

In late September, Hurricane Helene left a path of destruction through parts of the southeastern United States. A Baxter International manufacturing facility in North Cove, North Carolina, was shut down after significant impact from heavy rain and storm surge. The facility was responsible for manufacturing most of the large-volume sterile fluids used in American hospitals and healthcare settings. Supplies of sterile fluids used for injection, irrigation, and peritoneal dialysis have been affected since the storm.

In October, ASHP surveyed a sample of its members to learn about the severity and impact of the fluid shortages. The survey collected information about strategies implemented to conserve and manage the shortages and about current inventory levels for large-volume sterile solutions. The results of that survey [are available in a similar report](#) published previously.

A follow-up survey was deployed to understand the changing status and impact of the fluid shortages. The follow-up survey results include responses from 119 participants who answered at least part of the online questionnaire. The survey was conducted Dec. 3-13, 2024.

KEY FINDINGS

- 83% of all respondents reported a moderate or critical impact of the fluid shortages. A critical impact was defined as requiring the delay or cancelation of treatments or procedures; a moderate impact was defined as requiring interventions affecting patient clinical care.
- 84% characterized the shortage severity as moderate or critical in mid-October; however, compared to the mid-October survey, more respondents characterized the shortages as moderate and fewer characterized the shortages as critical.
- Among settings where Baxter is the primary supplier of fluids, 92% of respondents reported a moderate or critical impact of the fluid shortages.
- 24% of all respondents reported canceling or delaying surgeries or procedures at some point in time due to the shortages; however, 15% have resumed surgeries and procedures.
- The specific fluids most severely affected by shortages include lactated Ringer's and irrigation solutions.
- 64% of respondents responsible for purchasing and inventory management (60% of respondents) reported their current inventory levels of large-volume fluids are down to two weeks' supply or less.

SURVEY RESULTS

To better understand the differences in shortage severity and shortage management, participants were asked to indicate whether Baxter is the primary supplier of large-volume sterile fluids at their facility.

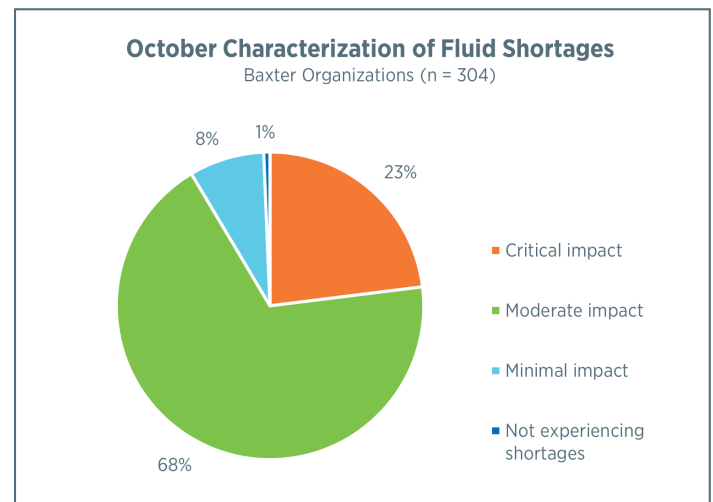
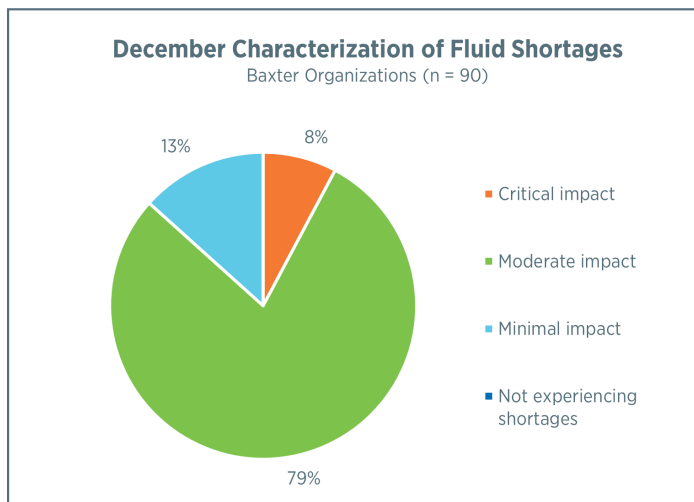
- 80% of respondents reported Baxter is the primary supplier of large-volume fluids at their facility.
- 18% of respondents reported Baxter is not the primary supplier of large-volume fluids at their facility.
- 2% were unsure.

