Landscaping Innovations in Health Product Distribution in Sub-Saharan Africa

October 2018
Acknowledgements

The project was led by Cynthia Eldridge and Mara Hansen Staples, Partners at Impact for Health. Primary data collection was undertaken by Tracey Brett (Independent), Nkata Chuku, Funke Falade, Uba Otuonye, Collins Jaguga, Richmond Guamah (Health Systems Consult Ltd). Samantha Horrocks oversaw operations for the work.

Thank you to…

The Bill & Melinda Gates Foundation’s Supply Chain team, who supported this work and offered invaluable guidance and thought partnership.

The numerous companies, thought leaders, investors and donors whose work and insights informed our analysis.
The project goal is to address two questions:

✓ What are the key trends emerging in health product distribution in sub-Saharan Africa?

✓ What is their potential impact on coverage of priority health products in sub-Saharan Africa?

The landscape is largely focused on identifying innovative companies working to improve the movement of health products from the port to the consumer. Thus, the work focuses above the retailer and does not provide specific insights on franchises, chains, drug shops, etc.

**Why now?** Across the industry, stakeholders are unsure what innovations are emerging, how to think about the promise of these companies, and how to engage (if at all).

As a part of a broader effort to strengthen supply chains, this work supports the Gates Foundation Supply Chain team’s strategic pillars on 1) Strengthening the Supply Chain Market, with a focus on Retail Supply Chains and 2) Cultivating Disruptive Transformation.
Landscaping surfaced 30 relevant companies focused largely in Kenya, Nigeria, Ghana and South Africa

Internet search and snowballing surfaced companies in Kenya, Nigeria, Ghana and S Africa (limited scope) working on innovations in health product distribution. Specific additions were made outside the geographic scope constraints, and to look in a limited fashion at innovations in device and transport.

10 companies excluded on the basis of alignment to scope:
- Primarily incumbent distributors, not innovators
- Using some innovating methods but core business is service delivery (BIMA, Jinlet Pharmacy, Halton’s Pharmacy, Dovey Pharmacy, Med World Pharmacy, BookADoc)

12 companies excluded due to:
- Lack of response to request for interview (Doctor4Africa, Counter Fighters, mDaktari, AddPharma, PharmacyDirect Kenya, Siha Digital Health, AddPharma, Info tech Dot Net Systems Ltd)
- Refusal to participate (ePharmacy)
- Business had recently shut down (Pharmnet, SwiftMedicals, eMedrep)

6 companies excluded due to lack of alignment with scope after interview was completed
- Using new methods as a very small part of business model (Uthabiti, Talamus Health, Rx 3.0, Mobimed)
- Innovation is focused on simple product delivery (Malibu Pharmacy, The Medical Concierge Group)

Leadership of 30 innovator companies interviewed in multiple rounds in-person and via phone to understand business model, scale and scope, growth strategy, challenges, investors and more
Findings are shaped by nearly 50 key informants including innovators, INGOs, industry leaders, investors and thought-leaders

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<tr>
<th>Companies</th>
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<tr>
<td>Chibuzo Opera - Drugstoc</td>
<td>Michael Moreland - Shelflife</td>
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<td>Abdulraheem Malik - Findmydrugs</td>
<td>Noah Pennin - VIA Global Health</td>
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<td>Ralph Olaniyi - GenRx</td>
<td>Ikpeeme Neto - Wellahealth</td>
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<td>Vivian Nwakah - Medsaf</td>
<td>Ashifi Gogo - Sproxil</td>
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<td>Abimbola Adebakin - Mymedicines.com</td>
<td>Bright Simmons - mPedigree</td>
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<td>Sophia Baah - mPharma</td>
<td>Nakul Pasricha - PharmaSecure</td>
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<td>Pius Alabi - RxAll</td>
<td>Hayford Brako - MedRx</td>
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<td>Felix Akuamoah - Medbay</td>
<td>George Franklin – AfyaPap</td>
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<th>Industry stakeholders</th>
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<tr>
<td>Julie Jenson - Pfizer</td>
<td>Harald Nusser - Novartis</td>
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<td>Jo Tierans, Jill Lavitsky - J&amp;J</td>
<td>Kedar Madhekar – Mylan</td>
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<th>Relevant INGOs</th>
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<tr>
<td>Neel Lakhani - CHAI</td>
<td>Calum McGregor - WFP</td>
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<td>Carolyn Hart - JSI</td>
<td>Renee Berger - GHSC</td>
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<th>Investors, academics, thought leaders, other</th>
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<td>Andreas Seiter - World Bank</td>
<td>Frank Wafula - Hecta</td>
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<td>Biju Mohandas - IFC</td>
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Process

Key findings

Selected company summaries
THE PROBLEM | Health product distribution is complex and suffers from many challenges that affect visibility, price, availability and quality

Supply chains vary considerably from one country to another; this is a simplified depiction.

In some contexts, the faith-based sector also play a large role in product distribution which adds another channel. Not all countries have open markets.

In many contexts, availability and quality in the public sector is limited and consumers turn to private sector providers. Private providers (and thus private supply chains) can be dominant sources of care.

Public, private and NGO channels are inextricably linked at multiple points where products pass between them.

In the private sector mark-ups at every level exist, often times in spite of regulation that attempts to control for it. The costs to the end consumer can be exorbitantly high.

The flow of information in an end-to-end fashion is very limited. In some major urban areas sales by wholesalers are aggregated by IQVIA, but understanding flow into rural areas or down to the retail level is extremely limited.

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1. Framework is the authors adaptation based on Yadav P (2015) Health Product Supply Chain in Developing Countries: Diagnosis of the Root Causes of Underperformance and An Agent-Based Reform, Health Systems & Reform, 1:2, 142–154. DOI: 10.4161/23288604.2014.98005
As an example, distribution of emergency contraception in the private sector is convoluted; opportunities for markups are rampant and visibility is limited.

**Pure private channel**

EC (Levonorgestrel 1.5 mg) might move from manufacturers to manufacturers subsidiaries or importers/wholesalers. The product is then sold to distributors, who may sell onward to sub-wholesalers, or sell to private and NGO retailers directly. Markups along the chain vary widely, but can result in retail prices that are 10X the 1st line buyers cost and 50X the ex-manufacturers cost. There is no end-to-end visibility on the product movement.

**Social marketing channel**

A social marketer (SMO) often offers a complementary distribution channel for subsidized EC. Through this channel, the SMO procures the product, imports to their national warehouses, moves product to regional warehouses and onward to local private sector distributors. Markups can occur at several points between these distributors and the end consumer.

SMOs also distribute subsidized product to local NGOs and private retail clinics who sell to their customers. Markups may occur between these providers and the end consumer.

Regardless of the channel, the SMO will have regular data on the volume of products they sell to distributors or retailers. However, we do not have regular visibility into the movement of product onward to other providers, or to consumers.
THE OPPORTUNITY | Is it possible that companies innovating in product distribution offer asset-light opportunities to drive consolidated improvements across the markets for basic care?

