Supply chain of essential medicines for MNS disorders

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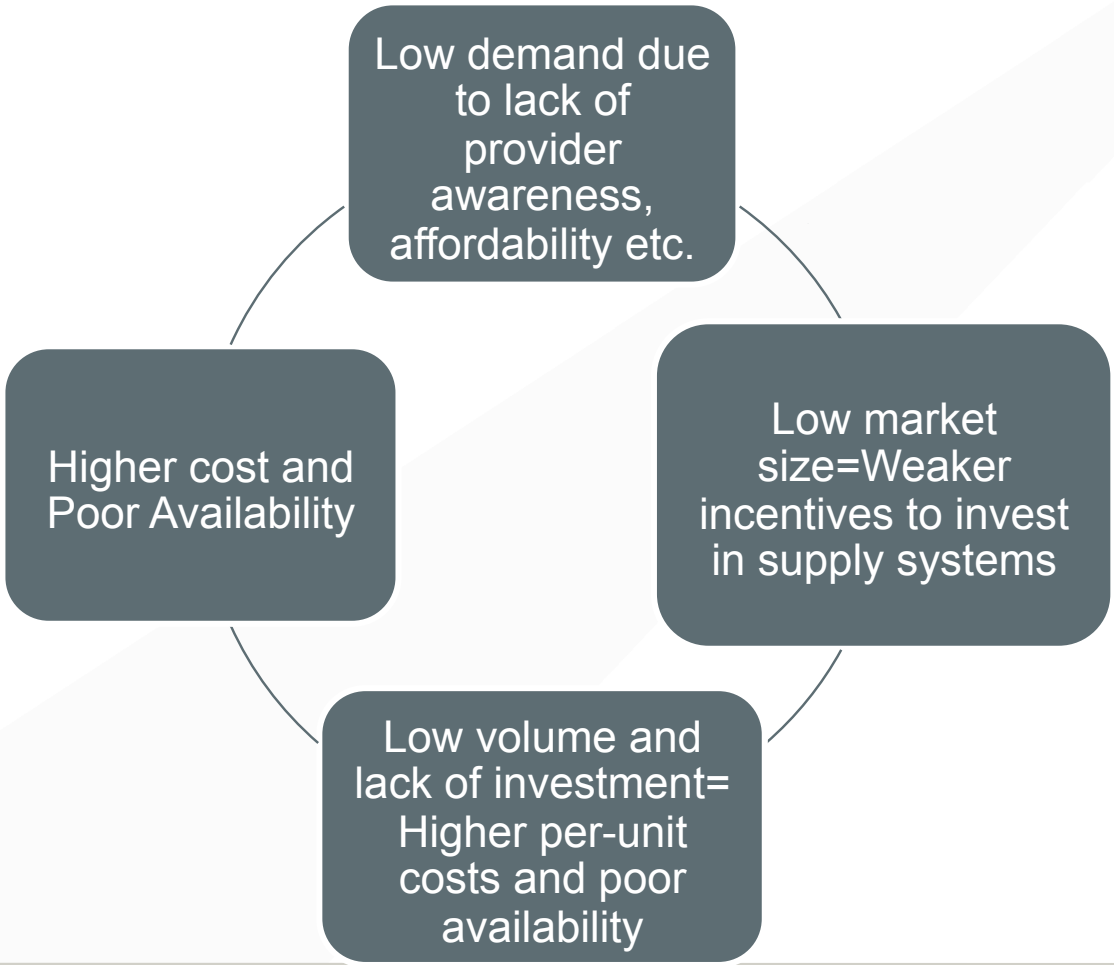
Why worry about supply chains for MNS products? 1

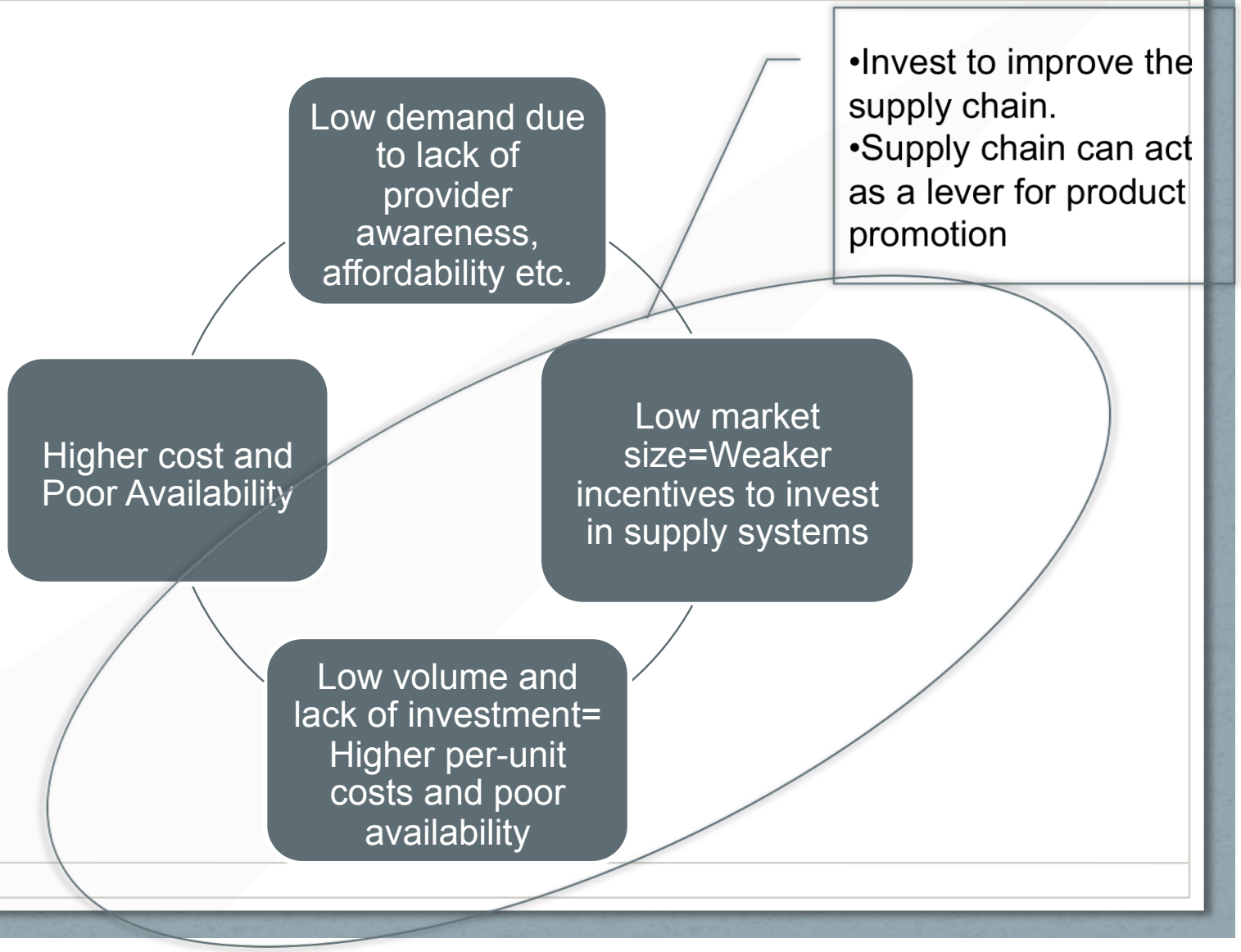
- Supply chains a critical component of a systematic treatment program for a disease
- Supply chain: Not just “lorry, carton-boxes and warehouse sheds”
  - A system of organizations, people, technology, activities, information and resources involved in making a product reach the customer/end-patient
- Supply chain management is a well developed scientific discipline
- Supply chain is not just about delivering medicines, supply chains also play a crucial role in obtaining information about needs, consumption, adherence to treatment guidelines and many other information sets crucial for health system planning
- Supply chain can also play a role in demand creation

