Global Health
Supply Chain Summit

Abstract 91: Applying Salesforce Effectiveness (SFE) frameworks to optimize human resources for supply chain

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Improving health outcomes by promoting sustainable workforce excellence in health supply chain management

Creating *demand* for and *supply* of individuals with appropriate competencies for public health supply chain management

PtD Global Standard of Supply Chain Roles & Job Descriptions

The global health community has worked to address significant human resources challenges to improve healthcare supply chains. However, as the volume of health commodities moving through the global supply chain continues to increase, so too does the demand for a skilled supply chain management workforce. While there are established methods for quantifying the need for human resources capacity among health care professionals, the same kind of benchmarking does not exist for supply chain professionals.

People that Deliver and IQVIA worked to address human resource needs and facilitate resource optimization

Human resources for supply chain management remains a challenge

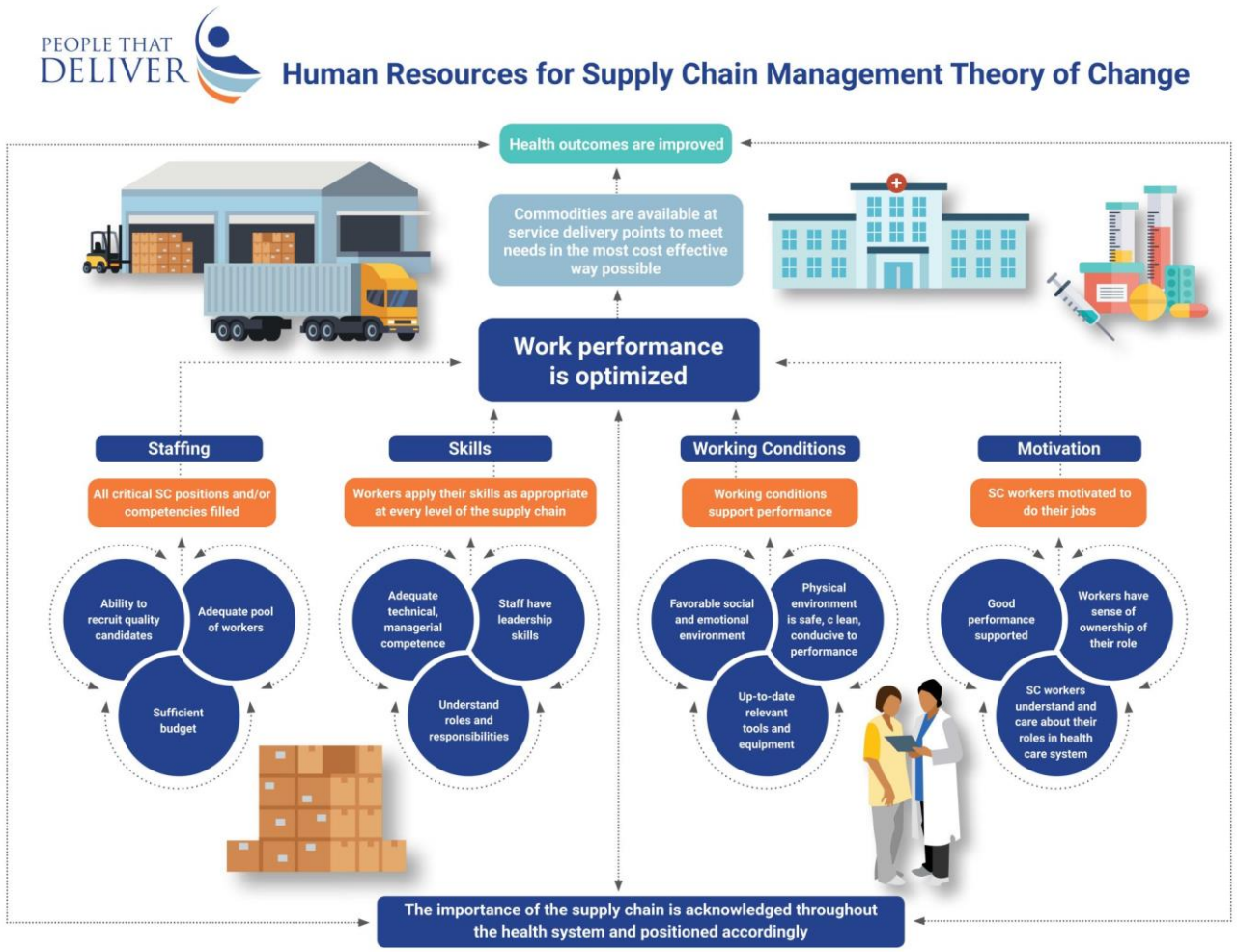
- National governments and international NGOs face complex challenges in managing health supply chains, drugs and other health supplies
- Many fail to optimize delivery to the targeted patient population – health supplies in the form of drugs and vaccines do not reach patients who need them

