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Instrument and Test Forecasting: Considerations in Implementation of New Diagnostics

Jason Williams
Principal Laboratory Advisor

PFSCM's Quality Management System has been certified to ISO 9001:2008 Quality Management System Standard by UL DQS Inc.
Ref registration # 10012936.

Overview

- Current conventional vs. POC spend
- Quantification process overview
- Forecasting challenges (instrument need and commodities)
- General lab network challenges, defining a need for POC
- Specific POC challenges
- General considerations

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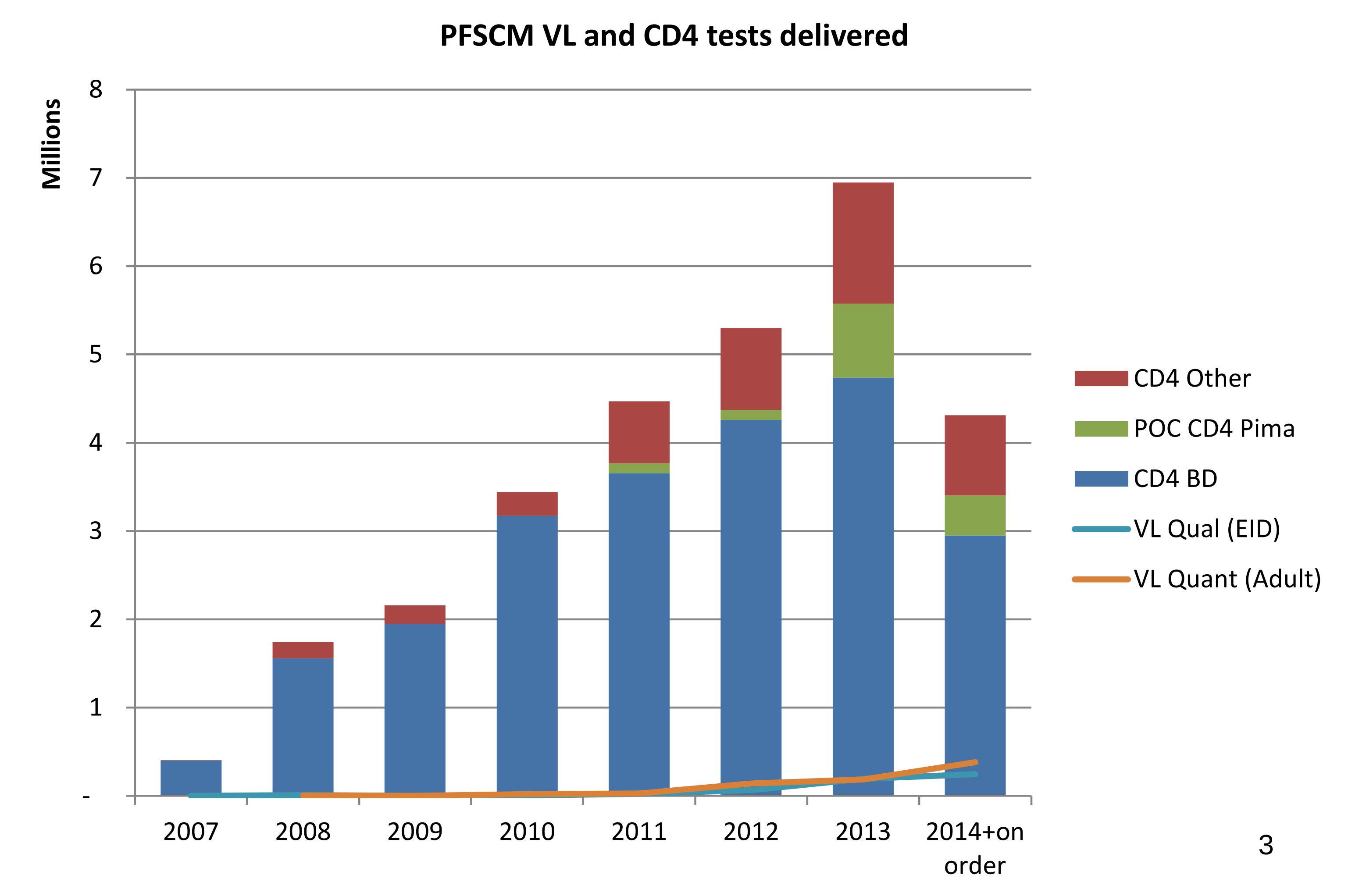
PFSCM number of CD4 and VL tests delivered