Why worry about supply chains for MNS products? 2

The low demand–low supply trap

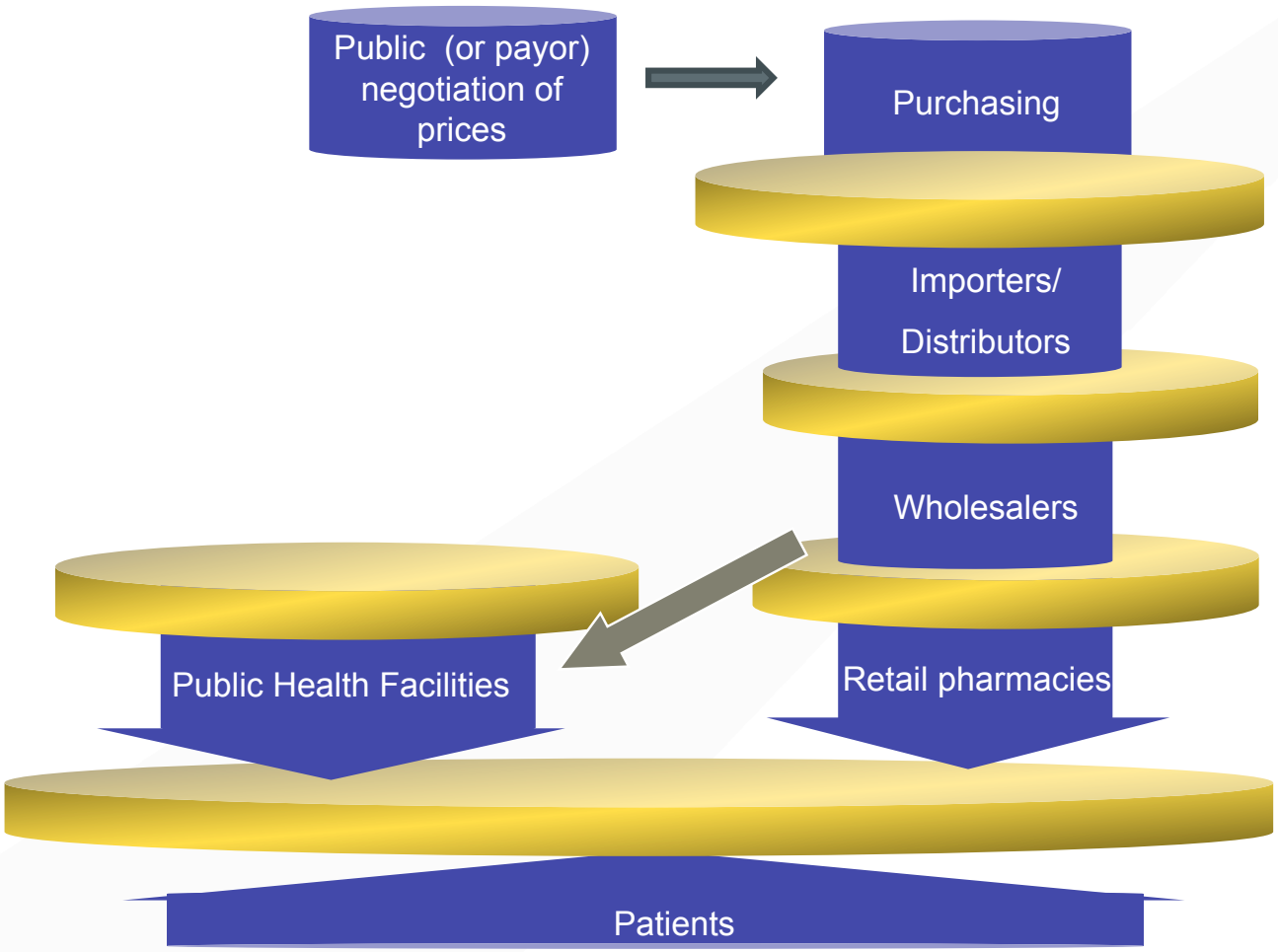


Getting out of the “low-demand-low-supply trap”



