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USING NONFINANCIAL INCENTIVES TO IMPROVE PERFORMANCE AND RETENTION AMONG HEALTH WORKERS: RESULTS FROM AN IMPACT EVALUATION IN SWAZILAND

April 2011

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Mission

The Health Systems 20/20 **cooperative agreement**, funded by the U.S. Agency for International Development (USAID) for the period 2006-2011, helps USAID-supported countries address health system barriers to the use of life-saving priority health services. Health Systems 20/20 works to strengthen health systems through integrated approaches to improving financing, governance, and operations, and building sustainable capacity of local institutions.

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ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
HCWs	Health Care Workers
HIV	Human Immunodeficiency Virus
HRH	Human Resources for Health
HTC	HIV Testing and Counseling
MDGs	Millennium Development Goals
MOH	Ministry of Health
NGO	Nongovernmental Organization
NSF	National Strategic Framework
PMTCT	Prevention of Mother-to-Child Transmission
SNAP	Swaziland National AIDS Programme
WHO	World Health Organization

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EXECUTIVE SUMMARY

Swaziland's HIV/AIDS prevalence rate among adults is among the highest in the world. A shortage of trained health personnel and suboptimal productivity within the existing workforce are key impediments to scaling up HIV/AIDS prevention and treatment in Swaziland. In 2009 Health Systems 20/20, a global program funded by USAID, began pilot-testing a 12-month operational research study to assess the effect of a nonmonetary incentive scheme aimed at increasing the performance of public health workers in providing HIV/AIDS testing and counseling (HTC) in Swaziland, and also measure the effects on provider retention. This report summarizes the results of the end-line assessment that was conducted at the end of the intervention in September-October 2010.

For this particular intervention, all government facilities offering HTC services in the country were randomly assigned to equally sized treatment and control groups. Through consultation with the MOH and other key stakeholders, and an analysis of the baseline data, the HTC target rate was set at 7 percent of a facility's quarterly clinic patient load. Those facilities that achieved their targets were eligible for a nonmonetary incentive, which they could select from a pre-set menu of incentives that included laptop computers, additional training for health workers, infrastructure upgrades, and extra HTC equipment (refer to Annex B). The incentive items were chosen through a stakeholder process with the MOH, clinic managers, and nurses from the clinics. The facilities in the intervention group (29) were informed of their facility-level performance targets for Quarter I and began the intervention on September 1, 2009. The study employs a difference-in-difference model for measuring impact using monthly HTC performance data, as well as baseline and end-line job satisfaction surveys of health workers and head nurses. Additionally, qualitative research was conducted in the treatment facilities to better understand the mechanisms whereby the program affected health worker productivity, facility operations, and retention of staff.

Results from the quantitative survey show that the program had a modest impact on HTC performance and no impact on job satisfaction. The qualitative analysis undertaken revealed that the incentive stimulated performance by creating a competitive spirit, greater team work, and improved access to testing services. Treatment facilities that failed to increase HTC performance sufficiently to receive the incentive cited unrealistically high targets and logistical impediments to increasing tests as their main challenges. The implementation of the study resulted in an improvement of data collection systems for tracking HTC performance at public facilities, which was an unintended but positive consequence of the study.

It is also important to note that target setting had a crucial impact on the results of the intervention. If, for example, targets had been set as a percentage of performance improvement, rather than absolute thresholds, an almost completely different set of clinics would have received the incentives.

I. INTRODUCTION

One in five adults in Swaziland has HIV/AIDS (UNAIDS 2009). To scale up the range of prevention and treatment services required to combat the disease, Swaziland needs, among other things, a sufficiently large and productive health workforce. However, shortages and low productivity among health care workers (HCWs) are key health systems constraints impeding the country's progress in the fight against HIV/AIDS (Kober and Van Damme 2004, 2006; WHO 2004; Hongoro and McPake 2004). As the National Strategic Framework (NSF) for HIV and AIDS 2009-2014 states, "In treatment, care and support, adequate access and utilization of services has been constrained by inadequate human resources" (NERCHA 2009).

In order to achieve the health-related Millennium Development Goals (MDG) targets, the World Health Organization (WHO) estimates that developing countries should have a minimum of 4.1 health service providers and support workers per 1000 people, of which 2.5 should be doctors, nurses and midwives, by 2015 (WHO 2006). The Human Resources for Health Country Profile for Swaziland (Kober, K., and W. Van Damme 2006), which draws information from a range of sources, estimates that in 2009 Swaziland had approximately 3.52 health service providers and support workers per 1,000 people. In terms of doctors, nurses, and midwives, Swaziland has 1.74 personnel with such training per 1,000 people in the population. While the inflow of HCWs remains insufficient, the main factors contributing to this shortage of HCWs are attrition caused both by infection by HIV/AIDS and migration (Kober and Van Damme 2006).

The problem of HCWs' migration is one that Swaziland shares with many of its neighbors in sub-Saharan Africa and other developing countries around the world. The problem of "medical brain drain," wherein HCWs migrate from Swaziland to richer countries to find employment with higher pay, is well documented (Masango et al. 2008). The situation is particularly acute in the public sector, which faces the dual challenges of internal and external migration. According to the Human Resources for Health (HRH) country profile for Swaziland, HCWs from the public sector leave to find jobs in the private sector within Swaziland as well as migrating to other countries in the world. Since the public sector typically serves the underserved segments of the population, who on average have worse health, the displacement of HCWs from the public sector is particularly harmful to population health outcomes.

Many "pull" and "push" factors explain why HCWs choose to leave their current jobs. Higher pay in another job is the most obvious financial "pull" factor. Studies have documented a range of "push" factors that drive HCWs away from their current jobs (Masango et al. 2008; AHWO 2009). These include poor working conditions, inadequate recognition of good performance, lack of supervision and on-the-job mentoring, as well as logistical problems like poor transportation to facilities and the lack of proper accommodation. These "push" factors, many of which go beyond the simple calculation of low wages, depress job situations among HCWs, which in turn drives them to seek alternative employment opportunities (AHWO 2009).

Many of these "push" factors also impact the productivity of the health force. Dissatisfaction with one's job directly reduces one's motivation to improve performance. Additionally, issues like lack of adequate supplies, absenteeism due to poor transportation, insufficient supervision, and poor on-the-job training also have a direct detrimental effect on productivity and service quality.

In sum, the human resources crisis in Swaziland, which is a combination of workforce shortages and low productivity, is a bottleneck limiting the country's ability to scale up its HIV/AIDS prevention and treatment programs. It is against this backdrop that Health Systems 20/20, a USAID-funded project,

launched a 12-month operational research study to test the effect of a performance-based nonmonetary incentive program on improving retention and increasing the delivery of HIV testing and counseling (HTC) services in Swaziland.

According to the NSF, HTC is a key component of Swaziland's strategic plan for the prevention and treatment of HIV/AIDS. In Swaziland, HTC is both voluntary and provider-initiated, and offered at a majority of health facilities in the country as well as through stand-alone centers and outreach services. HTC supports early detection, increasing the uptake of a range of HIV treatment and care services. While HTC is not directly a prevention strategy, it is "an important entry point for HIV prevention," as the NSF notes. A person who knows (his or her) status can make informed decisions and adopt practices to avoid infection or transmission to others. To scale up HTC, the country needs to have a motivated and sufficiently large pool of HCWs. Given the retention and motivation challenge discussed above, the study tests the impact of a performance-based nonmonetary incentive program on improving HTC performance as well as job satisfaction and retention among HCWs performing HTC.

A range of performance-based incentives targeting service providers have been used to stimulate performance or change behaviors of actors in the health sector. At their core, these incentives programs give incentives for achieving a pre-set performance target. The incentive can be financial or nonfinancial, the latter usually taking the form of material incentives or recognition. The incentive can be targeted at individual providers or a group of individuals working at a health facility. Unlike the vast majority of provider-oriented performance-based approaches, which focus on financial incentives in the form of increased pay for health workers, this program targets the nonfinancial drivers of health worker retention and performance, namely job satisfaction and working conditions. It tests whether nonmonetary incentives can boost worker productivity and at the same time improve health worker retention by increasing job satisfaction. There are also concerns that extrinsic incentives for performance may decrease intrinsic motivation and job satisfaction. By measuring job satisfaction in experimental and comparison groups, this effect can also be measured.

The emphasis on nonfinancial incentives follows both from previous studies that suggest that improving financial incentives in resource poor countries does not, by itself, stem the loss of health workers (Buchan and Calman 2004). For example, the Swaziland government increased salaries for health professionals by about 60 percent in 2004, but that did not stem the migration of health workers (Masango et al. 2008). Providing individual financial incentives to health workers may be unaffordable to many developing-country governments; group incentives of the kind tested here are cheaper and therefore more feasible in resource-poor settings.

The Health Systems 20/20 study uses an experimental design to test the impact of the incentive scheme on HTC performance, job satisfaction, and worker retention. All public facilities offering HTC services in Swaziland were randomly assigned to treatment and control groups of equal size. Patient load data from the past quarter became the basis for quarterly HTC targets for the treatment facilities. Facilities meeting the target were eligible for a nonmonetary incentive. Staff in successful facilities could select the incentive from a menu that included additional training for health workers, infrastructure upgrades, and extra HTC equipment. The study evaluates the impact of the intervention on HTC performance, job satisfaction and staff retention using HTC performance data collected on a monthly basis from the facilities as well as staff surveys conducted at baseline and at the end of the 12-month intervention period. It uses qualitative research conducted in treatment facilities at the end of the study period to explore the mechanisms through which the incentive impacted HTC performance, job satisfaction, and retention.

This end-line report presents the findings from the 12 month study. It builds on the baseline report that was released in January 2010, which documented the process used to initiate the study as well as the results from the baseline surveys that were conducted prior to the introduction of the intervention.¹ It documents that when compared to control sites, statistically, the study showed no significant effect on job satisfaction. But it did have a modest impact on HTC performance in quarters 1 and 4. In these two quarters, the HTC volume in the treatment sites was found to be significantly higher than the HTC volume in the control sites; since the two groups were found to be comparable at baseline, this difference can be attributed to the intervention as per the design of the study. The qualitative research suggests that more successful treatment facilities introduced measures such as having team meetings, increasing the operating hours of the facility, and undertaking greater community outreach efforts, which appear to have contributed to increasing the volume of HTC even in the absence of the incentive program directly increasing job satisfaction.

Chapter 1 of this report summarizes the study design, including the design of the experimental evaluation, the data sources and methods used to assess the impact of the nonfinancial incentive, and discusses some of the limitations of the study. Chapter 2 presents the main findings from the program evaluation. Chapter 3 explores how the program worked using the qualitative data that was collected at the end of the study. Finally, the conclusions and policy recommendations from the study are presented in Chapter 4.

