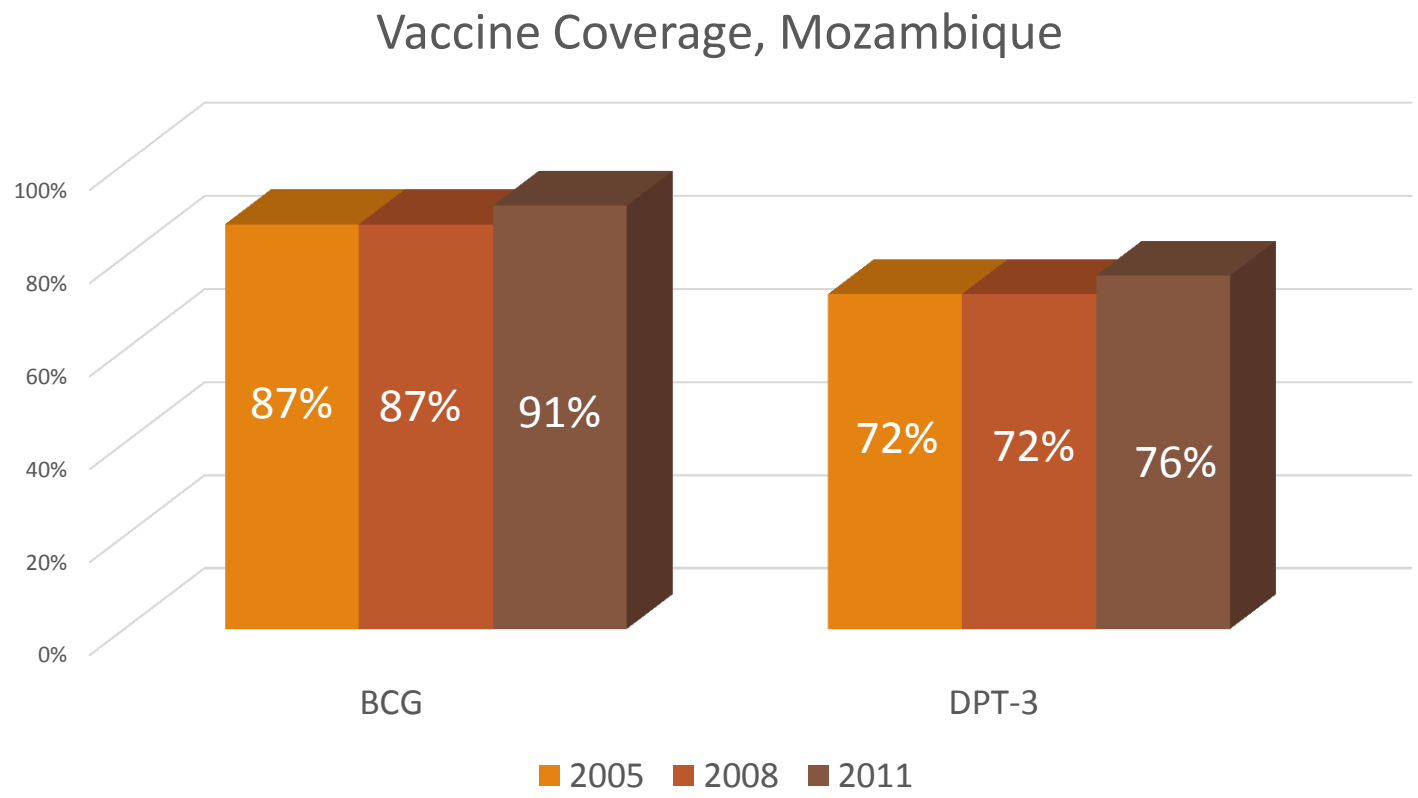
System Design: Repair or Replace

MOZAMBIQUE EXPERIENCE WITH FINDING EFFICIENCIES IN THE SYSTEM

14NTH TECHNET CONFERENCE, BANGKOK

Mozambique's improvement in **vaccine coverage rates has stagnated**



Poor performing supply chain leads to **frequent stockouts and low coverage**

- Multi-tiered system places management requirements on levels without the resources to support operations
- New vaccines being introduced this year will strain the supply chain even more
- New approaches and technologies could introduce efficiencies to the vaccine supply chain

Urgent need led to **modeling two provinces as initial pilot**

- Using HERMES modeling can demonstrate changes to the supply chain to find efficiencies in the system and improve performance
- Results provide logistics cost per dose administered and availability at the health center level; easy to compare across different scenarios of supply chain design
- Expert local team trained on the HERMES tool and interpretation of results, leading to decisions for action based on evidence.