Resource optimization

Optimal healthcare workforce is calculated considering constraints

Resource constraints

Skills, working conditions and motivation are assessed quantitatively and qualitatively



The research is focused on quantifying the resources and resource constraints in public health supply chain

A key feature of this work is the ability to translate a well-established practice in pharma to the public health supply chain

Comparison of supply chain HR optimization with sales force effectiveness

	Sales force effectiveness in Pharma	Supply chain HR optimization in Public Health
Objective	• Determine target coverage and the corresponding workload based on activities required • Optimize headcount and geographical distribution of sales reps to maximize coverage given resource constraints	• Estimate headcount required to complete all tasks • Identify the different tasks within the public health supply chain and their respective workload • Optimize workforce deployment to maximize output given resource constraints
Similarity	• Similar methodology can be utilized to determine the required headcount • Resources are geographically distributed and restricted by travel considerations • The ultimate objective is to allocate resources to maximize the overall impact	
Difference	• Resources allocated to regions with largest number of prescribers with the highest potential sales • Commercially incentivized: more resources will be focused on urban areas with higher affordability	• Resources allocated to regions with highest actual demand (population who require health products) • Needs-based allocation: more resources should be focused on geographies with the largest gaps

The work aims to improve efforts to analyze workforce effectiveness in the public health supply chain

Project objectives and scope

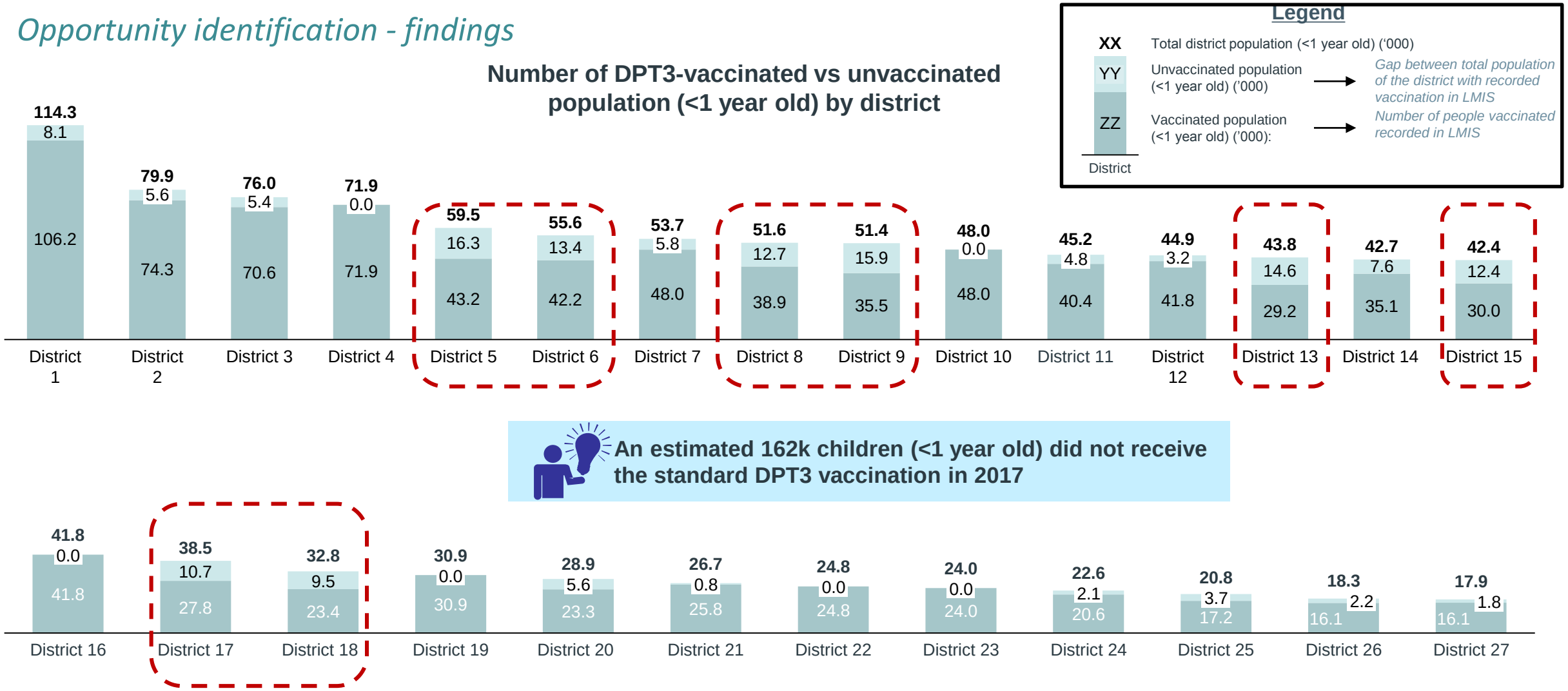
Project objective	Conduct country-level, structured quantitative analysis for workforce development in the public health supply chain sector, and develop the framework and tools to replicate analysis to other developing countries