¹ Dutta, Arin, Victoria Rossi, Marc Luoma, Ananya Price. January 2010. *Using Incentives to Improve Performance and Retention of Health Care Workers in Public Health Clinics in Swaziland - Baseline Report*. Bethesda, MD. Health Systems 20/20 Project, Abt Associates Inc

2. STUDY DESIGN AND DATA COLLECTION

Launched in September 2009, the 12-month operational research study piloted by Health Systems 20/20 in Swaziland helped assess the effect of a performance-based incentive scheme on performance and retention of HTC-providing public health workers in government health facilities. The HTC-providing health care workers in a facility meeting their quarterly facility-level performance targets for HTC (not targets set at the individual HCWs level) would be eligible per quarter to collectively select an incentive/s from a pre-set menu.

A summary of the key stages leading up to the official launch of the intervention are summarized in Table I and described in detail in the baseline report. Below, we summarize the study design, the data sources that form the basis for this study, and the main limitations affecting the internal and external validity of this study.

TABLE I. MAJOR STEPS IN THE LAUNCH OF THE OPERATIONAL RESEARCH STUDY

Date	Step
January 2009	Preliminary concept discussions / submission for Abt review
February 2009	Interim approval from Abt Associates Institutional Review Board for study design & protocols
April 2009	Stakeholder meetings in Mbabane to introduce study concept, get approvals from relevant individuals in MOH, USAID
May 2009	Finalized menu of incentives and study design
July 2009	Final approval from Scientific and Ethics Committee, Swaziland
July-August 2009	Preparatory meetings with MOH M&E offices to finalize data reporting timelines and expectations
August 2009	Orientation workshops for facilities / baseline survey
August 2009	Data analysis from baseline survey to identify the performance threshold for HCT volume per facility
September 1st 2009	Launch of the intervention with performance targets for treatment facilities

2.1 STUDY DESIGN

For purposes of this particular study, all 66 government facilities offering HTC services in Swaziland in 2009 were randomly assigned to treatment and control groups of equal size. In other words, 33 facilities were randomly selected to be in the treatment arm, while an equal number were randomly assigned to the control arm. From the 66 facilities, eight were dropped due to their history of poor reporting to the MOH – that is, inconsistent reporting on HTC data and monthly facility patient loads. This reduced the overall sample to 58 facilities, with 29 in each group. The full list of facilities that participated in the study appears in Annex A.

The treatment facilities received quarterly HTC targets for each of the four quarters during the study period: September–November 2009, December 2009–February 2010, March–May 2010, June–August 2010. In consultation with the MOH, it was decided that the HTC target for a given quarter would be set at 7 percent of the patient load achieved in the previous quarter. Patient load data from April–June

2010 was used as the baseline to set the target for quarter 1 of the study; the target in each subsequent quarter was set based on the patient load achieved from the previous study quarter. Treatment facilities meeting the target were eligible for a nonmonetary incentive, which they could select from a menu that included additional training for health workers, infrastructure upgrades, and extra equipment. A full list of incentives appears in Annex B.

2.2 DATA SOURCES

This research relies on the following data sources:

- Monthly facility-level HTC volume and patient load data for treatment and control facilities from the M&E Department in the MOH National HIV Office.
- Baseline and end-line surveys conducted among (1) HCWs who provide HTC services in treatment and control facilities, to collect information regarding job satisfaction and intention to stay in their jobs; and (2) senior nurses in both treatment and control facilities, to gather data about number and types of staff providing HTC services, and on staff retention.
- Mid-line data of the control sites, to rule out any bias in these sites.
- In-depth interviews conducted with HCWs at end-line.

Detailed information about data collection methods used to gather HTC performance and patient load data from the health facilities, as well as about the design for the baseline survey among HCWs and head nurses, is available in the baseline report. The end-line surveys among HCWs and head nurses followed the same method as the baseline surveys. The instruments were also the same, except for an additional section at the end designed to gather information about the incentive program, which was administered in the treatment facilities only. For the qualitative study, a subset of 31 HCWs were interviewed from 16 health centers in all four regions, during the quantitative end-line survey collection. The design of the in-depth qualitative interviews is described in Annex C.

2.3 BASELINE ASSESSMENT

The purpose of the baseline assessment, which was conducted in July and August of 2010, was to establish the pre-intervention level of retention, job satisfaction, and HTC volume at both treatment and control facilities. The project team collected HTC volume data for January to June 2010. Additionally, the team implemented surveys among HCWs delivering HTC services, and senior nurses from both treatment and control facilities. Some of the key findings from the baseline assessment were:

- In the majority of government health facilities included in the study, the monthly HTC volume was below 4 percent of the monthly patient load. This is well below the testing levels needed to achieve the goal of all adults in Swaziland knowing their HIV status. The low HTC coverage rate measured during the baseline assessment led the project team and MOH to set the target for treatment facilities at 7 percent of the patient load.
- There was no statistically significant difference in HTC performance levels between the treatment and control groups. In other words, the treatment and control groups were found to be comparable in terms of HTC volume at baseline; therefore any statistically significant difference measured after the introduction of the incentive program between the two groups can be attributed to intervention.
- There were no statistically significant differences between the treatment and control groups in terms of attrition rates, job satisfaction, and motivation, all of which were tested at a 5 percent level of significance.

2.4 END-LINE ASSESSMENT

At the end of the 12-month study period, we analyzed the data collected during the baseline assessment, quarterly HTC performance data for each of the four quarters in the 12-month study period, and end-line surveys among HCWs delivering HTC services and senior nurses, to assess the impact of the nonfinancial incentive program on HTC performance, job satisfaction and retention. The evaluation uses a difference-in-difference approach, also known as a pre-test post-test study design. These methods test whether the changes (gains or losses) in the treatment group were significantly different from the changes in the control group. Given that the control and treatment group were found to be comparable during the baseline assessment, an alternative formulation of the same method tested whether there were any statistically significant differences between the two groups after the intervention was introduced; any difference observed can then be attributed to intervention.

Along with the end-line surveys among HCWs and head nurses, the team undertook additional qualitative research in the treatment facilities to better understand how the program affected the HTC operations in these facilities. In-depth interviews were conducted with a subset of HCWs in each of the treatment facilities. Refer to Annex C for more information on the methods used to analyze the qualitative information from the in-depth interviews. The team also collected information on a couple of other priority services provided by the facilities – specifically prevention of mother-to-child transmission (PMTCT) and childhood immunization – in order to test whether the introduction of performance incentives for HTC had any unintended effects, either positive or negative, on other services.

In the following chapters, we present findings from the impact evaluation and the qualitative analysis.

2.5 STUDY LIMITATIONS

Like any research study, this study has certain limitations. Some of the key ones are:

- The 12 month duration of the incentive program is short.
- Existing data systems for tracking HTC performance and patient loads at some of the facilities are weak, and data were not reported on time by facilities.
- Providing incentives on a quarterly basis gave relatively few opportunities for incentives to impact performance. Likewise, three-month feedback intervals are very long, with the accompanying expected decreases in effectiveness.
- During the interviews with HCWs, some of the workers said that they did not learn about the incentive program when it was first initiated; rather, they learned it at a later date.
- Target-setting was also an issue, since some of the sites thought that the targets were too high to achieve. The way targets were set did have an impact on which facilities received their incentives. For instance, had targets been set based on percentage of improvement, an entirely different set of clinics would have achieved their targets.

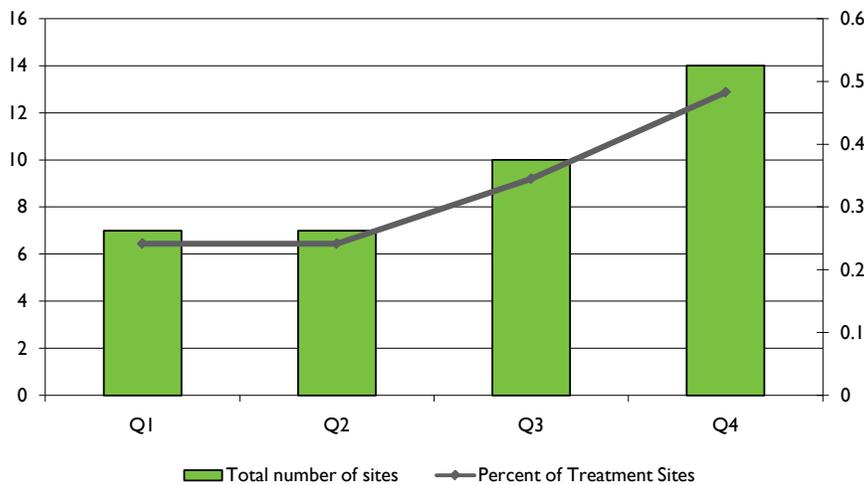
3. QUANTITATIVE STUDY FINDINGS

This chapter presents the response to the incentive program among treatment facilities, as well as findings about the impact of the program on HTC volume, job satisfaction, and job retention.

3.1 RESPONSE TO THE INCENTIVE PROGRAM AMONG TREATMENT SITES

The number of treatment facilities successfully meeting their targets and availing of the incentive increased from less than a fourth of the treatment sites in the first quarter to approximately half of the treatment sites by the fourth quarter. Figure 1 shows the number and percentage of treatment sites that successfully met their HTC performance quota, thereby qualifying for the incentive/s. In the first two quarters, only 7 out of 29 treatment facilities met their quarterly HTC target, but that number increased to 10 and 14 in quarters 3 and 4 respectively. A complete list of the sites that met their targets appears in Annex D. A careful examination of the list shows that there is considerable uniformity in the sites that met their target. The same seven sites met their targets in quarters 1 and 2. The same seven were also in the list of successful clinics in quarter 3, but then one of them failed to meet the target in quarter 4. Two out of the three new sites that received an incentive for the first time in quarter 2 also met their target in quarter 4.

FIGURE 1: SITES ACHIEVING TARGETS



For purposes of this study, and to gain a better understanding of the data collected, for both the quantitative and the qualitative analysis, the data were also disaggregated by the following types of sites:

- **Successful clinic:** A clinic that has succeeded in achieving its HTC patient incentive targets two or more times between September 2009 and August 2010.
- **Moderately successful clinic:** A clinic that has been able to reach only one of its HTC targets between September 2009 and August 2010.
- **Unsuccessful clinic:** A clinic that was never able to reach any of its HTC targets between September 2009 and August 2010.

As is evident from Figure 2, the successful clinics showed the maximum gains, with Manzini and Shiselweni being the best-performing regions. Analyzing regional trends, Figure 3 shows that while average HTC per clinic increased in August 2009, by June 2010, Manzini and Shiselweni showed a rapid increase in their HTC performance as compared to Hoho and Lubombo.

