



Supply chain disruption report

Pfizer Rocky Mount facility

Situation

On July 19, 2023, the Pfizer Rocky Mount facility in North Carolina was impacted by an EF-3 tornado.

Background

According to [Pfizer's website](#), the Rocky Mount plant is one of the largest sterile injectable facilities in the world, with more than 1.4 million square feet of facility space on 250 acres in Eastern North Carolina. [Nearly 25% of Pfizer's sterile injectables, which is approximately 8% of all sterile injectables used in the US hospitals are manufactured at this plant.](#) Pfizer manufactures products across many categories at this plant including anesthesia, analgesia, therapeutics, anti-infectives, and neuromuscular blockers.

[A Pfizer press release](#) and an [FDA statement document](#) were released on July 21. In a customer letter, Pfizer identified a subset of Rocky Mount products ([Appendix 1](#)) that may experience continued or new supply disruptions in the near-term due to this weather event.

While the Rocky Mount facility is closed, Pfizer encourages procurement of product normally as the assessment of the facility continues.

[USP](#) has released an assessment of the impacted products. Additionally, the [EDSA](#) has released a statement to address the impacted facility.

The information provided in this document was compiled on behalf of the End Drug Shortages Alliance by the Vizient® Center for Pharmacy Practice Excellence in combination with USP, ASHP, and CHA.

Assessment and recommendation

The Vizient compiled market analysis in [Table 1](#) and [Table 2](#) outlines the identified subset of Rocky Mount products provided in the Pfizer customer letter that may experience continued or new supply disruptions in the near-term due to this weather event. Per Pfizer, this subset is based on Pfizer market share and inventory levels of less than 3 months across Pfizer distribution centers and the wholesale chain. Of note, the list of products on [Appendix 1](#) from the Pfizer customer letter is not fully inclusive of all products that may experience potential supply disruptions.

Of the 65 NDCs provided by Pfizer in their customer letter, the market analysis is at the molecule level, of which there are 34 unique molecules. Of note, the market shares provided in [Table 1](#) and [Table 2](#) are based on total Pfizer eaches regardless of manufacturing site.

Included in these analyses is the United States Pharmacopoeia (USP) Supply Chain Vulnerability Score, which provides information at the product level for products that are susceptible to future drug shortages. See [USP Vulnerability Score](#) for more details on score methodology.

Abbreviated mitigation strategies are provided in [Table 2](#). The abbreviated structure is intended to be high-level guidance to quickly address and mitigate potential drug shortages and should be used in conjunction with clinical expertise and other resources.

Manufacturers

The End Drug Shortages Alliance (EDSA) recommends that sterile injectable manufacturers and 503B compounders of impacted products and their alternatives evaluate their ability to increase production in order to help meet current demand levels for products. As impacted product lists become available, 503B compounders may consider reviewing their formularies to assess production capabilities for impacted essential medications where possible.

Wholesalers

The EDSA recommends that wholesalers communicate with manufacturers and establish protective allocations (e.g., 120%) for impacted products and their alternatives to ensure the product is available for patient care and refine as more information is available.

Group Purchasing Organizations

The EDSA encourages Group Purchasing Organizations (GPOs) to consider novel sourcing strategies to provide their members with additional redundancy for essential medications to minimize potential patient care disruption. Further, we recommend they communicate regularly with supply chain leaders to support access and resiliency.

Clinical Providers

The EDSA encourages providers and clinicians to exercise a drug shortage stewardship mindset when ordering, prescribing and administering medications affected by supply constraints to preserve availability for vulnerable patient populations. Alert your regulatory community with any price gouging or predatory activity.

USP Vulnerability Score

The USP Vulnerability Score measures the likelihood of future drug product shortage, and a greater score indicates higher risk. These scores do not yet consider the impact of the tornado and should be treated as a measure of pre-existing supply chain vulnerability. The Vulnerability Score is based on a model that incorporates several features, including the location of manufacturing, inspection records of manufacturing facilities, economic and market factors as well as drug characteristics such as dosage form and complexity of manufacturing. The USP Vulnerability Score is back tested using drug shortage data from ASHP and FDA.