Put another way, can we improve quality, cost, geographic reach and availability in new ways, moving beyond downstream investments in chains, social marketing, etc.?

**The answer is not yet clear.** However, we did uncover some surprises about the way companies are evolving that may point to future opportunities.

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<thead>
<tr>
<th>In-going hypotheses</th>
<th>Finding</th>
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<tr>
<td>Companies are decreasing mark-ups along the supply chain</td>
<td>TRUE. Most companies are attempting to disrupt current supply mechanisms through disintermediation to offer their customers lower prices.</td>
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<td>Companies are generating new opportunities for supply chain visibility</td>
<td>TRUE, IN ADDITION, companies are also generating novel relationships with consumers to understand directly their use of products &amp; influence their behavior.</td>
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<td>Companies are primarily serving high-end private sector providers</td>
<td>FALSE. The breadth of providers served by these companies is greater than anticipated; they are serving hospitals, clinics, retail pharmacies and 2nd tier drug shops with new supplier models.</td>
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<td>Companies are primarily serving wealthier consumers</td>
<td>TRUE, IN ADDITION, insurers who stand to benefit from cost-savings are increasingly engaging with companies.</td>
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<td>Companies are primarily operating in urban areas</td>
<td>TRUE, IN ADDITION, a few companies are serving rural pharmacies and 2nd tier drug shops. Direct-to-consumer offerings are evolving to bring rural consumers high-cost chronic medications.</td>
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**KEY FINDING** | Innovations in product distribution are emerging across many SSA geographies

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<thead>
<tr>
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<th>S. AFRICA</th>
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<tr>
<td>mClinica</td>
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</table>
KEY FINDING | As expected, most companies are new and very small

D2C pioneers, originally grant-financed

Mature consumer loyalty & mass authentication companies

Largely self-financed start-ups

~6 years +

~1 year

Nascent/Pilot

National scale in multiple countries
KEY FINDING | Companies see high-markups along private supply chains as an opportunity for disruption

- Disintermediation and data-driven business practices are fueling innovators who believe they can deliver high-volume, low-margin services.

- Most companies promise direct cost savings and reductions in transaction costs to their customers, whether their customers are payers, providers or consumers.

- In addition to direct cost savings, companies are reducing the variability in the costs of health products for their customers.

- Companies’ ability to scale may depend on the magnitude of cost savings they can sustainably deliver to their customers. Expanding into rural areas may dilute cost-savings due to transport, logistics.

- In addition to consumers who pay out-of-pocket for health products, insurers may be highly incentivized to engage these companies to benefit from the cost savings.

"Your margin ….. is my opportunity"
Illustrative examples of how companies are disrupting distribution with lower prices

- MedSource: Aggregating orders and offering providers 8-30% off market prices plus affordable credit and quality assurance.

- NUMI: Offering providers products at cost (≥30% off market prices) paired with superior customer-service.

- MYDAWA: Generics manufacturer goes direct-to-consumer, offering consumers ~15-20% off market prices including delivery.

- Reverse-price auction offers consumers ~30% off market prices with the option for delivery.

- A marketplace for affordable, same day delivery from district to rural areas through aggregated order and route optimization.
KEY FINDING | Across the board companies are offering unprecedented visibility into movement of products to facilities & pharmacies. In some cases the visibility extends to consumers as well.

- All companies are establishing novel digital relationships with their customers to facilitate services and improve their offering
- Relationships with providers offer new visibility into the movement of health products, often down to the level of the fragmented, disconnected, poorly regulated retail pharmacies or 2nd tier drug shops
- Relationships with consumers provide information on their demographics, location, purchasing behavior, product use and more. These data and relationships can be used to nudge consumers, solicit input, push discounts, and more

- If history serves a guide, provider and consumer-level data are likely to be highly valuable to manufacturers. Many companies see a future revenue stream in selling data directly to them.
- In North America, granular "de-identified" data are collected at scale primarily to serve sales force targeting and marketing purposes. Use in public health planning or practice is mostly an afterthought. Could the health policy use cases for such data in newly digitizing markets be prioritized strongly early on?
Companies are offering 6 categories of services as solutions to critical distribution challenges

**Consumer-facing companies** are offering services in these categories

1. Consumer Information
   - Offering the consumer info on location, price and authenticity of products they desire

2. Direct-to-Consumer Distribution
   - Controlling the movement of product down to the moment of dispensation to the consumer

3. Stock Financing & Ownership
   - Providing credit, the pay-as-you-dispense financing, brokering payments

4. Inventory Management
   - Provision of inventory management services

5. Marketplace & Fulfillment
   - Creation of digital marketplaces to connect providers to suppliers

6. Group Purchasing
   - Aggregation of orders across disparate providers and negotiating volume-based discounts

**Provider-facing companies** are offering services in these categories

Distribution challenges addressed...

- Consumers lack information on product availability, quality or price which results in potentially high transaction costs, high prices and use of substandard or falsified medication.
- Consumers have limited options for conveniently accessing products, potentially resulting in higher prices and transaction costs.
- Providers have limited working capital to purchase quality products at the right time.
- Providers can only access credit at some suppliers (if at all).
- Providers use manual inventory management systems potentially resulting in stock outs, soon-to-be-expiring stock and overstock which can influence dispensing behavior.
- Providers cannot see across multiple suppliers to easily access the lowest price for their desired products. The transaction costs involved in resupply can be high, and prices and quality can be variable.
- Providers work in isolation and have small orders. They cannot negotiate volume-based discounts to reduce costs. Variability in prices can be high.
Companies are serving their customers in a variety of ways across all 6 categories. As expected with innovators, the companies will evolve rapidly.
Companies’ projected impacts on target consumers were evaluated on 7 measures and by scale

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**IMPACT RATINGS**
- Likely impact
- Potential / marginal impact
- Likely no impact

**SCALE RATINGS**
- Operating in multiple countries approaching national scale
- Operating in key cities or districts in one country
- Nascent or pilot stage
- Pre-launch
Companies offering consumers information hold valuable digital relationships that can be leveraged to understand product movement and nudge consumer behavior

What are “mass authentication” companies?

These companies launched ~10 years ago aiming to prevent use of falsified products using smart labels for medications that could be placed or printed on the product boxes at the manufacturer. These labels could be authenticated by the consumer at the point of purchase to confirm the product wasn’t counterfeit. In some countries (Nigeria, India) regulations were crafted to ensure authentication for some essential health products was included on all packaging.

The three major companies have now branched into authentication of products for a wide range of industries including agri-inputs, cosmetics, FMCG and more and collectively have authenticated over 5 billion transactions with over 100M users. Today the authentication products are largely embedded into marketing campaigns, so that manufacturers can ensure their advertising efforts expand their market share, not the market share of genuine and counterfeit products. The authentication data has now become large enough that each company has added new service offerings/monetization streams.