FIGURE 2: COMPARING HTC PERFORMANCE ACROSS CLINICS BASED ON THEIR PERFORMANCE

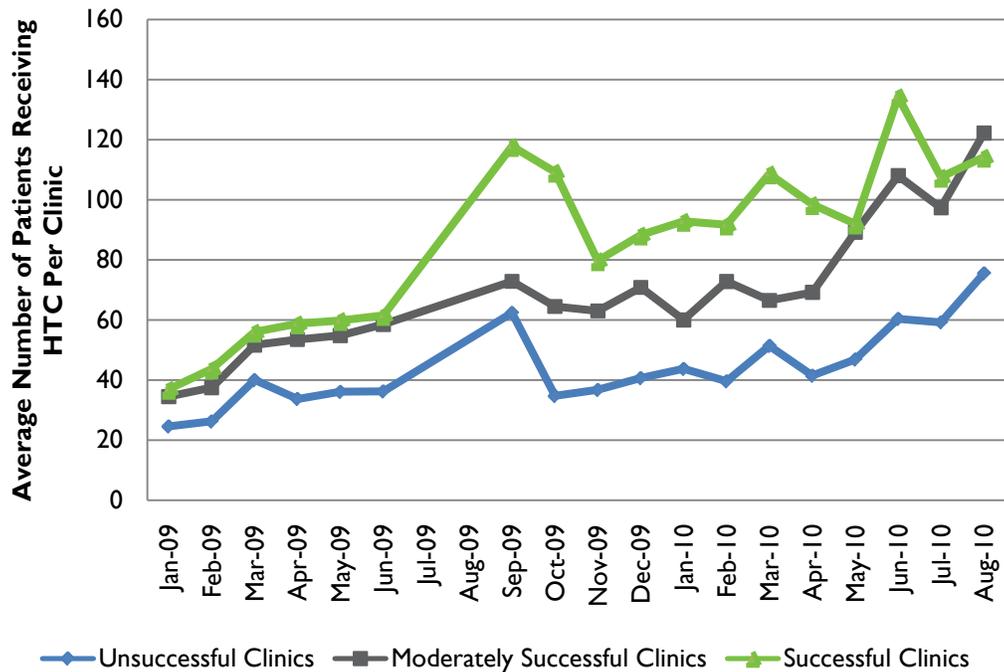
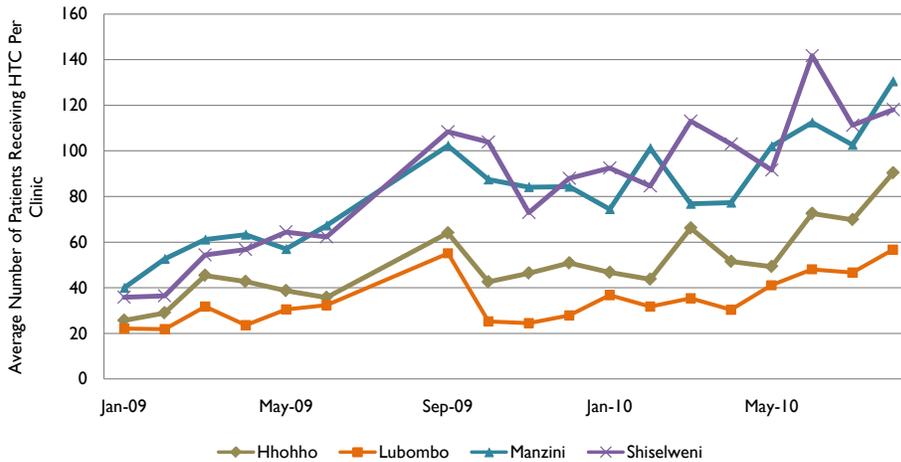


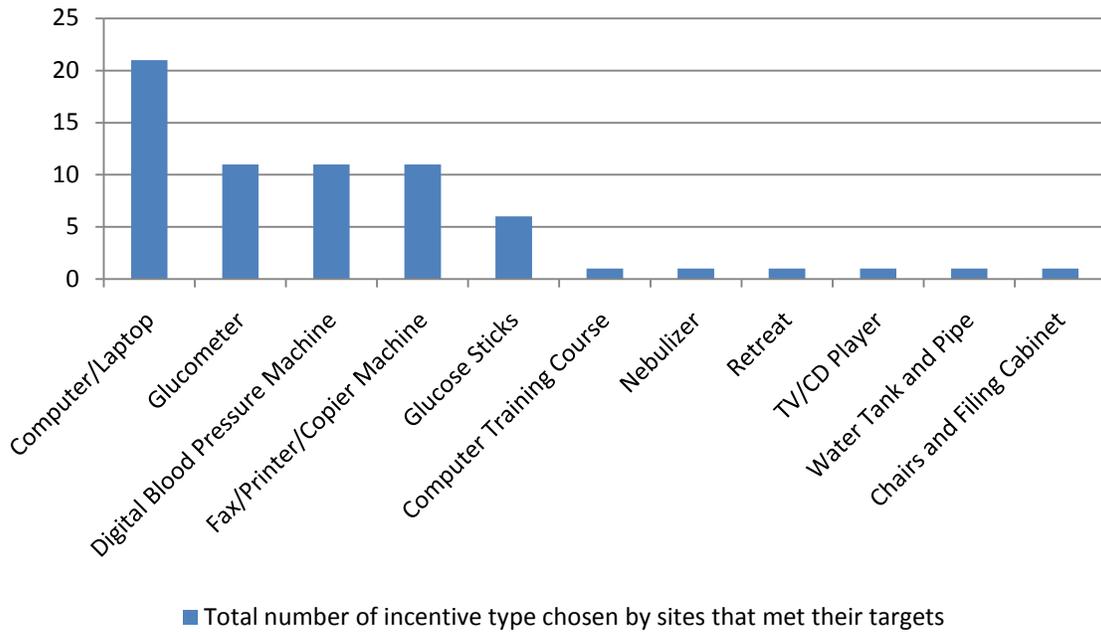
FIGURE 3: MEAN HTC PERFORMANCE BY REGION



Every quarter, an awards ceremony was held for the clinics that met their targets. The first of these awards ceremonies was attended by clinics from all the four regions that are part of this intervention. Held in March 2010, the national ceremony was attended by Ms. Rejoice Nkambule, the Deputy Director of Health, who thanked all the participating facilities for agreeing to be part of this operational research study. She encouraged the treatment facilities to continue working hard in order to meet their targets. Thereafter, regional ceremonies were held in the subsequent quarters, at which awards were distributed to the clinics that met their targets. Figure 4 shows the types of incentives that were most commonly selected by the clinics that were successful in meeting their targets². The most popular incentive was the computer/laptop, while a handful of sites chose team-building training and furniture for their facilities.

² Several clinics received multiple incentives, as long as the incentive amount did not exceed a certain preset value.

FIGURE 4: INCENTIVES SELECTED BY CLINICS



3.2 EFFECT ON SERVICE DELIVERY

To gauge the impact of the program, we compared HTC volume in the treatment and control sites, prior to and following the introduction of the incentive program. Figure 5 shows the average number of HTC episodes among the treatment facilities and the control facilities. No data were collected for the months of June and August because this coincided with the time when the baseline assessment was being done. April, May, and June 2009 serve as the baseline for the study, and September 2009 marks the start of quarter I of the intervention program. In the months after the intervention was introduced, the average HTC volume in the treatment sites was consistently higher than in the control sites. The highest HTC volume was recorded in September 2009, the first month after the program was launched, and in August 2010, the last month of the program.

FIGURE 5: MONTHLY HTC PERFORMANCE: COMPARING AVERAGES FROM TREATMENT AND CONTROL SITES

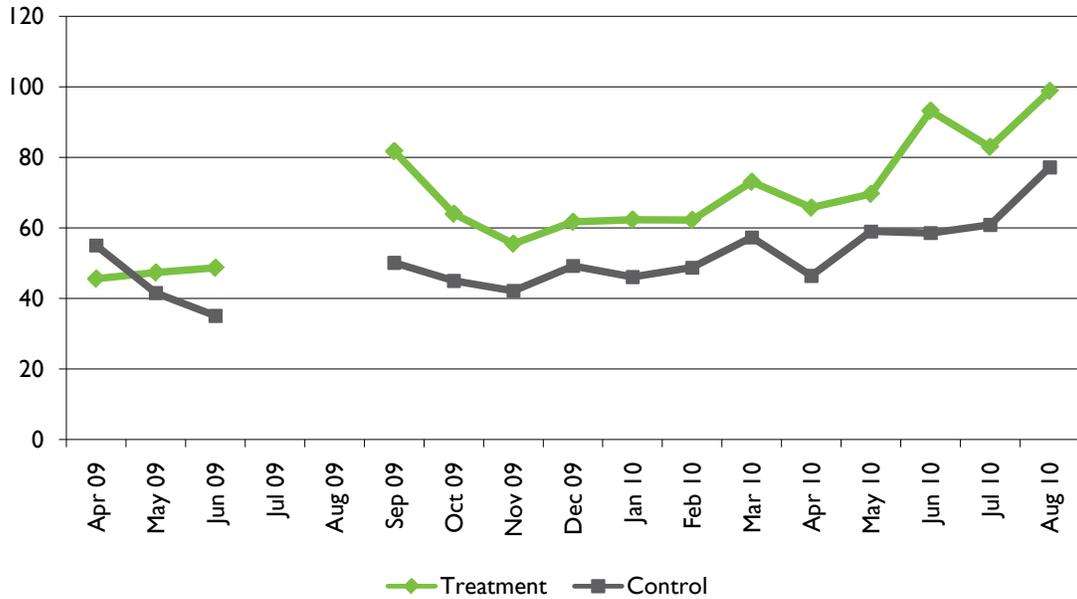


Figure 6 shows trends in average HTC rates (HTC volume as a share of patient load) for treatment and control sites. For most of the study duration, the treatment sites had a higher HTC rate than the control sites, except for a couple of months in 2010, where there was a spike in HTC performance rates in the control sites.

FIGURE 6: MONTHLY HTC RATE (HTC AS A PERCENT OF PATIENT LOAD): COMPARING AVERAGES FROM TREATMENT AND CONTROL SITES

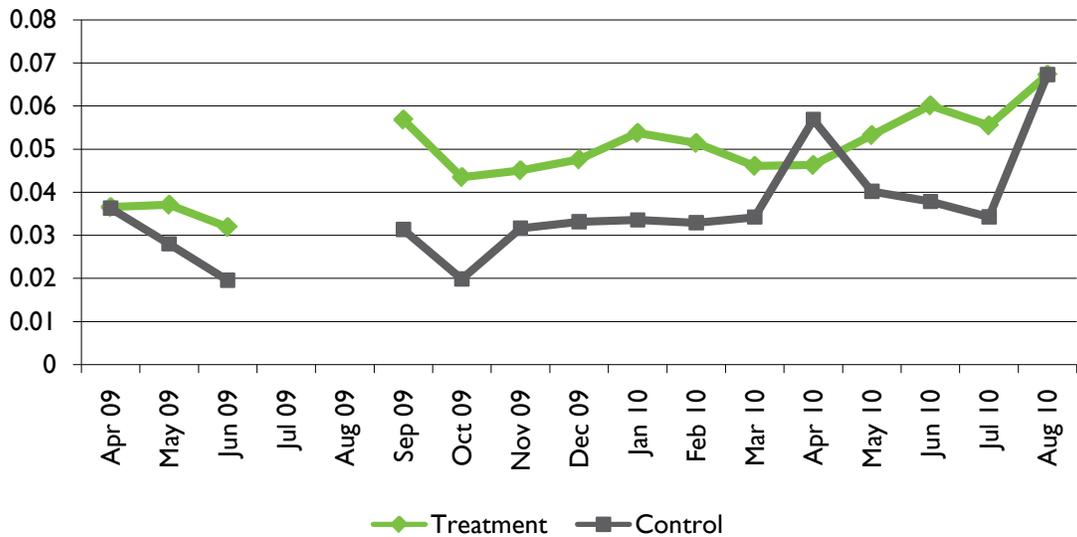


Table 2 presents the results from the comparison of means in each of the program quarters, as well as the estimates of program effect from the difference-in-difference analysis. First, we compare the mean HTC volume in the treatment and control facilities at baseline and each program quarter. Prior to the intervention, there was no statistically significant difference between the two groups. However, in quarters 1 and 4, we observe a difference in means that is significant at the 10 percent level of significance. This is evidence of the program having a modest effect on HTC performance in the first and last quarter of the study. The difference-in-difference estimates, which were derived using regression analysis, also corroborate these findings. The relative growth in HTC volume between the treatment and control groups compared to the baseline quarter was significant in quarters 1 and 4.