Objective scope

1	**Optimization of public health supply chain workforce**	• Conduct analysis to pinpoint optimal distribution of human resources for health supply chains in selected country or region, and potentially replicate analysis for other developing countries
2	**Quantitative and replicable methodology development**	• Develop a replicable methodology for the quantitative analysis of the public health supply chain workforce – involving a structured approach to baseline data collection, segmentation, management and analysis
3	**Customized tool for analysis**	• Create a customized Excel tool to present results of the analysis and simulate different workforce scenarios that can be applied to different countries

By comparing district level LMIS data with population statistics, we can identify potential opportunities for resource reallocation

Opportunity identification - findings



Source: LMIS and PBS

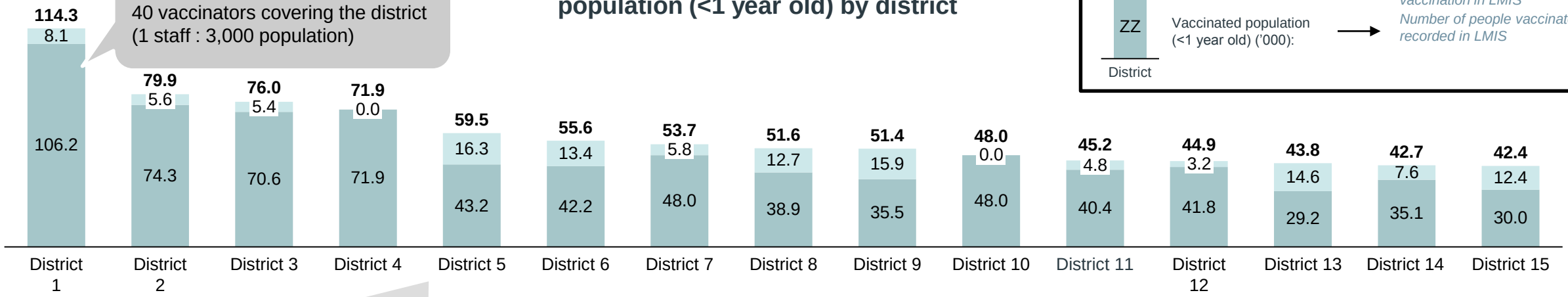
To effectively find solutions, various HR resourcing factors and constraints have to be considered

Opportunity identification - findings

Example (illustrative)
40 vaccinators covering the district
(1 staff : 3,000 population)