Participants were asked to rank the current state of the large-volume fluid shortages using a severity scale:

- Not experiencing a shortage
- Minimal impact, defined as managing shortages through operational changes not affecting patient care, including purchasing different sizes or concentrations of fluids or buying from alternative sources
- Moderate impact, defined as managing shortages but with some impact on patient clinical care, including converting to alternative treatments, administering medications by a different route, or implementing oral hydration protocols
- Critical impact, defined as canceling or delaying treatments or procedures

	ALL RESPONDENTS (n = 118)	BAXTER FACILITIES (n=90)	NON-BAXTER FACILITIES (n=20)
Not experiencing shortages	1%	0%	5%
Minimal impact	16%	13%	35%
Moderate impact	76%	79%	60%
Critical impact	7%	8%	0%

- Compared to the mid-October survey, more respondents from Baxter facilities characterize the shortages as moderately impactful, but fewer characterize the shortages as critically impactful.



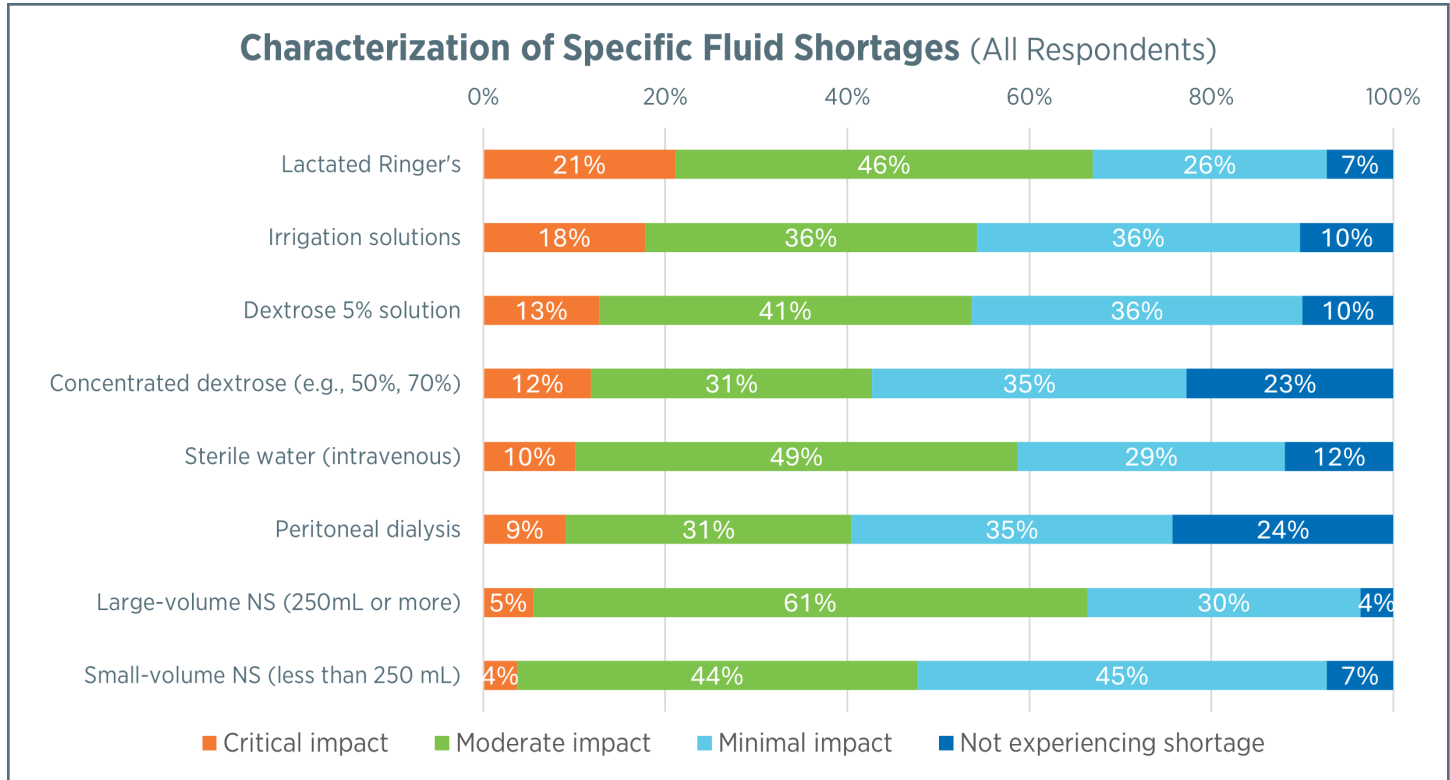
EFFECT ON SURGERIES AND PROCEDURES

In some cases, the shortages of intravenous and irrigation solutions led to the delay or cancellation of elective surgeries and procedures. Most organizations did not have to cancel or delay surgeries or procedures. Among sites that did cancel or delay surgeries or procedures, many have since resumed providing those services.