TABLE 2: RESULTS FROM DIFFERENCE-IN-DIFFERENCE ANALYSIS FOR HTC VOLUME

Comparing treatment and control groups in each quarter				
	Mean Treatment	Mean Control	Difference in Means	P
Baseline	47.21	41.57	5.64	0.63
Q1	67.08	46.48	20.60	0.08
Q2	62.07	47.90	14.17	0.23
Q3	69.45	53.84	15.61	0.19
Q4	90.52	64.03	26.49	0.06
Difference-in-difference Estimates*				
	Diff(Baseline, Q1)		17.98	0.07
	Diff(Baseline, Q2)		8.38	0.45
	Diff(Baseline, Q3)		9.09	0.45
	Diff(Baseline, Q4)		18.28	0.08

*Estimates using the following regression model: $(y_n - y_0) \sim a + b \cdot I$, where y_n and y_0 represent HTC volume in a facility in the n th quarter of the program and the baseline quarter respectively, I is an indicator variable indexing whether the facility is in the treatment group, and a and b are coefficients estimated from the regression.

The study also measured the impact of this study on other services – specifically PMTCT and immunization – in the treatment and control sites. It compared the mean service provision in the treatment and control sites during the May–July 2009 period with Q4 data (June–August 2010). Setting targets for the treatment sites did not have any negative impact on these other services. The treatment sites in fact saw an increase in service delivery of PMTCT and immunization. In case of control sites, PMTCT services decreased, while immunizations went up. There is some mild evidence for suggesting that HTC performance incentive program caused improved performance for other HIV-related services like PMTCT.

3.3 EFFECT ON JOB SATISFACTION

One of the key objectives of the incentive program was to determine whether the application of performance incentives had an impact on job satisfaction, which in turn was expected to reduce turnover. Comparing a host of staff perception variables from the baseline and end-line surveys among HCWs delivering HTC service allowed us to distinguish any changes in job satisfaction in the treatment group.

Figures 7–10 show the responses on a range of questions related to job satisfaction that were asked on the survey targeting HCWs. The results for both control and treatment groups at the time of the baseline survey as well as at end-line are shown. In almost all cases, the difference between the control and treatment groups, both at baseline and end-line, was negligible. The graphs also show a positive trend for all indicators in both treatment and control facilities between the baseline and end-line surveys. Table 3 confirms that there was no statistically significant difference between the treatment and control groups at end-line in terms of stated job satisfaction, reports about workers receiving feedback from their supervisors, and HCWs feeling recognized and rewarded for their work.

**FIGURE 7: JOB SATISFACTION RESULTS:
“I FEEL VALUED AND RESPECTED HERE.”**

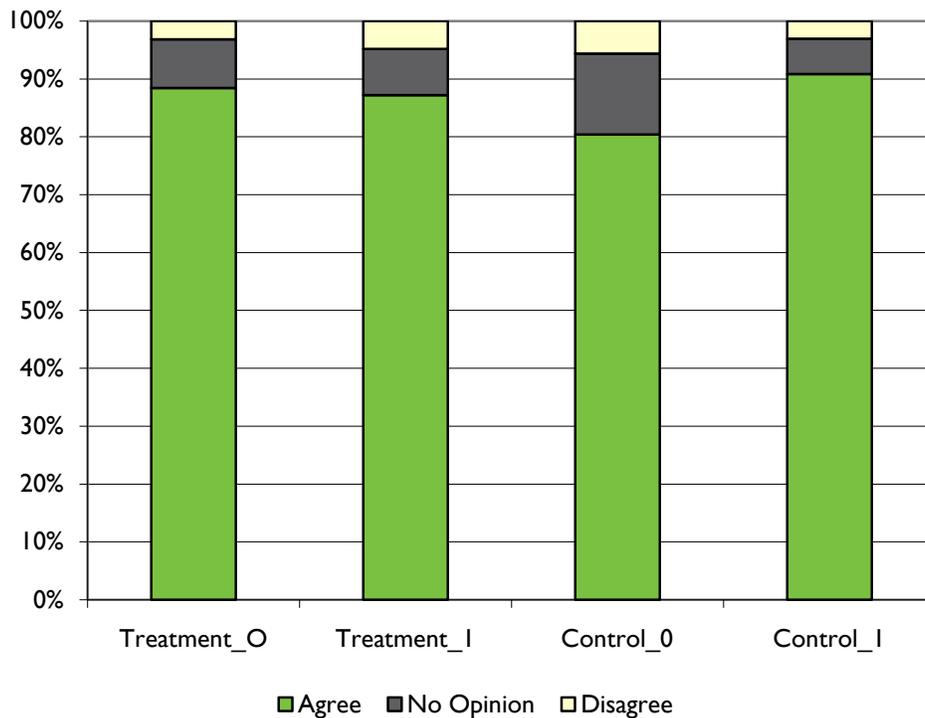


FIGURE 8: JOB SATISFACTION RESULTS: "I FIND MY JOB REWARDING."

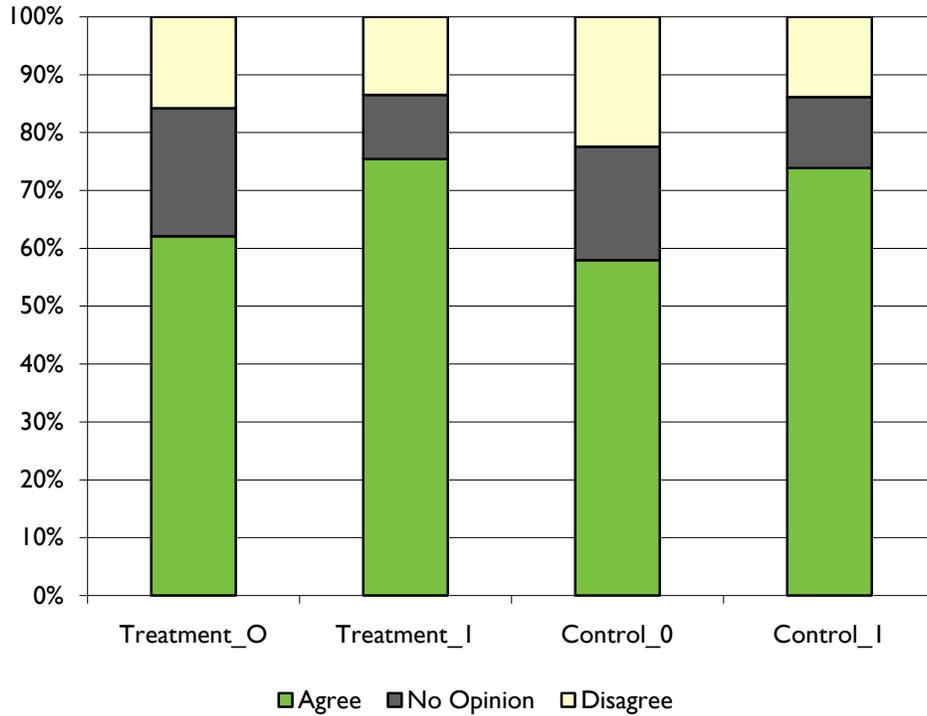
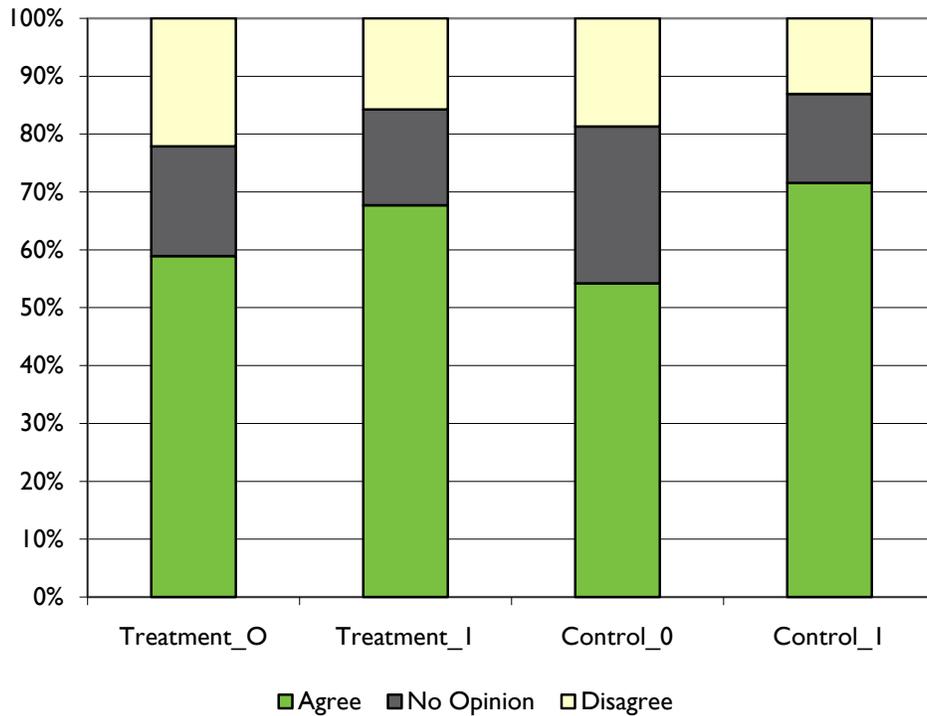
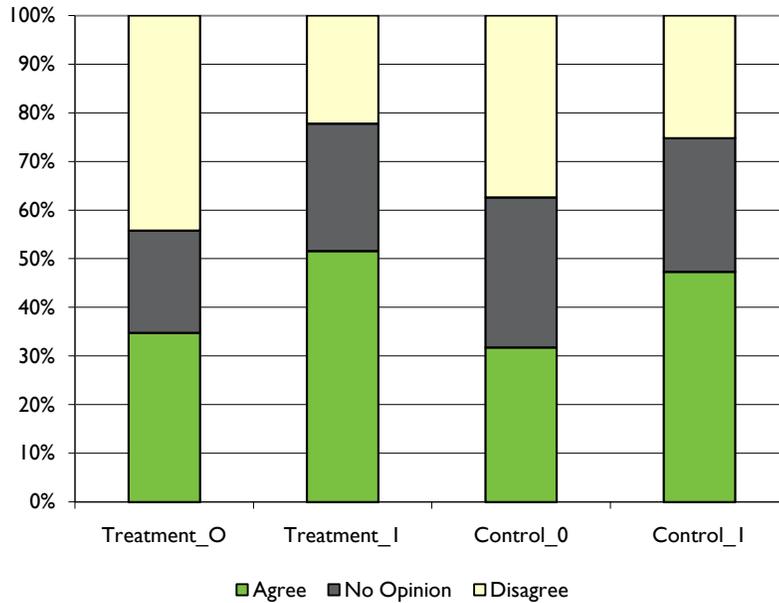


FIGURE 9: JOB SATISFACTION RESULTS: "MY SUPERVISOR GIVES ME HELPFUL FEEDBACK."