- PharmaSecure, Sproxil and mPedigree are operating at the largest scale of any companies found, offering manufacturers a marketing service that embeds quality verification into the campaigns, encouraging consumers to report when and where they’ve purchased health products. Mass authentication companies have the potential to generate visibility into product movement, from the manufacturer down to the point of consumer authentication. Note that this requires several actors in the supply chain to adopt the process.

- The consumer relationship allows organizations to understand where and who authenticates the product, and can be used to nudge adherence and follow-up.

- Existing mass authentication services do not provide insight into potential degradation of products as they move down the supply chain. In reaction, companies are developing ways for providers and consumers to test and signal for potential product degradation (mPedigree, RxAll).

- These companies do not appear to be offering provider-facing services, such as allowing providers to scan products and see drug interaction warnings, verify quality, etc.

- Commodity locators were operating at small scale, and did not yet provide a clear or compelling set of impacts.
Commercial D2C distribution models are evolving to serve some consumers. Companies may extend their rural reach through hybrid models that supplement & improve care by existing rural actors.

- We define “D2C distribution” companies as organizations that control the movement of product down to the moment of dispensation to the consumer.

- Almost all companies in this category appear to increase the availability of health products. Grant-funded organizations are controlling for quality of products in a rigorous way, as are some commercial entities who are focused on building for scale (MYDAWA, DawaPlus, AfyaPap). Quality of dispensation is being managed by directly employing staff to handle dispensation or via telepharmacy.

- All models are decreasing transaction costs for consumers, and some are able to reduce product prices as well. Companies promise reductions ranging from 10-75% than the best prices regularly available to their customers.

- As expected, with donor financing Living Goods, Healthy Entrepreneurs, Kasha and Right ePharmacy can reach customers directly in rural areas with health products, offering high-quality care.

- Commercial D2C distribution models are naturally emerging to serve two main consumer groups:
  - Urban consumers who care about convenience for wellness products (MYDAWA, DawaPap)
  - Rural consumers who need regular access to high-cost, hard-to-source products for chronic diseases (AfyaPap, MYDAWA)

- Expansion by commercial entities into rural areas is emerging, but not through a strict D2C distribution model. MYDAWA, DawaPlus, GoPharma all leverage existing rural providers, tapping into their assets, customers and reputation and improving their quality, while reducing costs.

- LiviaDawa uniquely delivers consumers lower prices and convenience through reverse-price auctions, which skips the need for intervention at higher levels in the supply chain. The savings they can offer are quite high, which is attractive enough for private insurers to sign on.
Provider-facing companies improve availability, reduce product costs to providers, and generate novel insights into product movement

- All companies in this category appear to increase the availability of health products.
- All companies are reducing the cost of health products to providers; the amount varies by product category and by volume, with companies quoting reductions in cost ranging from 7.8% - 33% lower than the best prices regularly available to their customers. Most are betting they can reduce the mark-ups along the supply chain through disintermediation and offer high-volume, low-margin services. It is not clear that these reduction in costs filter down to the prices offered to consumers.
- In addition to direct cost savings, companies are decreasing the variability in health product pricing.
- Some are also competing on exceptional customer service, to decrease the significant transaction costs providers face in resupply and improve operating efficiency.
- Most are still small companies are relying on government certification and reputation as indicators of quality for the medication sources. Companies struggle to batch test or control for quality through the supply chain. There is no perceived incentive or demand for more testing.
- Companies are not focused on directly supporting quality dispensation, though better supply may indirectly improve dispensing behavior.
- Most companies seem to have the potential to reach rural providers with some level of service, and some companies have made this their explicit focus.
- All companies provide novel visibility into the flow of product to hospitals, clinics, pharmacies and even 2nd tier drug shops they serve. Through these systems, one can track the movement of product to these providers and sales behavior, and from this, intuit client demand. The value of this visibility is high for both manufacturers and for public health purposes.
- The data generated is important to manufacturers and 3rd party payers. Relationships with public and private insurers and manufacturers are developing.
There are likely 4 opportunities to engage innovators in efforts to increase coverage of priority health products

1. Provider-facing innovations in supply

2. D2C distribution

3. Visibility into product movement & consumer behavior

4. Consumer Information

**DESIGN QUESTION**

- Is there an opportunity to leverage consumer relationships to increase adherence, support follow-up, improve demand-generation, forecasting, etc.?

- Can we leverage D2C companies for wider distribution of priority products to target consumers, by studying the unit economics of rural expansion and/or nudging it?

- Can we leverage innovative supply models for wider distribution of priority products with increased visibility?

- Can the enhanced visibility of product movement arising from new distribution models inform efforts in overall health system strengthening?

**RELEVANT PRODUCTS**

- EC, OCPs, DMPA-SC, malaria RDTs, ACTs, ORS/zinc, HIVST, HIV, TB, pregnancy tests, other

- EC, OCPs, DMPA-SC, malaria RDTs, ACTs HIVST, ORS/zinc, nutritional products, 1st line TB, other

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- ALL

**ILLUSTRATIVE ORGANIZATIONS**

- MYDAWA, Kasha, LiviaDawa, AfyaPep, Sproxil, PharmaSecure, mPedigree

- MYDAWA, Healthy Entrepreneurs, LiviaDawa, Kasha, GoPharma

- NUMI, DrugStoc, shelf life, MaishaMeds, mClinica, mPharma

- Manufacturers, Donors, Governments, Insurers

**NOTE:** This is a landscape, not a strategy. Early thinking only. These need to be assessed.
Are there shared services that might benefit all innovators, by creating more effective operating environments?

- We asked innovator companies if a high-quality, low-cost services in 3 categories existed, whether they would consider a partnership.
- There wasn’t a clear response in favor of any of the categories, though investments in pure play logistics companies that can offer services in rural areas generated interest among companies that are already considering rural expansion.

### Pure play logistics
- “There are solutions available here, but everyone is looking for better, cheaper options”
- Only those interested in going rural cite the lack of affordable 3rd party logistics as critical barriers.

### Advanced analytics for inventory management
- “The needs of a retail pharmacy are very simple; advanced analytics are not required.”
- “Providers don’t necessarily feel the need to change to a better system and unlikely to pay for it.”
- “This is core to our business – we wouldn’t outsource”

### 3rd party quality assurance
- Many are depending solely on government quality assurance, or working only with suppliers they ‘know’ are high quality. Customers aren’t demanding anything further.
- Batch testing appears prohibitively expensive and does not offer full-assurance.
- Grant-financed companies were more likely to cite quality assurance as a constraint.

Though customers are not actively demanding quality assurance, it remains critical to ensuring effective coverage. Conventional interventions include investing to strengthen regulation and enforcement, improving procurement in the government channel and increasing demand for quality products through SMOs, branding & public health messaging.

