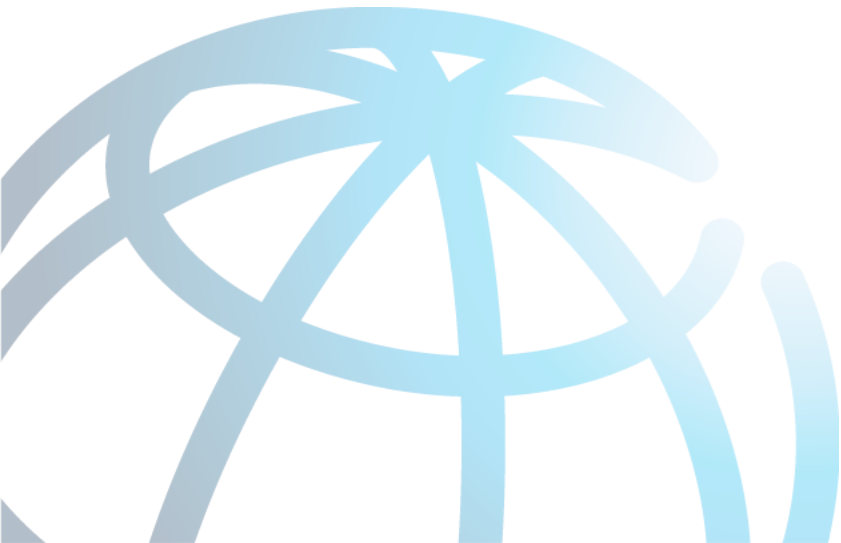


Pharmaceutical Supply Chain Innovations in Emerging Markets

Monique Mrazek
July 10, 2019



Pharmaceutical supply chains Emerging Markets

In 2017, IFC commissioned a study on “Private Sector Pharmaceutical Distribution and Retailing in Emerging Markets”

Key supply chain problems:

- **Fragmentation:** for both pharmaceutical distributors and retail pharmacies
- **Quality assurance:** reducing Substandard, Spurious, Falsely labelled, Falsified and Counterfeit medicines in the supply chain
- **Urban concentration** of distributors and retailers in cities.
- **Working capital:** challenges to raise sufficient working capital for pharmaceutical distributors especially in asset light models

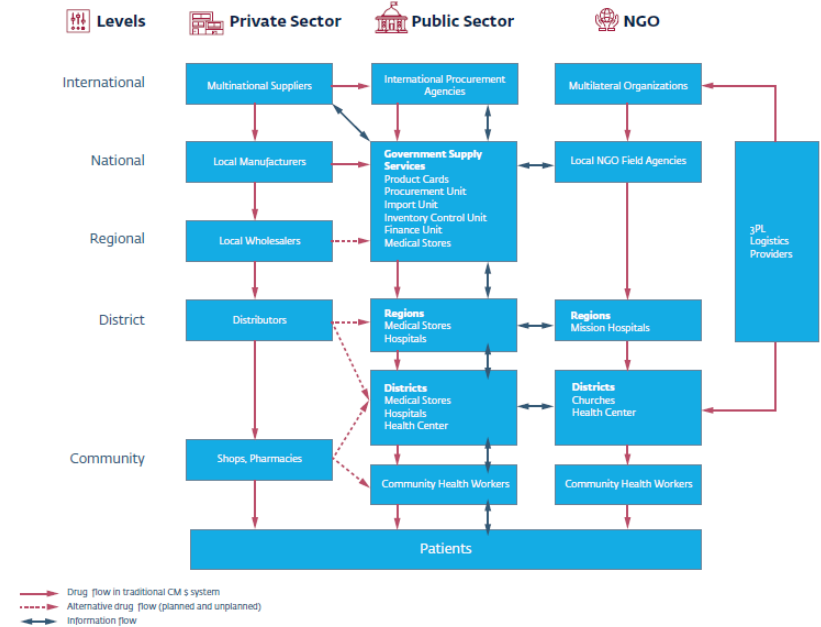
Fragmented distribution:

- Emerging markets share of the global pharmaceutical distribution market is disproportionately large at **64%** compared to **36%** share of the global pharmaceutical market
- This discrepancy can partly be explained by two factors:
 - Unusually low operating margins for pharmaceutical distributors in the US market due to overconcentration;
 - High operating margins for distributors in emerging markets (e.g. cost of capital) and fragmentation of the supply chain.

