Resilient Drug Supply Project: Establishing a Framework

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PRIME Institute
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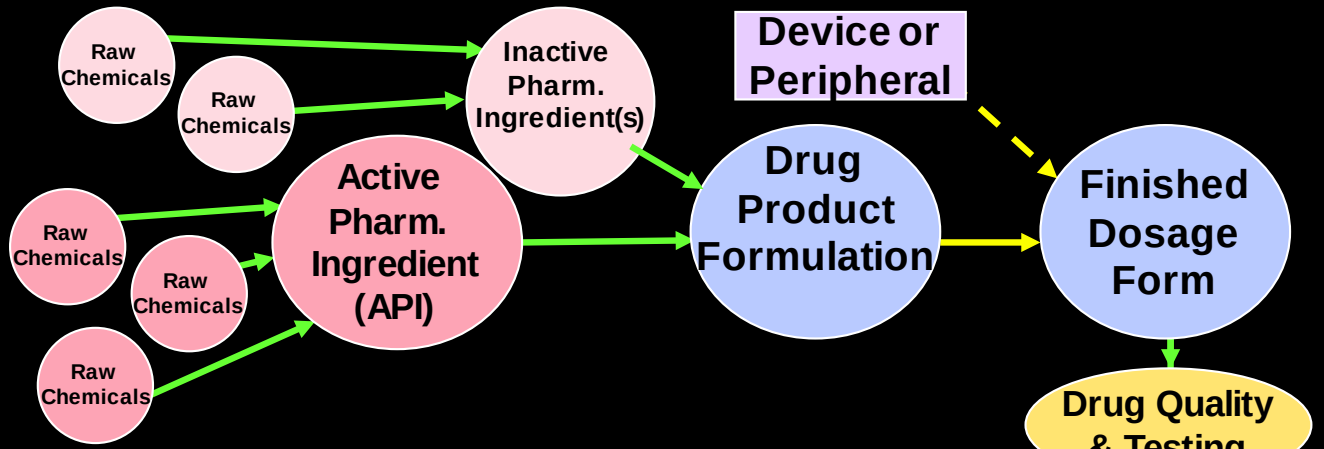
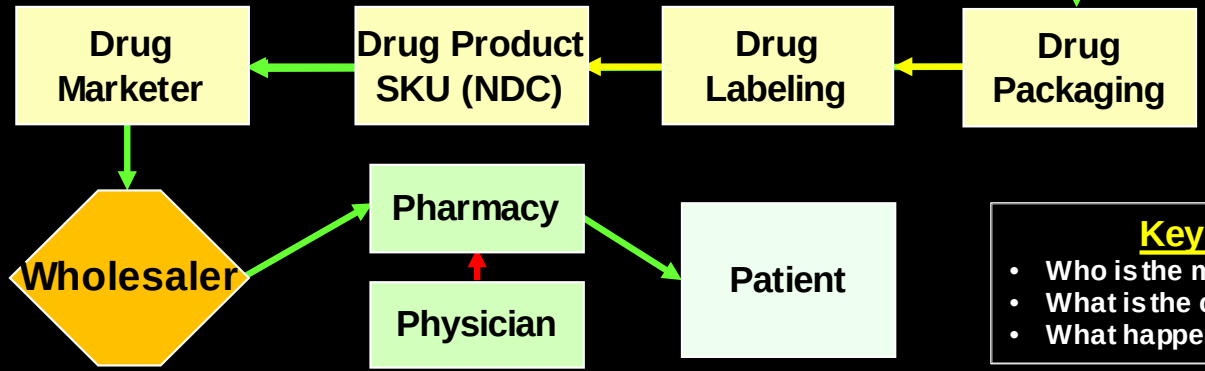
CIDRAP
Center for Infectious Disease Research and Policy

Resilient Drug Supply Project Description

- Develop a list of Critical Acute Drugs (CAD) (153 drugs identified)
- Develop a list of Critical Chronic Drugs (CCD) (~300 Brand, ~400 Generic, ~150 Specialty)
- Map supply chain (API to patient) for each drug
- Assess & characterize the root cause of each drug shortage (beyond FDA categories)
- Establish a drug supply, shortage, and tracking framework
- Conduct risk assessment along the entire supply chain for drugs
- Conduct investigation of primary, secondary, & tertiary effects of inter-related infrastructure failures (e.g., finance, trade, transportation, power, geopolitics)
- Determine pre-cursors of shortages & method to monitor, predict & prevent
- Build real-time, ongoing platform to assess critical supply failures

