The 6th Global Health Supply Chain Summit

Keynote presentation: Designing and Operating Better Supply Chains for Global Health: Reflections and a Future Trajectory

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Drivers of Poor Availability in the Public Sector Supply Chain for Medicines:

- Countries: Poor bargaining power and price transparency

    - Countries are buying small volumes at a time which reduces their bargaining power and donors are unsure if countries are buying at the right price

    - Increased number of tiers leads to bullwhip effect. The bullwhip effect- can be explained as an occurrence detected by the supply chain where orders sent to the manufacturer and supplier create larger variance then the sales to the end customer. These irregular orders in the lower part of the supply chain develop to be more distinct higher up in the supply chain. This variance can interrupt the smoothness of the supply chain process as each link in the supply chain will over or underestimate the product demand resulting in exaggerated fluctuations (http://www.aalhysterforklifts.com.au/index.php/about/blog-post/what_is_the_bullwhip_effect_understanding_the_concept_definition)

- Manufacturers/Suppliers: long lead times and burden of the risk of building inventory

    - Most manufacturers do not start production until orders are received (make to order). Only the active ingredients (APIs) manufacturing is forecast driven. No inventory is kept to fulfill the customer's demand. The risk is then borne by the manufacturer- as such the risks of building inventory are high because it is uncertain how much of the demand will be realized. Manufacturers do not have the control to mitigate these risks.

- Financiers: Uncertainties in timing of fund disbursement

    - Global Fund have to follow stringent procedures before grants can be disbursed, often leading to delays in disbursement of committed funds

    - MOH budget disbursements also have delays in release of funds or in some cases not all budgeted funds are allocated

    - Procurement rules do not allow initiating procurement without "money in the bank"

- Ministry of Health: Delays in procurement due to archaic procurement processes and poor quantification and planning

- Distribution channels (i.e. different levels of the system): Weak distribution infrastructure and skeletal MIS

- Clinics: Lack of capacity to manage inventory or consumption tracking

What are the proposed solutions?

1. **Bridge financing solutions can help mitigate the risk of stock outs due to fund disbursement uncertainties**

   a. Financier makes a pledge to the country program

   b. Country program requests mechanism to cover product cost

   c. The Pledge Guarantee for Health verifies pledge with financier and establishes a memorandum of understanding (MOU)

   d. Country program procures through existing process from manufacturers

   e. Mechanism pays manufacturer or procurement agent

   f. Manufacturer ships product to country program

   g. Financier pays the mechanism

2. **Volume guarantees can shift the push-pull boundary, reducing risk and lead times**

   a. Risk sharing- Countries and donors create a global forecast that will guide manufacturers' production planning. Establishing master contracts with manufacturer based on volume/risk tolerance, whereby country programs place individuals orders under the master contracts- unused volume can either be sold in secondary markets (this requires product standardization) or stored

   This shifts the push-pull boundary where final product inventory is ready based on forecast and available upon receipt of order thus shortening the lead time.

3. **Improved distribution through strategic stockpiles either globally or in country**

   a. A regionally located inventory can reduce the lead time- "With a third-party buffer stock, the initial stockpile is financed using a rolling working capital fund that is replenished when orders are placed. The supply hub would carry inventory from all WHO pre-qualified manufacturers in proportion to their market share in the last year and would be located in a region that provides easy logistical access to malaria-endemic countries. The manufacturers would then replenish the stocks at the supply hub as orders deplete it. This implies that a higher fraction of the supply chain will be demand driven and not based on a forecast alone, and manufacturers would not wait for production activities to start after the order is received."

   b. Redesigning the distribution to determine number of stocking points and quantities of buffer to hold at each level. This does not have to mirror the administrative/governance structure of the country.

4. **Increase distribution frequencies to reduce lead time**

5. **Align incentives for higher performance**

    a. **As stated in the background paper "Mapping and Realigning Incentives in the Global Health Supply Chain" by Prashant Yadav, Kirsten Curtis and Neelam Sekhri, December 2006, regarding risk sharing and incentives in the ACT market.**

    "If the global community expects suppliers to provide their products at low or no margins, and also guarantee access to products when and where they are needed, then it will be necessary for others in the supply chain to find ways to share some of the risks that the suppliers are currently facing. In the long run, if manufacturers absorb more risk but do not receive higher returns to compensate for this greater risk, they may engage in behavior that eventually hurts all supply chain constituents."

6. **Transformation of information collection**

    a. Information collection methods that have made a difference such as the use of a third party to gather market data for anti-malarial medicines under ACTwatch to capture key trends in the retail availability, volumes, distribution channels, and use preferences for antimalarials in eight countries and the SMS for Life project, a public-private partnership founded in 2009 that harnesses simple mobile phone technology to eliminate stock-outs and to improve access to essential medicines in sub-Saharan Africa.

7. **Supply chain improvement trajectories as opposed to ad-hoc projects**

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