Table 1. Market analysis of Rocky Mount products with Less Than 3 Months' Inventory in the Distribution Chain^a

Drug Product	Pfizer Market Share ^{b-d} (Calculated based on eaches sold of various presentations)	USP Supply Chain Vulnerability Score ^e
Acetylcysteine solution, inhalation [★]	Pfizer (5%), American Regent, Fresenius Kabi	91%
Aminocaproic acid injection [★]	Pfizer (31%), American Regent	85%
Aminophylline injection [★]	Pfizer (100%)	89%
Atropine sulfate injection [★]	Pfizer (16%), Accord Healthcare, American Regent, Intl Med System	98%
Bacteriostatic sodium chloride injection [★]	Pfizer (77%), Fresenius Kabi	NA
Bupivacaine 0.75% intrathecal injection [★]	Pfizer (100%) ^f	96%
Butorphanol injection	Pfizer (100%)	72%
Calcium chloride injection [★]	Pfizer (1.2%), American Regent, Internatl Labs, Medefil Inc	95%
Dextrose 25% in water injection	Pfizer (100%)	
Dextrose 50% in water injection [★]	Pfizer (40%), ICU Medical Inc, Intl Med System	90%
Dobutamine injection [★]	Pfizer (60%), Baxter I.V. Sys Div	99%
Dopamine injection [★]	Pfizer (40%), Baxter Pharm Div, Hikma Pharmaceut	90%
Epinephrine injection [★]	Pfizer (6%) ^g , Amneal, BPI Labs, Intl Med System, Kaleo, Par, Teva, Viatris	92%
Fentanyl citrate injection [★]	Pfizer (67%), Fresenius Kabi, Hikma	96%

Heparin in 0.45% sodium chloride injection	Pfizer (65%), Fresenius Kabi	94%
Lidocaine injection	Pfizer (18%), Eugia, Fresenius Kabi, Hikma, Internatl Labs, Spectra Med Dev	95%
Lidocaine with epinephrine injection	Pfizer (21%), Fresenius Kabi	96%
Linezolid injection	Pfizer (29%), Eugia US LLC, Fresenius Kabi, Hikma, Piramal Healthcare, Sandoz, Sun Pharmaceutical	13%
Magnesium sulfate injection	Pfizer (10%), B. Braun Medical, Fresenius Kabi, Viatris, WG Critical Care	99%
Mannitol injection	Pfizer (22%), B. Braun Medical, Baxter I.V. Sys Div, Fresenius Kabi, ICU Medical Inc.	94%
Midazolam injection	Pfizer (31%), Almaject Inc, Athenex Ph, Avet Pharma, Fresenius Kabi USA, Hikma Pharmaceut, WG Critical Care	98%
Morphine sulfate injection	Pfizer (47%), Fresenius Kabi, Hikma Pharmaceut	98%
Nalbuphine injection	Pfizer (100%)	78%
Naloxone injection	Pfizer (16%), Baxter I.V. Sys Div, Dr Reddys Lab, Eugia US LLC, Hikma Pharmaceut, Intl Med System, Somerset Therap, Viatris	24%
Phytonadione (vitamin K1)	Pfizer (33%), Cipla USA, Inc., Dr Reddys Lab, Intl Med System	88%
Potassium acetate injection	Pfizer (89%), Exela Pharma Sci	94%
Potassium chloride injection	Pfizer (38%), B. Braun Medical, Baxter IV Sys Div, Baxter Pharm Div, Fresenius Kabi	99%
Potassium phosphate injection	Pfizer (62%), CMP Pharma Inc, Fresenius Kabi	NA
Rocuronium injection	Pfizer (20%), Almaject Inc, Baxter I.V. Sys Div, Eugia US LLC, Fresenius Kabi, Hikma Pharmaceut, Piramal Healthcare, Sandoz, Viatris, X-Gen Pharm Inc	93%
Sodium acetate injection	Pfizer (68%)^h, Woodward Pharma	98%
Sodium bicarbonate 4.2% injection	Pfizer (58%), Fresenius Kabi, Exela Pharma Sci	
Sodium bicarbonate 7.5% injection	Pfizer (100%)	95%
Sodium bicarbonate 8.4% injection	Pfizer (59%), Exela Pharma Sci, Fresenius Kabi, Intl Med System	
Sodium chloride 23.4% injection	Pfizer (32%), Fresenius Kabi	96%
Sodium phosphate injection	Pfizer (54%), Fresenius Kabi	87%
Succinylcholine injection	Pfizer (8.99%), Amneal, Amring, Camber, Dr Reddys, Hikma, Fresenius Kabi, Meitheal, Sandoz, Somerset, Zydus	52%

^aMarket shares are calculated based on total Pfizer eeaches sold and represent various presentations of the specific product regardless of manufacturing site. For example, a Pfizer market share of 100% does not necessarily mean all the production was done at the Rocky Mount facility, that level of detail is not known at this time.