Drug Product from API to Patient





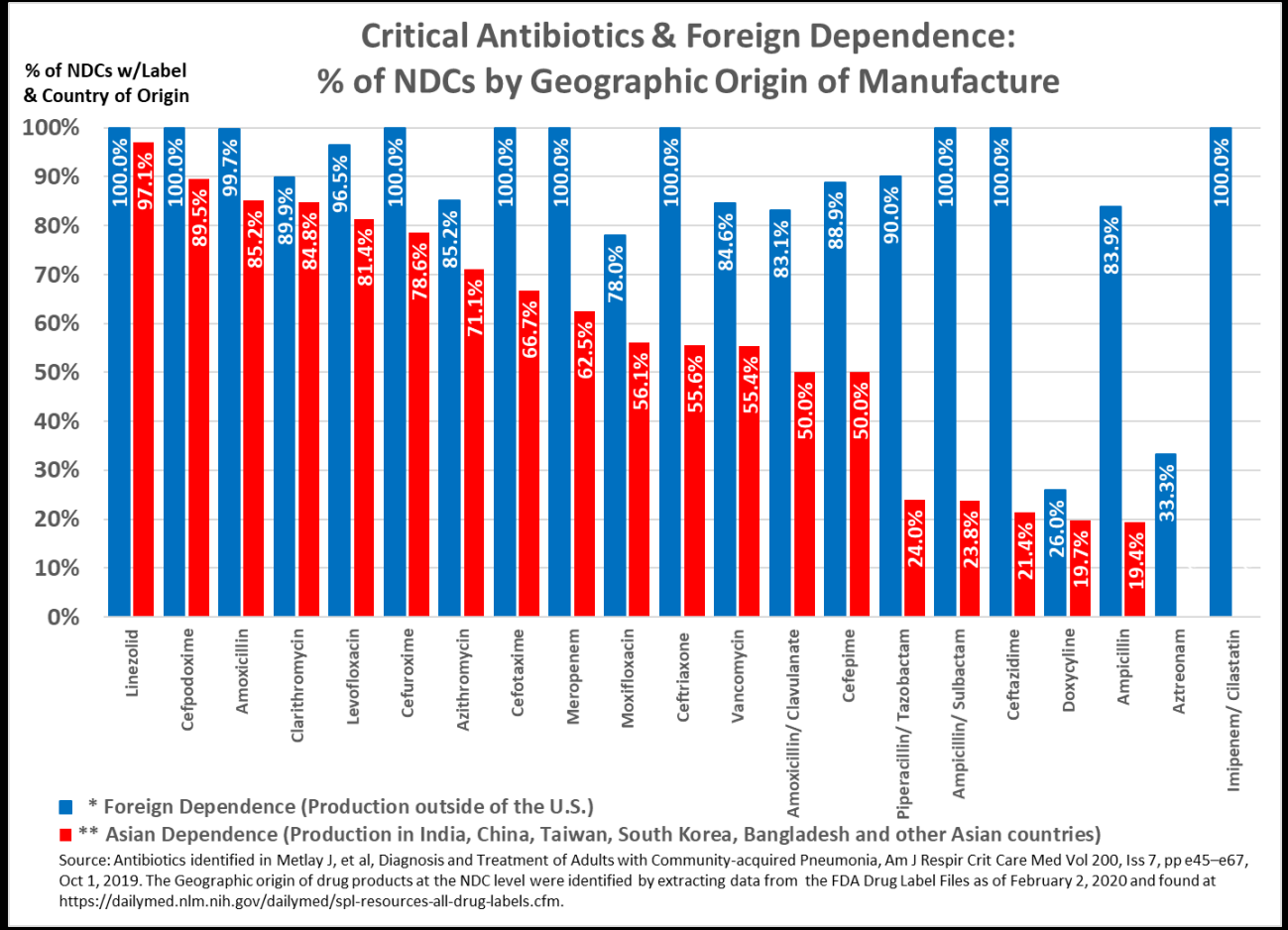
Key Questions:

- Who is the manufacturer?
- What is the country of origin?
- What happens if API is not available?

U.S. Drug Supply's Foreign Dependence Based on Shipping Data for Critical Access Drugs: 2019

China	Asia	All Foreign
Critical Access Drugs with >50% from China:	**Critical Access Drugs with >50% from Asia:**	**Critical Access Drugs with >50% Foreign:**
Hydrocortisone	Hydralazine	Prednisone
Doxycycline	Mycophenolate	Warfarin
Potassium	Dexamethasone	Fentanyl
Fosphenytoin	Betamethasone	Diphenhydramine
Phenytoin	Methylprednisolone	Ampicillin
Epinephrine	Acetaminophen	Gentamicin
Sodium Phosphate	Furosemide	Penicillin
Acetaminophen	Torsemide	Insulin
Succinylcholine	Enoxaparin	Azithromycin
	Heparin	Lorazepam
	Meropenem	Midazolam
		Propofol
		Rocuronium

Source: Data is Average Annual % of Shipments to the US for Critical Drugs by Country of Origin from Panjiva (Shipments) Data for 2019



Source: Antibiotics identified in Metlay J, et al, Diagnosis and Treatment of Adults with Community-acquired Pneumonia, Am J Respir Crit Care Med Vol 200, Iss 7, pp e45–e67, Oct 1, 2019. The Geographic origin of drug products at the NDC level were identified by extracting data from the FDA Drug Label Files as of February 2, 2020 and found at https://dailymed.nlm.nih.gov/dailymed/spl-resources-all-drug-labels.cfm.

19 of 21 Critical Antibiotics > 75% from Foreign Sources

14 of 21 Critical Antibiotics > 50% from Asian Sources

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