	ALL RESPONDENTS (n = 112)	BAXTER FACILITIES (n = 90)
Have not canceled or delayed surgeries or procedures	72%	68%
Temporarily canceled or delayed but have since resumed normal surgery and procedure schedule	15%	18%
Canceled or delayed and have not yet resumed normal surgery and procedure schedule	9%	10%
Not applicable; organization does not perform surgeries or procedures	4%	4%

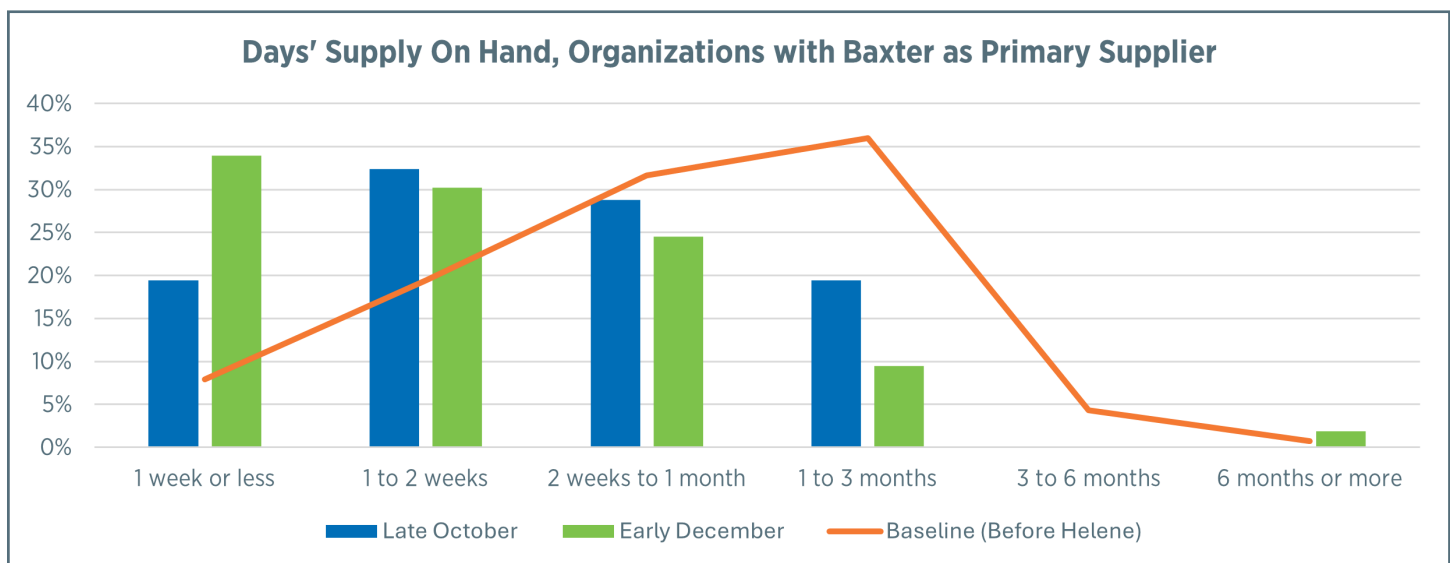
STATUS OF SPECIFIC STERILE FLUID SHORTAGES

The ongoing shortages are affecting multiple types of fluids, including 0.9% sodium chloride (normal saline or NS), lactated Ringer’s, irrigation solutions, peritoneal dialysis solutions, and dextrose solutions. Each type of fluid is used in specific clinical settings or situations, ranging from surgeries, types of dialysis, parenteral nutrition, and others. Survey participants were asked to characterize the status of specific solutions. Lactated Ringer’s and irrigation solutions were identified as the most critically impactful shortages. Large-volume normal saline solutions, intravenous sterile water, and lactated Ringer’s solutions were most frequently identified as moderately impactful shortages.



CHANGES TO INVENTORY LEVELS

Participants were asked whether they are responsible for purchasing or inventory management at their facility. Of the total respondents, 67 who reported being responsible were asked about the current inventory, reported as days on hand (DOH), for large-volume fluids compared to their baseline inventory levels. The graph below shows a visual representation of current inventory levels at Baxter facilities compared to a baseline (pre-Helene) and to the October survey results.



Despite fewer respondents characterizing the overall status of shortages as critically impactful, reported inventory levels have shifted further toward less supply on hand compared to the October survey.

SURVEY PARTICIPANTS

- Participant category (n = 119)
 - » Pharmacist: 66%
 - » Pharmacy technician: 34%
 - » Pharmacy resident: 1%
- Work setting (n = 119)
 - » Acute care hospital: 88%
 - » Infusion clinic: 4%
 - » Children's hospital: 4%
 - » Home care: 3%
 - » Ambulatory surgery center: 1%
- Hospital size (based on patient beds) among acute-care settings (n = 111)
 - » < 200 beds: 41%
 - » 200-499 beds: 31%
 - » ≥ 500 beds: 28%

SUMMARY

These results reflect the status of fluid shortages about 10 weeks after the impacts of Hurricane Helene and its effects on the supply of large-volume sterile fluids in the United States. Compared to survey data from late October, respondents reported less inventory on hand for large-volume sterile fluids. However, fewer respondents characterize the shortage as critical compared to October, possibly indicating that organizations have implemented sufficient conservation strategies to manage patients with less supply on hand.

As of Dec. 20, 2024