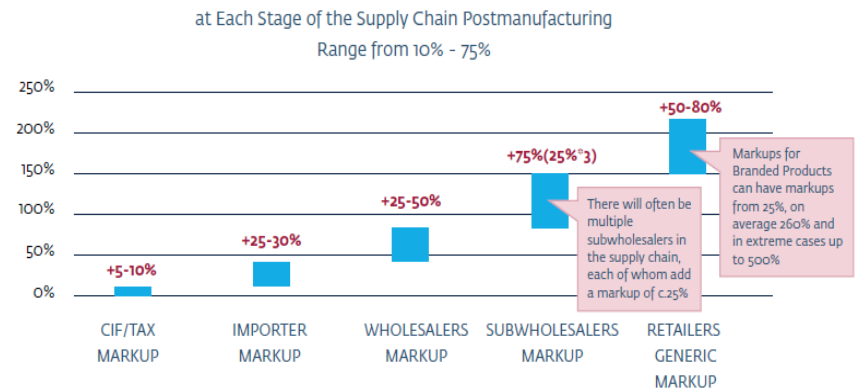
Tech and business model innovation:

- Tech can increase transparency and efficiency across the pharmaceutical supply chain.
 - Numerous innovations, ranging from mobile payment platforms, to devices connected to the internet, to drones could increase productivity.
 - Tracking and tracing technologies, such as 2-D barcodes and RFID, as well as blockchain support supply chain integrity.
 - Data analytics and AI improve transparency and efficiency

SCHMATIC OF THREE TYPES OF PHARMACEUTICAL SUPPLY CHAINS IN EMERGING MARKETS



AVERAGE PRICE MARK-UPS FOR MEDICINES IN EMERGING MARKETS



Tackling fake drugs:

- \$600bn fake products sold annually worldwide genuine companies lose sales
- 1 in 3 counterfeits is pharma product largest burden in Asia, Africa, LATAM
- 100k+ patients die annually due to fakes
- 3.5bn people, international largest market opportunity in populous emerging markets

Sproxil solution:

- Enables manufacturers to promote product authenticity by giving consumers a way to determine if a product is genuine at the point of purchase.
- The approach is simple – Mobile Product Authentication – “Defender”: (i) Manufacturers buy unique codes and tag them to product; (ii) consumers reveal code at point of purchase and (iii) verify instantly for free by apps, SMS, web and cost-efficient local-language call center
- Who pays? Mainly manufacturers including non-pharma, regulators and NGOs
- Have served 17m+ unique users and operate in 5+ countries from Africa to Asia.

Challenges to scale solution:

- Challenging markets to enter and operate in
- Competition
- Willingness to pay



The problem:

- The pharmacy market in Southeast Asia is highly fragmented in each country. For example, in Indonesia 94% of the pharmacies are independent.
 - This has created a challenge for public and private sector organizations to efficiently access pharmacies, and data generated from pharmacies.
 - This has also created the issue for pharmacies to procure efficiently and at low cost.
 - Pharmacists do not have formal continuing education.
- As a result, without prescription data, the pharmaceutical market is not transparent, resulting in high prices, supply issues and access and utilization issues, preventing both private and public sector healthcare organizations making informed decisions.
- On the patient side, patients are paying higher prices and often face stock-out issues.

mClinica solution:

- developed 3 Apps targeting the pharmacies, patients, pharma companies, and governments to improve pharmacy practice, enable prescription data collection
 - **Swipe Rx:** Provides continuing education and capability training services to pharmacists
 - **Connect:** Provides a pharm company driven patient program offering discount purchases to patients
 - **Snap Rx:** provides pharmacy monitoring and prescription data to Ministries of Health and their FDAs to establish a nationwide pharmacy monitoring system and enhance national level supply chain visibility and security.
- 150,000 pharmacy professionals across Indonesia, Philippines, Vietnam, Thailand, Cambodia and Malaysia

Opportunity:

- Move beyond data driven insight to a marketplace solution improving procurement and affordability

SwipeRx

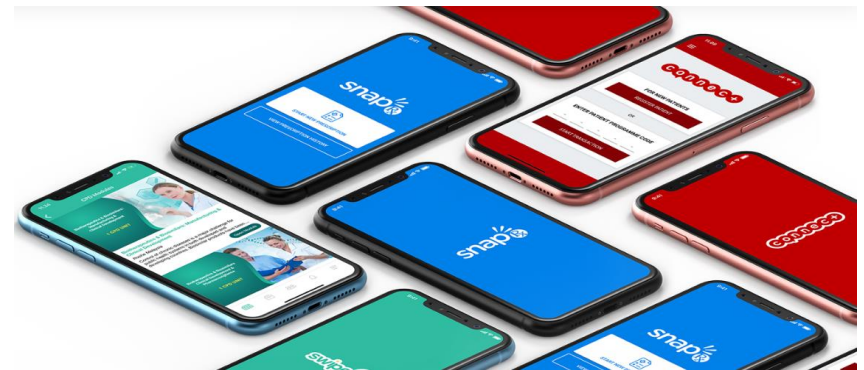
Southeast Asia's Largest
Social Network Of
Pharmacies