**FIGURE 10: JOB SATISFACTION RESULTS:
“IF I DO A GOOD JOB, I WILL BE REWARDED OR RECOGNIZED.”**



**TABLE 3: DIFFERENCES BETWEEN TREATMENT AND CONTROL GROUPS
IN JOB SATISFACTION**

Variable	Mean Treatment	Mean Control	p value
My supervisor gives me useful feedback	1.48	1.42	0.48
I feel valued and respected here	1.18	1.12	0.34
If I do a good job, I will be rewarded or recognized	1.71	1.78	0.48
I find my job rewarding	1.38	1.40	0.83

3.4 EFFECT ON JOB RETENTION

As part of the HCWs surveys, respondents were asked about their intention to stay on in their current jobs for the next six months. The results are shown in Figure 11. The difference between treatment and control facilities is again negligible and there was a slight increase in both groups in the fraction of HCWs who reported that they planned to retain their current jobs at the time of the end-line compared to the baseline survey. Table 3 confirms that the difference observed between the two groups at end-line was not statistically significant.

As part of the survey of head nurses, respondents were asked to report the number of staff who left the facility in the recent past. These results are shown in Figure 12. Attrition went down in both treatment and control facilities after the start of the program, but the difference between the treatment and control facilities at the time of the end-line was not statistically significant.

FIGURE 11: JOB SATISFACTION RESULTS: “IF IT WAS MY DECISION, I WOULD REMAIN IN THIS FACILITY FOR THE NEXT 6 MONTHS.”

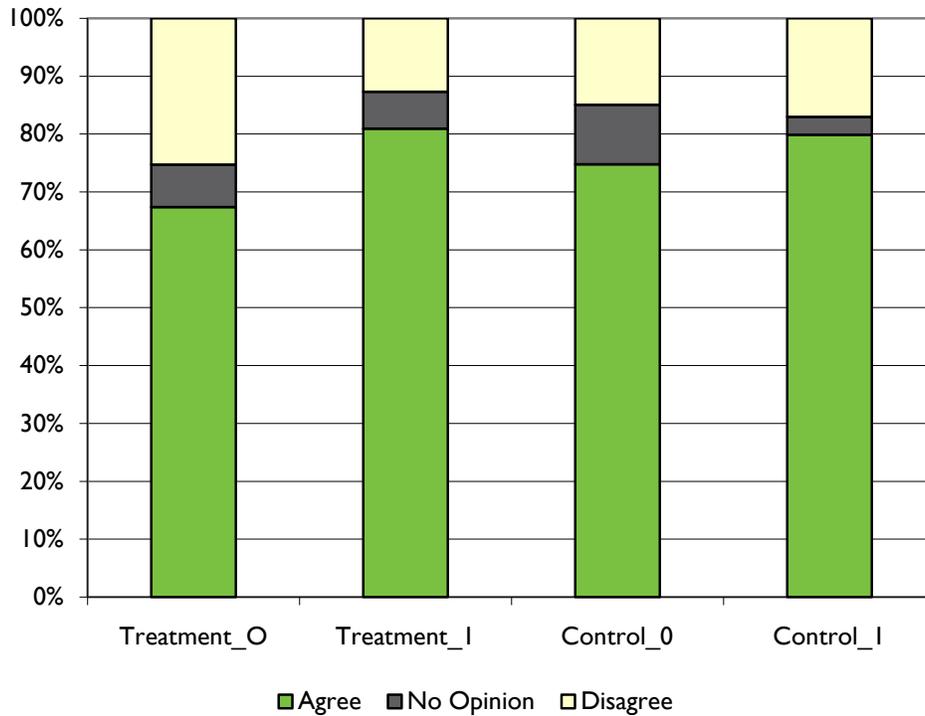
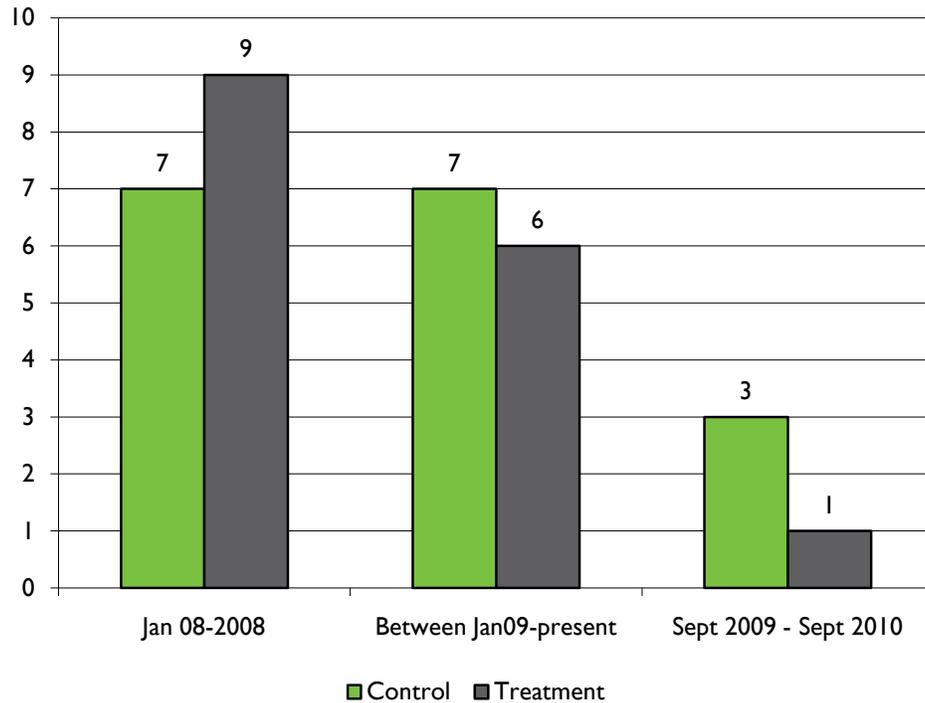


FIGURE 12: NUMBER OF STAFF WHO LEFT THE FACILITY VOLUNTARILY



3.5 EFFECT ON FACILITY OPERATIONS

As part of the survey administered to head nurses, respondents were asked about facility operations. In terms of clients having access to clinics to obtain HTC services, we see a marked difference between the treatment and control group. While the treatment facilities on average increased their hours of operation following the introduction of the program, the control group saw a slight decline in the duration they were open. Both control and treatment clinics reported a decline in the number of days they experienced stock-outs for HIV rapid tests kits.

FIGURE 13: DAYS PER WEEK THAT HTC SERVICES WERE AVAILABLE

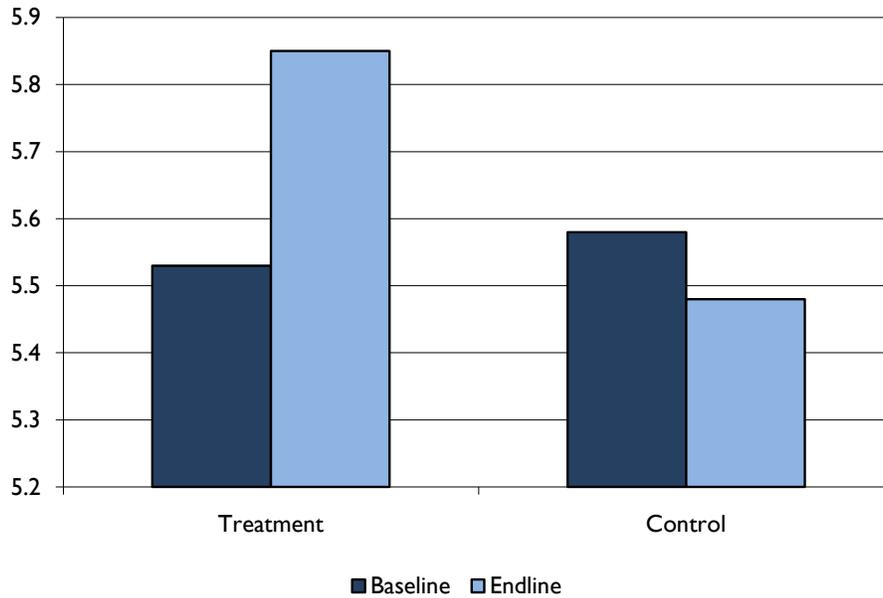
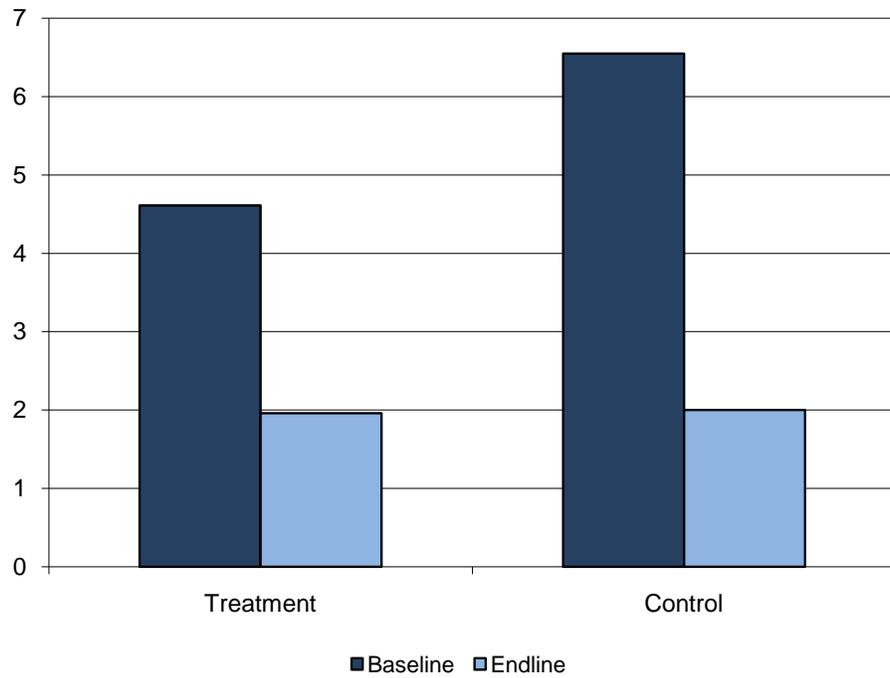


FIGURE 14: NUMBER OF DAYS IN THE LAST THREE MONTHS WHEN THERE WAS A STOCKOUT OF HIV RAPID TESTS



To summarize, the quantitative data reveals that the program affected HTC performance, especially in quarters 1 and 4. The program did not have a statistically significant effect on job satisfaction or retention; both the treatment and control sites saw comparable increases in job satisfaction and reductions in attrition.

