

# When a disaster disrupts access to psychiatric medications



## Advance planning can help minimize the risks of withdrawal, other consequences

In recent decades, disasters such as storms, earthquakes, and terrorism have occurred with increasing frequency. Disaster planners assess the needs and vulnerabilities of communities in order to save lives during these events. They focus on providing electricity and clean water and addressing other public health measures. What is not adequately planned for, in our opinion, is a disruption in the pharmaceutical supply chain, particularly supplies of psychiatric medications.

There is now a rich literature on disaster psychiatry.<sup>1-4</sup> However, there's been a lack of information about disrupted access to psychiatric medications. Disruptive behavior after Hurricanes Katrina, Maria, Rita, and others were a consequence of a lack of medications or difficulty obtaining medications following these disasters.<sup>5-7</sup>

This article discusses the pharmaceutical supply chain, the lack of stockpiles of psychiatric medications, and how clinicians can prepare themselves and their patients in the event a disaster strikes.

### Supply chains

Each day, nearly 12 million prescriptions are filled in the United States, with gratifying swiftness, efficiency, and accuracy. Our confidence in the nation's pharmaceutical dependability, however, rests squarely upon the strength and resilience of vast, interconnected supply chains that involve the myriad aspects of private industry—from manufacturing to shipping and transport to last-mile delivery from

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**Table 1**

## Components of supply chains

<b>Supply nodes</b>	Entities that manufacture, process, store, and/or ship goods and services. They generally include raw material providers, suppliers, manufacturers, and distributors
<b>Demand nodes</b>	Entities that purchase and/or signal for goods and services from supply nodes. They generally include individuals, families, businesses, and governments
<b>Tiers</b>	A common way to group nodes and identify the up- and downstream relationships
<b>Links</b>	The physical and logical connections between nodes, such as communication, transport, or transaction connections. Links can also relate to service infrastructure, such as power

pharmacy to patient. The failure of any one of the links in any of these supply chains can result in the instant unavailability of critical medications.

Supply chains are fundamental to modern life and must fluctuate to address disruptions; however, common supplemental and gap-filling functions that address minor changes may be insufficient to mitigate supply chain disruptions during a disaster. While supply chains can be extremely complex and can vary significantly from product to product, all supply chains can generally be presented through the components found in *Table 1*.

All components within a supply chain, such as the transportation mechanisms between nodes, facilities, people, and communication networks, can affect a supply chain's resilience. For a supply chain to be resilient, key players—in this case, psychiatrists and associated medical professionals—must be acutely aware of the supply chain elements within their vision and reasonable anticipation: known nodes and links, their potential vulnerabilities, and ways and means to mitigate expected disruption.

Recent natural disasters, especially Hurricanes Katrina, Sandy, Harvey, and Maria, have given both government emergency management (at all levels) and clinicians the opportunity to understand the full effects of broken pharmaceutical supply chains under varying and extreme circumstances.

As stated in a recent Department of Homeland Security health care supply chain report, "Pharmaceuticals are one of the top concerns for healthcare providers in terms of supply chain disruptions. They are

prone to various supply chain problems, including limited sources, lack of alternatives, time sensitivity, frequent shortages, and minimal on-site inventories. Each stakeholder along the pharmaceutical supply chain faces challenges with understanding and planning for possible disruptions emerging further up the chain. The rapidly expanding use of just-in-time inventory practices by distributors and healthcare customers is creating an increasingly fragile supply-demand balance that could be highly disrupted by a major event either further up the supply chain or within the last mile of delivery."<sup>8,9</sup>

### No national stockpiles of psychiatric medications

The CDC maintains stockpiles of emergency medications, but these supplies focus on medications to combat infection. In these caches, there are no psychiatric medications other than diazepam, which is stocked for its ability to combat the effects of nerve agents.

