

ASPR TRACIE Factsheet: Drug Shortages and Disasters

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Prescription medications are often a critical part of effective healthcare. Shortages can arise from manufacturing or distribution issues, an increase in demand, or, in a disaster situation, a lack of available distribution locations. Medication shortages can cause inadequate treatment, and may require triage, substitution, and crisis care strategies. These situations are occurring more frequently in non-disaster situations due to various production and inventory factors. Hospitals and pharmacies face numerous challenges when attempting to prepare for these shortages, particularly during emergency situations. Community members with acute or chronic conditions may face challenges accessing their medicine before, during, and after disasters due to insurance or access issues. These barriers can exacerbate their medical conditions, which can also increase the vulnerability of a population and the number of preventable medical care and emergency department (ED) visits.

This Assistant Secretary for Preparedness and Response (ASPR) Technical Resources, Assistance Center, and Information Exchange (TRACIE) factsheet supplements the [Pharmacy Topic Collection](#) and includes recent resources that provide an overview of the situation and how it can worsen during emergencies. These resources can help healthcare providers prepare for and respond to shortages and other pharmaceutical-related challenges that may arise during and after a disaster.

Overview of the Problem

Research has shown that the frequency of drug shortages that impact emergency care have increased over the past decade. Recent shortages in often-used ED medications such as saline, dextrose, nitroglycerin, and propofol, and other drugs, such as peritoneal dialysis fluid can threaten patient safety and take critical time away from emergency healthcare providers as they scramble to locate suitable substitutes. The following resources (published

within the past five years) provide a general overview of the problem:

- [Longitudinal Trends in U.S. Drug Shortages for Medications Used in Emergency Departments \(2001-2014\)](#).
- ["Doctor, we have no saline today": the curious case of the generic injectable drug shortage](#).
- [Manufacturers and hospitals spar over drug shortage reporting: FDA proposal seeks to improve early warning system](#).
- [Effects on patient care caused by drug shortages: a survey](#).
- [Canadian drug shortage: recent history of a mystery](#).
- [Anatomy of a drug shortage](#).
- [Peritoneal Dialysis Fluid Shortage](#)

- The drug shortage crisis in the United States: causes, impact, and management strategies.
- The reality of drug shortages--the case of the injectable agent propofol.

Oncology

Drug shortages can affect all aspects of healthcare, including oncology. Substitute drugs often receive hasty approval in the short term, and patients are often the last to know about the necessary changes in treatment. While these alternatives may (in the best case scenario) produce the same or better response, often times they have no effect, or worse.

- Medication shortages threaten cancer care: the oncology community and the FDA tackle ongoing drug shortage problem.
- Drug shortages and the burden of access to care: a critical issue affecting patients with cancer.
- Impact of oncology drug shortages on patient therapy: unplanned treatment changes.
- Chemotherapy drug shortages in pediatric oncology: a consensus statement.
- Outcomes analysis of an alternative formulation of PEGylated liposomal

doxorubicin in recurrent epithelial ovarian carcinoma during the drug shortage era.

- Drug shortages and the burden of access to care: a critical issue affecting patients with cancer.

Pediatric

No patient population is immune to the effects of drug shortages. Pediatric healthcare providers (including pharmacists) have issued related recommendations for addressing the problem.

- Drug shortage-associated increase in catheter-related blood stream infection in children.
- Drug shortages and implications for pediatric patients.
- Impact of a Drug Shortage on Medication Errors and Clinical Outcomes in the Pediatric Intensive Care Unit.

Miscellaneous

Drug shortages can affect the entire healthcare spectrum as show in the articles below. Alternative medications are not as effective, and may lead to additional negative consequences for the patient. Shortages can also lead to a (preventable) increase in treatable tropical diseases such as Chagas.

- Increases in intravenous magnesium use among hospitalized patients: an institution cross-sectional experience.
- Potential consequences of essential drug shortages in Canada: Brain abscess due to *Nocardia farcinica* associated with dapsone prophylaxis for *Pneumocystis jirovecii* pneumonia.
- Selegiline shortage: Causes and costs of a generic drug shortage.
- Benznidazole shortage makes chagas disease a neglected tropical disease in developed countries: data from Spain.
- Can anyone spare a little indigo carmine? The drug shortage crisis.
- Sodium acetate as a replacement for sodium bicarbonate in medical toxicology: a review.

Mainstream Media Coverage

Coverage of the problem is not limited to scientific arenas. The following articles were published in or aired on mainstream media channels between January 22 and 29, 2016.

- Drug Shortages Forcing Hard Decisions on Rationing Treatments.

- Madison hospitals dealing with nationwide drug shortage.
- Drug shortages in American emergency rooms have increased more than 400 percent.
- Drug shortages in emergency rooms rising.
- COG presents plan to effectively handle future pediatric cancer drug shortages.
- Ethical Framework Created for When Kids' Chemotherapy Drugs in Short Supply.
- Drug shortages in American ERs — mostly of lifesaving medicines to treat infectious diseases or poisonings — have increased more than 400 percent.
- Drug shortages force U.S. doctors into 'unethical corner.'

Strategies for Managing Drug Shortages

What is being done to help healthcare providers and pharmacists plan for and manage drug shortages? Strategies include creating and maintaining a drug shortage registry (that also lists alternatives to medications in short supply), creating a secure, federal, centralized drug inventory where all sectors could share real-time drug inventory during federally-declared disasters (allowing agencies to “borrow” medications in times of need); and working closer with pharmaceutical

companies to create incentives for improving quality and production. The U.S. Food and Drug Administration (FDA) maintains the website “Current and Resolved Drug Shortages and Discontinuations Reported to FDA,” and a mobile app that alerts users to changes in availability. The American Society of Health System Pharmacists hosts the “Drug Shortages Resource Center.” These agencies use slightly different methodologies to define and track shortages, so it is best to visit both sites to get complete information. Healthcare providers who are concerned about shortage issues and want the latest information can monitor those sites and/or subscribe to alerts.

The Association of State and Territorial Health Officials (ASTHO) published guidance that encourages the use of a conventional, contingency, and crisis framework, which may be applied in disaster and non-disaster situations. These resources include lessons learned, promising practices, and additional strategies for pharmacists and emergency healthcare providers to incorporate into their daily routines and disaster plans. The following articles highlight related strategies for managing shortages:

- Facing the Shortage of IV Fluids—A Hospital-Based Oral Rehydration Strategy
- How the US Food and Drug Administration can solve the prescription drug shortage problem.

- Drug shortage registry under discussion.
- Pharmacy Leader's Role in Hospital Emergency Preparedness Planning.
- The Pharmacist's Role in Disasters. Planning for Chronic Disease Medications in Disaster: Perspectives from Patients, Physicians, Pharmacists, and Insurers.
- Getting Medical Care and Prescription Drugs in a Disaster or Emergency Area.
- Rx Open.
- The Nontraditional Role of Pharmacists After Hurricane Katrina: Process Description and Lessons Learned.
- Chronic Disease and Disasters: Medication Demands of Hurricane Katrina Evacuees.
- Local Health Department and Pharmacy Partnerships for Enhancing Medication Dispensing During Emergencies: Statement of Policy.
- Pharmacist Readiness Roles for Emergency Preparedness.



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