4. QUALITATIVE STUDY FINDINGS

In order to better understand the way in which the incentive program affected staff behavior and facility operations in the treatment facilities, the end-line also carried out qualitative research in 16 out of the 29 treatment facilities. A total of 31 HCWs were interviewed. The method for analyzing the in-depth interviews is described in Annex C. This chapter presents the main findings from the interviews. As mentioned in the quantitative section, to better understand how demographic and normative behavior may have shaped success and perception in the treatment clinics, the latter were broken into the following three categories: Successful Clinic, Moderately Successful Clinic, and Unsuccessful Clinic. Breaking down the information into these categories helps to conceptualize some of the differences reported by the clinics, regarding their success in the incentive program or not. However, it is important to realize that this categorization is only descriptive in nature and is not representative of the whole population.

4.1 DRIVERS OF SUCCESS

The in-depth interviews revealed three primary modes through which the incentive program led to high HTC rates. First, the incentive program created a competitive environment, which in turn led to higher motivation and effort. When looking at those people who talk about an increase of competition (Table 4), the more successful clinics have a higher percentage of people who openly talk about an increase in competition as a result of the incentive program (92 percent) than the moderately successful clinics (83 percent) or unsuccessful clinics (69 percent). And the same percentage of people from successful clinics and moderately successful clinics talked about an increase of teamwork in their clinic (92 percent and 83 percent respectively), but unsuccessful clinics had a large drop in talking about teamwork, dropping to only 23 percent.

TABLE 4: COMPARISON OF SUCCESS RATE OF CLINICS IN INCENTIVE PROGRAM WHO WERE INTERVIEWED TO PERCEIVED UNIVERSAL THEMES

	% of Successful Clinics (N=12)	% of Moderately Successful Clinics (N=6)	% of Unsuccessful Clinics (N=13)	% Total Answering (N=31)
Incentive program created competitive atmosphere encouraging staff to conduct HTC	91.67%	83.33%	69.23%	80.65%
Incentive program created teamwork in conducting HTC	91.67%	83.33%	23.08%	61.29%
Increased number of people who know HIV status	75.00%	83.33%	76.92%	77.42%

Past incentive research has shown that competition, especially when a specific program is being monitored can induce high effort from workers (Nalbantian and Schotter 1997). This competitive spirit fueled efforts to reach HTC targets, as seen by some interviews:

Nurse from Hhohho Region: “What did I like? I like the competition aspect of it. There was some competition and we had to work in a team. I like that you were competing for something. You were expected to work more. You had to work like a team ... No one wants to lose even when you do not get anything, but no one wants to lose. It motivated you to test more. That is the good thing about it.”

The increase in competitiveness was expressed in many ways by the people participating in this intervention. It is interesting to note that the clinics were technically not competing with one another for the incentives. Any clinic that met its target was eligible for the incentive regardless of how many other clinics received the incentive. However, the sheer enjoyment of winning something motivated some to work harder, which also resulted in more people finding out their HIV status through HTC. According to the Nurse from Manzini:

“A lot of people were helped while we were gunning for the prize.”

The targets motivated workers to push themselves and work harder according to the following interviewee:

Nurse from Manzini Region: “(The incentive program) was good for the service and as well as the health workers, it was also an eye opener for us on other things that we didn’t know we could be capable of doing, the innovations we had when doing this exercise, without that motivation of the incentives we were not going to know our capabilities.”

Second, the program inspired greater teamwork and coordination, which increased productivity. Common targets for the whole clinic inspired individuals to work harder so they would not be viewed by others as letting the team down in achieving group goals. To increase better cohesion of their team, some clinics changed work schedules to staff more people at the same time, to allow them the time they needed to perform HTCs while also taking care of other duties. Other clinics had weekly meetings, where they would talk about HTC targets and current progress, some breaking down the targets to the individual level of needing “three HTCs” conducted daily to meet the clinic’s incentive target. Some clinics also worked on specifying particular roles to HTC testing to staff and breaking it down in stages. Some staff needed to raise awareness of HIV testing, and their critical first step was to educate people about HIV/AIDS, why it was critical that they know their status, and where they could be tested. The next stage was conducted by other staff, who would do the actual testing and counseling, as seen below:

Nurse from Manzini: “We were working as a team, team work, we have the expert client, the mothers 2 mothers those who counsel the pregnant women that is the support staff, the data clerks, the nurses, the phlebotomist, so we worked together after we sat down and discussed how we can meet the targets and in doing so it enforced the team spirit, and they raised point on how they think we can do it, like the mothers – mothers would encourage testing to everyone they come across that they should test, so here at our facility we have so many consultation rooms and so we made sure that each and every one in those rooms should make sure that they win HTC clients, those were the strategies we used and at the end of each week we would sit down and see

where we are and also see who got many clients and that also motivated the staff as well.”

A third key supply-side determinant for success was increased availability of HTC services and greater outreach by the clinics to recruit new clients. To achieve targets, clinics realized that they needed to increase their clientele pool. Thus, to be successful, clinics needed to increase access to services and tap into new populations not tested before. One clinic extended its hours of operation to include weekends. In some facilities, the incentive program caused staff to test new populations that they had not been inclined to test before, such as people who did not look sick, and older and younger clients. In one clinic that was trying to increase its HTC volume, the staff launched a community outreach initiative, as seen below:

Nurse from Hhohho Region: “At the last quarter we were told that we didn’t win anything and in order to win you need to get more people to test, so we separated into three groups some of us had to go to the school, some of us will go to the Umphakatsi (small rural area) while the other group would go to the elderly people so that we can get a lot of people ...”

Several interviewees expressed the need for increasing awareness about the importance of HTC services, as well spreading information about where they were available. Greater awareness about HIV/AIDS would inspire potential clients to come to the clinic to obtain HTC services.

Nurse from Manzini Region: “We met the last quarter, we sat down and looked at why we didn’t meet the other three quarters and then we discovered that we hadn’t sensitized the people of the area and then we had to find the right channels to sensitize them, we then went to the Umphakatsi where we told them about the importance of knowing your status.”

Nurse from Hhohho Region: “We changed our strategy that before pre counselling you need to have a health talk to allay their anxiety. We tried to lower ourselves to their level of understanding to make them understand that HIV is not a death sentence.”

Most facilities made the community aware of HTC through traditional means of community health talks, but others took advantage of more innovative means, using “Edu-tainment” or dramas to educate their area about HIV/AIDS and the importance of knowing one’s HIV status. Other clinics took advantage of outreach programs run by local nongovernmental organizations (NGOs) to work together to increase testing.

4.2 BARRIERS TO MEETING THE TARGETS

Certain barriers were cited by unsuccessful clinics for not meeting their targets. Many of the clinics that did not meet their targets blamed some NGOs for having “family days” and campaigns for HTC in their area, which took away from their pool of potential testing clientele. Furthermore, they believed that NGOs gave an unfair advantage to other clinics in reaching their targets through outreach programs using mobile clinics.

This was just one of the reasons unsuccessful clinics gave for not reaching their HTC targets, as seen below in Table 5. Many of the unsuccessful clinics believed that the targets set for them were too high to be attainable.

TABLE 5: COMPARISON OF CLINICS TO THE BELIEF THAT THEIR TARGETS WERE OBTAINABLE

	% of Successful Clinics That Held This View (N=12)	% of Moderately Successful Clinics That Held This View (N=6)	% of Unsuccessful Clinics That Held This View (N=13)	% of All People Interviewed Who Shared This View (N=31)
Believed targets obtainable	16.67%	33.33%	7.69%	16.13%
Believed targets were not obtainable	25.00%	33.33%	69.23%	45.16%

Of all the clinics, 45 percent of those answering said that they believed the targets were set too high for their staff and were unobtainable. However, the number is skewed towards unsuccessful clinics; 70 percent of these clinics believed that their incentive targets were too high, compared to 25 percent of successful clinics and 33 percent of moderately successful clinics who similarly believed that the targets were not obtainable.

Nurse in Lubombo Region: “(The incentive program) was encouraging the staff but the only problem was that the target was too high and it was like we were not doing anything and it was disempowering. Especially when considering the efforts we were putting into HTC but then the target was too high for us to reach and it then feels like we were robbed somehow!”

The other common reason given for clinics not reaching their targets was logistical challenges within the clinic, such as low staffing within clinics, competing priorities, and poor transportation that deterred clients from accessing services.

In clinics that were short-staffed, the fact that HTC takes a longer amount of time to perform than many other medical consultations is a major impediment, as seen from this interview:

Nurse from Shiselweni Region: “When (the incentive program) was introduced we had stopped testing people because this is a very busy clinic and we’re short staffed as it was just the two of us. There was no way we were going to test people because we see about a 100 clients just for curative measures and then there’s ANC, FP and immunizations. So it was difficult for us because at times counselling takes more than an hour and then how about the other patients who will be waiting outside?”

Lack of staffing and time constraints also led some head nurses to fear that HCWs were pursuing incentive targets to the detriment of other programs and duties that needed to be performed at the clinic.

Nurse from Shiselweni Region: “I can say (the incentive program) encouraged nurses to test more patients and then at the same time I didn’t like it because it might then put nurses in a situation whereby they’re concentrating much on HTC and forgetting about the other services.”

Rural clinics found that transportation was a major problem in conducting HTC. Many rural clinics are only accessed by specific public transport carriers that have a rigid time schedule. This drives down the patient load, as well as deters patients from spending the extra time needed to get the HIV test done. Nurses were also affected by lack of transportation opportunities. Transportation problems caused nurses to leave the clinic early to catch a bus, or to be late in coming to the clinic to start services. The lack of reliable transport also impacted referral systems and the supply chain for HTC supplies.

4.3 JOB SATISFACTION

One area that the incentive program hoped to have an effect on was to increase job satisfaction among the clinical staff. As part of the in-depth interviews, staff members were asked whether they were satisfied with their job. The results (see Table 6) show that only 20 percent of staff members performing HTC admit to being unsatisfied with their jobs.

TABLE 6: OVERALL SATISFACTION WITH JOB

	% of Successful Clinics That Held This View (N=12)	% of Moderately Successful Clinics That Held This View (N=6)	% of Unsuccessful Clinics That Held This View (N=13)	% of All People Interviewed Who Shared This View (N=31)
Satisfied with job	66.67%	83.33%	84.62%	77.42%
Not satisfied with job	25.00%	16.67%	15.38%	19.35%
Missing	8.33%			3.23%

When asked what aspects they like about their job, helping others was most commonly mentioned as the reason for health workers being satisfied in their jobs (Table 7). A counselor from Shiselweni Region states: “What I love about my work is that I am able to help so many people who were not getting any help.”