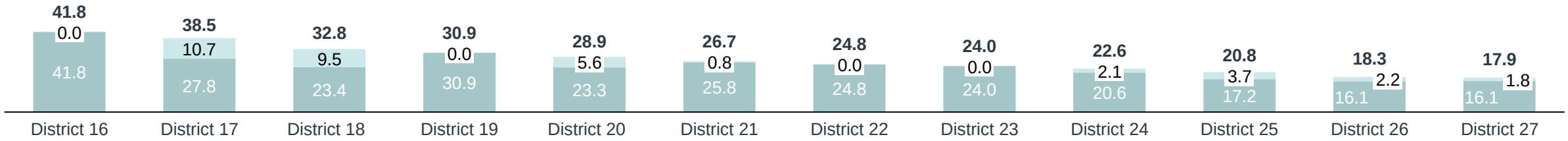
Number of DPT3-vaccinated vs unvaccinated population (<1 year old) by district

Legend
XX — Total district population (<1 year old) ('000)
YY — Unvaccinated population (<1 year old) ('000) → *Gap between total population of the district with recorded vaccination in LMIS*
ZZ — Vaccinated population (<1 year old) ('000): → *Number of people vaccinated recorded in LMIS*
District



Example (illustrative)
23 vaccinators covering the district
(1 staff : 2,600 population)

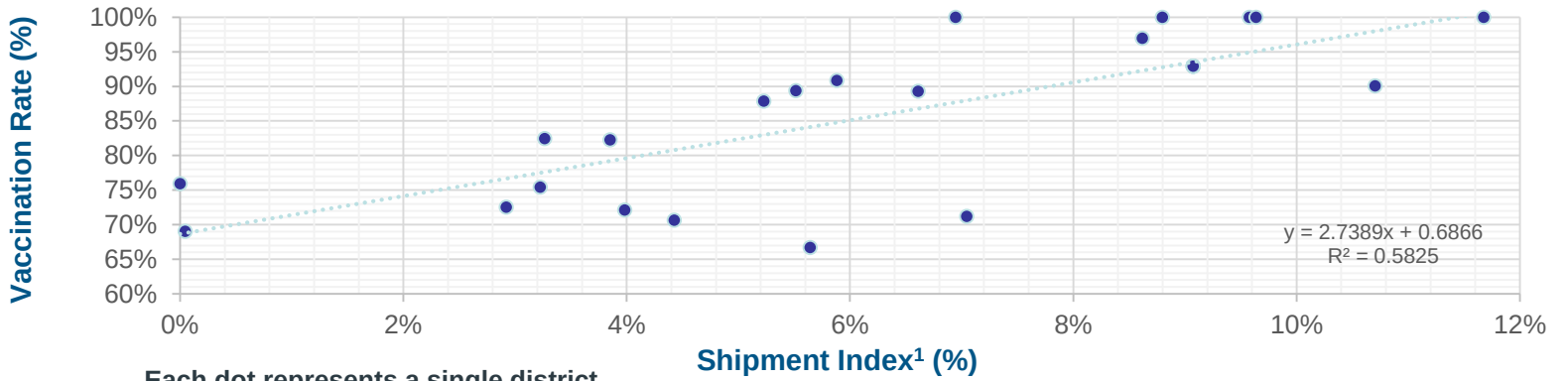
Supply chain staff to population ratio may be able to highlight issues related to productivity. There may be an optimal recommended ratio, a redeployment of existing resources, and an analysis of other performance-related issues.