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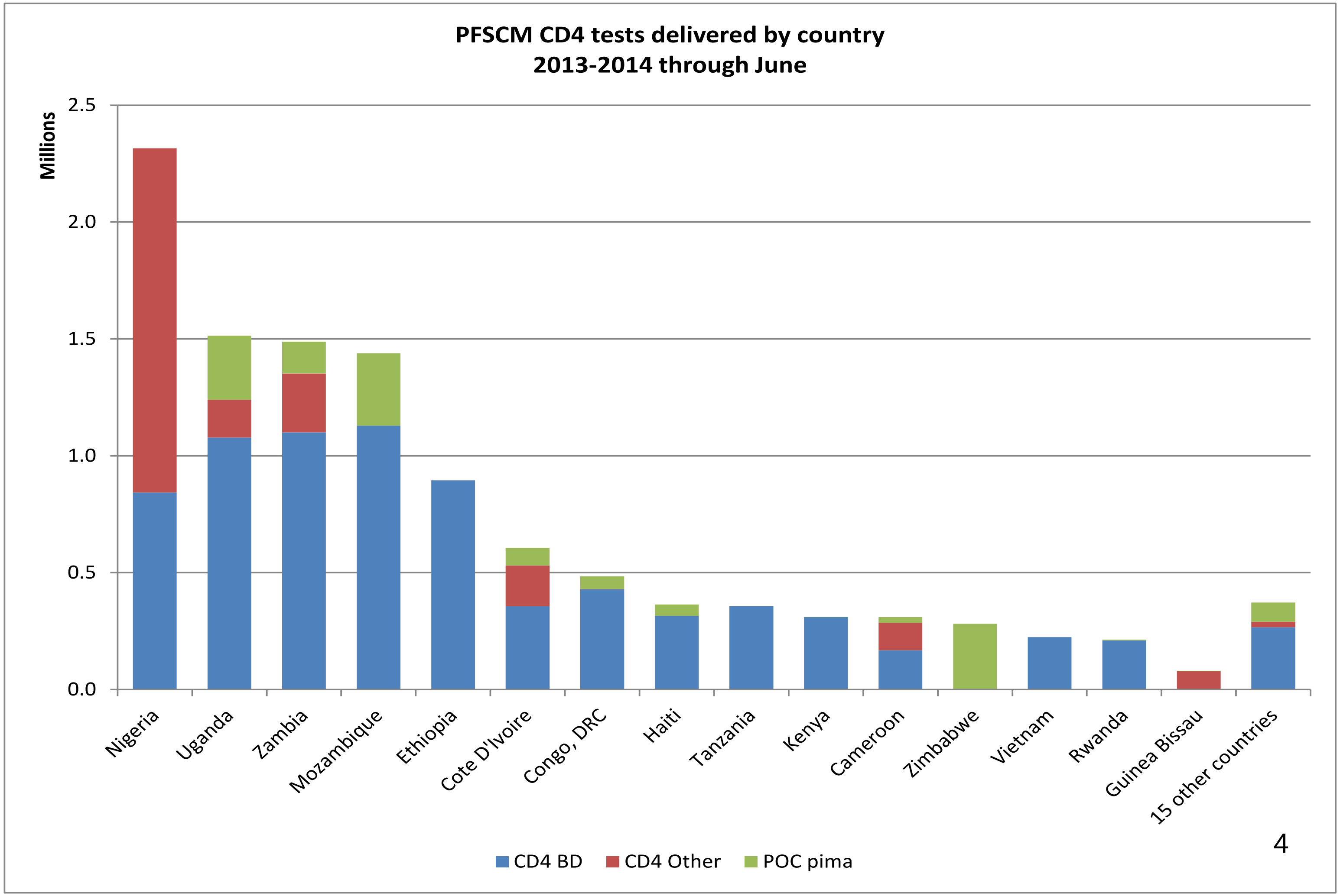
PFSCM CD4 tests delivered by country