Comparing OECD and developing country supply chains for essential medicines

Pharmaceutical distribution structure in OECD countries

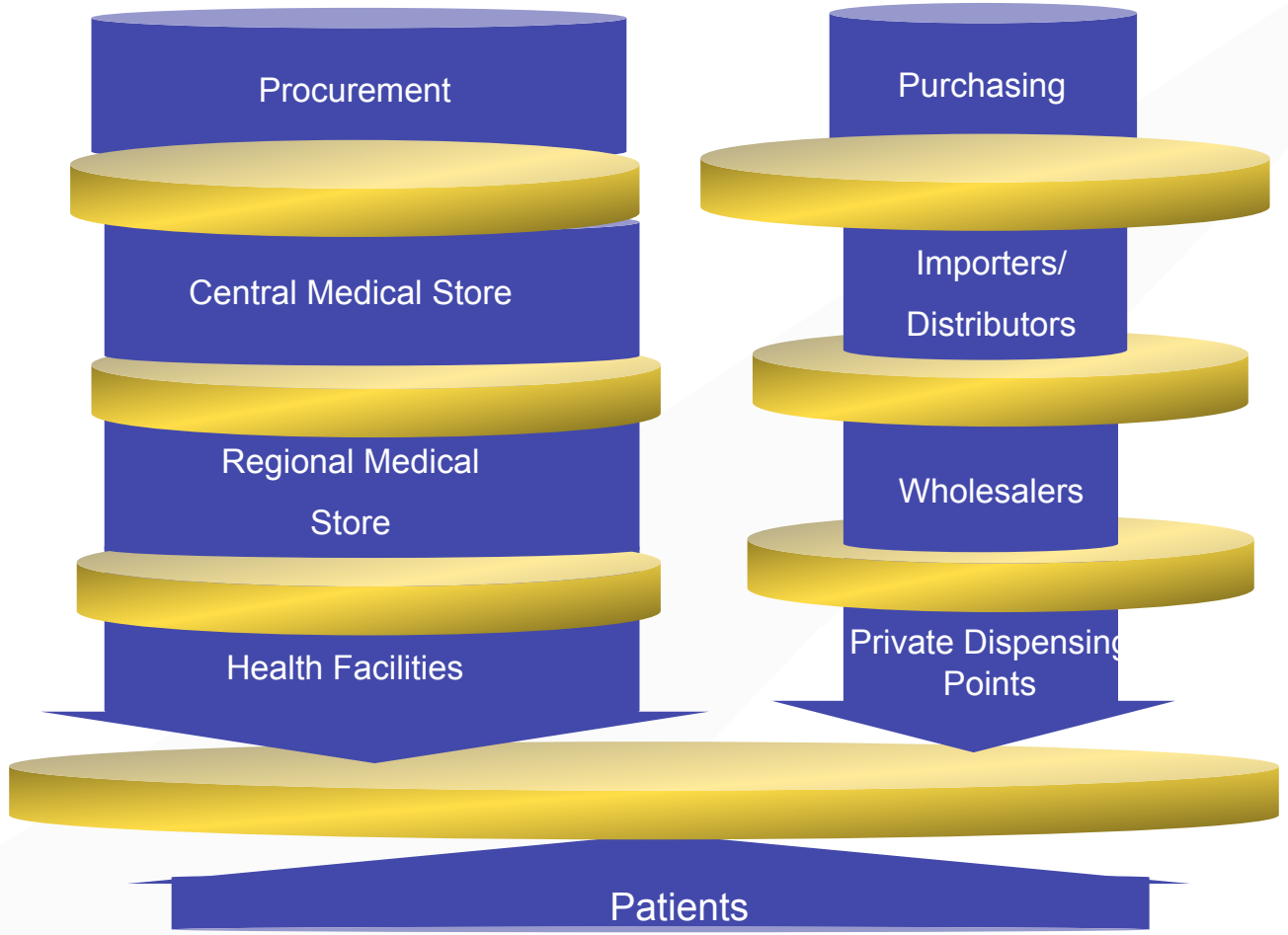


Comparing OECD and emerging market pharmaceutical systems

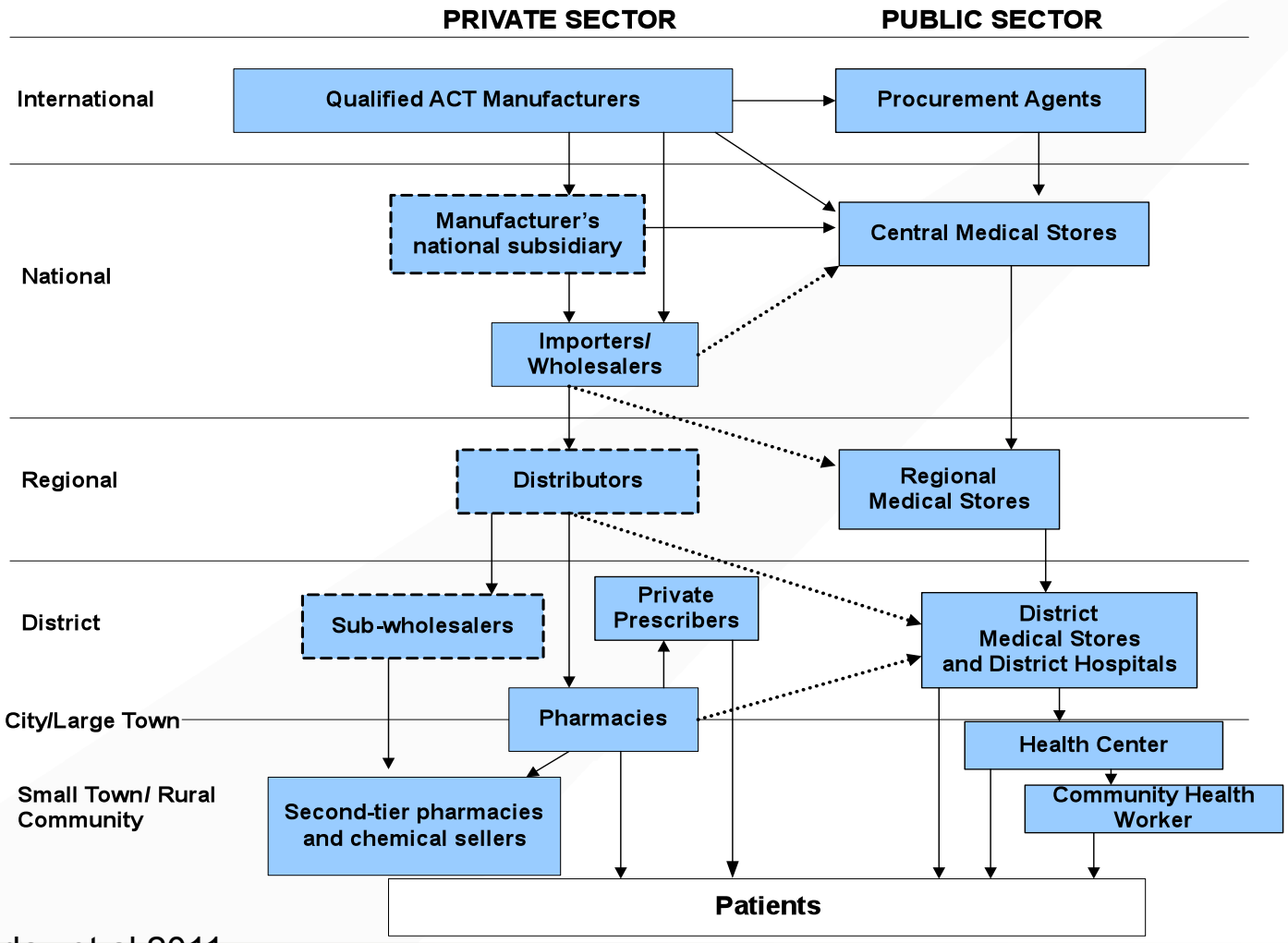
Factor	OECD countries	Developing countries
Payer/Reimbursement	Strong presence of public or private insurance companies and limited out of pocket expenditure.	• Mostly payments are made out of pocket. Or direct govt purchasing • Social health insurance systems are expanding in many emerging markets. • Private insurance plans are also growing in some emerging market countries.
Regulatory structure	Strong well-defined laws and overall good ability to enforce regulations.	Weak fragmented regulatory structures, ill-defined laws in some instances, and poor ability to enforce regulations.
Distribution systems	• Few large distributors with nationwide coverage • Relatively low markups in distribution	• Govt quasi-monopoly on distribution • Very fragmented private distribution market • Few or none with nationwide coverage • High markups in distribution