For consideration: Is there an asset-light approach to strengthening quality assurance?

Companies suggested several other “global public goods” that might support the development of the market
- Advocacy to help governments understand how they might engage the private sector
- Advocacy to investors to help understand markets, companies and opportunities
- Create an up-to-date list of registered product within priority countries
Thank you

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Process

Key findings

Selected company summaries
Included in the appendix are high-level descriptions of many of the companies surfaced in the landscape

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**POTENTIAL IMPACT RATINGS**

- Likely impact
- Potential / marginal impact
- Likely no current impact
First digitally enabled platform in Nigeria for pharmaceuticals, DrugStoc provides group purchasing to hospitals & offers a marketplace for health products to retail pharmacies

**VALUE PROPOSITION**

DrugStoc is a digitally enabled service platform that offers:

1. Group purchasing for over many hospitals in Lagos
2. Marketplace for retail pharmacies that offers quality control, reduction in counterfeiting

**SCALE**

- Launched in 2015
- > 1,000 products including OTC, generic and branded products, nutritional, supplements, consumables
- Large number of pharmacies and hospitals
- Pace of growth is moderate, and is focused in Nigerian cities

**REVENUE & CAPITAL INVESTMENT**

**Revenue** is based on sales commissions and drug distribution markup. Cost drivers for growth are warehouse operational costs, distribution costs, quality control and human resources.

**Investors** are a mix of private investment from founders and grant/social investment.

**COUNTRIES** | Nigeria (Lagos, Ogun)

**POTENTIAL AREAS OF IMPACT**

- Availability
- Quality of health products
- Quality of dispensation
- Cost to provider
- Cost to consumer
- Customer convenience
- Rural reach

**CATEGORIES OF INTERVENTION**

- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
Medsaf’s digital platform connects hospital and retail pharmacies to high quality Tier 1, 2 and 3 medications

VALUE PROPOSITION
Medsaf connects Tier 1, 2\textsuperscript{nd} and 3\textsuperscript{rd} tier manufacturers worldwide to both hospital and retail pharmacists. MEDSAF sources from manufacturers with a preference for US, Europe, Israel, Turkey, Egypt, Morocco and Nigeria. The digital platform that streamlines inventory management, ordering, procurement and delivery.

Medsaf aims to improve product quality by cutting down purchase to the open drug markets, and reduce costs through volume-based negotiations and through improved inventory management processes. It has recently introduced testing and pharmacovigilance work.

SCALE
- Launched in 2017
- Currently working with 400 active pharmacies

REVENUE & CAPITAL INVESTMENT
- Revenue is generated from subscription payments and profit margins on medications
- Investment has been from friends and family, and some VC financing

COUNTRIES | Nigeria (Lagos)

POTENTIAL AREAS OF IMPACT

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CATEGORIES OF INTERVENTION
- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
mClinica is a social network for pharmacists offering CME, jobs, chat boards, interfaces with regulators and associations, and a new health product marketplace.

**VALUE PROPOSITION**
mClinica’s core offering, SwipeRx, is social network for pharmacy professionals offering continuing medical education, jobs, chat boards, interfaces for regulators and trade associations.

mClinica also connects pharmacy professionals on its network to distributors and wholesalers as a marketplace for health products. Through the marketplace mClinica matches pharmacies orders to partner suppliers, creating order bundles that ensure the pharmacists receive the lowest costs on products they desire. The marketplace extends pharmacy customers credit to allow for the purchase product from any supplier on the platform regardless of a previous relationship or credit history.

**SCALE**
- Launched SwipeRx in 2017, currently works with 1 out of every 3 pharmacists in Indonesia, 1 in every 2 in the Philippines, and 1 in every 4 in Vietnam.
- Health product marketplace was launched in Jakarta in July and covers 1,300 of fastest moving products.

**REVENUE & CAPITAL INVESTMENT**
Revenue is generated from other product lines: white-labeling consumer loyalty software, market research among pharmacist members, digitizing prescription data for government regulators, more. mClinica has received >$6.3M in investment from Patamar Capital, Global Innovation Fund, MDI Ventures of Indonesia, Endeavor Catalyst, 500 Startups, IMJ Investment Partners, Kickstart Ventures.

**COUNTRIES**
Vietnam, Thailand, Philippines, Indonesia, Malaysia, Cambodia

**POTENTIAL AREAS OF IMPACT**
- Availability
- Quality of health products
- Quality of dispensation
- Cost to provider
- Cost to consumer
- Customer convenience
- Rural reach

**CATEGORIES OF INTERVENTION**
- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information

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mPharma primarily offers group purchasing and full inventory management for hospitals & pharmacies with secondary offerings as Pharmacy Benefit Manager and in chronic D2C care

**VALUE PROPOSITION**
mPharma primarily offers group purchasing and full inventory management for hospitals and pharmacies. Hospitals pay on what is dispensed which reduces risk, in addition to providing access to health products at or below market prices. Medium sized clinics and community pharmacies see price reductions of up to 30%.

They also act as a PBM for corporates and insurers, largely focused on patients with chronic conditions, and offer D2C services for select chronic drugs paired with an electronic financing service (Mutti) package. Also developing their own retail pharmacy brand through QualityRx brand, in which they co-manage operations of community pharmacies to create a standard customer experience.

**SCALE**
- Founded in 2014, launched in Nigeria in 2017
- 188 providers across the continent (~50 in Nigeria), serving ~15,000 patients per month
- Work with one private Nigerian insurer (Hygiea) on the design of their benefit package for chronic medications

**REVENUE & CAPITAL INVESTMENT**
Revenues are currently generated from product mark-ups. Investors include $5m in seed funding, $6.6m Series A (Nov 2017) round that included Shravin Bharti Mittal (Airtel), Social Capital, Golden Palm Investments, 4DX Ventures, Jim Breyer, and several family office investors from Senegal, Kenya, and Turkey. They have also received an undisclosed amount of grant and loan financing.
MedSource is a member-driven marketplace for health products, that offers enhanced quality controls and stock financing solutions

VALUE PROPOSITION
Private, for-profit, member-driven company that facilitates ordering by licensed pharmacies, clinics and hospitals by connecting them to manufacturers and key agents with whom they have negotiated volume-based discounts, and provides its members stock financing solutions.

It allows for more efficient purchasing by: negotiating best prices; providing price transparency “to the last mile”; providing credit guarantee to retailers (up to 80%); and providing data visibility to distributors/manufacturers. The platform does not control delivery; providers select their own distributors or can select a MedSource partner.