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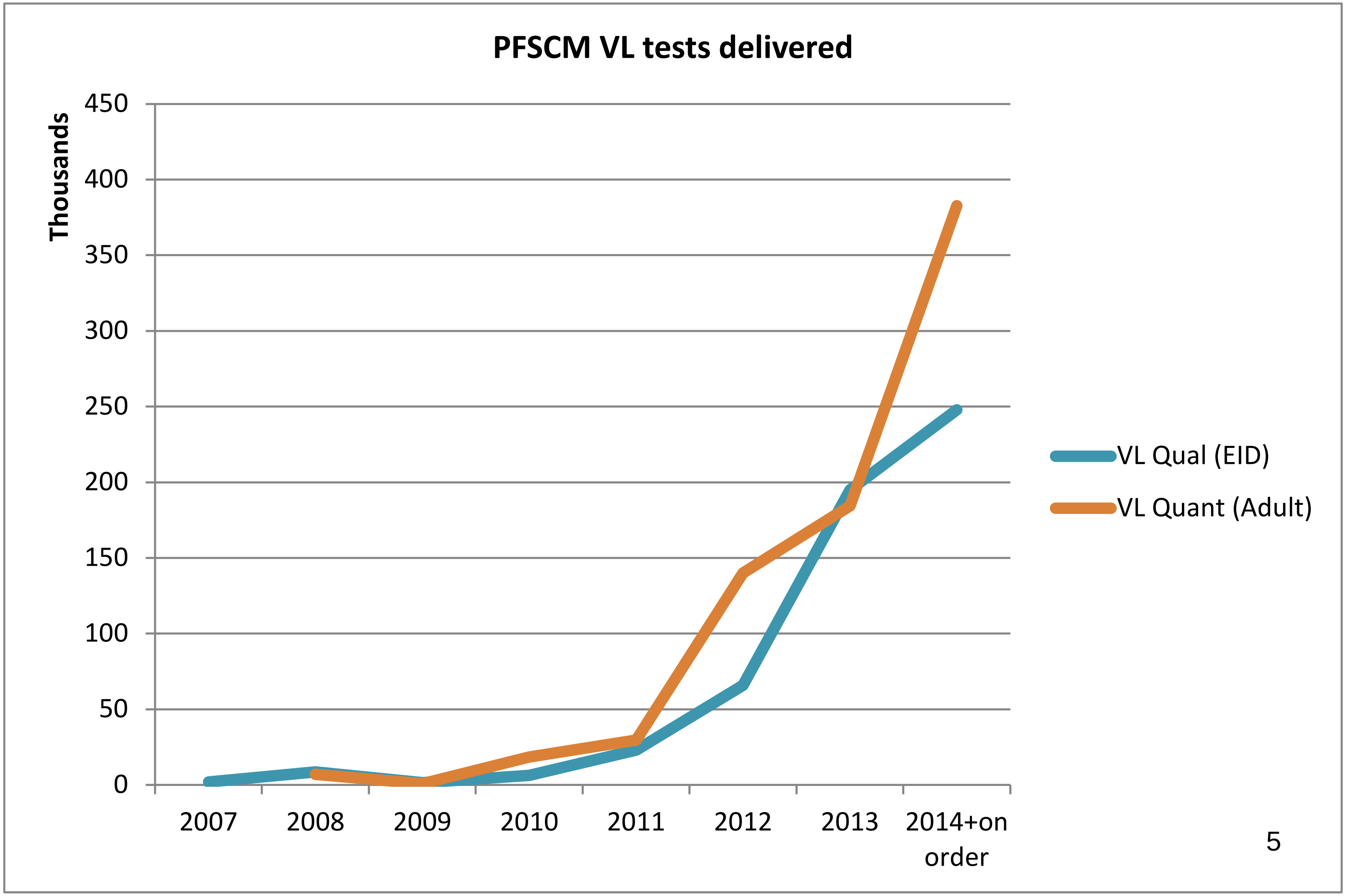
PFSCM number of tests delivered and on order by type, VL/EID