Source: Yadav and Smith 2012

Pharmaceutical distribution structure in developing countries



Developing country supply chain structure: more detailed view

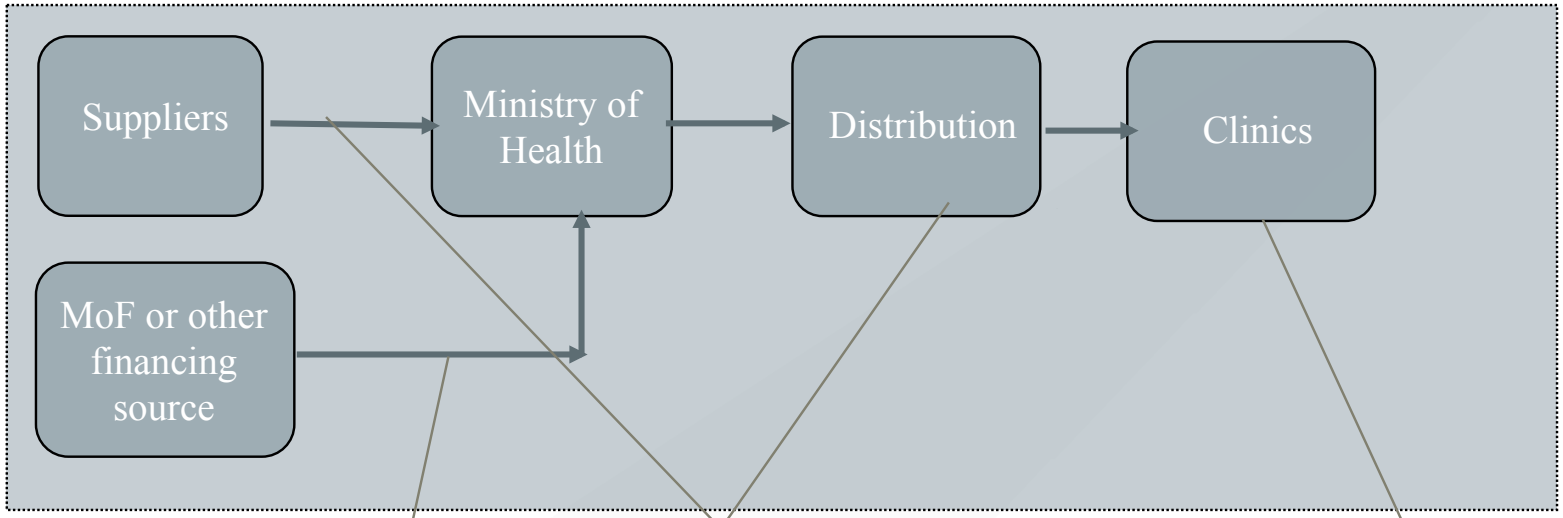


Source: Yadav et al 2011

Public sector medicine supply chains

Developing country supply chain structure: more detailed view

Typical structure. May not hold for all countries and programs. Corruption and infrastructure issues are additional structural barriers



Uncertainties in timing of funds disbursement from MoF or external source

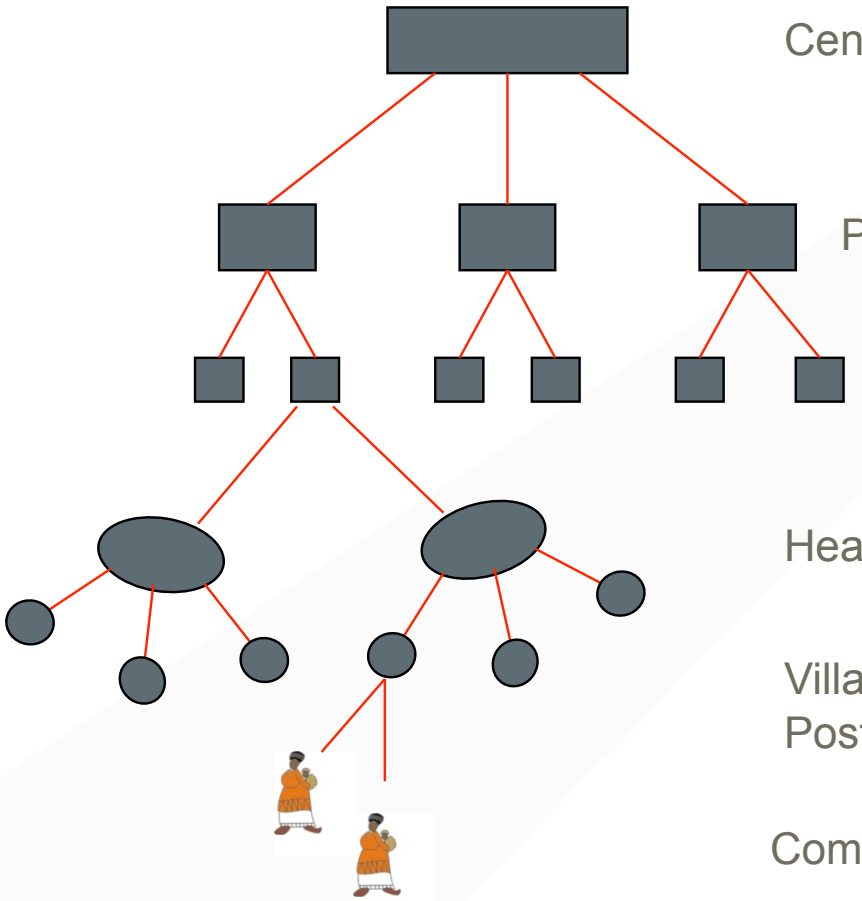
• State monopoly on distribution
• Weak incentives
• Poor information flows

•Delays in procurement due to archaic procurement processes
• Poor quantification and planning
• Long supply lead times

