There was no significant difference in the probability of presenting with certain types of chief complaints according to the date of visit after adjusting for gender and age. However, compared to later visits, earlier visits were two times more likely to result in musculoskeletal/rheumatologic diagnoses and neurological/musculoskeletal/pain medication prescriptions, and less likely to result in cardiovascular diagnoses or prescriptions.

Gender—Compared to women, men were four times more likely to present with injuries and less likely to request medication refills. Men also were less likely to be prescribed anti-allergy or endocrine agents, but almost twice as likely to receive dermatologic medications.

Age—Compared to younger patients, older patients were less likely to present with injuries, but two times more likely to request medication refills. Older patients also were four times more likely to have and be prescribed medications for

Class of Medications Prescribed		n (%)
Allergy	Antihistamines, decongestants, nasal preparations	62 (9.3)
Antibiotics	Antibacterial, antifungal, antiviral	76 (11.4)
Cardiovascular	ACE-inhibitors/ARBs, beta blockers, calcium channel blockers, diuretics, alpha blockers prescribed as antihypertensives, nitroglycerin, anti-arrhythmics, anti-coagulants	144 (21.6)
Dermatologic	Topical antibiotics, antifungals, antiparasitics, antivirals, steroids	51 (7.6)
Endocrine	Oral steroids, insulin, oral hypoglycemic agents, thyroid agents, lipid-lowering agents	67 (10.0)
Gastrointestinal/Genitourinary/Gynecologic	Proton pump inhibitors, H2 blockers, antacids, bladder agents, alpha blockers prescribed to treat BPH, anti-diarrheals, promotility agents, oral contraceptives	38 (5.7)
Neurological/Musculoskeletal/Pain	Anti-convulsants, anti-migraine, NSAIDs, neuropathic pain agents	86 (12.7)
Psychiatric	Antidepressants, antipsychotics, sleep aids	14 (2.1)
Pulmonary	Antitussives, expectorants, inhalers	86 (12.9)
Other	Ophthalmologic medications, otologic medications, narcotics, vitamins	44 (6.6)

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Table 4—Medications prescribed for treatment and refills (n = 667; BPH = benign prostatic hypertrophy; NSAID = non-steroidal anti-inflammatory drug)

cardiovascular conditions, and three times more likely to be prescribed endocrine agents; however, they were less likely to have infection-related diagnoses or to receive antibiotics.

Subgroup Analysis—Given that many charts were missing data on evacuation and relief worker status, the authors explored differences in the main covariates of interest between patients for whom these data were known, and those with missing data, using chi-square analysis for dichotomized variables. Relief worker status subsequently was excluded from the analysis since patients with unknown status had a significantly higher percentage of men than patients with known relief worker status. All analyses also excluded race/ethnicity secondary to the high proportion of missing data.

In a subgroup analysis of 328 patients for whom date of visit, gender, age, and evacuation status were known, the relationship between patient characteristics and chief complaints, diagnoses, and medications prescribed were similar to findings described previously. However, controlling for evacuation status also revealed additional relationships. For example, while the likelihood of receiving cardiovascular medications still was less likely during earlier visits compared to later visits (0.6 vs. 6.1, p = 0.02), age was no longer statistically significant. The likelihood of neurological/musculoskeletal/pain prescriptions remained higher for earlier visits compared to later visits (18.0 vs. 7.4, p <0.01); however, gender and evacuation status also were associated with the likelihood of receiving such medications (men vs. women: 14.9 vs. 6.8, p = 0.03;

evacuee vs. non-evacuee: 6.9 vs. 16.1, p = 0.02). In addition, age became a significant factor for ENT/dental diagnoses whereby older patients were less likely than younger patients to be diagnosed with such problems (14.8 vs. 28.7, p <0.01). Older patients also were less likely to receive anti-allergy agents (10.9 vs. 19.7, p = 0.03). Finally, evacuees were more likely to receive prescriptions for pulmonary medications compared to non-evacuees (19.7 vs. 9.9, p = 0.02).

Discussion

Similar to previous studies, a large proportion of acute illnesses were dermatologic, ENT/dental, cardiovascular, and pulmonary diseases.[1–5,7–9,11–12] Regarding the high frequency of ENT/dental complaints, this population may have been exposed to a greater degree of (real or perceived) mold from the flooding. However, previous studies of post-disaster populations found an increase in ENT and respiratory complaints in patients with higher psychological distress.[13,14] This may explain why a large proportion of patients presented with ENT/dental and respiratory complaints, and the infrequency with which patients presented with psychological complaints.

Variations in chief complaints, diagnoses, and medications by patient characteristics may reflect differences in prevalent co-morbidities and involvement in recovery activities. Older patients are more likely to have chronic medical conditions (e.g., cardiovascular disease) that require medical management. Associations between gender and evacuation status and diagnoses or medications prescribed may reflect