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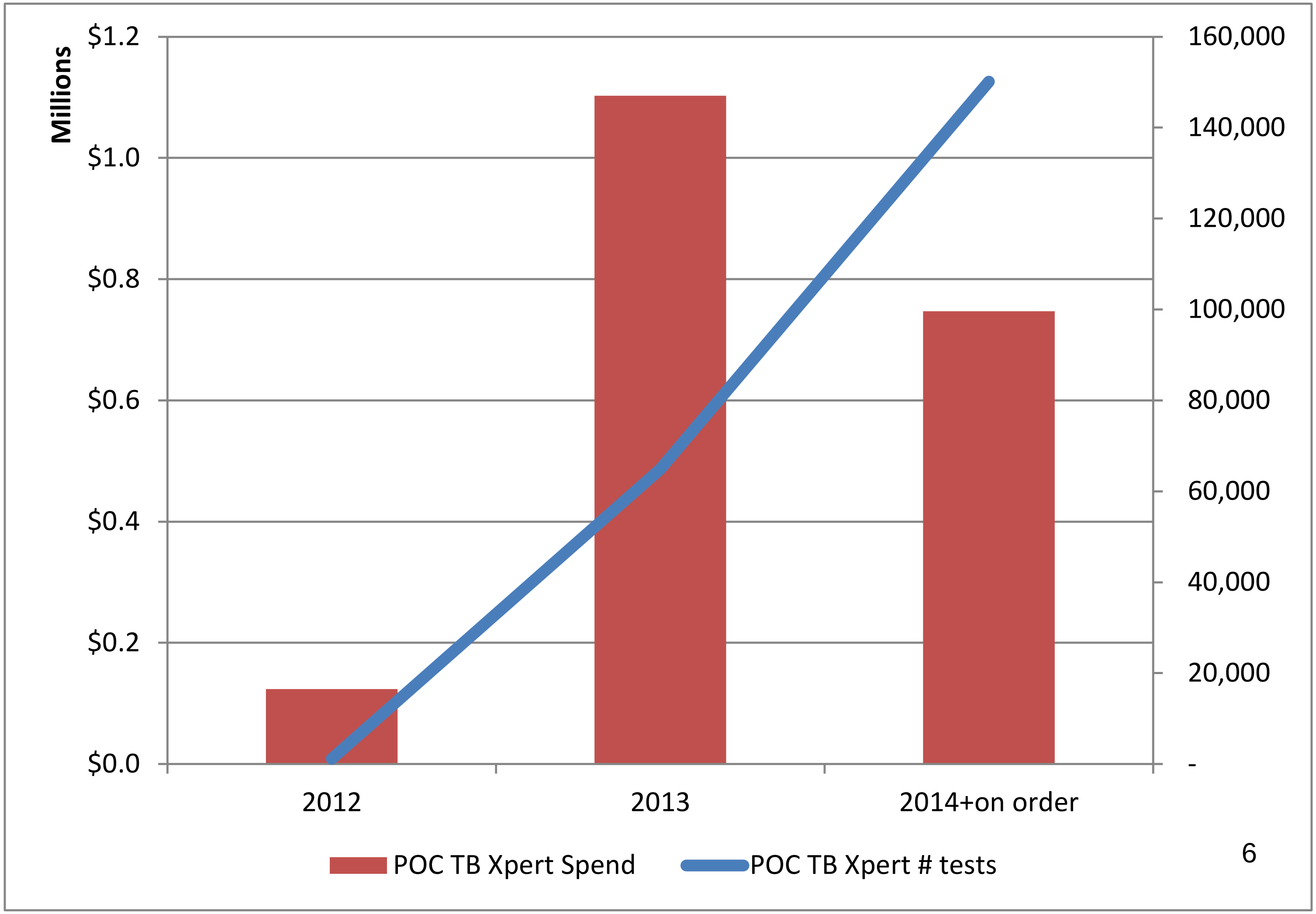
SCMS Cepheid GeneXpert TB



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Why do we conduct laboratory quantifications?

- Identifying the commodity needs of diagnostic programs – commodity security
- Provide evidence of programmatic capacity to accommodate scale up efforts and diagnostic shifts (commodities and instrument needs)
- Informing harmonization efforts
- Guiding network optimization strategies and ways to improve cost efficiencies
- Assist in informing optimal evidence based procurement (commodities and instruments) and instrument deployment and replacement strategies

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Existing challenges

- Reliance on demographic and target based forecasting
- Data availability and quality
- Significant number of product needs (instrument based – limited standardization)
- Vertical funding streams (HIV, TB, Malaria, other OIs)
- Disconnect between ARV forecasting efforts
- Protocol changes – CD4 threshold, CD4/VL transitions – limited coordination between program and lab
- Limited understanding of POC impact on conventional lab network uptake – data sharing
- Buy first, figure out where to place later
- Limited procurement adjustments (quarterly)

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Existing challenges - cont.

- Isolated IP, donor, stakeholder instrument procurements – limited long term planning
- Limited data on instrument failures and stockouts to guide procurement adjustments
- Poor adherence to care and treatment guidelines
- Balanced and strategic placement of POC instrumentation – adjustments made to conventional testing uptake
- Inappropriate instrument deployments (low instrument utilization - inefficient commodity consumption)
- Lack of standardized test offerings/products
- Limited understanding of how to leverage quantification data to inform other lab strategies