•Weak staff capacity to manage inventory
•Poor or no consumption tracking

Lack of *incentives* and *information* flows throughout the system

Unnecessary complexity



Central Medical Store

Provincial Stores

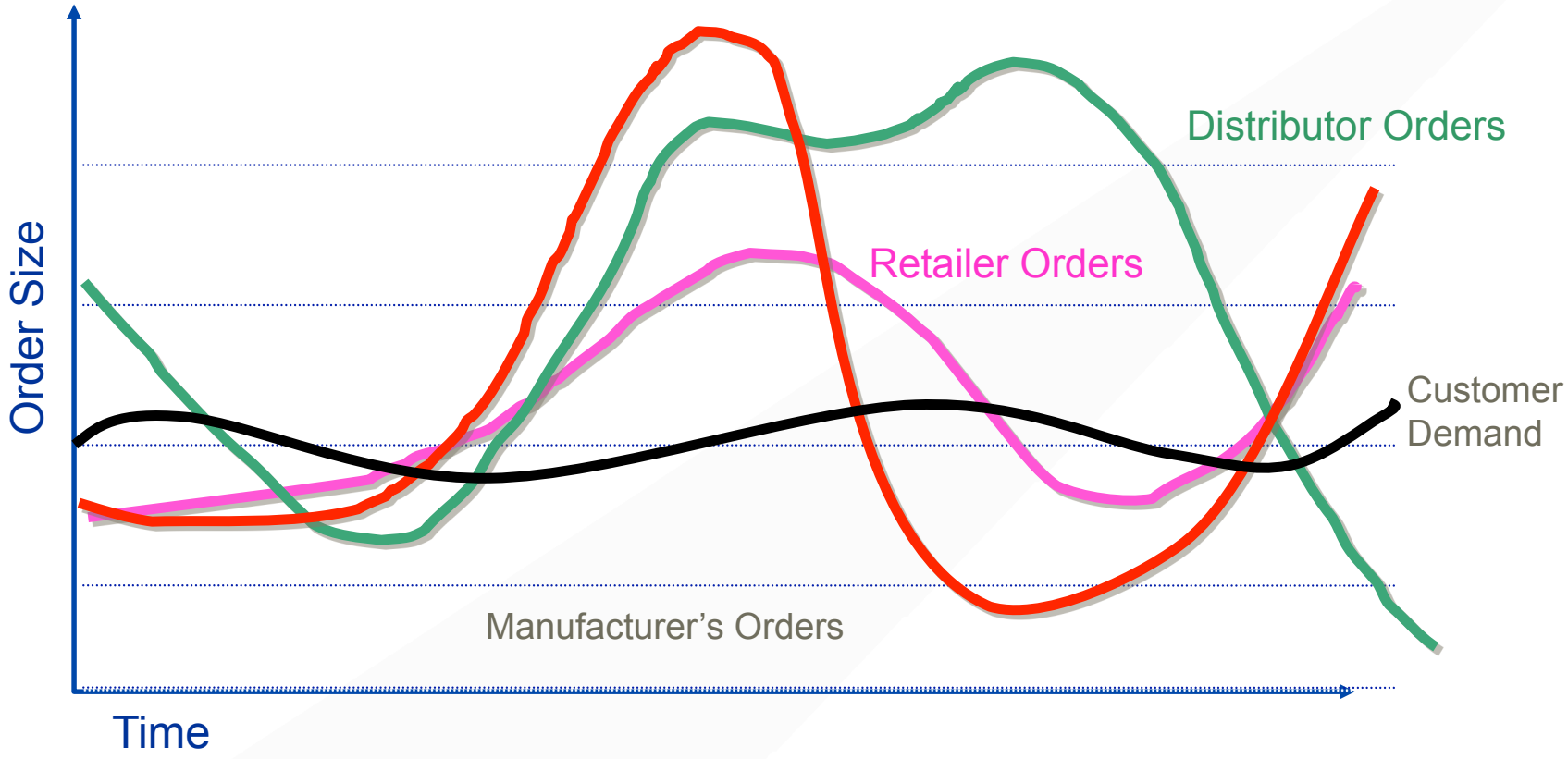
District Stores

Health Facilities

Village Health Posts

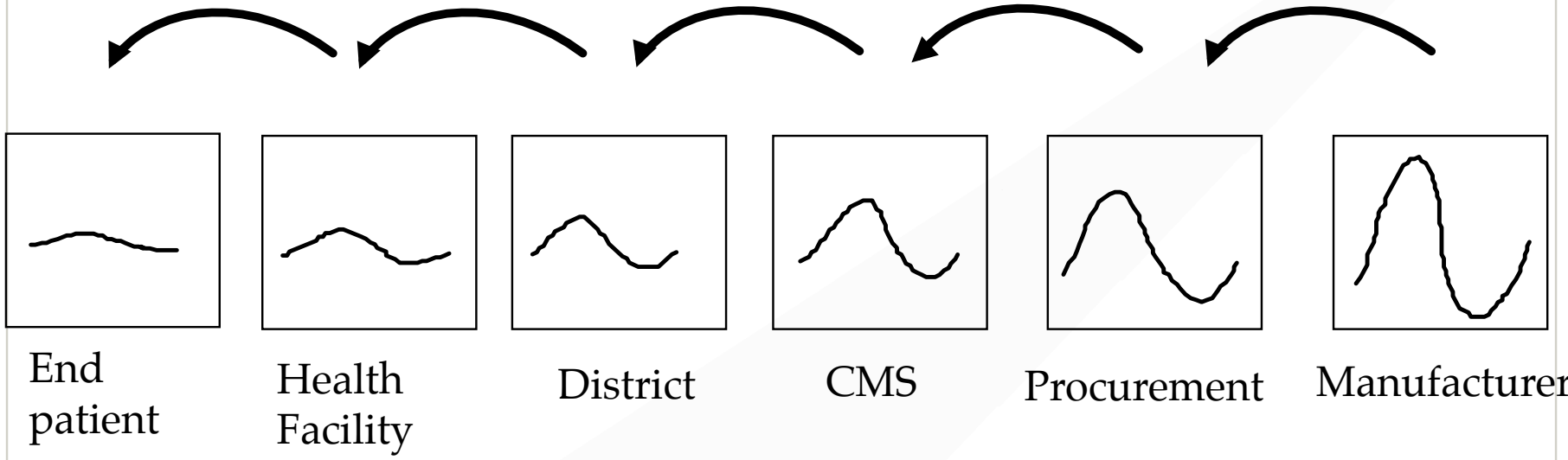
Community Health Workers

The corrupting influence of distribution structure complexity



Number of babies are constant!
How come there is such a variability in the demand for Pampers?