SCALE
• Launched in 2018
• > 3,500 health products, plus devices
• Working with 90 facilities, 24 of which are hospitals

REVENUE & CAPITAL INVESTMENT
Revenue is derived from contract administration fees from distributors and manufacturers and small membership fees. Management Sciences for Health invested in the company. In 2019, aim to raise a financing to support expansion.
MedRx supports supply for retailers through inventory management and transparent pricing and offers a D2C service

VALUE PROPOSITION
MedRx offers
1. Group purchasing where retailers place orders and suppliers bid to fulfill the requests. Prices are set every 3-6 months and are ~15% below market rates.
2. Inventory Management through IT application that handles stocking and reordering and uses predictive analytics to support “automated requisitions”.
3. Direct-to-Consumer through a mobile app that allows customers to find health products & refill prescriptions.

SCALE
- Launched in 2015
- Serves 300 retail pharmacies, with over 3,000 transactions daily
- Serves over 10,000 customers in D2C model

REVENUE & CAPITAL INVESTMENT
Revenue derived from a undisclosed sign-on fee that retail pharmacies, wholesalers/importers pay as well as a small transaction fee. Investment to date has been grants and private equity. Member of the Merck Accelerator ($15K), winner of the MTN Entrepreneurship challenge ($25K) and winner of the GAIN Pitch Competition at the British Council.

COUNTRIES | Ghana (greater Accra, W. Region, E. Region, Central and Ashante)

POTENTIAL AREAS OF IMPACT
- Availability
- Quality of health products
- Quality of dispensation
- Cost to provider
- Cost to consumer
- Customer convenience
- Rural reach

CATEGORIES OF INTERVENTION
- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
NUMI offers pharmacies in poor urban areas access to high-quality, low-cost, customer-service oriented supplier services

VALUE PROPOSITION
NUMI offers customer-first supplier services to cash-based pharmacies in poorer urban areas. They provide low-cost ordering and fulfillment to 250 of the fastest moving products, including products for health, wellness and beauty.

The NUMI supply experience aspires to offer seamless and delightful experiences for their pharmacist customers through digital ordering, guaranteed delivery, high attention to customer care and user experience. NUMI negotiated volume-based discounts with key agents and manufacturers and passes along savings directly to their customers. Delivery is currently made through partnership with Sendy, who can integrate with NUMI’s backend.

SCALE
• Launched in 2018
• Working with 20 pharmacies outside core of Nairobi’s central business district

REVENUE & CAPITAL INVESTMENT  Not disclosed publicly.
Logistmo’s Tusker offers a marketplace for affordable, same day health product delivery from districts to surround rural areas through aggregated orders and route optimization.

VALUE PROPOSITION
Tusker has developed a marketplace to facilitate low-cost delivery of health products to rural areas. Tusker aggregates orders for health products, combining them with orders for textiles, furniture, more.

The software system optimizes the truck loads and routes, auctions the delivery order to Tusker drivers who are managed to ensure quality. Deliveries can be fulfilled same day. The ability to restock more easily has changed the stocking behavior of the pharmacists – not waiting for categories of drugs to stock out and broadening the range of stocks that they carry.

SCALE
- Launched in 2014
- Currently handles 1,400 orders per week
- Growing 10-12% month over month, 3-4x annually

REVENUE & CAPITAL INVESTMENT
Revenues are generated from the difference in prices paid to drivers and prices paid to Tusker for delivery. $1.7M has been invested, mostly through grant financing.

COUNTRIES | India

POTENTIAL AREAS OF IMPACT

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CATEGORIES OF INTERVENTION

- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
Via Global Health connects global device manufacturers to in-country distributors by providing visibility and clarity around pricing.

VALUE PROPOSITION
VIA Global Health is an intermediary between global device manufacturers and in-country distributors. VIA helps manufacturers enter hard-to-reach markets, and helps distributors who have a difficult time getting a response from manufacturers. VIA has automated the quote process (including shipping) and suggests standard volume purchasing. This creates visibility and transparency in pricing thereby breaking down the information asymmetry and allows for comparison pricing between products. VIA Global Health also de-risks shipping and payment.

SCALE
• Launched in 2015
• Working 27 countries with over 300 distributors.
• While the total volumes are still small, with only dozens of transactions per month, growth is high.
• Largest markets by volume are Ghana, India. Largest markets by value are India and Zambia.

REVENUE & CAPITAL INVESTMENT
Revenues are derived from a percentage of each sale and advisory services on market entry, contract with USAID and private sector partners for data. Have received $375,000 in outside investments from the 500 Start Ups Accelerator and other entities.
MaishaMeds offers small, rural pharmacies inventory management and is launching stock financing

VALUE PROPOSITION
Maisha Meds works with rural pharmacies and clinics an Android based application to manage sales and inventory and source quality medication. The platform works online and offline and provides automated demand forecasting and the ability to order directly from up to 6 high quality suppliers at discounts of up to 15% off listed prices with 30 days of trade credit offered to prequalified facilities. Maisha Meds works with a high quality supplier to ensure the quality of low cost generics and delivers anywhere in Kenya in 24 hours. Maisha Meds also leverages this platform for data driven market access and reimbursement for essential health products by pharma companies, global health funders, and NHIF. This platform enables mobile money based discounts at pharmacies and clinics, tracking products through the supply chain to specific patients and ensuring prequalified patients receive discounts of up to 75% on essential products.

SCALE
• Launched in 2015
• >5,000 products on marketplace with an emphasis on essential health products
• 200 pharmacies and clinics serving 80,000 customers $200k transactions through POS system per month, additional pilot ongoing in government facilities

REVENUE & CAPITAL INVESTMENT
Revenues currently generated from sale of medication to pharmacies and government and development of market access programs for global health funders and pharma companies. Future revenues will be generated through scaling this technology and insight and analytics sales. Investment has been primarily grant financing to date (around $400k) - currently raising seed round of convertible debt financing.

COUNTRIES | Kenya, Nigeria, Tanzania, Ghana

POTENTIAL AREAS OF IMPACT
- Availability
- Quality of health products
- Quality of dispensation
- Cost to provider
- Cost to consumer
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CATEGORIES OF INTERVENTION
- Group purchasing
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- Consumer Information
shelf life is the first organization to offer full service inventory management at the level of community pharmacies, allowing pharmacies to sell on consignment.

**VALUE PROPOSITION**
shelf life provides community pharmacies with full inventory management on a subset of their fastest moving products. shelf life drivers go to the pharmacy customers to manage stocking, forecasting, reordering on behalf of the pharmacists. Pharmacies pay for stock only once the products sell. This approach removes the risk for the pharmacy of stocking, expiry, and re-allocation. shelf life’s set monthly pricing on products also protects pharmacies from the unpredictability (volatility and seasonality) of commodity pricing.

**SCALE**
- Launched in 2016
- 50 community pharmacies in Abuja and neighboring states
- Exploring expansion into Kenya

**REVENUE & CAPITAL INVESTMENT** shelf life’s revenues are derived from subscription fees from pharmacies and sale of products. shelf life estimates that 90% of their pharmacies pay on time. Currently self financed. Small exploratory grant from Gates to explore expansion in Kenya.