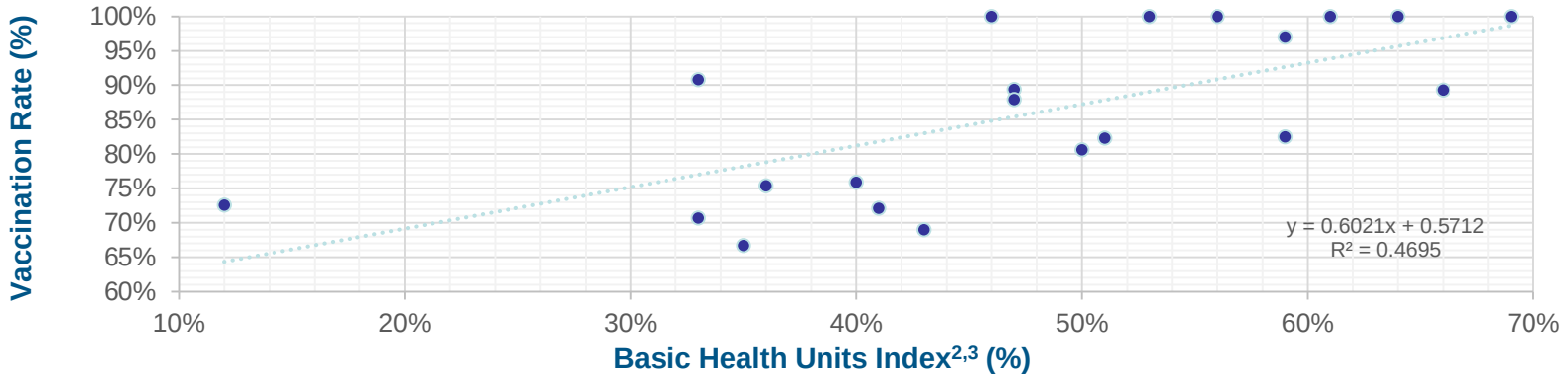
Source: LMIS and PBS

Our analysis suggests that shipment volumes and health facility access are highly correlated to higher vaccination rates

Issue correlation – high correlations



Each dot represents a single district within the state



Coefficient of determination[4]	
Supply - Shipment	**Demand - access**
Shipment	Basic Health Units[3]
0.58	**0.43**

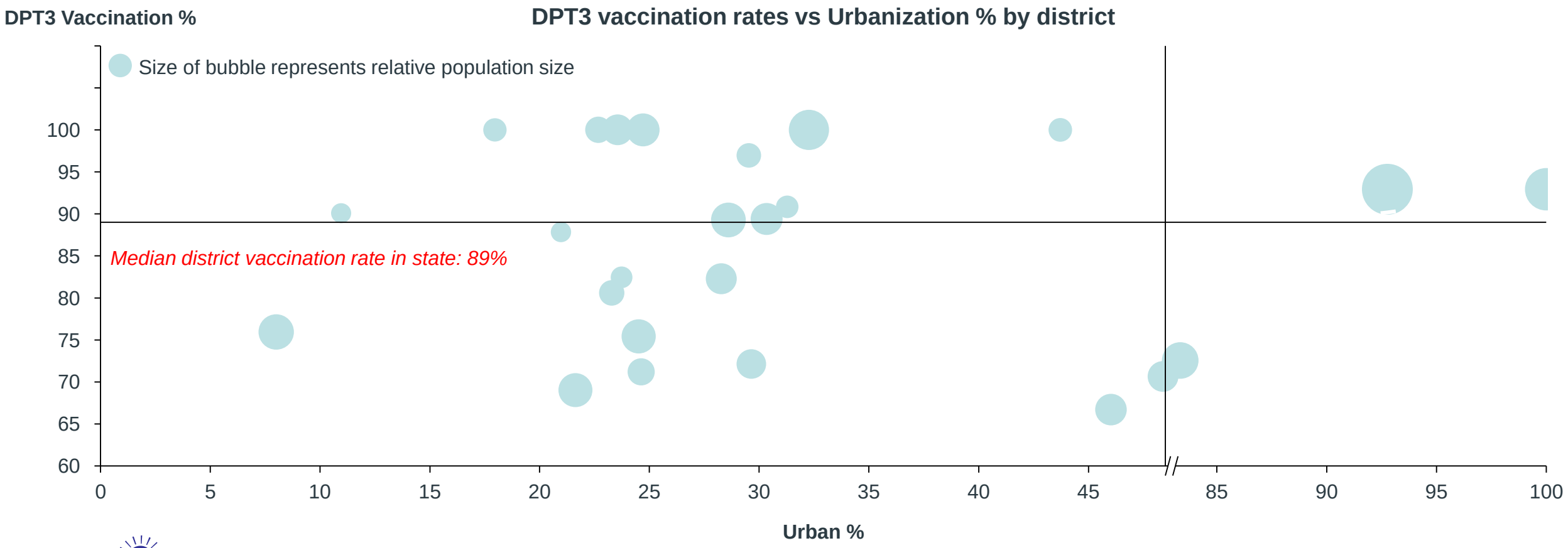
Key results

- Districts with higher vaccine shipment volumes relative to the population tend to have higher vaccination rates
- Districts with more basic health units (primary health facility) relative to the population tend to have higher vaccination rates
- This suggests insufficient shipments and access to health units may be key issues limiting vaccination rates in the state
- **Note:** Deep-dive analysis for each key issue will help to understand the underlying drivers, as there can be drivers for correlated issues, such as:
  - Lack of delivery headcount
  - Lack of competency to accurately forecast demand
  - Inadequate cold-chain infrastructure etc.