	Week of Visit*			Gender†			Age‡		
	1–4	5–7	p-value	Male	Female	p-value	≥44	<4	p-value
Complaints									
Injury	9.3	6.6	0.24	13.1	3.1	<0.01	4.7	13.9	<0.01
Illness	72.9	74.1	0.76	74.6	71.7	0.50	71.9	75.6	0.37
Medicine refill	21.8	27.0	0.21	19.0	36.0	<0.01	33.7	15.7	<0.01
Final Diagnoses									
Cardiovascular	5.2	13.2	<0.01	9.2	7.8	0.57	15.9	3.9	<0.01
Dermatological	19.8	13.5	0.72	18.9	12.2	0.07	15.1	17.5	0.49
ENT/Dental	19.7	19.6	0.98	17.1	24.2	0.07	17.0	23.3	0.09
Gastrointestinal/Genitourinary/ Gynecologic	6.2	8.1	0.44	6.5	8.4	0.45	6.2	8.6	0.32
MS/Rheumatological	10.8	5.2	0.03	7.7	6.8	0.73	7.6	7.0	0.77
Neurology/Psychiatry	5.4	7.8	0.30	6.7	6.4	0.88	8.6	4.8	0.11
Pulmonary	11.9	10.9	0.74	10.9	12.1	0.70	9.8	13.7	0.19
Infection-Related	30.6	31.3	0.87	33.1	27.6	0.22	26.3	37.4	0.01
Medications									
Allergy	13.2	13.9	0.83	10.3	20.7	<0.01	12.5	15.5	0.30
Antibiotics	16.4	15.8	0.86	16.1	15.9	0.95	12.5	21.5	0.01
Cardiovascular	0.7	5.1	<0.01	1.6	3.2	0.14	4.1	0.9	0.01
Dematologic	12.3	8.7	0.21	12.9	6.9	0.05	8.1	13.4	0.06
Endocrine	1.7	0.8	0.27	0.6	3.9	0.01	1.9	0.6	0.17
GI/GU/GYN	3.8	3.9	0.98	3.5	4.6	0.54	3.4	4.4	0.63
Neuro/MS/Pain	21.0	9.3	<0.01	16.3	10.1	0.07	17.2	11.2	0.06
Psychiatric	1.1	0.6	0.49	0.6	1.5	0.30	1.3	0.4	0.32
Pulmonary	14.1	14.1	0.99	14.3	13.7	0.86	11.8	17.5	0.08

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Table 5—Association of patient characteristics with chief complaints, final diagnoses, and medications prescribed (ENT = ears, nose, throat; MS = multiple sclerosis)
*Percentage adjusted for gender and age
†Percentage adjusted for week of visit and age
‡Percentage adjusted for week of visit and gender

the degree to which these groups were involved in cleaning, gutting, and reconstructing local homes and businesses that sustained damage from contaminated flood waters and mold, the suitability of work equipment used during these activities (e.g., N-95 respiratory masks), and preventive health education received prior to engaging in these activi-

ties. Accordingly, musculoskeletal disorders probably were more often diagnosed and treated in the earlier weeks following the storm when fewer patients would have had opportunities to learn about preventive health measures.

Similar to previous studies,[1,2] most patients presented with acute complaints; however, a large proportion presented

with chronic conditions, especially hypertension and diabetes. Accordingly, the clinic frequently prescribed medications for acute illnesses and pre-existing chronic conditions (antihypertensives, lipid lowering/thyroid, hypoglycemics, analgesics, antibiotics, respiratory, anti-allergy). The high frequency with which patients requested refills on anti-hypertensive and diabetes medications or presented with such conditions that required treatments most likely reflects the fact that the clinic mainly served a middle-aged population.

Limitations

This study has two major limitations. First, despite having used a standard medical evaluation form during the clinic's operation, there still was a large amount of missing data on patient race/ethnicity and relief worker/evacuation status. Therefore, definitive conclusions only can be drawn about the association of chief complaints, diagnoses, and medications prescribed with patient age, gender, and date of visit.

Another study limitation is that the chart review was limited to one clinic site. The New Orleans metropolitan area suffered varying degrees of flood damage, depending on the geographic location and proximity to breached levees. Therefore, the acuity and types of illnesses presented at other disaster clinics could have differed in other parts of New Orleans or in other Gulf Coast cities affected by the hurricane. Therefore, the conclusions of this study may be biased to clinic location. However, most of the data are similar to other studies from Hurricane Katrina.

Conclusions

The following strategies will better inform disaster aid agencies about the best ways to meet medical needs of disaster areas:

1. Relief organizations must be cognizant of surveillance reports frequently published by government agencies such as the Centers for Disease Control and Prevention in the immediate aftermath of disasters caused by natural hazards. These reports easily can inform relief agencies as to what types of medications or supplies may be needed;

2. For disasters caused by natural hazards such as hurricanes, which can be tracked in advance, and therefore, allow massive evacuations, government and relief agencies must emphasize health prevention education of the population prior to patients' re-entering an affected area;

3. Evacuees and rescuers should be trained in injury prevention. Evacuees should be instructed to obtain medication refills as part of their disaster preparedness plan. Rescuers should be informed that medical resources will be limited and that they should bring enough medication for their medical conditions to sustain them for the duration of their rescue efforts;

4. Relief organizations ideally should target medication donations to the anticipated patient population and the most likely medical conditions. While some injuries will occur as an affected city re-opens, most acute issues will involve illnesses related to the disaster, its affects on the surrounding area, patients' role in the recovery process, or chronic medical conditions related to the population's age distribution;

5. Single-agent, non-combination, anti-hypertensive, lipid lowering, thyroid, hypoglycemic, analgesic, antibiotic, respiratory, and anti-allergy agents are the most useful; and

6. Relief organizations should tailor their donations to the limitations of post-event clinics. For medications that require monitoring of basic chemistries or drug levels, concurrent donations of office-based laboratory equipment would be helpful given the likelihood that such equipment will not be available in the immediate aftermath of a disaster-producing event.

Adherence to these recommendations will more efficiently support efforts to rebuild healthcare infrastructures by increasing much needed medical supplies and reducing excess donations of supplies that simply have no use in the recovery efforts.

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