^bIQVIA analysis at level of drug name and dosage form (e.g., inhalation, injection, intrathecal), unless otherwise specified; includes year-to-date 2023 (January 2023 to May 2023); suppliers where market share < 1% excluded and Akorn market share excluded. Calculated using eeaches sold.

^cThe term “eaches” represents the number of single items (such as vials, syringes, bottles, or packet of pills) contained in a unit or shipping package and purchased by pharmacies in a specific time period. An each is not a single pill or dosage of medicine (unless one package consists of a single dose). An each may be the same as a unit if the unit does not subdivide into packages. A “unit” refers to the total amount of packages sold of a particular drug to the dispensing outlet/chain/hospital.

^dDoes not include 503B market share information.

^eVulnerability scores obtained from the [USP report](#)

^fHospira (Pfizer) manufactures bupivacaine hydrochloride 0.75% intrathecal solution as both Marcaine Spinal and Bupivacaine Spinal. Only Bupivacaine Spinal (NDC 00409-3613-01) is listed as being impacted with less than 3 months' supply. Brookfield Pharmaceuticals LLC has recently brought another product to market (NDC 71351-0022-10), which was not captured in the IQVIA data set.

^gFor 1 mg/10 mL epinephrine syringes, Pfizer has 32.81% market share with Intl Med System being the alternate supplier

^hBoth American Regent and Fresenius Kabi offer a sodium acetate 4 mEq/mL IV product; these were not captured in the IQVIA data set.

 = essential medication

Table 2. Guidance for products with high Pfizer market share^{a-c}

Drug Product	Mitigation Strategy
Aminophylline injection	<ul style="list-style-type: none">Utilized primarily for refractory status asthmaticus in pediatric patients. Reserve for patient not responding to other status asthmaticus pharmacotherapy (e.g., albuterol, terbutaline, corticosteroids, magnesium, ipratropium, etc.).To conserve inventory, operationalize drawing up patient specific doses.
Bupivacaine 0.75% intrathecal injection	<ul style="list-style-type: none">Hospira (Pfizer) manufactures bupivacaine hydrochloride 0.75% intrathecal solution as both Marcaine Spinal and Bupivacaine Spinal. Only Bupivacaine Spinal (NDC 00409-3613-01) is listed as being impacted with less than 3 months' supply.Brookfield Pharmaceuticals LLC has recently brought another product to market (NDC 71351-0022-10). This product was not captured in the IQVIA data.
Butorphanol injection	<ul style="list-style-type: none">Utilized primarily for analgesia during labor. Evaluate and discuss alternatives with obstetricians and other institutional specialists, taking into consideration risk of respiratory depression with certain alternatives.Consider using alternative opioids and other analgesic options as clinically appropriate.To avoid pruritis associated with certain opioids consider pre-medication with an appropriate agent.
Dextrose 25% in water injection	<ul style="list-style-type: none">Prioritize for treatment of acute symptomatic episodes of hypoglycemia in infants and children.
Fentanyl citrate injection	<ul style="list-style-type: none">Reserve preservative-free formulations for indications for which non-preserved free formulations are not clinically appropriate.Consider using alternative opioids at equianalgesic doses and other analgesic options as clinically appropriate.
Midazolam injection	<ul style="list-style-type: none">Utilized in a variety of indications in the acute care setting including for procedural sedation, sedation in mechanically ventilated patients, general anesthesia, seizures including status epilepticus and for many off-label indications.Consider using the oral formulation of midazolam if clinically indicated.Consider using alternative benzodiazepines as clinically appropriate.
Nalbuphine injection	<ul style="list-style-type: none">Utilized primarily for analgesia during labor. Evaluate and discuss alternatives with obstetricians and other institutional specialists, taking into consideration risk of respiratory depression with certain alternatives.Consider using alternative opioids and other analgesic options as clinically appropriate.To avoid pruritis associated with certain opioids consider pre-medication with an appropriate agent.