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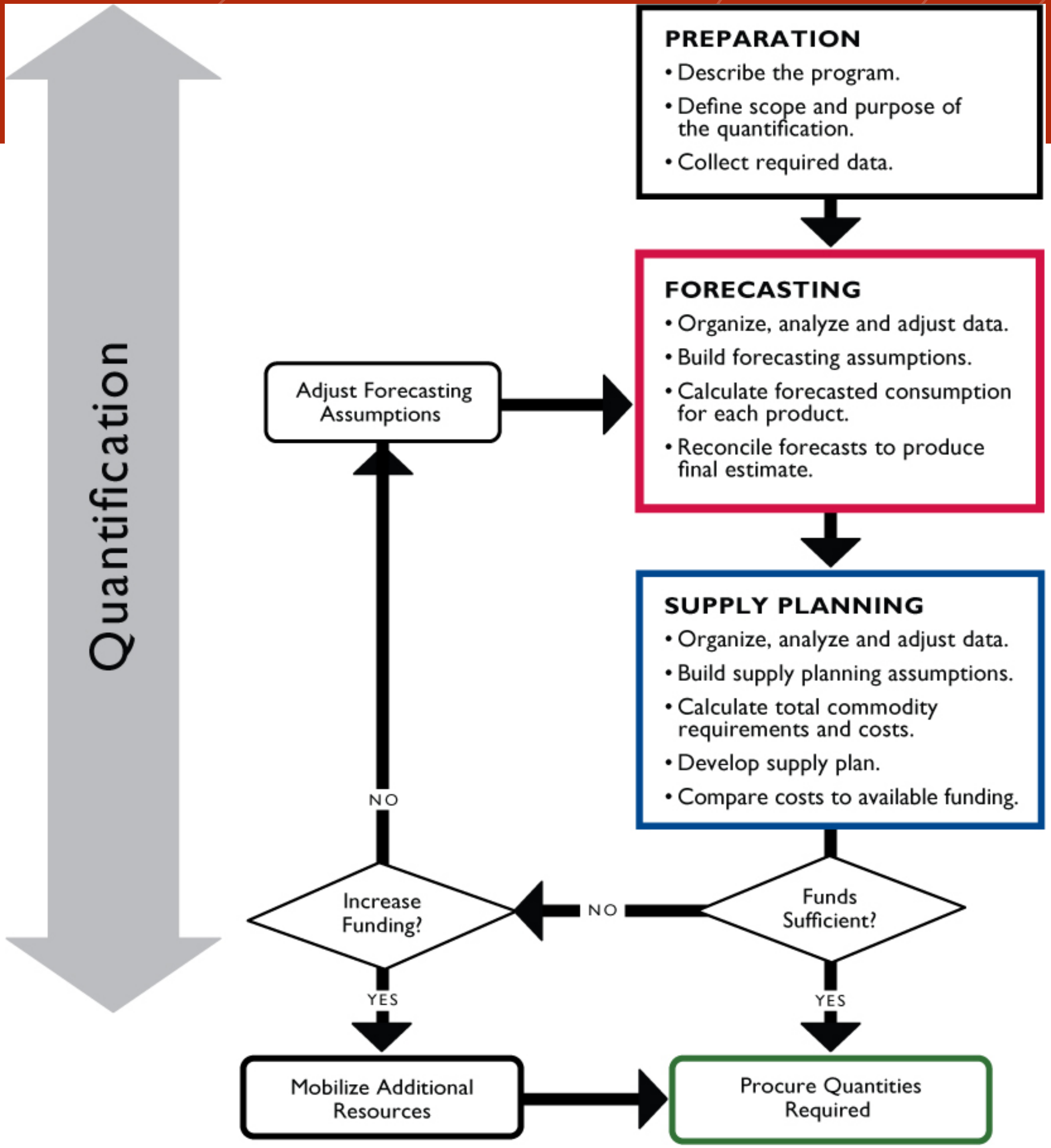
Quantification Steps



Source: USAID | DELIVER PROJECT

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Types of forecasting data/methodologies

- Consumption/Usage data (Logistics data): Data on quantities of products used/issued over time, losses and adjustments to inventory, and the stock on hand at the various levels of the in-country supply chain.

- Demographic/Morbidity data: Data on disease prevalence and population characteristics.

- Service Statistics data: Data on the number of service delivery sites, the volume of services or number of patients per site, and the type of service received

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Tools available for Quantification

- Quantimed
- ProQ
- PipeLine
- Microsoft® Excel
- CHAI/DELIVER/SCMS Demographic/Morbidity Lab Quantification Excel-based Tool
- CHAI/DELIVER/SCMS Demographic/Morbidity EID Quantification Excel-based Tool
- ForLabs CHAI/SCMS tool (new!)

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Core utilities of ForLab

- Conducts multi-year laboratory forecast using 3 methods:
  - Service statistics (test #s)
  - Logistics data (consumption)
  - Demographic (program targets)
- Assist in comparing methodologies to identify programmatic challenges and funding gaps
- Compares actual and forecasted instrument utilization, diagnostics contribution and instrument diversity
- Standardized data template