TABLE 7: TOP REASONS GIVEN WHY HEALTH PROFESSIONALS ARE SATISFIED WITH THEIR JOBS

	% of Successful Clinics That Held This View (N=12)	% of Moderately Successful Clinics That Held This View (N=6)	% of Unsuccessful Clinics That Held This View (N=13)	% of All People Interviewed Who Shared This View (N=31)
Job Satisfaction				
Helping people	75.00%	66.67%	61.54%	67.74%
Feeling a part of community/Role in community	25.00%	16.67%	46.15%	32.26%
Enjoy working with coworkers	50.00%	16.67%	7.69%	25.81%

Respondents also mentioned feeling part of a community and the enjoyment derived from working with their coworkers as factors contributing to higher job satisfaction.

Nurse from Hhohho Region “With my job I like seeing people being treated and seeing them leaving the clinic with a smile and since this is a rural community and we meet at the bus stations and some of them want to talk to you.”

Feeling connected to co-workers, which contributes to job satisfaction, also stops health workers from transferring from their posts, as highlighted in this interview:

Nurse from Lubombo: “I have a good working relationship with my colleague’s because that might be another thing that might make one think twice about (before) leaving this facility but then with me I’m still happy here.”

When HCWs performing HTC were asked about aspects of their job that they were unhappy with, many reported that they did not feel supported by their administration. A majority (58 percent) felt overworked. Many reported that they do not have the equipment that they need to perform their job (45 percent). A large fraction felt they were not being compensated enough for the work they perform (35 percent).

TABLE 8: TOP REASONS GIVEN WHY HEALTH PROFESSIONALS ARE NOT SATISFIED WITH THEIR JOBS

	% of Successful Clinics That Held This View (N=12)	% of Moderately Successful Clinics That Held This View (N=6)	% of Unsuccessful Clinics That Held This View (N=13)	% of All People Interviewed Who Shared This View (N=31)
Job Dissatisfaction				
Feel overworked	41.67%	66.67%	69.23%	58.06%
Lack of equipment	41.67%	66.67%	38.46%	45.16%
Away from family	16.67%	50.00%	46.15%	35.48%
Wages	33.33%	50.00%	15.38%	29.03%
Problems with coworkers	8.33%	16.67%	23.08%	16.13%

The feeling of being overworked or the clinic not having enough staff to perform their duty efficiently is seen in the following quotes:

Nurse from Manzini Region: “There’s too much work, maybe if they can bring in more staff as we’re short staffed and it is demotivating waking up every day knowing that you’re going to be overworked...as much as we need at least one staff member but the main challenge is where that person is going to be housed and also where is she going to work that is in terms of the rooms as we don’t have another room.”

Nurse from Shiselweni: “(being understaffed) affects you psychologically and emotionally and you become defensive even where you shouldn’t because you know you shouldn’t just because you’re providing what you should be providing to the patient and you’re burned out in the afternoon because you have to do consultation, dispensary, immunize, bandage, FP, ANC all this is done by one nurse and that is why at times when a client comes in you become irritated.”

The stress of being overworked makes many health staff question the compensation they are receiving. Many of those who feel overworked also believe they are not getting the money that they deserve for working these long hours.

Nurse from Lubombo Region: “It is the too much workload and getting underpaid at the same time, you do a lot of things and what you get at the end of the month is very discouraging.”

Nurse from Shiselweni: “The ministry should check us again and to try and find out if we’re happy about the salary, when the money is little you become less motivated and as HTC’s we should have a standard salary.”

Besides wages and workload, several clinical staff felt that they do not have the equipment that they need to do their job effectively. This includes diagnostic equipment, pharmaceuticals, easy ways to share or receive information (phone, fax, email), and to process patient paperwork and follow-up (computers). They also do not believe that the facility itself is up to par for the workload that they are seeing. They do not have the space to conduct confidential consultations or in some cases, they are missing adequate infrastructure such as access to clean water or heating. They also report having to deal with unreliable water, power outages, lack of housing for staff, and lack of transport, as poignantly described below:

Nurse from Manzini Region: “The environment we’re living in is not conducive (to work) which leads to demotivation. Our houses are not in good condition and even here when I want to go to the toilet I have to go outside and here it is (also) clogged. Maybe if they can give us air conditioners but then again we will have problems due to the power cuts, the water is very cold during the winter, and the water we’re using is from the river, and this increase water borne diseases. Like this month we had a lot of clients who are coming for diarrhea. And another thing is transport, when we’ve run out of stock and as for me I don’t have a personal car then I have to get into the bus which leaves early and returns at about 7 pm, that is a problem as our region don’t have transport. Sometimes we run out of cleaning equipment and they’ll tell that material is there but there’s no transport. And another thing, as I mentioned the infrastructure challenge, it becomes impossible to disseminate information properly as I have to be here and doing my work and it is impossible to move around and talk to the clients and responding to the questions which may arise, in that way it is a problem and I don’t know how they can improve that. I also need a private room for counselling coz they can hear us while we’re discussing and also the waiting room, when it is raining only a few clients who get shelter and the rest wait in the rain.”

To have a better idea of how the incentive program may have affected their job, the health staff providing HTC were asked if the incentive program made their job easier, the same, or harder. The results are seen in Table 9:

TABLE 9: EFFECT OF INCENTIVE PROGRAM ON JOB AT HEALTH CLINICS

	% of Successful Clinics That Held This View (N=12)	% of Moderately Successful That Held This View (N=6)	% of Unsuccessful Clinics That Held This View (N=13)	% of All People Interviewed Who Shared This View (N=31)
Easier	75.00%	33.33%	7.69%	38.71%
Same	8.33%	16.67%	23.08%	16.13%
Harder	16.67%	50.00%	69.23%	45.16%

The results show that the majority of the staff actually perceive their job as being harder because of the program. In the follow-up question, on understanding why staff perceived that the incentive program was making their job harder, a large majority say that it increased their workload (79 percent) (Table 10).

TABLE 10: REASONS WHY STAFF BELIEVED THE INCENTIVE PROGRAM MADE THEIR JOB HARDER

	% of people interviewed who said it made their job harder (N=14)
Workload	78.57%
Other clinics Winning	14.29%
Didn't receive prize	7.14%

Among those who thought the incentive program made their job easier, many respondents believed that specific prizes helped them with their workload. Program incentives in the form of access to computers, fax machines, and printers that they received as a result of winning increased their efficiency at processing patient workload (42 percent) (Table 11). Increased teamwork was another common reason given for their job being easier (58 percent).

From the responses given, there is a general concern among all clinics that the incentive program revolving around HTC can increase their workload, because of the time and effort staff need in order to conduct HTC. The other responses on how the incentive program made their jobs easier or harder are more dependent on whether the clinic was successful or not. Those clinics who succeeded believed that the incentive program helped them because it brought them together to work more efficiently as a team, and the prizes made them efficient in diagnosing and processing patients. These factors made them perceive that their workload was more manageable. Those clinics that were not successful in achieving incentive targets after putting forth significant effort to do so became discouraged from their lack of success, and felt that their workload was increasing because of the incentive program.

TABLE 11: REASONS WHY STAFF BELIEVED THE INCENTIVE PROGRAM MADE THEIR JOB EASIER

	% of people interviewed who said it made their job easier (N=12)
Teamwork	58.33%
Prize	41.67%

4.4 RETENTION

When respondents were asked about their intention to leave in the in-depth interviews, an interesting pattern emerged. A majority of respondents answered that they were satisfied with their jobs, yet a large portion of those people still intended to leave their jobs (Table 12). This contradicts the findings in the quantitative survey, where a majority of those surveyed responded that they planned to stay in their current jobs in the foreseeable future. Of those who said they wanted to leave their current place of employment in the in-depth interviews, 42 percent were doing so to pursue further studies. Although they are satisfied with their current job, they want to further their education in hopes of finding a vocation that is higher-paying or of better status.

Facilitator: Are you satisfied or not?

Nurse from Lubombo Region: “I’m okay but then I want to further my studies. I want to specialize on something, like child welfare for instance. And maybe (the) government can help me when it comes to that. I want to further my studies.”

TABLE 12: RETENTION AND REASONS FOR RETENTION

	Interviews (N=31)	Percent	Total
Staying			35.48%
Happy with job	8	25.81%	
Family near work	3	9.68%	
Stay if things change			19.35%
Burnout	4	12.90%	
Contract ending	2	6.45%	
Leaving or transferring			41.94%
Leave to further studies	8	25.81%	
Transfer to be closer to family	4	12.90%	
Retiring	1	3.23%	
Missing	1	3.23%	

Another key reason for respondents wanting to transfer was to live closer to their family (13 percent). Many of the staff were living away from their families and could visit their homes only during weekends, which lowered staff morale. There were also some respondents who had not quite decided if they were going to leave or stay. In this group, many were unhappy with their current workload or conditions, but were willing to stay if something would be done to alleviate this workload or improve working conditions (13 percent). Thirty-five percent of the respondents said they intended to stay in their jobs.

4.5 EFFECT OF THE PROGRAM ON HEALTH INFORMATION SYSTEMS

One of the unintended consequences of the study was the marked improvement in the quality of the information on patient loads and HTC volume tracked by the government health management information system (HMIS).

Participation in the program appeared to have driven many clinics in the treatment group that were not reporting their HTC results regularly to improve their reporting systems. For example, staff in one clinic thought they had reached their incentive target to win a prize but were surprised to find out that they fell short. Upon further investigation, they found that the person who submitted their report had failed to capture some data from one of the service points, and when it was corrected they had actually reached their target. This discovery led the clinic to go back through other program records and correct mistakes in its reporting systems. While the incentive program was not intended to improve monitoring systems, it did create an incentive for staff to ensure that the performance data is properly tracked. Additionally, the quarterly review of the facility performance enabled the Swaziland National AIDS Programme (SNAP) to understand the HTC situation on the ground and some of the challenges and barriers that exist with regard to the documentation and reporting of data.

5. CONCLUSION AND POLICY RECOMMENDATIONS

This report presents findings from a 12-month operational research study designed to test the effect of a nonfinancial group incentive scheme on HTC delivery and also on job satisfaction and reduced attrition among health workers. The data from the treatment clinics shows that the program had a modest effect on the volume of HTC. The enthusiasm of HCWs to obtain the nonmonetary incentives appear to have led to increased hours of operation in the treatment facility, greater teamwork within the team, and more community outreach efforts, which likely explains the gains in HTC performance. The intervention appears to have had no collateral effect on job satisfaction and retention. Collective action problems, the complexity of factors impacting job satisfaction, and low pay may explain why the program has had no impact on job satisfaction and retention.

The findings underscore the importance of considering demand-side factors as well as supply-side factors when considering interventions to increase HTC service delivery. Successful clinics found ways to increase the client pool by undertaking community outreach, increasing general awareness about the importance of HIV/AIDS testing, and creating a demand for HTC services.

An important concern emerging from the qualitative research is the fact that a majority of the staff actually perceived that their jobs were made harder by the incentive program. This is an important aspect of introducing performance incentives. Incentive programs may lead to some influential staff members or the management team applying pressure on the health workers in the facility to work harder. Unless the incentives deliver tangible benefits to a majority of health workers in a way that increases their job satisfaction, the program is likely to be viewed as a source of more work rather than as a motivating factor.