Sodium bicarbonate • Utilize sodium bicarbonate 4.2% and 8.4% as alternatives, as clinically appropriate.

7.5% injection

^aMarket shares are based on total Pfizer eeaches sold, regardless of manufacturing site. For example, a Pfizer market share of 100% does not necessarily mean all the production was done at the Rocky Mount facility, that level of detail is not known at this time.

^bIQVIA analysis at level of drug name and dosage form (e.g., inhalation, injection, intrathecal), unless otherwise specified; includes year-to-date 2023 (January 2023 to May 2023); suppliers where market share < 1% excluded and Akorn market share excluded. Calculated using eeaches sold.

^cThe term “eaches” represents the number of single items (such as vials, syringes, bottles, or packet of pills) contained in a unit or shipping package and purchased by pharmacies in a specific time period. An each is not a single pill or dosage of medicine (unless one package consists of a single dose). An each may be the same as a unit if the unit does not subdivide into packages. A “unit” refers to the total amount of packages sold of a particular drug to the dispensing outlet/chain/hospital.

Appendix 1. Pfizer Hospital Rocky Mount Products with Less Than 3 Months' Inventory in the Distribution Chain

NDC	Product Description
00409-3308-03	Acetylcysteine Solution, USP 6 g/30 mL (200 mg/mL) Multiple Dose Glass Teartop Vial
00409-4346-73	Aminocaproic Acid Injection, USP 5 g/20 mL (250 mg/mL) Single Dose Plastic Fliptop Vial
00409-5921-01	Aminophylline Injection, USP 250 mg/10 mL (25 mg/mL) Single Dose Glass Fliptop Vial
00409-1630-10	Atropine Sulfate Injection, USP (Adult) 1 mg/10 mL (0.1 mg/mL) ANSYR™ Plastic Syringe
00409-4911-34	Atropine Sulfate Injection, USP (Adult) 1 mg/10 mL (0.1 mg/mL) LifeShield™ ABBOJECT™ Glass Syringe (20 G x 1 1/2")
00409-1966-12	Bacteriostatic 0.9% Sodium Chloride Injection, USP 10 mL Multiple Dose LifeShield™ Plastic Fliptop Vial
00409-3613-01	Bupivacaine 0.75% Spinal (bupivacaine in dextrose injection, USP) 15 mg/2 mL (7.5 mg/mL) Glass Ampoule
00409-1623-01	Butorphanol Tartrate Injection, USP, CIV 1 mg/mL Single Dose Glass Fliptop Vial
00409-1626-01	Butorphanol Tartrate Injection, USP, CIV 2 mg/mL Single Dose Glass Fliptop Vial
00409-1626-02	Butorphanol Tartrate Injection, USP, CIV 4 mg/2 mL (2 mg/mL) Single Dose Glass Fliptop Vial
00409-1631-10	Calcium Chloride Injection, USP 1 g/10 mL (100 mg/mL) ANSYR™ Plastic Syringe
00409-4928-34	Calcium Chloride Injection, USP 1 g/10 mL (100 mg/mL) LifeShield™ ABBOJECT™ Glass Syringe (20 G x 1 1/2")