Future analysis will need for further understand these issues

Conversely, our analysis suggests that level of urbanization should not be considered during optimization

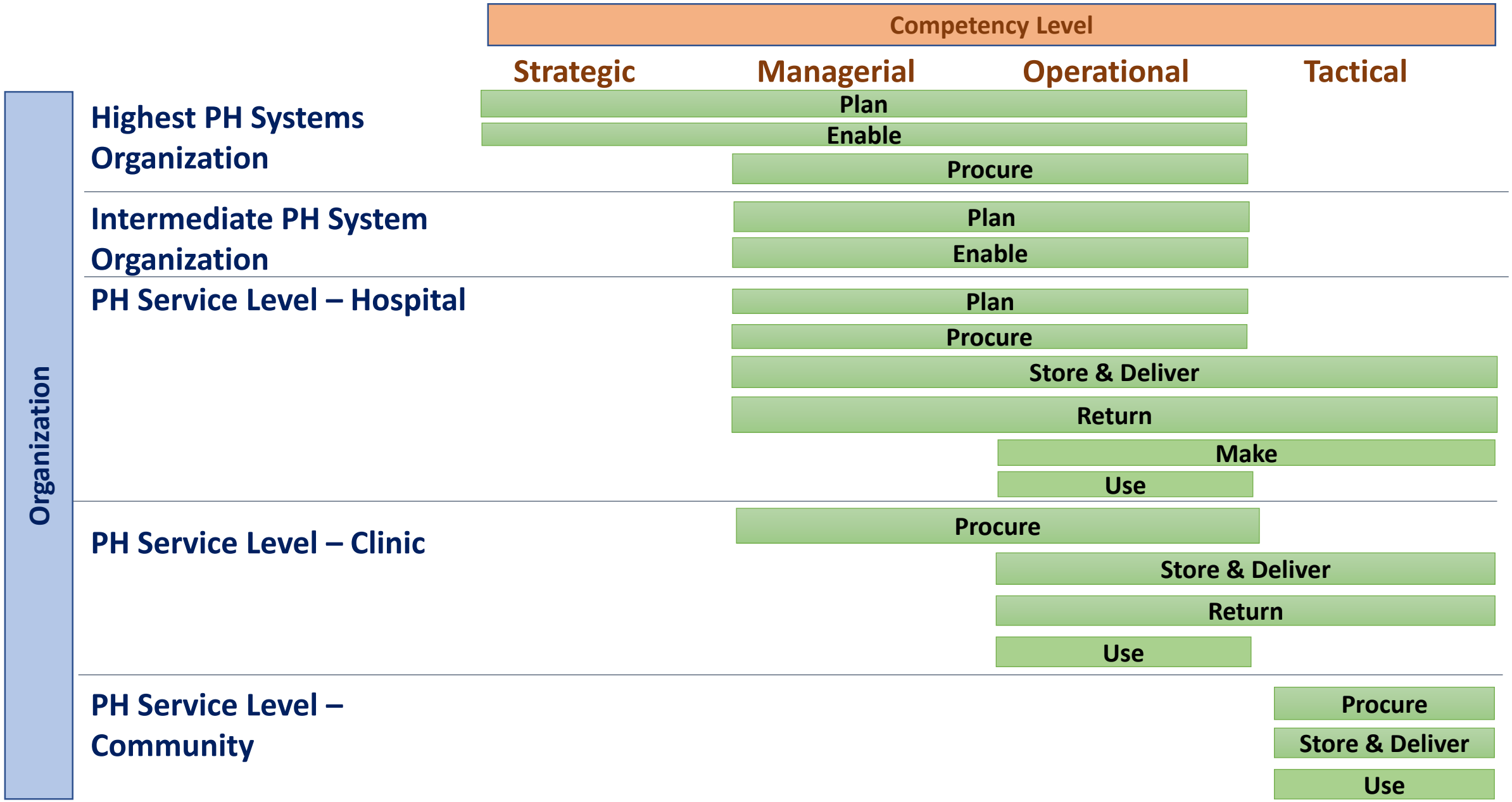
Vaccination rate by district within the state



