



Causes and Outcomes of Drug Shortages

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DESCRIPTION

Drug scarcity is a global problem that impacts high, middle, and low-income nations. While the problem is increasing and affecting the entire planet, many nations have produced a variety of solutions. All sorts of medications are susceptible to the shortage, including vital life-saving medications, cancer treatments, antimicrobial drugs, analgesics, opioids, cardiovascular medications, radiopharmaceuticals, and parenteral goods. Sterile injectable medications have a higher risk of shortage than other pharmaceutical dosage forms. Numerous factors contribute to shortages, including supply, demand, and regulatory concerns. Manufacturing troubles, a lack of raw materials, logistical concerns, and business issues are all examples of supply issues. On the other hand, demand problems include just-in-time inventory, increased product demand, seasonal demand, and erratic demand. The absence of a standardized definition of a drug shortage is a significant element in regulatory concerns. Every stakeholder is impacted by the drug scarcity from an economic, therapeutic, and humanistic perspective. To address medicine shortages globally, WHO devised four levels of global mitigation methods. Changes in legislative policies, a workaround for the current shortage, operational enhancements to lower the likelihood of a shortage and achieve early warning, and education and training of all health professionals regarding handling shortages are all included.

Almost all pharmacological classes, including antibiotics, antiretroviral medications, anti-protozoal agents, antineoplastic agents, cardiovascular medications, analgesics, etc., have been reported to be in insufficient supply. Depending on the state of the population's health, different countries or regions experience distinct medicine shortages. Essential and emergency medications, are more susceptible to shortages than other medications. According to research investigations, certain drug types are in short supply in high-income countries. Depending on the kind of drug, drug shortages can have a variety of causes. In general, supply concerns, demand issues, or regulatory issues can be categorized as reasons of medicine shortages.

For instance, production issues, financial strains, raw material shortages, and just-in-time inventories are identified as the primary causes of drug shortages in industrialized nations such as the EU, the US, Saudi Arabia, and developing nations such as Pakistan and Fiji. Manufacturers are unable or unwilling to develop enough medications to meet demand due to supply difficulties. It can be categorized as production challenges, raw material shortages, business-related concerns (economic factors such a small market, poor profit margin, rising raw material costs, and capacity restrictions), and logistical issues (supply chain problems); These factors have been somewhat managed in high-income nations, but in low and middle-income nations, the cost of living has an impact on the availability and capacity of manufacturing, the cost and accessibility of medications, and the measurement of the drug supply chain.

Quality concerns and conflicting priorities are among the manufacturing problems. The European Medical Agency is mostly linked to manufacturing-related shortages of medications. The most promising studies were those conducted in Finland, Saudi Arabia, Canada, and the EU. Due to the decline in the prevalence of specific ailments and the availability of more valuable alternatives, middle-income nations like Brazil and Venezuela have reported shortages of injectable goods of low quality. In contrast, low-income nations like Pakistan have observed problems with manufacturing brought on by a lack of regulatory guidelines and financial pressure. Even after being distributed to customers, daily quality checks and inspections following manufacture frequently reveal quality issues as the primary cause of the medicine shortage. Once the medication has been distributed to the market and a quality issue is discovered, a voluntary recall is normally initiated. Microbial contamination (bacteria/fungi), endotoxins, tablet disintegration, particle matter (glass, metal, fibre, and foreign matter), precipitate development, or unanticipated reactions between products and containers are some of the causes of these problems. A violation of Good Manufacturing Practices (GMP) can also be categorized as a quality issue because it may result in quality flaws and ultimately shortages. In the United States, quality problems accounted for

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67% of medicine shortages in 2012, and the pattern persisted in 2013.

The worldwide drug shortage is a multifaceted problem. With the creation of numerous groups, governmental organizations, platforms, and regulations, it has attracted a lot of attention in the majority of high-income countries. On the other hand, there aren't many research studies in some middle-income nations, and there aren't many in low-income nations. Distinct countries had different medicine shortages. Almost all classes of drugs are

affected and found to be short in high-income countries at various times. This might be the result of more research projects bringing the problem to light. The high-income nations have created elaborate plans that provide an example for the rest of the globe for how to address this shortage issue. The milestones in controlling medicine shortages are the two draught definitions by the WHO and the adaptation of a consistent definition in the EU.