Modeling considered **different supply chain designs for comparison**

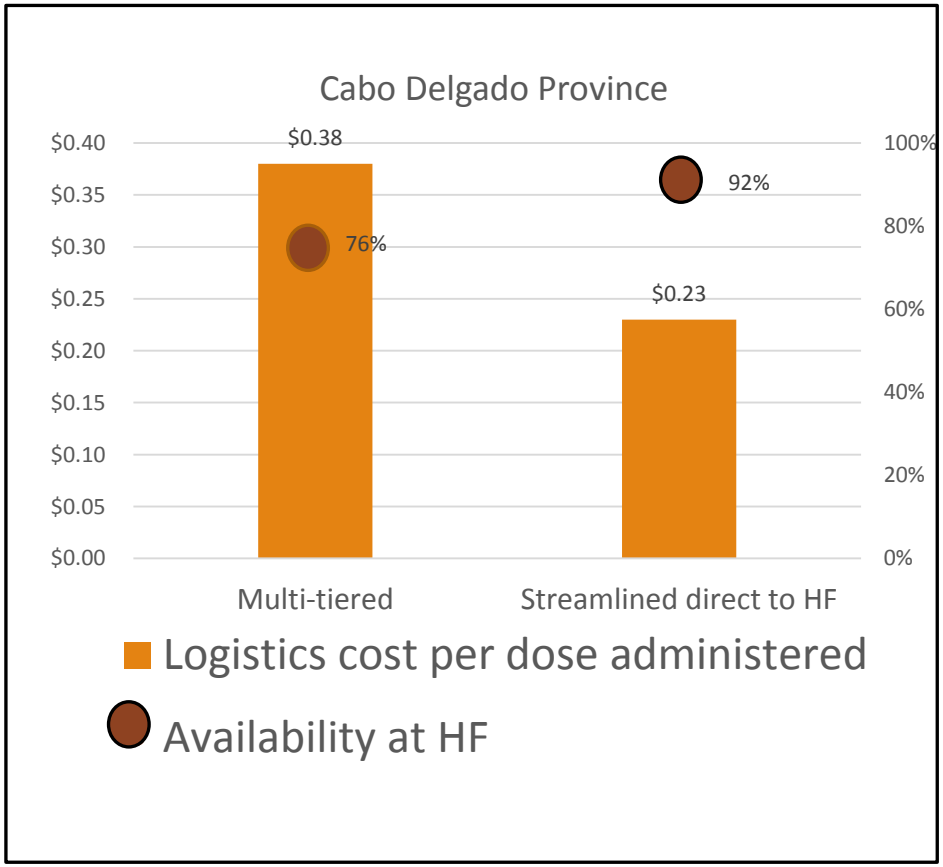
Province Level:

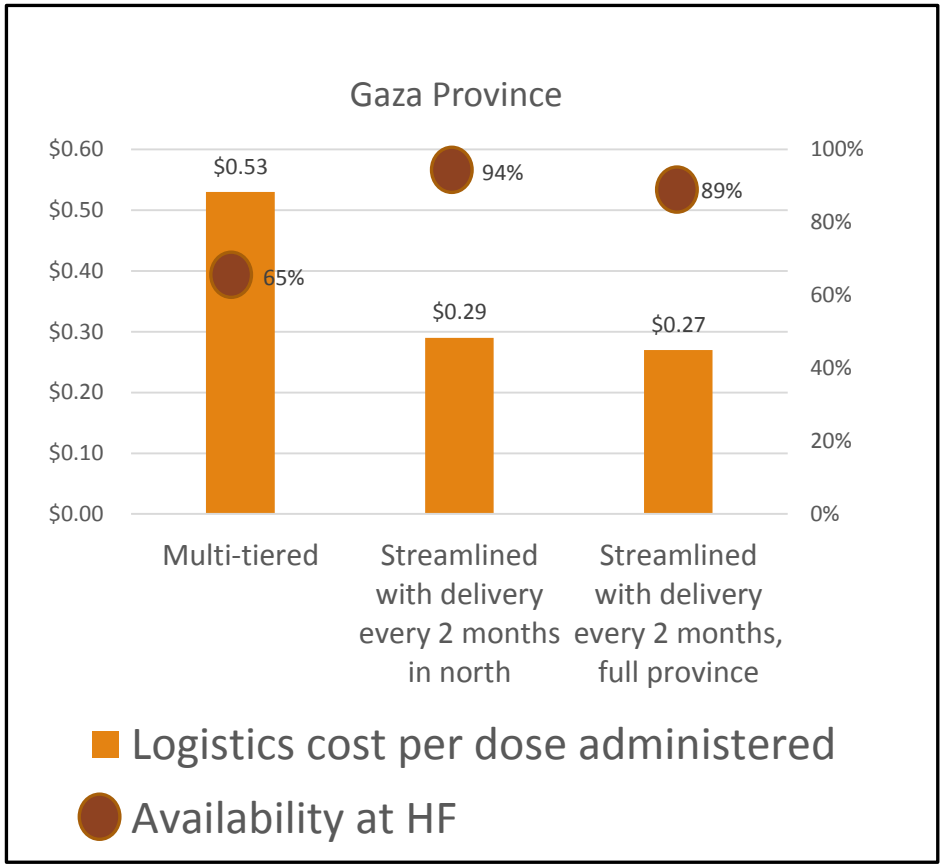
- Multi-tiered systems following administrative lines
- Streamlined system using transport loops from province level direct to health facilities, skipping district level as a storage unit
- Variable delivery intervals to hard-to-reach places

National to Province Level:

- Cold trucks deliver to all provinces compared with sending by plane to north and central regions.

Province Level: Results show efficiencies through changes in supply chain design





National to Province Level: Cold trucks sufficient for full country delivery

CURRENT SYSTEM

- Logistics cost per dose delivered to province level: $0.03 for current EPI schedule and new vaccines
- **Level of effort is significant**:
  - Average 8 pick-ups per year for southern provinces due to transport and storage constraints
  - Between 5 and 15 (ave. 8) deliveries by cargo plane per year to northern provinces
- Commercial plane very unreliable; unable to guarantee cold chain
- Transport and storage constraints worsen with introduction of new vaccines

COLD TRUCKS TO ALL PROVINCES

- Logistics cost per dose delivered to province level: $0.03 for current EPI schedule and new vaccines
- **Reduced level of effort** as provides sufficient transport capacity for all provinces on **quarterly** basis, including with introduction of new vaccines
- Maximum 10 day delivery route, feasible for quarterly delivery and proper maintenance
- Will experience storage constraints with introduction of new vaccines

Must **consider other criteria** when assessing modeling results

Human resource capacity
Transport availability
Availability of funds
Leadership and political will for change
Physical feasibility of transport routes
Capacity of cold chain

Modeling results led to **evidence-based decision making**

- **Gaza province**: It is possible to reach the entire province using a streamlined approach with transport loops for monthly delivery in the south and a two-month delivery schedule for the northern region; extra care will be provided with remote temperature monitoring devices to ensure cold chain equipment performance.
- **Cabo Delgado province**: The full province can be reached more efficiently by using streamlined transport loops to all health facilities. This will require appropriate allocation of funds.
- **National level to province level**: It is a logical decision to use cold trucks for delivery to province level for best efficiency and ensuring reliable availability.

Mozambique is ready to find **efficiencies in the supply chain**

- Modeling is a tool to help analyze components of a supply chain
- Next step is using modeling to analyze the end-to-end supply chain throughout the country to improve efficiency

Thank you