00409-1775-10	Dextrose Injection 25%, USP (For Infant Use) 2.5 g/10 mL (250 mg/mL) ANSYR™ Plastic Syringe
00409-7517-16	Dextrose Injection 50%, USP 25 g/50 mL (500 mg/mL) ANSYR™ II Plastic Syringe (side/side)
00409-4902-34	Dextrose Injection 50%, USP 25 g/50 mL (500 mg/mL) LifeShield™ ABBOJECT™ Glass Syringe (18 G x 1 1/2")
00409-6648-02	Dextrose Injection 50%, USP 25 g/50 mL (500 mg/mL) Single Dose Glass Fliptop Vial
00409-2346-32	Dobutamine in 5% Dextrose Injection, USP 250 mg/250 mL (1 mg/mL) Flexible Container
00409-2347-32	Dobutamine in 5% Dextrose Injection, USP 500 mg/250 mL (2 mg/mL) Flexible Container
00409-3724-32	Dobutamine in 5% Dextrose Injection, USP 1,000 mg/250 mL (4 mg/mL) Flexible Container
00409-7809-22	Dopamine Hydrochloride in 5% Dextrose Injection, USP 400 mg/250 mL (1,600 mcg/mL) Flexible Container
00409-7810-22	Dopamine Hydrochloride in 5% Dextrose Injection, USP 800 mg/250 mL (3,200 mcg/mL) Flexible Container
00409-4933-01	Epinephrine Injection, USP 1 mg/10 mL (0.1 mg/mL) ABBOJECT™ Glass Syringe with Male Luer Lock Adapter and 20-Gauge protected needle
00409-9094-22	Fentanyl Citrate Injection, USP, CII 100 mcg/2 mL (50 mcg/mL) Single Dose Glass Fliptop Vial
00409-9093-35	Fentanyl Citrate Injection, USP, CII 250 mcg/5 mL (50 mcg/mL) Glass Ampoule
00409-7651-62	Heparin Sodium in 0.45% Sodium Chloride Injection, 12,500 USP Units/250 mL (50 USP Units/mL) Flexible Container
00409-7650-62	Heparin Sodium in 0.45% Sodium Chloride Injection, 25,000 USP Units/250 mL (100 USP Units/mL) Flexible Container
00409-3177-01	Lidocaine Hydrochloride and Epinephrine Injection 0.5%, USP (Lidocaine and Epinephrine 1:200,000) 250 mg/50 mL (5 mg/mL) Multiple Dose Glass Fliptop Vial
00409-3178-01	Lidocaine Hydrochloride and Epinephrine Injection 1%, USP (Lidocaine and Epinephrine 1:100,000) 200 mg/20 mL (10 mg/mL) Multiple Dose Glass Fliptop Vial
00409-3178-02	Lidocaine Hydrochloride and Epinephrine Injection 1%, USP (Lidocaine and Epinephrine 1:100,000) 300 mg/30 mL (10 mg/mL) Multiple Dose Glass Fliptop Vial
00409-3178-03	Lidocaine Hydrochloride and Epinephrine Injection 1%, USP (Lidocaine and Epinephrine 1:100,000) 500 mg/50 mL (10 mg/mL) Multiple Dose Glass Fliptop Vial
00409-3181-01	Lidocaine Hydrochloride and Epinephrine Injection 1.5%, USP (Lidocaine and Epinephrine 1:200,000) 450 mg/30 mL (15 mg/mL) Single Dose Glass Fliptop Vial
00409-1209-01	Lidocaine Hydrochloride 1.5% and Epinephrine Injection, USP (Lidocaine and Epinephrine 1:200,000) 75 mg/5 mL (15 mg/mL) Glass Ampoule