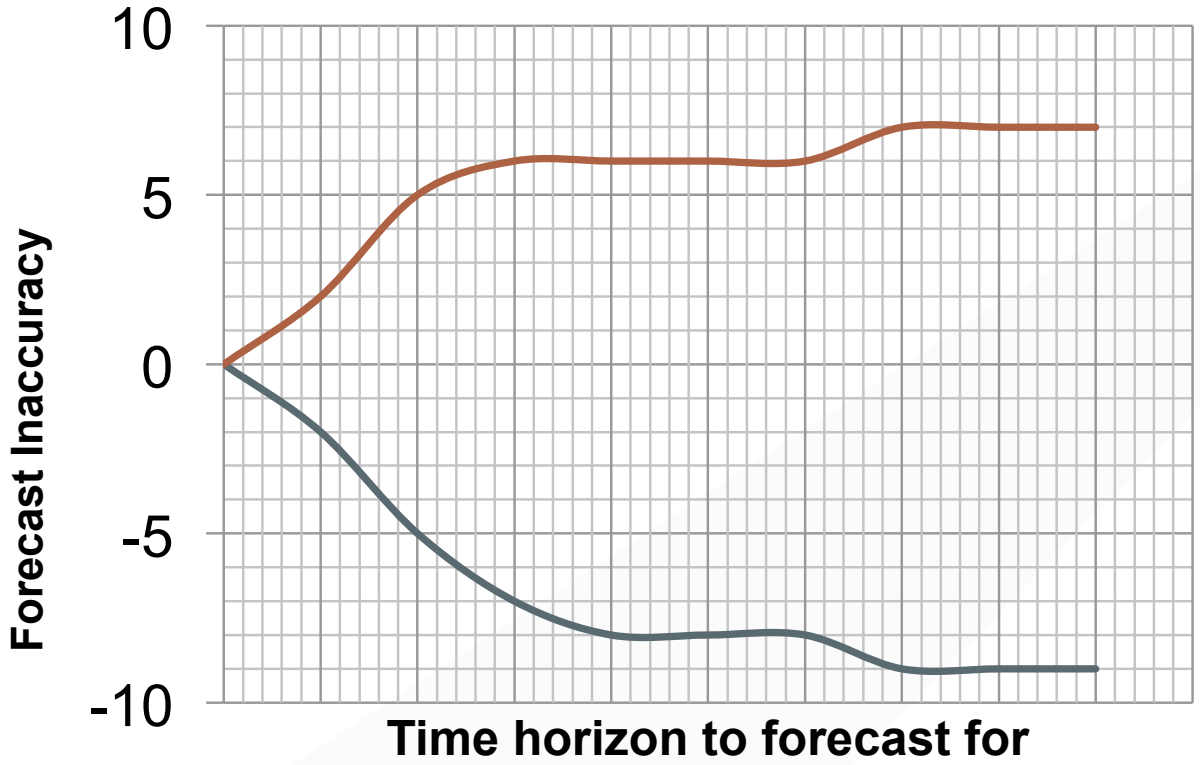
The corrupting influence of distribution structure complexity



***Bull-whip effect*: Amplification in demand variability as it goes upstream in a multi tiered distribution system**

Fewer layers in the distribution system help remain in sync with actual demand

The curse of the forecasting trumpet



Higher frequency of shipments i.e. shorter resupply intervals between each stage in the system decrease forecast inaccuracy

What did we learn from the HIV/AIDS treatment scale up?

Quantification	Procurement	Distribution	Point of Care
Create team of experts to assess need, demand (AMDS, CHAI) Incorporate consumption and use data , Dx data to feed into quantification	Working capital mechanisms to maintain smooth procurement cycles Procurement technical assistance in various forms Pooled procurement when appropriate	Stock held in regional warehouses Programmatic support for the development and implementation of information systems Leverage private sector for transport and distribution when possible Product integrity can be maintained, diversion can be stopped with robust flow tracking systems	Take care provision and Dx closer to the patient Training to health clinics to provide appropriate diagnostic and laboratory services Community work to improve patient education and adherence to treatments received from points of care

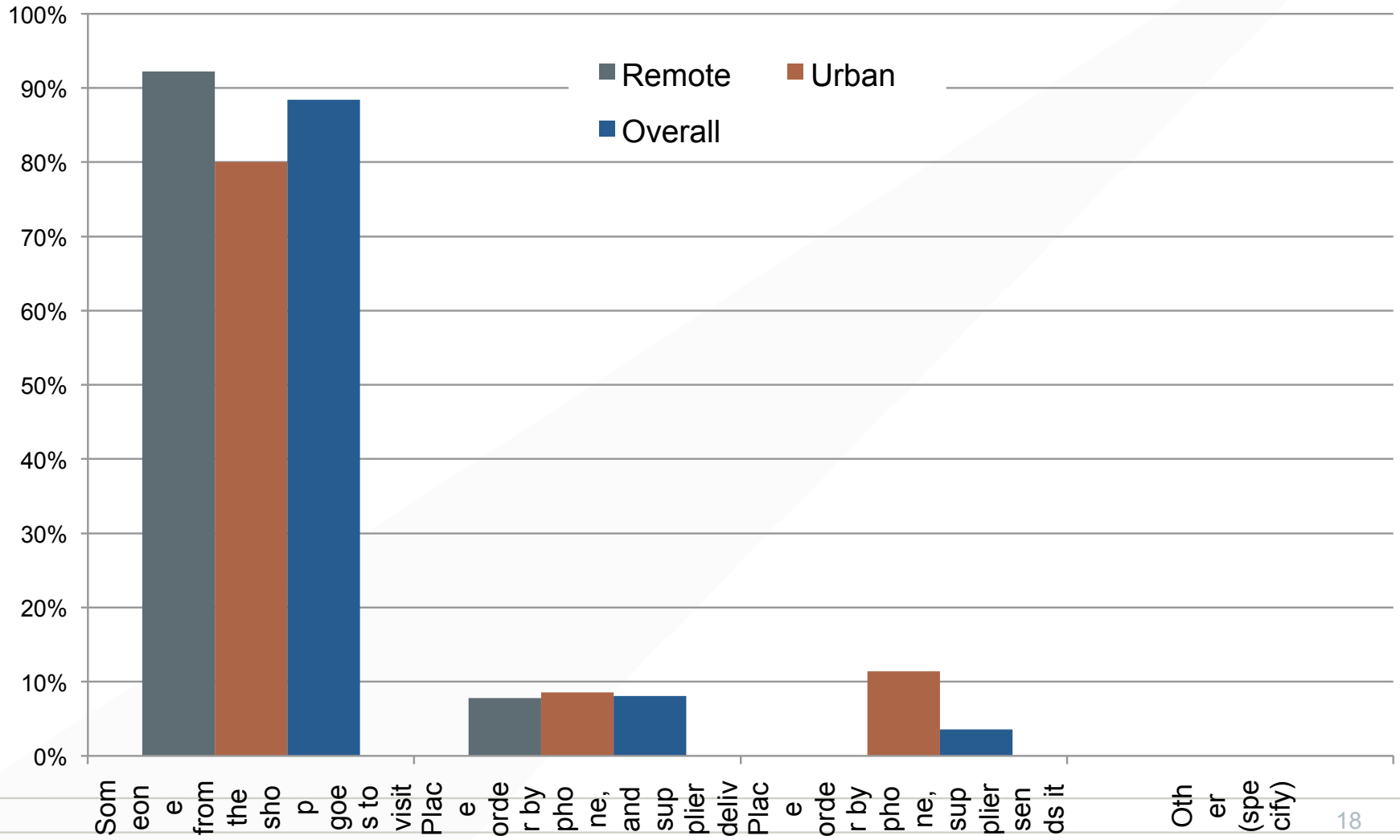
Ensuring product registration is ,in some instances , a global public good