These findings also highlight important considerations for future research projects. The first relates to how performance targets are set. Many treatment facilities that failed to reach their targets felt that the thresholds were too high. Ultimately, finding the right way to set targets remains a challenge. For instance, if the study had chosen relative improvement rather than an absolute threshold (i.e., increase HTC volume by x percent of performance in the previous quarter, rather than the target being x percent of patient loads in the previous quarter), different clinics (and more clinics) would have achieved their targets. Even using the absolute threshold, we needed to balance what was reachable by clinics with what was deemed clinically significant by the MOH. In the end, we compromised between the two.

The second question that deserves greater investigation is the appropriate period of evaluation. The literature suggests that there is a strong correlation between the frequency of feedback and its effectiveness. Originally the program had intended to deliver feedback and incentives on a monthly basis. However, the baseline assessment revealed that data in the central repository is not updated on a monthly basis; therefore, we relied on quarterly information instead. It is hard to speculate what the impact of this choice might have been, but anecdotal evidence suggests that a shorter duration of appraisal, and therefore more frequent incentives, might have been more effective in inspiring improved performance.

Based on the data analysed and the experience of the intervention, the pilot study can make the following recommendations for consideration by the MOH.

Given that a sizeable portion of treatment clinics showed an improvement with regard to their HTC performance, the MOH and the National Emergency Council should consider setting facility-level performance targets for crucial services. While national targets have been set in Swaziland, there are no regional or facility-level targets for health services.

During the course of the study it was observed that a considerable number of facilities did not report their service data on time, and had missing data over certain time periods, often extending up to several months. SNAP and other programs should be encouraged to monitor facility performance on a quarterly basis by reviewing the data reported to the Strategic Information Department. They should further use this information for improving and addressing any issues that the facilities may face with regard to accuracy and timely and consistent reporting of data. The regular monitoring will also help assess that national targets for HTC are being met and adjusted in an appropriate manner.

Additionally, security of data and ensuring that it is reported accurately to the National Strategic Information Department is also important. Facility staff need to be oriented on how to accurately enter and analyze data and report it on time.

Target-setting at the facility level should be coupled with supportive supervision, training, feedback, and assurance of adequate supplies. This needs to be a focal issue, especially to enhance job satisfaction and performance of the health workers. This will also encourage supervisors and administrators to review and address the challenges that hinder facilities from meeting their targets, and thereby address them in an appropriate manner.

Incentivizing the health staff (with nonmonetary incentives) should be considered as an institutional strategy to improve service delivery. Some incentives can be facility based and some directed to the teams per facility to share among themselves. Because tangible incentives of the kinds used in this study may not be sustainable by the local government, the MOH should consider a system of recognition for clinics that do meet their set targets.

ANNEX A: LIST OF STUDY SITES

Treatment		Control	
Clinic	Region	Clinic	Region
Bhahwini	Manzini	Dwaleni	Manzini
Bholi	Lubombo	Gebeni	Manzini
Bulandzeni	Hhohho	Gilgal	Lubombo
Dwalile	Manzini	Gucuka	Lubombo
Gege	Shiselweni	Hlukwini	Hhohho
Herefords	Hhohho	Horo	Hhohho
Hlane	Lubombo	KaPhunga	Lubombo
Hluti	Shiselweni	Lamvelase	Manzini
JCI	Shiselweni	Lavumisa	Shiselweni
Kamfishane	Shiselweni	Lobamba	Hhohho
Lomahasha	Lubombo	Maguga	Hhohho
Lubuli	Lubombo	Mangcogo	Manzini
Luyengo	Manzini	Mhlosheni	Shiselweni
Mahlandle	Shiselweni	Motshane	Hhohho
Mahlangatsha	Manzini	Musi	Manzini
Mangewni	Hhohho	Ncabaneni	Manzini
Mashobeni	Shiselweni	Ndzevane	Lubombo
Mkhulamini	Manzini	Nkalashane	Lubombo
Mpolonjeni	Lubombo	Nkwene	Shiselweni
Mpuluzi	Manzini	Ntfonjeni	Hhohho
New Haven	Shiselweni	Ntsanini	Shiselweni
New Thulwane	Lubombo	Phocweni	Manzini
Nhletsheni	Shiselweni	Scutt Jubilee (Bethany)	Manzini
Nkhaba	Hhohho	Sigcineni	Manzini
Nkonjwa	Lubombo	Sinceni	Manzini
Nyonyane	Hhohho	Siphofaneni	Lubombo
Satelite	Hhohho	Tikhuba	Lubombo
Sigangeni	Hhohho	Tsambokhulu	Lubombo
Vuvulane	Lubombo	Zombodze	Shiselweni

ANNEX B: LIST OF INCENTIVES

Incentive	Examples	Comments
1) Minor cosmetic improvements to an area of the health clinic.	<ul style="list-style-type: none"> • Painting • Roof repair • Window replacement • Water/electricity repairs • Fencing 	As specified by the health clinic, up to the funding amount available.
2) Provision of equipment/supplies to improve service delivery.	<ul style="list-style-type: none"> • Stethoscope, Doctors Double, E65-00 • Scale, Physician Height, E4599-30 • Sphygmomanometer, Desk Mercury, E300-00 • Scale, Baby Type, Slide Weight, E1067-20 • Scale, Bathroom Manual, 150Kg, E1800-00 • Salter Scale • Examination Couch, Spartan, E1531-75 • Scale, Baby + 3 Trousers, E1421-00 • Glucometer, Battery Operated • Desktop Computer Set • Copier/Fax • Nonclinical Equipment (e.g., tea kettle, filing cabinet, billboard, chairs, tables) 	As specified by the health clinic, up to the funding amount available.
3) Organization of an on-site, two-day computer course for five health clinic staff.	<ul style="list-style-type: none"> • Golden Graphics (Pty) Ltd mobile computer course 	Course will cater to different levels of computer competency, ranging from beginner to advanced levels, and will cover Microsoft Word and Excel.

Incentive	Examples	Comments
4) Sponsorship of a one-day, offsite organized retreat with an outside facilitator that is focused on a specific skill, challenge, team-building, and strategizing on improved facility performance.	<ul style="list-style-type: none"> • ALF Solutions (Pty) Ltd 	This retreat will be scheduled only for the end of the 12-month pilot period, but clinics can choose this incentive during any quarter and defer. Will also be offered to control clinics at the end of the 12-month pilot period.
5) Sponsorship of an onsite technical training for all health clinic staff to address key topics/challenges not covered in regularly planned MoH trainings.	<ul style="list-style-type: none"> • ALF Solutions (Pty) Ltd 	Technical area as specified by the health clinic. This training will be scheduled only for the end of the 12-month pilot period, but clinics can choose this incentive during any quarter and defer. Will also be offered to control clinics at the end of the 12-month pilot period.
6) Sponsorship of two health clinic staff to participate in a two- to three-day leadership development program.	<ul style="list-style-type: none"> • SAHCD leadership development program, which currently exists for health centers, hospitals, and program staff. 	This training will be scheduled only for the end of the 12-month pilot period, but clinics can choose this incentive during any quarter and defer. Will also be offered to control clinics at the end of the 12-month pilot period.

ANNEX C: QUALITATIVE RESEARCH METHODS

This team used in-depth interviews (IDI) with HCWs in the treatment sites to collect qualitative information about how the incentive program affected performance and health worker perceptions. Treatment sites were on purpose selected from each of the four regions in Swaziland to represent sites that were successful in meeting their HTC targets as well as those that failed to meet the target. Based on these selection criteria, 16 sites were chosen. The team attempted to speak to two HCWs per selected facility; 31 HCWs interviews were actually accomplished.

The qualitative data collectors who conducted the interviews were selected from a pool of applicants, based on their past experience and training. All interviewers had worked on prior qualitative studies in Swaziland, and they received a further day’s training on the specific protocols and the line of reasoning behind this research project. The IDI menu of questions was then piloted at two sites and the interviewers were debriefed about the results.

Once the IDI questions were finalized, the interviews commenced data collection. Each interview was recorded and then transcribed by Swazi transcribers. All Swazi language transcripts were translated into English and back-checked by native language speakers on the research team. The 31 interviews resulted in 5,835 lines of text. Information on the staff interviewed can be seen in Table C.1 below.

TABLE C.1: DEMOGRAPHIC INFORMATION OF INTERVIEWS OF STAFF CONDUCTING HTC IN TREATMENT SITES OF INCENTIVE PROGRAM

	Region			
	Hhohho	Lubombo	Manzini	Shiselweni
Mean Age	32.1	35.3	30.4	32.8
Mean Time at Position	4.7	2.8	8.6	5.3
Mean Time at Facility	5.1	2.3	3.4	3.8
	Position			
Nurse	5	6	5	5
Nurse Assistant	0	2	2	1
Community Testing Counselor	0	0	0	1
Phlebotomist	1	0	0	0
Mother to Mother Counselor	1	0	1	1

NVivo 8 qualitative data analysis software was used to code and analyze the IDI. The first step in organizing the data once it was loaded into NVivo 8 was to create a separate file for each interview. Each of the IDIs was then printed and read closely to obtain a better grasp of the data. After this initial close reading of the files, a memo was prepared for each text, summarizing the themes identified in the interview. The next step in the analysis was to use broad categories to code sections of the interviews, organizing the data into blocks of texts representing different theme components. The text units coded for IDIs were full sentences. These blocks of data were then analyzed using open coding, where the investigator tried to discover themes within the data. These data were then organized under a set of broad categories, such as “Stated reasons for successfully reaching HTC targets,” “Stated reasons for not reaching HTC targets,” “Job satisfaction,” and “Intention to stay at their job”. Under these broad

categories, sub-categories were created to generate a coding tree, which allows us to follow the interviewee's train of thought and how all of the information fits together.

After analyzing the data in NVivo, multiple themes were created from the perceptions of the participants. To gain a better understanding of how some clinics managed to flourish, meeting multiple quarterly targets while others did not, the IDIs were broken down into three categories: successful clinics (clinics that met target in two or more quarters), moderately successful clinics (clinics that met target in one quarter), and unsuccessful clinics (clinics that were unable to meet their target in any quarter). Breaking down the information into these categories helped the researchers to identify drivers of success and common reasons for clinics' not meeting their targets.

It is important to realize that the power of a qualitative analysis is to gain insight into perceptions of HCWs as to why they think this program was successful or not, and because the sampling for this qualitative study is purposive and not random, it is not representative of the whole population of HCWs performing HTC services in the treatment facilities.

ANNEX D: TREATMENT SITES THAT ACHIEVED THEIR PERFORMANCE TARGETS

Quarter 1	Quarter 2	Quarter 3	Quarter 4
Bhahwini	Bhahwini	Bhahwini	Bhahwini
Bholi	Bholi	Bholi	Bholi
Herefords	Herefords	Herefords	Herefords
Kamfishane	Kamfishane	Kamfishane	Kamfishane
Luyengo	Luyengo	Luyengo	Mahlangatsha
Mahlangatsha	Mahlangatsha	Mahlangatsha	New Haven
New Haven	New Haven	New Haven	Mpolonjeni
		Mkhulamini	New Thulwane
		Mpolonjeni	Dwalile
		New Thulwane	JCI
			Mahandle
			Mashobeni
			Nhletsheni
			Bulandzeni

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