

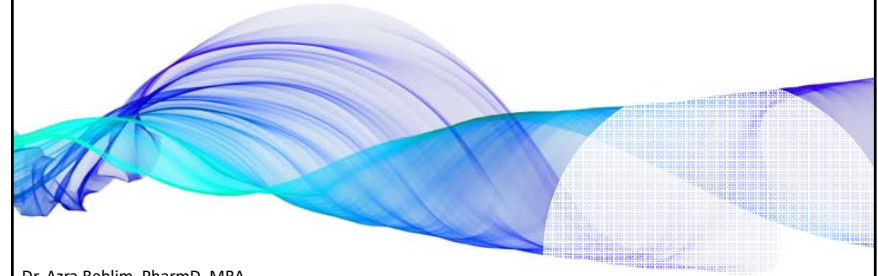


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## The Certainty of Uncertainty for Global Supply Chain



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No relevant financial relationships to  
disclose.



## The Certainty of Uncertainty for Global Supply Chain

### Learning Objectives:

1. List the types of supply chain models used in the US for direct product delivery.
2. Identify the challenges and best practices for supply chain management at direct delivery care sites.



## Which of the following would help to reduce uncertainty at a site's supply chain?

- A. Relationships with local distributors
- B. Regular updates on drug shortages from the FDA
- C. Routine review of inventory levels at the wholesaler
- D. Risk mitigation strategy that accounts for 'hi' and 'low' scenarios
- E. None of the above

## Types of Supply Chain Models

Manufacturer => Customer

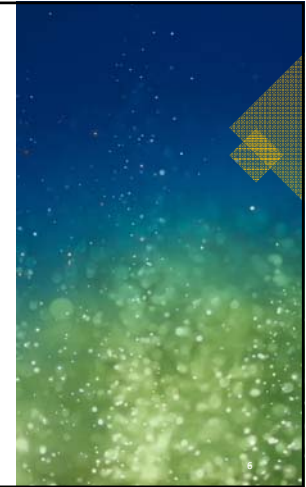
Manufacturer => Distributor => Customer

Manufacturer => Distributor (electronic mgt)  
=> Physical product distribution (drop-ship)

Manufacturer => US Govt. => States

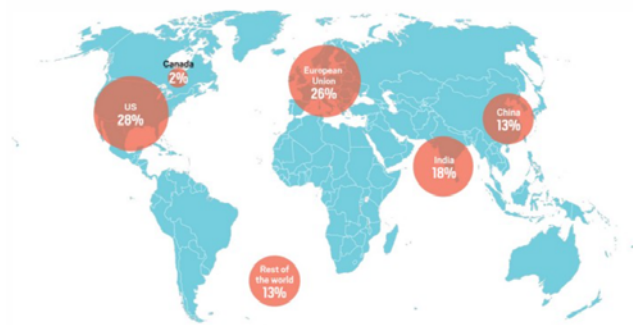
Manufacturer => Patient

\*States => local distributors; private distributors; local health depts.



Plants that are registered with the US to supply active pharmaceutical ingredients can be found all over the world.

Source: US Food and Drug Administration, August 2019.



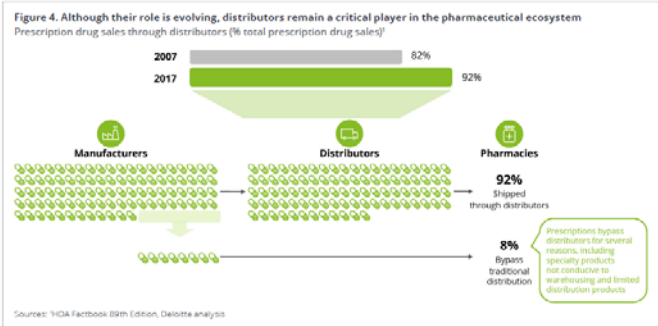
**FIGURE 1**  
**National Drug Shortages - New Shortages by Year**  
January 2001 to March 31, 2021, % Injectable

Historically, generic injectable drugs accounted for about half of new shortages. While there was a decrease in this percentage for 2019, these products once again returned to 50% the following year.



Note: Each column represents the number of new shortages identified during that year.  
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## Evolving Role of Distributors



## Challenges in Current Supply Chain Models

- Antiquated Technology
  - Platforms
  - Infrastructure
- Transportation Network
- Drug Supply Shortages
- Panic Buying
- Lack of Risk Mitigation Plans
- Frequent Changes in management at customer sites

## Supply Chain Management: Best Practices

- Reliable IT infrastructure
- Quality and repeatable data to refine inventory
- Risk mitigation plans that account for “hi” and “low” factors
- Training and reference resources for all staff.

## Which of the following is not a supply chain model used in the US for pharmaceuticals?

- A. States direct to pharmaceutical manufacturer
- B. Pharmaceutical manufacturer direct to customer site
- C. Federal government to states
- D. Pharmaceutical manufacturer direct to distributor
- E. Pharmaceutical manufacturer direct to patient

## Questions?

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