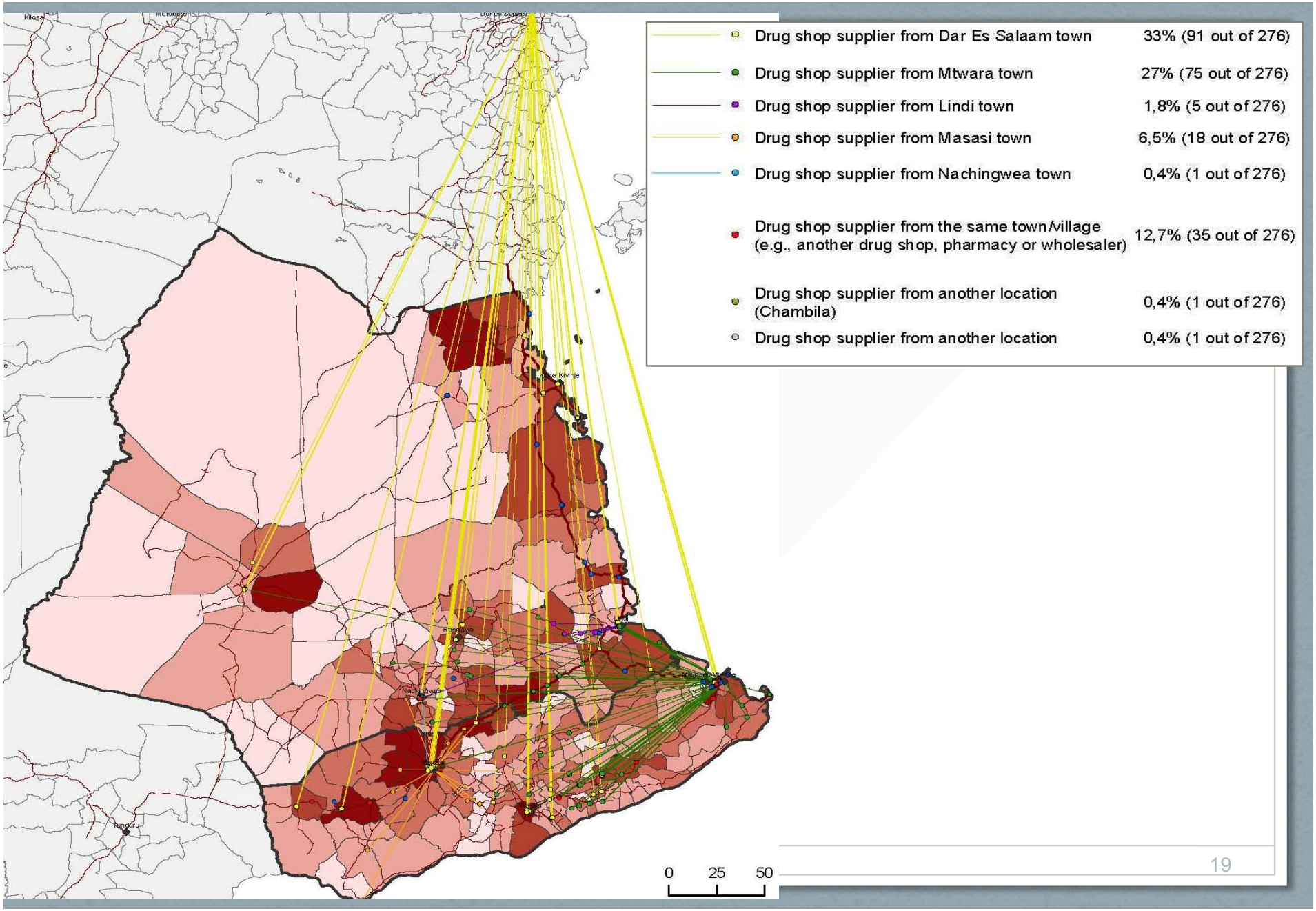
Well functioning supply chains require good diagnostic protocols and adherence to standard treatment guidelines

