



A New Tool For Quantifying Laboratory Commodities: The Botswana Experience



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Objectives

- **Develop** an evidence based national forecast for Botswana of laboratory commodities and a procurement plan for subsequent mobilization of required resources to support the national HIV/AIDS program
- **Introduce** an automated laboratory quantification tool to enable central procurement coordinators to accurately and confidently quantify expected needs
- **Build** procurement and supply planning team capacity to effectively manage procurements, thus minimizing stockouts and enabling uninterrupted service to patients



Methods (1)

- Conducted quantification using the Laboratory Quantification Model developed by SCMS, the Clinton HIV/AIDS Initiative and USAID| DELIVER PROJECT
- Adopted the morbidity method because the ARV program is in the process of scale-up
- Compiled data from the National ARV Program (MASA):
 - Site-specific total patients on HAART and pre-HAART at all public sector supported ART sites
 - Site-specific projected number of patients on HAART and Pre-HAART at all public sector supported ART sites
 - Testing protocols from the 2008 Botswana ART Guidelines



Laboratory Quantification Model

Version 0.1

Main Menu



This model has been used extensively for internal purposes and is now being converted into a user-friendly edition which can be shared more widely. This version has been prepared for Botswana's National Quantification Exercise, March 2008. Feedback from the program will be used to improve this model to better suit the country's needs.

Run Forecast and Quantification	View Results
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Set up model:

Set Up Model and Define Variables

Exit model:

EXIT

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Methods (2)

The first step was to set up the Laboratory Quantification Model by defining forecast variables, including:

- List of types of tests performed and testing platforms used
- List of sites
- Categorization of sites (e.g. regions, funding agents, etc.)
- List of reagents, consumables, and other supplies
- Pricing and comprehensive packaging specifications
- Product usage rates



Methods (3)

- The next step was to input data for the forecast and quantification, including:
 - Assumptions and forecast timeframe
 - Current patient numbers by site
 - National ART targets: patients actually on treatment & on pre-ART
 - Test information: test services by facility level and testing protocols
- The final stage was to generate a forecast to produce a procurement summary and forecast report

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 2 **Forecast Report**
 3 **July 2008 to June 2009**
 4 Botswana National Laboratory Quantification, created on March 20, 2008

BACK NEXT Main Menu Results

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 7 **Forecast total: S 22,006,516.27**
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 11 **The forecast is based on the following key assumptions:**
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13 **PATIENT ASSUMPTIONS**

	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
15 Patients on Treatment	85,041	86,496	87,951	89,406	90,861	92,316	93,771	95,225	96,680	98,135	99,590	101,045	102,500
17 Patients in Pre-ART	119,908	121,959	124,011	126,062	128,114	130,165	132,216	134,268	136,319	138,371	140,422	142,474	144,525

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 20 **Key Assumptions**

- 22 8% of patients on Treatment are peditrics and 8% of patients on pre-ART are peditrics
- 24 15% of adult patients in Treatment are lost to attrition over the course of the year
- 25 7% of peditric patients in Treatment are lost to attrition over the course of the year
- 26 20% of adult patients in pre-ART are lost to attrition over the course of the year
- 27 2% of peditric patients in pre-ART are lost to attrition over the course of the year
- 29 5% of adult patients migrate from pre-ART into Treatment and start ARVs over the course of the year
- 30 15% of peditric patients migrate from pre-ART into Treatment and start ARVs over the course of the year

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 37 **CD4 ASSUMPTIONS**

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 39 **CD4 Tests For: Key Assumptions Number of Tests**

40 Existing Patients in Treatment	Existing adults in Treatment receive 2 CD4 tests per year	156,531
41 Existing Patients in pre-ART	Existing adults in Treatment receive 2 CD4 tests per year	
42 Existing Patients in pre-ART	Existing adults in pre-ART receive 2 CD4 tests per year	208,051
43 CD4 baseline tests	Existing peditrics in pre-ART receive 2 CD4 tests per year	
44 New Patients to Treatment	100% of patients who test positive and follow up after their diagnosis will receive a baseline CD4 test	83,328
45 New Patients to pre-ART	Adults in Treatment receive 4 CD4 tests in their first year (not including baseline)	74,811
46	Peditrics in Treatment receive 3 CD4 tests in their first year (not including baseline)	
47	Adults in pre-ART receive 4 CD4 tests in their first year (not including baseline)	136,319



Results

- Use of an automated tool enabled forecasting of **359 laboratory products** for the period July 2008 – June 2009, resulting in a procurement summary for the forecast period
- Reduced commodity stockouts for CD4 and viral load testing **by 95%**
- The tool motivated reporting: Logistics data **reporting increased** from none reporting to 50% of the 32 facilities expected to report within one year of implementation
- Began **institutionalization** of the process within the Ministry of Health



Discussion & Conclusions



- The forecast enabled the national procurement team to develop a procurement plan and supply plan
- The tool promoted quarterly monitoring of the supply plans allowing for necessary adjustments
 - Additional resources for rapid test kits were mobilized from BOTUSA & the African Comprehensive HIV/AIDS Partnership (ACHAP) to avoid stockouts
 - Planned delivery of CD4 and viral load kits was re-scheduled to avoid overstocking
- Use of a standardized tool promoted evidence based quantification and increased level of accuracy



Future Perspectives

- Strong systems for HIV/AIDS -related laboratory commodities can be leveraged to strengthen systems for other health programs
- Continuous capacity building and skills development is important for sustainable systems
- Further upgrades of the tool should be made to allow flexibility in choice of quantification methodology, e.g. service statistics, which is regularly available