

Laboratory Sample Transportation In Swaziland Making Use of Public Transport As an Alternative

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ISSUES

Globally, Swaziland has the highest HIV prevalence: 26% among the adult population (DHS 2007) and 42% among pregnant women (ANC Sero-Surveillance – 2009). The country has successfully introduced ART in tertiary centers and since 2008 has been working to provide decentralized services to the primary care (clinic) level. With no laboratory services in clinics, laboratory samples (CD4, LFT, TB and CBC samples) have to be transported to secondary or tertiary level facilities for processing.

A national sample transportation system is being developed. Meanwhile, undocumented, unlogged samples were transported once a week from some clinics to central laboratories, resulting in many missed opportunities for patients to provide samples and long term around times (average of almost 13 days at baseline). Samples were often wasted when collected but not transported and clients often had to provide repeat samples when they returned for care.

DESCRIPTION

For 6 weeks in November and December 2009, ICAP piloted the transportation of samples through public taxis (kombis) to deliver samples from six clinics to central laboratories (Preko et.al 2010). Monthly CD4 sample collection increased 13-fold compared with baseline (average of 22 samples/month compared with 293/month during the pilot). Turn around time also improved to 4 days for 58% of the samples.

Following the successful pilot, the transport network was scaled up from 6 to 17 facilities (all rural locations) from April – September 2010. The expansion resulted in more than 3,750 samples being transported to central laboratories. This analysis frames the lessons learned from expanding the initiative to more clinics.

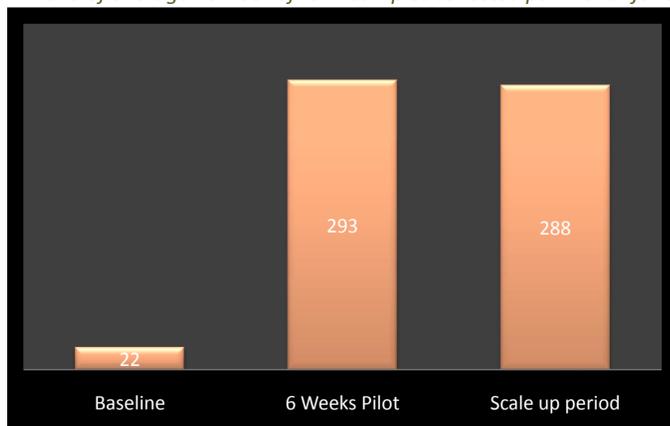
Figure 3: Mean CD4 turn-around time (days)



RESULTS AND LESSONS LEARNED

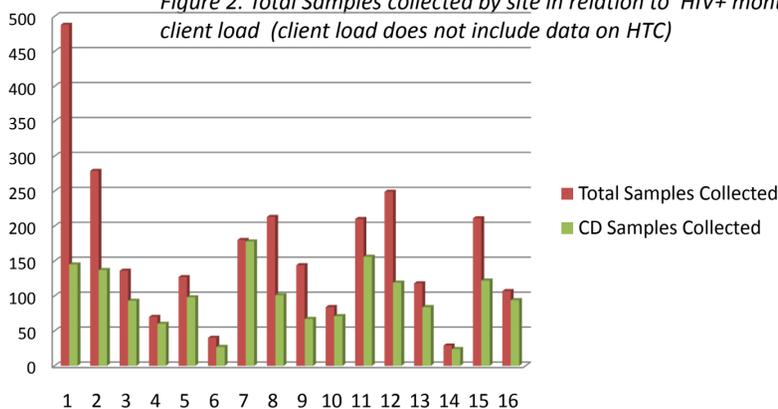
- On average, clinics transported 14.7 samples per week total of nearly 1000 samples per month, at pick up rate of 3/week, with no reported safety incidents. Clinics participation in the system ranged between 9 to 23 weeks.
- The six pilot sites maintained the 13 fold increase in average monthly samples transported, with a small decrease in actual numbers of CD4 samples collected (Figure 1).

Figure 1. Trend of average number of CD4 samples collected per month for the 6 pilot sites



- Sample collection efforts varied widely across the 17 facilities (range 3.2-37.5 samples per week -Figure 2) with some new sites collecting very few samples, increasing the average transport cost per sample from \$0.59/sample during the pilot to \$1.00/sample during the scale-up.

Figure 2. Total Samples collected by site in relation to HIV+ monthly client load (client load does not include data on HTC)



- 45% of CD4 samples had a turn around time of 4 days or less. Mean turn around time for all CD4 samples during the scale up was 4.3 days compared with 3.1 days during the pilot and 12.7 days at baseline (Fig 3).



A phlebotomist carrying triple bagged samples in a rigid cooler box on a 'kombi'

CONCLUSIONS

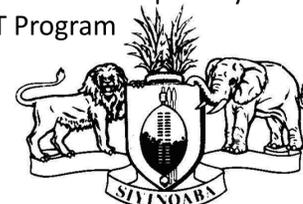
- Daily sample transportation as compared to once a week increases the number of samples collected, processed and improves turnaround time for lab results.
- Daily transportation of laboratory samples can be sustained in the long term, using public vehicles to transport lab samples as illustrated by the extended performance of the 6 sites that started the pilot.
- Receiving laboratories need to plan for and be ready for an increased workload with improved sample transportation systems, so that sample turnaround time is not extended.
- The use of public transportation for lab sample transport could complement the national sample transportation system to convey samples that can not be stored over night and to increase the frequency of collection from the planned twice per week.
- Careful monitoring of costs (preferably decentralized to the regional level) is necessary to ensure the system remains cost effective taking into consideration the distance between remote and proximal facilities and total number of samples to be processed.

ACKNOWLEDGEMENTS

Literature Cited:

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ANC Sero-Surveillance Report (2009) Mbabane: Ministry of Health.
Preko et al (2010) Facilitating Active Lab Sample Transport (FAST) System Using Public Mini-Buses – Report of a Pilot Program in Swaziland. Oral Poster Presentation at AIDS 2010, Vienna.

- U.S. President's Emergency Plan for AIDS Relief (PEPFAR) for funding ICAP's HIV care and treatment technical assistance program
- Centers for Disease Control
- Swaziland Ministry of Health and especially the National Laboratory
- Swaziland National ART Program



The International Center for AIDS Care and Treatment Programs (ICAP)

ICAP is a global leader in HIV and public health. Founded in 2002 at Columbia University's Mailman School of Public Health, ICAP supports clinical services, infrastructure, and human resources that address serious threats such as HIV, tuberculosis, and malaria and help strengthen health systems. Supporting more than 1,200 health care facilities across 15 countries, ICAP has helped more than one million people receive critical prevention, care, and treatment for HIV.