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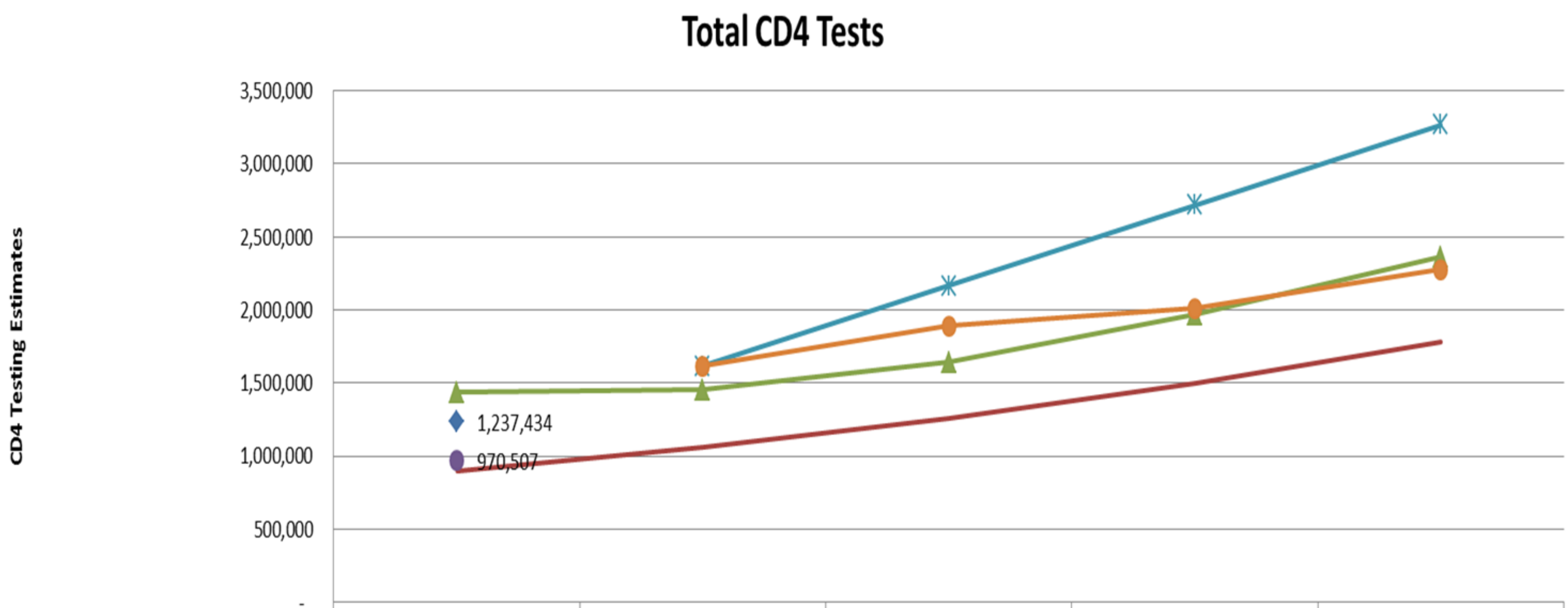
Example of comparative review



	2012	2013	2014	2015	2016
Service Forecasted 2012 (2011)	1,237,434				
Service Estimates	899,589	1,063,502	1,261,371	1,498,813	1,783,744
Service Adjusted stockout/downtime	970,507				
Consumption	1,436,700	1,452,504	1,640,711	1,968,854	2,362,624
Achievable Target		1,614,462	2,166,161	2,717,035	3,268,605
NSP Target		1,614,462	1,892,579	2,008,904	2,275,736

General lab network challenges, defining a need for POC

- High lab instrument failures (aged, ↑ downtime)
- Suboptimal and outdated sample referral networks
- Unreliable sample transport
- Long TATs
- Existing instruments – under utilized
- Challenged lab and clinic interface (patient management)
- Limited coordination between lab and program