**COUNTRIES** | Nigeria (Abuja), Kenya

**POTENTIAL AREAS OF IMPACT**
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**CATEGORIES OF INTERVENTION**
- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
MedBay provides a digital marketplace to sell slow moving stock or soon to expire drugs

**VALUE PROPOSITION**
MedBay helps pharmacies to help manage soon to expire stock. The approach doesn't undertake any disintermediation or physically move stock, rather it sets up a digitally enabled marketplace for pharmacies to move near expiry or slow-moving products. Its goal is 60-70% prevention of drug expiry.

**SCALE**
- Launched in 2018
- Nascent stage

**REVENUE & CAPITAL INVESTMENT**
Revenue is from transactional fee between retail facilities which is usually between 8-10%. Investment is through private equity.

**COUNTRIES**
Ghana (Accra)

**POTENTIAL AREAS OF IMPACT**
- Availability
- Quality of health products
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**CATEGORIES OF INTERVENTION**
- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
GenRx is an online inventory management software which detects drug interactions and overdose of medication for the client

VALUE PROPOSITION
GenRx intervenes directly at the level of the retail pharmacy. The digital application is paired with other applications to support quality dispensation through low-cost inventory management application for hospital pharmacies and community pharmacies. Pharmaceutical care and clinical features (patient medication history and drug, drug interactions, expiry data auto-detection, drug overdoes auto-detection, drug interactions auto-detection) embedded within the inventory management software.

SCALE
- Launched in 2014
- Working with 100 pharmacies in urban areas of Lagos, Oyo, Ogun, Osun, Kwara, Rivers, Enugu, Kano, Plateau

REVENUE & CAPITAL INVESTMENT
Revenue is based on subscription fees of, hosting and customization. Costs to providers are very low. Value of products sold on the platform is ~$250,000 a month. Current investment sources are unknown.

COUNTRIES | Nigeria

POTENTIAL AREAS OF IMPACT
- Availability
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CATEGORIES OF INTERVENTION
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- Direct to Consumer Distribution
- Consumer Information

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GoPharma leverages tele-pharmacy to connect 2nd tier pharmacies to full pharmacies to extend access to underserved & rural communities

VALUE PROPOSITION
GoPharma is a tele-pharmacy innovation that connects trained pharmacists in urban areas with licensed 2nd tier pharmacies in rural areas whose scope of practice is more limited.

Groups of 2nd tier pharmacies are paired with a fully licensed pharmacy that can offer telepharmacy support and sends prescription medication that is not licensed for sale in the rural, 2nd tier shop.

SCALE
• Launched pilot in 2016
• 6 chemical shops, 10 pharmacies and 1 herbal shop
• Served 300 - 500 clients

REVENUE & CAPITAL INVESTMENT
Revenues are derived from out of pocket payments from customers, ranging from about 7-10% per transaction. 7% goes to GoPharma, 1% to the 2nd tier pharmacy, 2% to the pharmacy. Original investment sources are unknown, though they’re currently looking for mix of grant and equity financing.

COUNTRIES | Ghana

POTENTIAL AREAS OF IMPACT
- Availability
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CATEGORIES OF INTERVENTION
- Group purchasing
- Marketplace & Fulfillment
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- Direct to Consumer Distribution
- Consumer Information
Healthy Entrepreneurs engages existing rural community health workers in a sustainable business by providing them access to tightly-controlled supply of low-cost, high-quality branded generics.

**VALUE PROPOSITION**
Healthy Entrepreneurs engages existing rural community health workers in a sustainable business by providing them access to low-cost, high-quality branded generics. The business is driven by a tightly-controlled supply chain that reduces mark-ups and allows the Entrepreneurs to sell high-quality products at lower cost than what is currently available in rural areas, and retain a margin on each sale. The savings generated also fund Healthy Entrepreneurs' lean management model. Entrepreneurs use low-cost tablets to provide accurate and accessible information to their customers about a wide range of health related topics (including access to medical experts for prescription support), to manage their business and reordering, and provide Healthy Entrepreneurs, their funders and the governments real-time visibility into the flow of information, services and products in rural areas.

**SCALE**
- Founded in 2012
- 2,750 active Entrepreneurs, 90% of whom have repaid initial loans for product in their first two years

**REVENUE & CAPITAL INVESTMENT** Operating on a high-volume, low-margin basis, revenue is derived from the sale of Healthy Entrepreneurs products, which finance the Entrepreneurs’ income and the 25 in-country network management staff salaries. Original investment came from small grants from several development partners, they have now developed a pathway to sustainability and are raising funds to reach the scale required to break-even which they project can occur in 36 months.

**COUNTRIES**
Uganda, Kenya, Tanzania, Ghana, DRC

**POTENTIAL AREAS OF IMPACT**
- Availability
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**CATEGORIES OF INTERVENTION**
- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
Kasha is an accessible ecommerce company offering poorer women direct access to low-cost, high-quality health and personal products

**VALUE PROPOSITION**
Accessible ecommerce platform focused on women’s health and personal care, accessible via feature phones. Leveraging their accessible platform, Kasha’s platform allows customers to purchase products and facilitates the confidential delivery of these products to direct-to-consumer (urban only), through pick-up points or via agents. Movement of product is facilitated by 3rd parties in Kenya. For some products (personal care) Kasha works directly with manufacturers or key suppliers, for others Kasha sources from trusted pharmacies in local areas. Kasha provides manufacturers a channel to reach lower-income women, and market insights on these untapped consumers. For some priority products (e.g. HIVST) Kasha distributes for free on behalf of the Rwandan government.

**SCALE**
- Founded in 2016, launched in Kenya in 2018
- 60,000 products delivered D2C to date

**REVENUE & CAPITAL INVESTMENT**
60% of revenues are driven by B2B relationships with manufacturers (Unilever, J&J) for whom they provide market insights and a channel. Have received $1.04M in investment in a seed round from Partner’s Group Impact, Sorenson Impact Fund, East Africa Investments, The Case for Her, Sunu Capital, Beyond Capital, & $450K in grant financing from Unilever, UKAID and the Gates Foundation. In process of raising a Seed+ round of $750k-$1M.

**COUNTRIES**
- Kenya, Rwanda

**POTENTIAL AREAS OF IMPACT**
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**CATEGORIES OF INTERVENTION**
- Group purchasing
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- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
MYDAWA, a D2C model, offers quality controls along the entire supply chain from the manufacturer to the consumer and significant price reductions.

VALUE PROPOSITION
MYDAWA is the first licensed e-retailing pharmacy in Kenya which controls the entire supply chain, down to delivery to the patient. Platform carries prescription, OTC, wellness, cosmetic and self-test products, including a number of generics for Rx, OTC and food supplement products contract manufactured under their own brand, for a total of 5,000 products available on the platform. MYDAWA delivers to locations of the customers choice, using qualified Pharmtechs who are backed by a call centre. MYDAWA boasts an impressive system for product tracking and packaging, to ensure quality from point of origin to dispensation. For MYDAWA branded products, control of distribution from manufacturer to patient reduces costs significantly. Pricing to consumers for entire basket of products is 15-20% below current market prices. MYDAWA is starting work in rural areas for high-cost, chronic medications that don’t require immediate delivery. These products are delivered direct to pharmacist, and pharmacist takes a proportion of the cost of the sale.