Private sector medicine supply chains

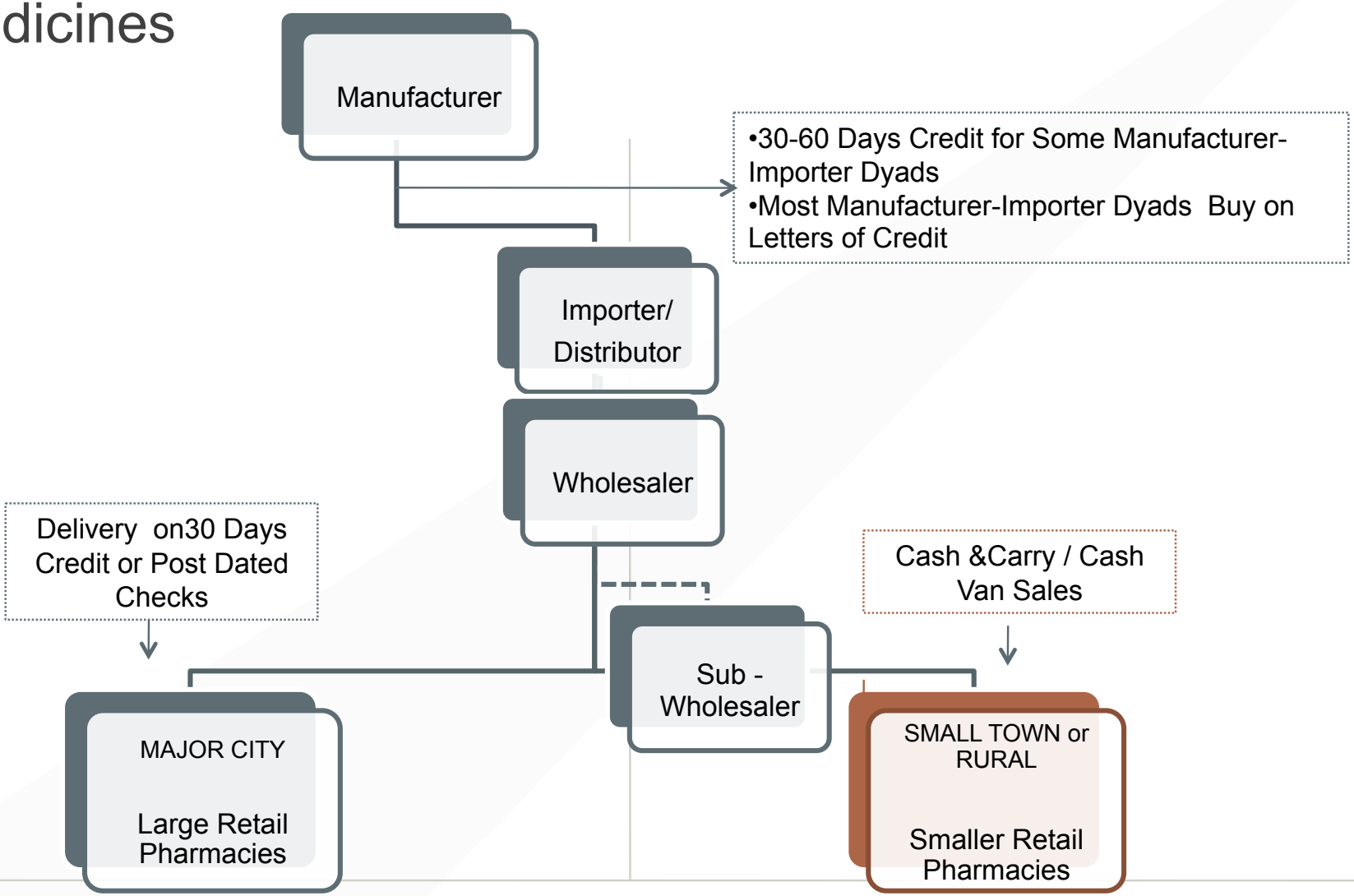
Using malaria medicines as an example

Developing country pharmacies rely on a “cash & carry” model




Drug shop supplier from Dar Es Salaam town 33% (91 out of 276)
Drug shop supplier from Mtwara town 27% (75 out of 276)
Drug shop supplier from Lindi town 1,8% (5 out of 276)
Drug shop supplier from Masasi town 6,5% (18 out of 276)
Drug shop supplier from Nachingwea town 0,4% (1 out of 276)
Drug shop supplier from the same town/village (e.g., another drug shop, pharmacy or wholesaler) 12,7% (35 out of 276)
Drug shop supplier from another location (Chambila) 0,4% (1 out of 276)
Drug shop supplier from another location 0,4% (1 out of 276)
0 25 50

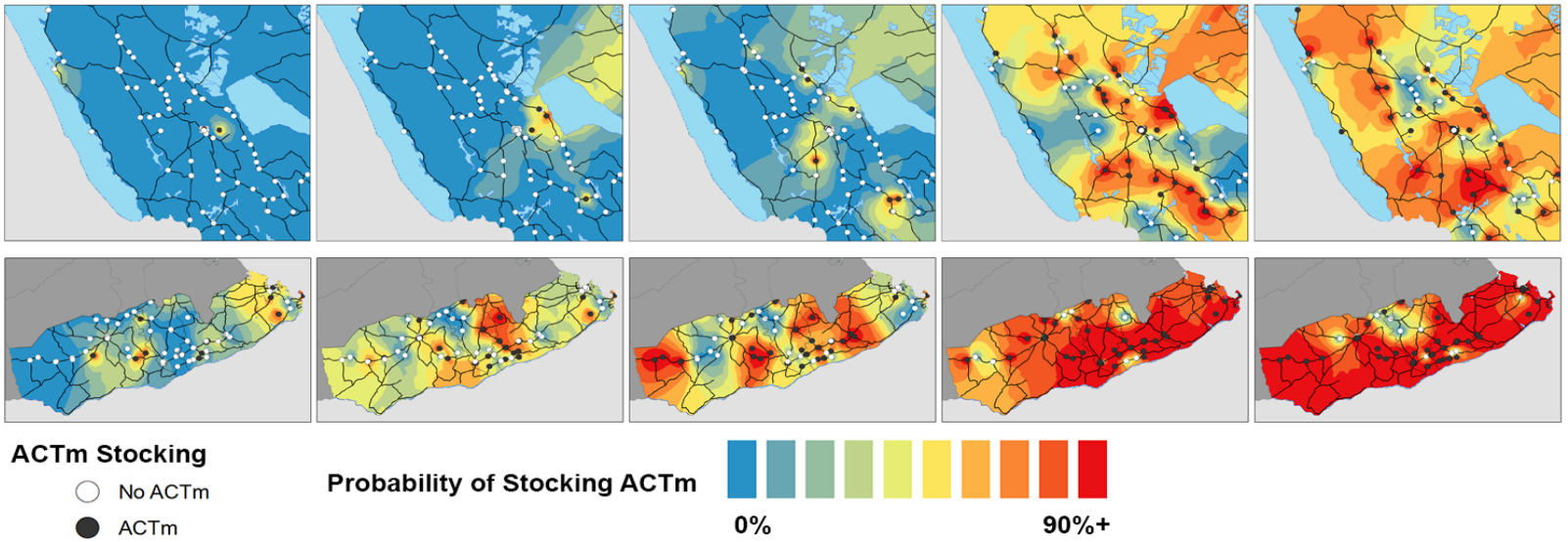
Lack of credit limits stocking of non fast moving medicines



When the incentives are right private sector distribution works (even in remote areas)

RUKWA

MTWARA



Source: Yadav P, J. L Cohen, S. Alphs, J. Arkedis, P. L Larson, J. Massaga and O. Sabot. Trends in availability and prices of subsidized ACT over the first year of the AMFm: evidence from remote regions of Tanzania, *Malaria Journal* 2012, 11:299

What we learnt from private sector supply chains

- Patient-centric (take the product to where the patient seeks care, not ask the patient to come to where product is available) supply chains achieve faster uptake
- Private sector distribution is faster and reaches remote regions if appropriately incentivized
- Wholesalers and distributors are key partners in promoting product use
- Prices and markups can be managed with greater scrutiny and careful design
- Lack of working capital credit can limit stocking of MNS medicines

Summary

1. There are many complex factors that contribute to poor availability
2. These problems are complex and require action on multiple fronts.
3. However, the complexity and multi-dimensionality of the problem must not be an excuse for inaction
4. Areas of action
    1. **Better forecasting and needs assessment**
    2. **Simplified distribution structure**
    3. **Better information flows**
    4. **Higher frequency of deliveries**
    5. **Incentives and accountability in the supply chain**
    6. **Private sector transport and distribution**
    7. **Working capital credit for private pharmacies**