In major storm-related events, such as Hurricane Katrina in New Orleans in 2005, the disruptions in all supply chains included psychiatric medications. In the aftermath, many people with addictions and/or severe mental illnesses did not receive either their drugs of choice and/or antimanic and antipsychotic medications. As a result, disruptive behavior became common, especially in the shelters.<sup>5-7</sup>

During a widespread public emergency, police and emergency services are often stretched very thin. In calmer times, police or emergency services may take a person with disruptive and aggressive behavior to

### Clinical Point

**The CDC maintains stockpiles of emergency medications, but these include no psychotropics other than diazepam**



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## Disasters and psychotropics

### Clinical Point

Because withdrawal from certain drugs can be life-threatening, ensure that patients have a supply of their medications

Table 2

### What to consider before a disaster occurs

Do I understand which medications would be available through disaster relief efforts and how long it might take to get access to these medications?

As relief efforts unfold, when some psychiatric medications become available, what basic formulary should be anticipated?

If the medication supply is disrupted, which of my patients are likely to have the most severe discontinuation syndromes, and which ones will otherwise be at the greatest risk as a result of not having their medication?

Should I (or the pharmacy at my hospital) consider maintaining a supply of certain medications, and, if so, which classes/medications? What are the related considerations (ie, reasonable measures to secure pharmaceuticals, expiration management, temperature controls, etc.)?

What degree of disaster planning education/discussion should I engage in with my patients? What about with the general public?

In an era of increased reliance on the electronic medical records (EMRs), what could be the short- and mid-term impacts of not having access to my patients' EMRs? How can I mitigate those risks?

How have mental health clinicians historically dealt with these questions in previous disasters?

How can I engage with local and state emergency planners?

a local emergency department. However, in times of chaos, such as during Hurricane Katrina, patients with aggressive or disruptive behaviors were forcefully incapacitated (ie, "tased") or shot.

Withdrawal from antidepressants, opiates, alcohol, and benzodiazepines has its own risks. Withdrawal from alcohol or benzodiazepines can be life-threatening. Therefore, it is critically important that clinicians think about how to ensure their patients have a supply of their medications. This may imply stockpiling on a personal or community basis.

### What to consider before disruption

Many psychiatrists, especially those who have not practiced through a local disaster, may have never contemplated how they would support their patients during a disruptive event. Psychiatrists should carefully consider the questions outlined in *Table 2* before a disaster strikes.

### Medication-specific issues

During major disasters, patients may not have access to their medications, or the medications may not be able to be fed into the health care system for dispersion. Other issues include closed pharmacies, expired

medications as a result of limited refrigeration service, inability to deliver medications to an affected area, and the inability of manufacturing plants to produce medications. For example, after Hurricane Maria, sterile water was in short supply.

After a major disaster, clinicians often leave their communities because they cannot support themselves or their practices. Thus, clinicians may not be available to prescribe needed medications. Available clinicians—often primary care physicians—may not be aware of a patient's medication history, or they may be uncomfortable prescribing psychiatric medications, especially antipsychotics.

Abrupt discontinuation of psychiatric medications can have severe consequences. Patients may experience withdrawal symptoms, worsening psychiatric symptoms, new-onset psychiatric symptoms, thoughts of harm to self or others, psychosis, or cravings. These issues may be particularly problematic for patients receiving antidepressants, antipsychotics, benzodiazepines, or medication-assisted treatment for opioid use disorder.

**Antidepressants.** Patients experiencing antidepressant withdrawal, particularly withdrawal from selective serotonin reuptake inhibitors or serotonin-norepinephrine reuptake inhibitors, may exhibit severe

symptoms. In addition to the potential recurrence of depressive or anxiety symptoms and suicidal thoughts, patients may experience irritability, insomnia, headache, nausea, and electric shock–like sensations. Prescribing an antidepressant with a longer half-life could potentially prevent an abrupt withdrawal in the event a disaster occurs.

**Antipsychotics.** Rapid or abrupt withdrawal of antipsychotics could lead to an increase in psychosis, paranoia, hallucinations, or delusions. Withdrawal of antipsychotics could also lead to agitation, restlessness, insomnia, paresthesia, and anxiety. If a known disaster is likely to occur, such as in the case of a hurricane forecast, clinicians may consider switching a patient a long-acting injectable antipsychotic to minimize the risk of withdrawal and symptom exacerbation.