SCALE
- Launched in 2017
- 5,000 products on the platform
- 50,000 registered on the app, with ~2,500 customers having completed a transaction

REVENUE & CAPITAL INVESTMENT
Revenue generated from product mark-ups, from both OOP consumers and insurers. Hold $7M in private equity from the founder. Currently raising funds for expansion.
Dawaplus is a chain of rural, 2nd tier drug shops that offers consumers access to low-cost generics and FMGC products through partnership with a wholesaler.

**VALUE PROPOSITION**
Dawaplus is a pre-launch concept for a chain of rural, 2nd tier drug shops who offer high-quality, low-cost care for NHI beneficiaries and rural customer paying out-of-pocket. Dawaplus will leverage a partnership with a wholesaler already servicing rural 2nd tier drug shops (Pyramid) in the supply of generics and supply of fast-moving FMCG products. Disintermediation allows Dawaplus to cut out significant markups along the traditional supply chain, and mandate their shops sell at price points lower than what is currently available on the market. They expect the savings to reduce the price to consumers by 75%. Dawaplus will franchise and own shops.

The concept is led by Mr. Abraham Okore, the CEO of Pyramid Pharma, a importer-distributor with operations in 7 countries. Pyramid Pharma has been a successful supplier of rural 2nd tier drug shops in Tanzania for many years.

**SCALE**
- Pre-launch

**REVENUE & CAPITAL INVESTMENT** Revenues are expected for customers paying out-of-pocket and from payments by the national health insurance scheme. Over-time they seek the majority of revenues from NHI beneficiaries. Dawaplus is self-financed and expects to break-even after 4 years. Not currently accepting outside investment.

**COUNTRIES** | Tanzania (Mwanza and Mgorogoro, Mbea, Kilimanjaro)

**POTENTIAL AREAS OF IMPACT**

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**CATEGORIES OF INTERVENTION**

- Group purchasing
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- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
Via reverse-price auctions, LiviaDawa offers consumers the lowest prices on medications from pharmacies nearby and can facilitate delivery.

**VALUE PROPOSITION**
LiviaDawa ensures consumers can rapidly find the lowest price on a medication from certified pharmacists nearby and request delivery for a small fee. Customers upload their prescriptions and participating pharmacies bid to fulfill the order, and customers select the provider of choice and complete the transaction digitally. They’re able to find ~33% lower prices than what are typically available, generating savings for their customers who are both private insurers and consumers paying out-of-pocket.

**SCALE**
- LiviaDawa launched in June 2017, part of a broader suite of Livia Health services that operate at larger scale
- 47 chemists on the platform have fulfilled 5,000 transactions

**REVENUE & CAPITAL INVESTMENT**
Revenues are generated from cost savings from the difference in prices insurers are quoted by manufacturers and the price the LiviaDawa customer receives. LiviaDawa splits cost savings savings with insurer customers, and insurers offer a reduction in premium prices for use. No outside investment, self-financed via parent company, PharmaKen, a generics distributor. Currently considering equity partners.

**COUNTRIES**
| Kenya (Nairobi) |

**POTENTIAL AREAS OF IMPACT**
- Availability
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  - Rural reach

**CATEGORIES OF INTERVENTION**
- Group purchasing
- Marketplace & Fulfillment
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- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
RxAll uses data from marketplace and inventory management platforms to inform the development of quality assurance nanoscanners

VALUE PROPOSITION
RxAll created a digital marketplace for OTC that connects pharmacies with manufacturers. It also licenses inventory management software. Based on limited market interest in these initiatives, RxAll has used the data to inform development of hand held drug quality nanoscanners to address the limitations of mass authentication equipment. These nanoscanners can detect the degradation of drug quality anywhere along the distribution pathway.

SCALE
• Launched in 2017
• 88 users on the platform, 26 manufacturers, distributors and importers and 62 retailers
• Work is predominately urban - Lagos, Oyo, Ogun, Kwara, Abuja, Kaduna, Benue, Osun, Borno. Nanoscanner work is underway in Nigeria, Ghana, and Uganda.

REVENUE & CAPITAL INVESTMENT
• Revenues are derived from a small commission on transactions, software licensing and retainer
• Received $300k USD of investment (seed grants Yale social venture work and others)

COUNTRIES | Nigeria, Ghana, Uganda

POTENTIAL AREAS OF IMPACT

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CATEGORIES OF INTERVENTION

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Uses inventory management platform to link consumers to retailers who have desired products in stock

**VALUE PROPOSITION**
Advantage Health Africa's offers several products to support pharmacies. mymedicines.com which has visibility into several retail chain pharmacies inventories using a back end aggregating platform called CPN-Nexus (Community Pharmacists of Nigeria - Nexus) supported by block chain technology. Stock information is made available to consumers in the area who can fulfill their orders more easily. The parent company also has products related to loans for pharmacies and upskilling.

**SCALE**
- Launched 2017
- 837 pharmacies on platform
- 1,000 total users, with 200 repeat consumers

**REVENUE & CAPITAL INVESTMENT**
Mymedicines revenues are derived from advertising on the website, product promotion and a convenience fee per transaction on the site. Invested $150,000 to date, seeking financing for expansion.

**COUNTRIES** | Nigeria

**POTENTIAL AREAS OF IMPACT**
- Availability
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**CATEGORIES OF INTERVENTION**
- Group purchasing
- Marketplace & Fulfillment
- Inventory Management
- Stock Financing & Ownership
- Direct to Consumer Distribution
- Consumer Information
Wellahealth connects patients to pharmacies for point of care testing for malaria

VALUE PROPOSITION
Promoting a malaria service to consumers where they can go and quickly get tested and treated for malaria using the rapid test kit in a nearby community pharmacy. Wellahealth partners with businesses to route patients to pharmacies and provide the pharmacies with a customer relationship management software (with built in SMS and clinical service features) to track consumers.

SCALE
- Launched in 2015
- >700 pharmacies providing mRDTs and treatment for malaria.
- >20,000 patients engaged, an average 500 per month

REVENUE & CAPITAL INVESTMENT
Revenues generated from subscription and licensing fee for the customer relationship platform, mark ups on test kits delivered to pharmacies. Investment to date is grant financing from the EU, but interested in private equity financing to support growth.
PharmaSecure is a mass authentication system to protect against counterfeiting that supports manufacturers with serialization, track-and-trace & patient engagement

VALUE PROPOSITION
PharmaSecure presents a scalable, cost effective approach to mass authentication. Unique, alphanumeric coding is encryption-based and allows for track and trace, and consumer-authentication. Printing of codes directly on the packaging is low-cost. Consumer relationships generated from authentication can be leveraged for adherence, follow-up care. Trials in TB showed a 60% increased adherence through voice and SMS follow up.