00409-3182-03	Lidocaine Hydrochloride and Epinephrine Injection 2%, USP (Lidocaine and Epinephrine 1:100,000) 1,000 mg/50 mL (20 mg/mL) Multiple Dose Glass Fliptop Vial
00409-3182-01	Lidocaine Hydrochloride and Epinephrine Injection 2%, USP (Lidocaine and Epinephrine 1:100,000) 400 mg/20 mL (20 mg/mL) Multiple Dose Glass Fliptop Vial
00409-3182-02	Lidocaine Hydrochloride and Epinephrine Injection 2%, USP (Lidocaine and Epinephrine 1:100,000) 600 mg/30 mL (20 mg/mL) Multiple Dose Glass Fliptop Vial
00409-3183-01	Lidocaine Hydrochloride and Epinephrine Injection 2%, USP (Lidocaine and Epinephrine 1:200,000) 400 mg/20 mL (20 mg/mL) Single Dose Glass Fliptop Vial
00409-9137-05	Lidocaine Hydrochloride Injection 1%, USP (For Cardiac Use Only) 50 mg/5 mL (10 mg/mL) ANSYR™ Plastic Syringe
00409-1323-05	Lidocaine Hydrochloride Injection 2%, USP (For Cardiac Use Only) 100 mg/5 mL (20 mg/mL) ANSYR™ Plastic Syringe
00409-4903-34	Lidocaine Hydrochloride Injection 2%, USP (For Cardiac Use Only) 100 mg/5 mL (20 mg/mL) LifeShield™ ABBOJECT™ Glass Syringe (20 G x 1 1/2")
00409-4277-02	Lidocaine Hydrochloride Injection 2%, USP 1,000 mg/50 mL (20 mg/mL) Multiple Dose Plastic Fliptop Vial
00409-4883-01	Linezolid Injection in 0.9% Sodium Chloride 600 mg/300 mL (2 mg/mL) VisIV™ Flexible Container
00409-6729-03	Magnesium Sulfate in Water for Injection 20 g/500 mL (40 mg/mL) Flexible Container
00409-4031-01	Mannitol Injection, USP 12.5 g/50 mL Single Dose Glass Fliptop Vial (25% concentration)
00409-2305-17	Midazolam Injection, USP CIV 2 mg/2mL (1 mg/mL) Single Dose Glass Fliptop Vial
00409-2308-02	Midazolam Injection, USP CIV 10 mg/2 mL (5 mg/mL) Single Dose Glass Fliptop Vial
00409-1134-03	Morphine Sulfate Injection, USP, CII (Preservative-Free and contains an antioxidant) 1,000 mg/20 mL (50 mg/mL) Single Dose Glass Fliptop Vial
00409-1134-05	Morphine Sulfate Injection, USP, CII (Preservative-Free and contains an antioxidant) 2,500 mg/50 mL (50 mg/mL) Single Dose Glass Fliptop Vial
00409-1465-01	Nalbuphine Hydrochloride Injection 20 mg/mL Glass Ampoule
00409-1215-01	Naloxone Hydrochloride Injection, USP 0.4 mg/mL Single Dose Glass Fliptop Vial
00409-8183-01	Potassium Acetate Injection, USP 40 mEq/20 mL (2 mEq/mL) Single Dose Plastic Fliptop Vial
00409-6651-06	Potassium Chloride for Injection Concentrate, USP 20 mEq/10 mL (2 mEq/mL) Single Dose Plastic Fliptop Vial
00409-7295-01	Potassium Phosphates Injection, USP, 45 mM P/15 mL (3 mM P/mL) Single Dose Glass Fliptop Vial
00409-6629-02	Quelicin™ (succinylcholine chloride injection, USP) 200 mg/10 mL (20 mg/mL) Multiple Dose Glass Fliptop Vial
00409-9558-05	Rocuronium Bromide Injection 50 mg/5 mL (10 mg/mL) Multiple Dose Glass Fliptop Vial
00409-7299-73	Sodium Acetate Injection, USP 40 mEq/20 mL (2 mEq/mL) Single Dose Plastic Fliptop Vial
00409-3299-06	Sodium Acetate Injection, USP 200 mEq/100 mL (2 mEq/mL) Pharmacy Bulk Package Glass Fliptop Vial
00409-5534-14	4.2% Sodium Bicarbonate Injection, USP 5 mEq/10 mL (0.5 mEq/mL) ABBOJECT® Glass Syringe with Male Luer Lock Adapter and 20-Gauge protected needle
00409-5555-02	4.2% Sodium Bicarbonate Injection, USP 5 mL Fliptop Vial
00409-4916-14	7.5% Sodium Bicarbonate Injection, USP 44.6 mEq/50 mL (0.9 mEq/mL) LifeShield™ ABBOJECT™ Glass Syringe with Male Luer Lock Adapter and 18-Gauge protected needle
00409-6637-14	8.4% Sodium Bicarbonate Injection, USP 50 mEq/50 mL (1 mEq/mL) LifeShield® ABBOJECT® Glass Syringe Male Luer Lock Adapter and 18-Gauge protected needle
00409-1141-02	23.4% Sodium Chloride Injection, USP 400 mEq/100 mL (4 mEq/mL) Pharmacy Bulk Package Glass Fliptop Vial
00409-7391-72	Sodium Phosphates Injection, USP 45 mMol/15 mL (3 mMol P/mL) Single Dose Plastic Fliptop Vial
00409-5816-11	Sterile Empty Vial 10 mL Glass Bottle
00409-5816-31	Sterile Empty Vial 30 mL Glass Bottle
00409-9158-01	Vitamin K1 (phytonadione injectable emulsion, USP) 10 mg/mL Glass Ampoule

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Formed in December 2021, the End Drug Shortages Alliance brings together health systems, manufacturers, and other industry stakeholders across the supply chain who are dedicated to solving pharmaceutical supply challenges by collaborating to increase visibility, access, and advocacy. Collectively we will end drug shortages through focus on transparency, communication, quality, redundancy, and supply readiness to achieve measurable and sustainable results.

To learn more, please visit enddrugshortages.com, or contact us at info@enddrugshortages.com.