**Benzodiazepines.** The abrupt withdrawal of benzodiazepines could result in symptoms that include rebound anxiety, insomnia, restlessness, muscle tension, irritability, nausea, malaise, blurred vision, diaphoresis, nightmares, and seizures. Additionally, many people use benzodiazepines recreationally, and their illicit supply may run out during disasters, which could lead to untreated withdrawal and violence in the community.

Clinicians need to develop action plans for any patients who are receiving scheduled benzodiazepine dosing in order to prevent abrupt withdrawal if a disaster occurs.

**Opioids.** Opioid cravings and withdrawal are also a major concern during times of disrupted supply. Patients receiving chronic opioid therapy may not be able to receive their maintenance medications, which could lead to withdrawal. Additionally, patients taking illicit opioids may also be at risk of withdrawal.

Early symptoms of opioid withdrawal include watery eyes, runny nose, sweating, anxiety and irritability, poor sleep, and muscle pain. Later symptoms could include cramping, diarrhea, vomiting, increased heart rate and blood pressure, restlessness, shakiness, chills, sweating, and dilated pupils.

Contingency planning should be a part of the treatment plan for every patient receiving chronic opioid therapy who lives in an area where major disasters are likely to occur.

**Medication-assisted treatment for opioid use disorder.** Patients receiving treatment for opioid use disorder may be prescribed the partial opioid agonist buprenorphine, either by itself or in combination with the opioid antagonist naloxone. This could be particularly problematic to continue in a major disaster due to the lack of credentialed clinicians, limited supplies, and patients only receiving small amounts of the medication at a time due to the risk of diversion.

Symptoms of buprenorphine withdrawal are similar to those associated with opioid withdrawal. Developing a thoughtful plan in case of a disaster should be part of all buprenorphine prescribing. Patients should be aware of withdrawal symptoms and what to do if they run out of medication.

Additionally, emergency clinicians should have access to buprenorphine and buprenorphine/naloxone and the ability to prescribe them in disaster situations. As with all aspects of disaster response, it is wise to work out issues in advance.

### Help your patients get ready

Advise your patients to prepare emergency kits that contain their psychiatric medications that they could quickly grab and go if needed. Because there may be times when it is not possible to gather all necessary medications, having even a small supply ready to go at a moment's notice would be beneficial. If permitted, patients should also consider keeping medications in multiple locations, including at their place of work, home, or a family member's home.

Additionally, instruct patients to always carry a list of all medications they currently take. Ideally, this list should also include past medications and responses, allergies, and provider contact information. During a disaster, this information could prove vital to an emergency clinician. At a minimum, verify that your patient maintains a list of current medications.

### Clinical Point

Prescribing an antidepressant with a longer half-life could potentially prevent an abrupt withdrawal if a disaster occurs



## Disasters and psychotropics

### Clinical Point

Advise your patients to prepare emergency kits that contain their psychiatric medications

## Related Resources

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### Drug Brand Names

Buprenorphine • Subutex      Diazepam • Valium  
Buprenorphine/naloxone • Lithium • Eskalith, Lithobid  
Suboxone  
Clozapine • Clozaril

Clinicians should develop emergency plans for all psychiatric medications they prescribe. Document and discuss with your patients any necessary considerations for patients who take medications that require more intensive monitoring, such as lithium or clozapine.

Clinicians, patients, emergency responders, and health care workers need to work together to prepare for major disasters to avoid withdrawal and other consequences of disrupted access to psychiatric medications.

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## Bottom Line

Consult with local public health officials to determine and develop contingency plans to provide psychiatric medications to your patients in the event of a disaster. Discuss treatment plans and contingency planning with patients, particularly those in regions most likely to be affected by a disaster. Instruct patients to refill medications prior to a foreseeable disaster and to maintain a personal stockpile of medications when appropriate.