SCALE
• Founded in 2007, operationalized in 2009
• Protected 3 billion products through serialization for brand protection, regulatory compliance, consumer and patient engagement, and market intelligence

REVENUE & CAPITAL INVESTMENT
Revenues generated from brand protection services, consumer engagement and market intelligence. To date have received $7.9M in capital investment.

COUNTRIES
India, Nigeria, Pakistan, Southern & Eastern Africa

POTENTIAL AREAS OF IMPACT

<table>
<thead>
<tr>
<th>Availability</th>
<th>Quality of health products</th>
<th>Quality of dispensation</th>
<th>Cost to provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost to consumer</td>
<td>Customer convenience</td>
<td>Rural reach</td>
<td></td>
</tr>
</tbody>
</table>

CATEGORIES OF INTERVENTION

Group purchasing, Marketplace & Fulfillment, Inventory Management, Stock Financing & Ownership, Direct to Consumer Distribution, Consumer Information
mPedigree offers mass authentication of products, thermosensitive smart labels, “track and trace” services and consumer loyalty campaigns

VALUE PROPOSITION
mPedigree offers several B2B services including

1) smart labels for serialization, which can be paired with track and trace requirements as determined by the manufacturers;
2) consumer loyalty campaigns for Unilever, Marie Stopes, PZ Cussons, SC Johnson, Toyota, Nestle, etc. that embed authentication into the marketing process;
3) thermosensitive smart labels for use in vaccine cold chains.

In addition, they offer governments visibility into breaches to inform enforcement strategies.

SCALE
• Launched non-profit activities in 2007, for-profit activities in 2012
• Protected 2 billion products and approaching 100M users

REVENUE & CAPITAL INVESTMENT
According to techcrunch, mPedigree generates ~$10M in annual revenues. Capital investment was not disclosed.
Right ePharmacy’s ATM dispensers automate the process of dispensation and resupply for chronic stable patients, and ensure quality dispensing advice through telepharmacy.

VALUE PROPOSITION
In the midst of increasing needs for ART and chronic therapies, health facilities are becoming overburdened, and patients are required to wait for hours to get their medication. The Dept of Health introduced a program called the Central Chronic Medication Dispensing and Distribution which aims encourage chronic stable patients to resupply their medications outside of overburdened facilities. In response, Right ePharmacy developed 3 different solutions, including ATM dispensaries and controlled parcel collection units. ATM dispensaries automate dispensation of chronic medications for stable patients in high-volume areas (e.g. malls), and support dispensation advice through telepharmacy. Inventory management and resupply is automated via the ATM software. Controlled parcel collection units offer confidential, secure and temperature controlled lockers for medication delivery.

SCALE
• Launched in 2017
• 18 ATM dispensing units operational across 5 sites in 2 provinces
• 5 parcel collection units to be installed in the Free State Province, 3 to be installed in Zambia before Dec ‘18

REVENUE & CAPITAL INVESTMENT
Revenues are generated from a small fee on each prescription dispensed. Investment from USAID, GIZ, Right to Care and through partnerships with the national Department of Health.

COUNTRIES | South Africa, Zambia

POTENTIAL AREAS OF IMPACT
- Availability
- Quality of health products
- Quality of dispensation
- Cost to provider
- Cost to consumer
- Customer convenience
- Rural reach

CATEGORIES OF INTERVENTION
- Group purchasing
- Marketplace & Fulfillment
- Stock Financing & Ownership
- Inventory Management
- Direct to Consumer Distribution
- Consumer Information

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Right ePharmacy offers 3 solutions to improve dispensation and access

<table>
<thead>
<tr>
<th>Tier 1: Hospital pharmacy automation</th>
<th>Tier 2: ATM pharmacies</th>
<th>Tier 3: Secure Lockers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Uses the Automated Robotics to directly dispenses medication to the pharmacists</strong></td>
<td><strong>ATM-like interface using electronic and robotic technology to dispense medication</strong></td>
<td><strong>Temperature controlled, secure lockers</strong></td>
</tr>
<tr>
<td><strong>Increases volumes, allows pharmacists to spend time counselling</strong></td>
<td><strong>PDU uses integrated cloud based technology to enables remote dispensing and live patient counselling. First in the world.</strong></td>
<td><strong>Activated via ID number and pin sent to phone</strong></td>
</tr>
<tr>
<td><strong>Ideal for high volume facilities like hospitals</strong></td>
<td><strong>Ideal for high traffic locations such as malls</strong></td>
<td><strong>Locations can increase convenience for patients drastically</strong></td>
</tr>
</tbody>
</table>
Stable, chronic patients (including products for HIV, gout prophylaxis, hypertension, diabetes mellitus type 2, asthma, epilepsy, hyperlipidemine) access medication through ATM pharmacies at convenient locations. FP to be included shortly.

- Integrates cloud-based information management and SMS reminder systems for patients to help ensure patients remember to pick up medications and to prompt if pick-ups are missed.
- Supports counselling and dispensing services by direct pharmacist interaction via an audio-visual link (with 3G connectivity) in addition to on-site staff.
- Real-time medication reconciliation, reporting and accountability gives stock control and information management to eliminate expired stock.

- System enables 24/7 medication collection for patients
- Data held in cloud, allowing patients to visit any collection point. Accurate patient tracking.
- Max. Dispensing & Counselling Capacity is increased: 4 PDUs – 80 patients/hour
- Reduces average collection time to < 3 minutes
- Extends operating hours 80 hrs/month

Increases real-time data visibility
- Dispensing trends (patients & repeats), collection compliance, peak dispensing times, collection times
- Patient demographics – gender distribution, age distribution, therapeutic categories dispensed
PDUs are located in high-traffic retail areas, like malls. This one has four.

Modelled on ATM interface; easy to use, with offerings in multiple languages, phone support

Accessing prescription requires ID number and pin number for prescription access. Patients use card or ID document to access.

Review prescription on screen – patient to check, can remove items (i.e. vitamins if not required).
Customer interface | Once the prescription is located, a patient can connect virtually (via 3G) to a pharmacist for discussion and counseling. The pharmacist has visibility into the prescription and can see medication planned for dispensation.

Patient connects to remove telepharmacist via 3G connection, if needed.

In call centre, telepharmacist can see medication being dispensed to check it.

Medication is dispensed, with a personal label.
Tier 3 Solution: Secure electronic lockers for medication pick-up

- Electronic lockers are temperature controlled, secure
- Activated via SMS
- Optimized for patient convenience
- 5 units to be installed in Free State and 3 in Zambia before December 2018
- High potential for use in rural areas, if paired with a strong supply chain.