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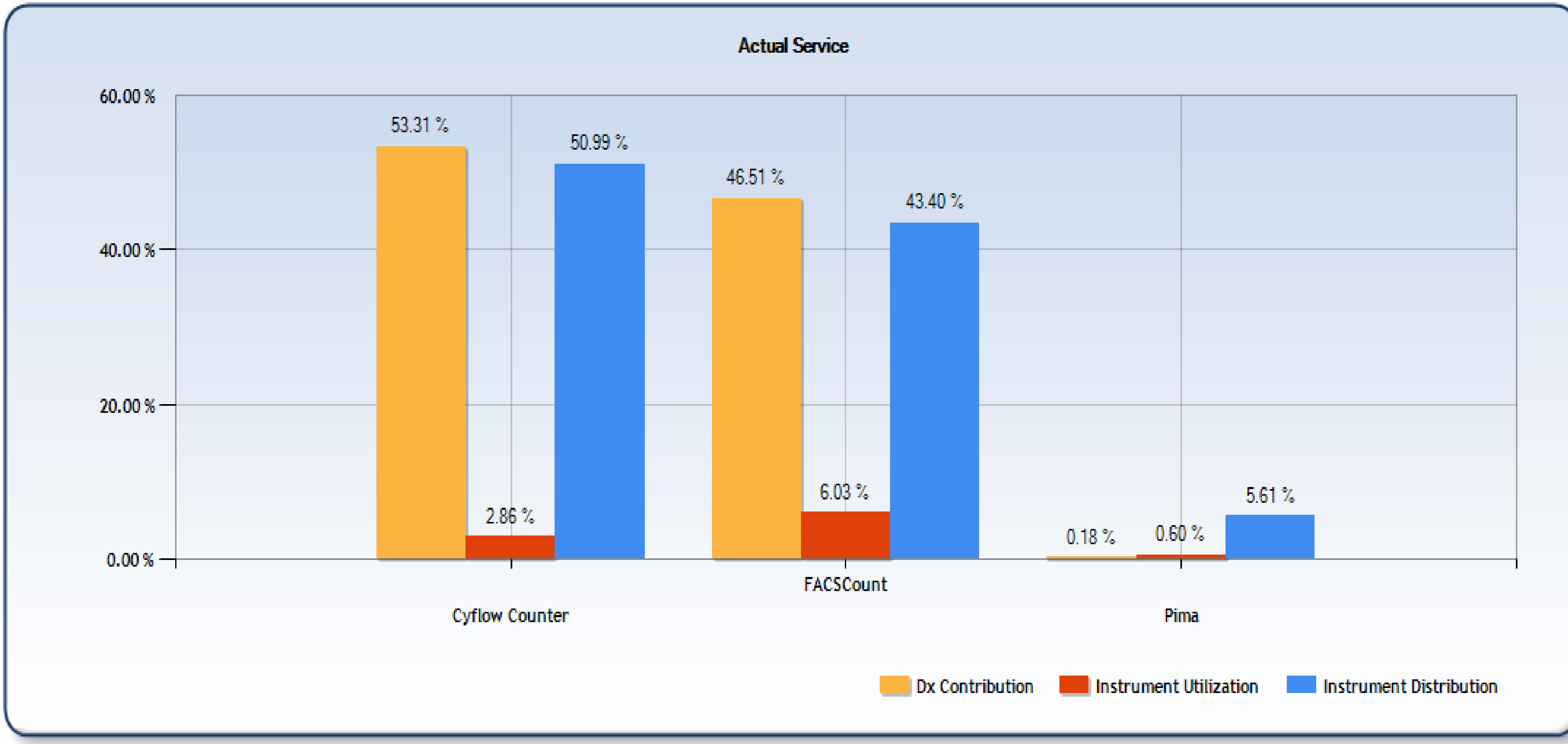
Monitoring instrument usage



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Country X: PIMA POC example

Overall 2012	
Total number of sites	269
Sites with "0" consumption	46
Sites with consumption ≤ 1/day	91
% of sites with 0 or consuming ≤1/day	34%
% of sites with access to referral lab	30%

- Program expansion driven by PMTC programs
- No MOH laboratory involvement
- Existing warranties had expired
- Limited funding available - maintenance costs had to be negotiated

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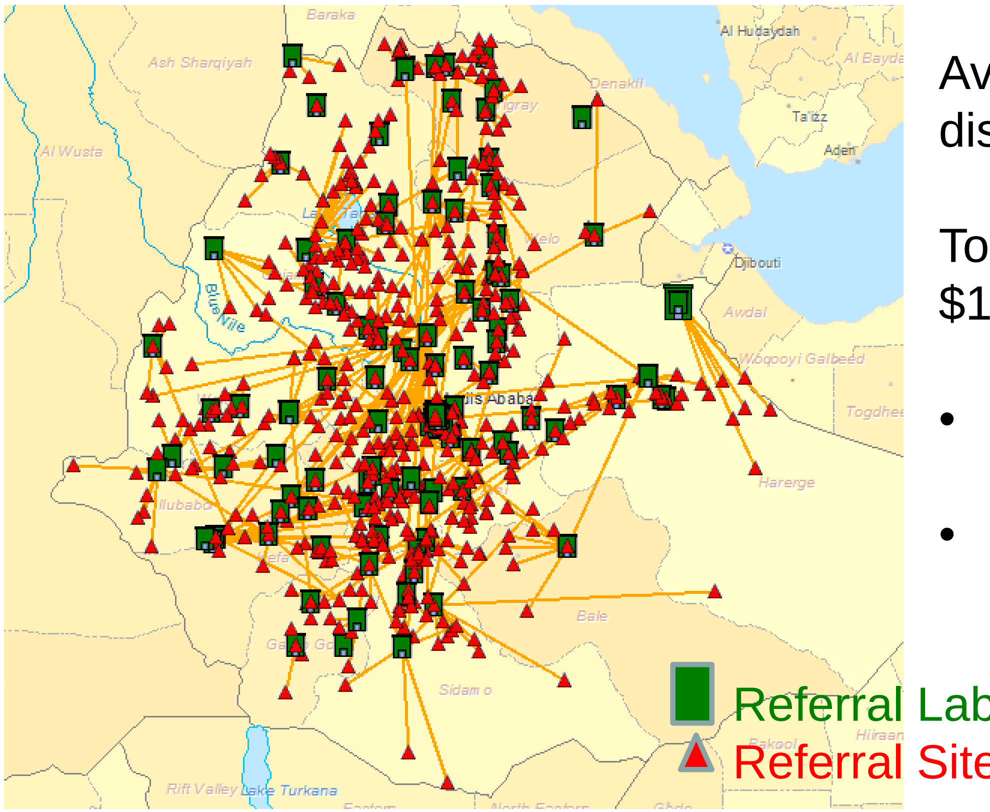
Baseline Scenario: Lab Referral Network Optimization