Districts with a much higher rural population than major urban cities but they have similarly high vaccination rates

Source: 1. LMIS; 2. PBS 1998 and 2017 Census

Supply Chain Roles Map – Public Health System



Breakdown of SC Roles by SC Organization

Strategic	Managerial	Operational	Tactical
SC Organization	**Plan Procurement**		
	Manager – Procurement	• Officer – Product Selection (use) • Officer – Inventory & Demand Planning • Officer – Supply Planning/ Supplier Management	
	Enable Procurement		
	Manager – Procurement	• Officer – Strategic Procurement • Officer – Tenders Management	
	Procure		
	Manager – Procurement	• Officer – Receiving • Officer – Import & Clearance	
	Deliver		
	• Manager – Warehouse & Distribution • Manager – Customers & Sales	• Head – Warehouse & Inventory Management • Head – Transport & Delivery Management • Head – Cold Chain Management	• Assistant – Inventory • Assistant – Pick, Pack • Assistant – Delivery
	Return		
	Manager – Warehouse & Distribution *Manager – Customers & Sales*	• Lead – Returns Management	

EXAMPLE

In the next phases, we will size the workforce by identifying key activities and supply chain roles across associated stakeholders …

Team resource demands across all activities & stakeholders

ILLUSTRATIVE

	Activities	Import and export regulatory	MOH Program	Delivery worker	Central warehouse manager	Regional stock manager / pharmacist	Pharma company	Doctors / nurses	NGOs	Donors
Human Resources management	SCM and health workers training			x	x	x	x	x	x	
Procurement	Data analysis and forecasting		x						x	
	Procurement management		x				x		x	
Supply chain	Delivery from supplier to central warehouse			x	x		x			
	Warehouse stock management				x					
	Delivery from central warehouse to regional centers			x		x				
	Regional stock management					x				
	Provide stock report					x				
Healthcare provision	Immunization and treatment							x		
Communication	Public awareness education		x			x	x	x	x	

Functions Training | Procurement | Distribution | Vaccination | Marketing

We will leverage on WISN resource optimization framework and activity insights from Namibia PtD as part of our analysis

… and determine headcount requirements across districts using workload build-up model and various benchmarks

Workload build-up sizing methodology

ILLUSTRATIVE

External insights

Market benchmarks and expert insights such as:

- KPIs from pharmaceutical companies, wholesalers, and distributors
- Workforce size and productivity

Internal data

Relevant **internal data** such as:

- Target health facilities
- KPIs for % of facilities covered per segment
- KPIs for visit frequency

Estimate headcount requirements

1. **Activity based workload buildup:** Calculate **estimated workload** against **resource capacity** to determine headcount requirements for each district

$$\text{Workload} = \frac{\text{Key activities} \times \text{Time taken for activities} \times \text{Frequency of activities}}{\text{Capacity}}$$

Capacity: *Target visit capacity per month*

2. **Benchmarking:** Estimate **required headcount** using other methodologies (e.g. benchmark against workforce deployment in districts with low vaccination gaps)

Client workforce	Required	District 1	District 2	District 3
Total # staff	??	34	40	20
# warehouse	6	10	12	6

3. Final recommended headcount requirement will be triangulated and validated using estimate derived from the various methodologies to ensure accuracy and ongoing feasibility

Headcount requirement

In the next phase of the work, we will be in a position to set the parameters for an approach that can be replicated across similar countries

Applicability to other health outcomes and countries

Current project scope

Health outcomes

Higher vaccination rates

Vaccines are **not reaching patients** amid **failures to optimize vaccine delivery** to the targeted population

Health outcomes applicability

Criteria

- Any health outcome that is influenced by supply chain healthcare workers

Examples

- HIV care and treatment
- Malaria elimination
- Contraceptive access
- etc.

Country applicability

Criteria

- Any country with an opportunity to improve health outcomes through supply chain human resources improvement

Examples, developing countries in:

- Sub-Saharan Africa
- Southeast Asia
- Latin America
- etc.

Insights using this approach can be developed for multiple combinations of country and health outcomes data

Please contact us for more information

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