Connect

Data-driven Digital Patient
Assistance Programs

SnapRx

AI-Powered Health
Information Systems Built On
Prescription Data



1mg – Tackling fragmented supply chain - India

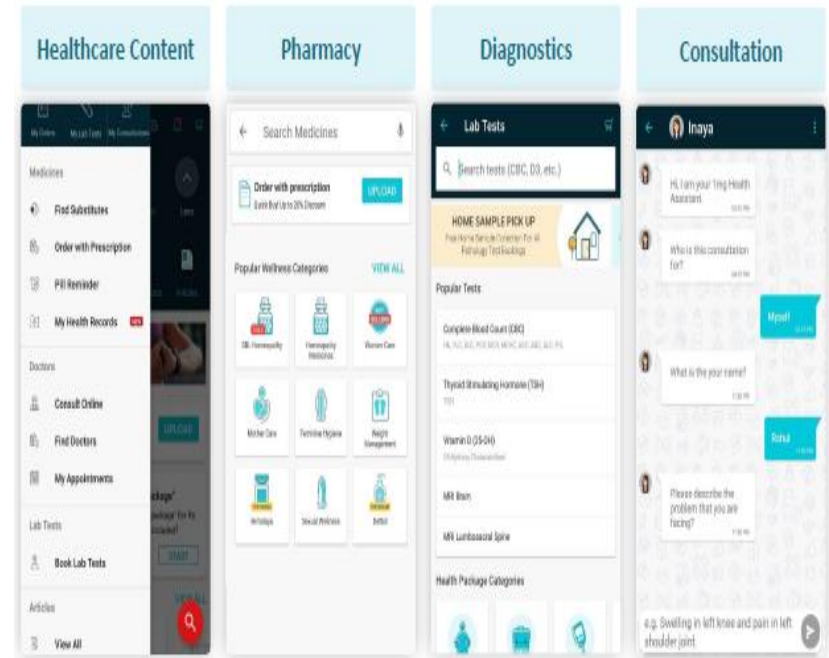


The problem:

- The distribution of medicines in India is highly fragmented due to multiple layers of intermediaries across the value chain and the prevalence of small independent mom-and-pop pharmacies.
- The sector is plagued with spurious drugs, inadequate storage processes, and less than optimal distribution chains.
- Approximately 20 percent of Indian drugs are counterfeit

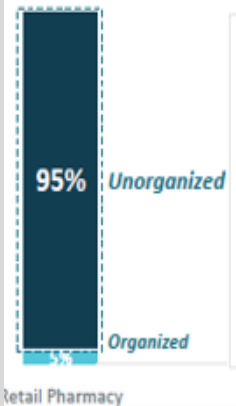
1mg solution:

- Largest integrated online health care platform operating in four verticals: (i) online pharmacy; (ii) e-diagnostics, (iii) online consultations; and (iv) curated health content
- Online pharmacy marketplace and distribution solution
 - provides price transparency,
 - consistent supply of a wide range of medicines,
 - home delivery through a supply chain that maintains appropriate temperature and storage
- 45% of customers in underserved areas
- Pricing of pharmaceuticals on the platform is 10 to 15 percent lower than offline retail stores
- 1mg's own distribution capacity increases its efficiency and tackles the problem of multiple distribution intermediaries.
- Unlike many offline pharmacies, only such medicines supported by a legitimate medical prescription are sold
- The Company's inventory management software ensures that expired drugs are not delivered, and appropriate cold chain facilities are used across its supply chain;
 - mom-and-pop pharmacies very often do not have any inventory management or adequate temperature controls.



Unorganized pharmacies, like the one in the image, often:

- lack proper temperature controlled storage facilities
- do not monitor expiry dates
- have lax compliance around selling medication that requires prescriptions



Retail Pharmacy

Lessons learned to date

- Technology and new business models emerging to address challenges in pharmaceutical supply chains – including quality, affordability, transparency and integrity.
- Solutions may have a local flavor addressing unique market needs.
- While some of the solutions have clear value to patients, the solutions may not be commercially viable and thus not sustainable.
 - In some cases government support through regulation/legislation may be needed.