Baseline



Average sample transport distance (one way): 82 KM

Total Transport Cost: $1.7 Million

- Vehicle/Fuel Cost[1]: $1.55 Million
- Lab Tech Opportunity Cost[2]: $250,000

[1]Vehicle cost includes: Postal costs for current postal lanes, an assumed cost of .025 per shipment per KM, and the return leg on transport for non-postal service
[2]Lab tech cost based on daily wage of $10.71 and time spent traveling

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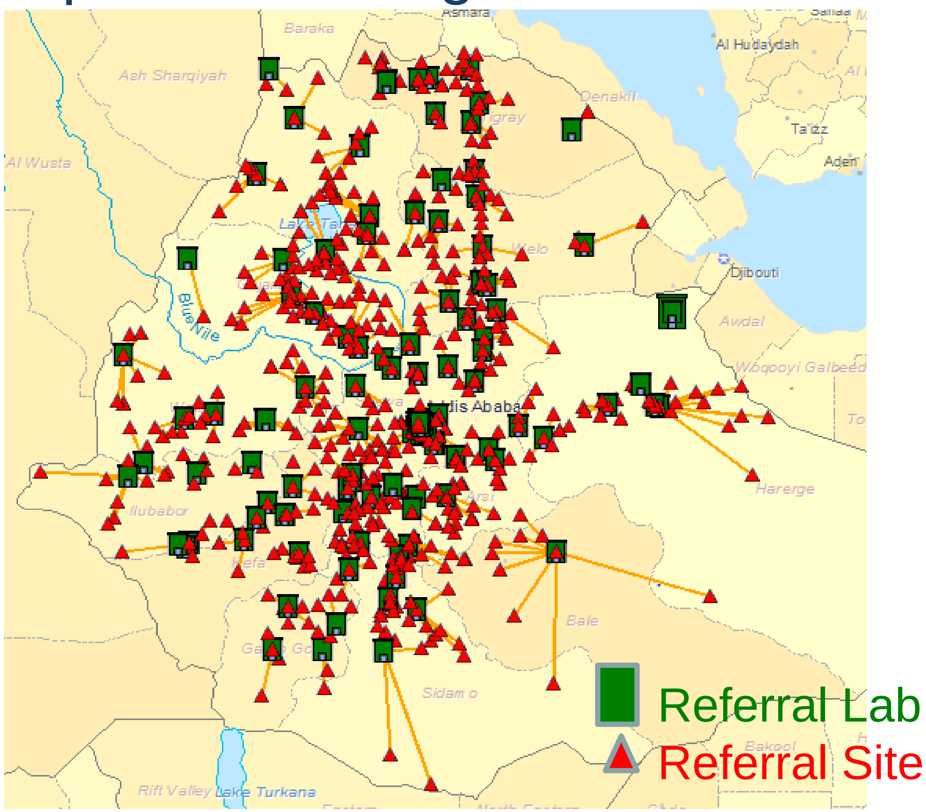
Optimized Scenario: Lab Referral Network Optimization

Optimized Assignments



Average sample transport distance (one way) : 32 KM
Reduced result TATs, improved CD4 service and patient care

Total Transport Cost:
$ 677,000

- Vehicle/Fuel Cost[1]: $585,000
- Lab Tech Opportunity Cost[2]: $92,000

Savings from re-assignments: **~60%**

[1]Vehicle cost includes: Postal costs for current postal lanes, an assumed cost of .025 per shipment per KM, and the return leg on transport for non-postal service

[2]Lab tech cost based on daily wage of $10.71 and time spent traveling. Does not include travel per diems

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Considerations for POC implementation

- Maximizing conventional instrument utilization, with strategic POC integration.
- Enhanced monitoring of utilization vs. diagnostic contribution, as well as patient outcomes
- Instrument replacement strategies, POC integration may assist in creating further efficiencies within existing networks

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Considerations for POC implementation (cont.)

- Leverage GIS data to inform strategies
- Update existing sample referral networks prior to developing POC integration approach
- Seek increased access in a cost controlled approach
- Develop appropriate instrument placement strategies ***before*** procurement

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Questions

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