CLINICAL EPIDEMIOLOGY RESOURCE & TRAINING CENTER

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF ZIMBABWE

HIV/AIDS QUALITY OF CARE INITITATIVE (HAQOCI)

SITUATIONAL ANALYSIS REPORT ON

LABORATORY SERVICES IN ZIMBABWE

Based on the National Situation Analysis Survey of HIV/AIDS quality of care conducted in June-September, 2002

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EXECUTIVE SUMMARY

BACKGROUND;

AIDS-related illness remains a major cause of the disease burden in Zimbabwe with worsening prospects. It is estimated that two million people are infected and prevalence among the sexually active is 25%. It is the commonest cause of morbidity and mortality in Zimbabwe. Up to 80% of all hospital admissions are due to AIDS related illness. Provision of good quality care has been compromised making this a great challenge for health providers, particularly in resource poor environments. The fight against HIV/AIDS requires multiple facets for the delivery of Health services such as Laboratory services to be in place to compliment the provision of quality care. Limited data is available on laboratory services to meet the demand required for deliverance quality care for the high numbers of HIV and AIDs patients.

OBJECTIVE: To characterize the prevailing situation with regards to supportive Laboratory services in the HIV/AIDS quality of care available in the country.

METHOD: A cross sectional study was done using a "questionnaire" developed as a tool to carry out the survey on the current situation of the Laboratory support services between June and September 2002.

RESULTS: 10 provincial hospitals, 3 districts within each province, and 3 rural health centers within the sampled district and the catchments area surrounding the rural health centres constituted the sample size. 183 respondents comprising of chief Medical Laboratory Scientists, Senior Medical Laboratory Scientists, Medical Laboratory Scientists, Nurses and others were interviewed. 84.2% of respondents reported that there were Standard Operating Procedure (SOPs) and of these, 149 (96.8%) indicated that their

laboratory followed the laid down SOPs. Only 52 respondents were able to provide information on the number of staff that had been trained to various levels and of these, 53.8% said staff had been trained to a specialist diploma. Only 41 respondents were able to provide information on the number of Cadres possessing various specializations. Over 50% of the respondents said that their laboratory facility had the capacity to conduct tests for the diagnosis of all the STIs and 90% of the respondents said they could conduct tests for the diagnosis of syphilis. A total of 53 respondents reported that their facilities had the capacity to run the HIV tests. Furthermore 92, 58, and 31 of the 183 respondents indicated that their facilities conduct rapid tests, Eliza and Western Blot respectively. A total of 143/183 (78.1%); 112/178 (61.2%); 45/183 (24.6%); 37/183 (20.2%); 113/183(62.8%) and 59/183(32.2%) of respondents reported that their facilities could test for TB, Cryptococcal,, Pneumocystis jiroveci, Candidiasis and Cryptosporidiosis infections respectively. More than 35% of the respondents reported that their facilities had the capacity to run the main hematological and biochemical tests. The majority 90% of respondents reported that their laboratory serve mostly OPD and that they were fully functional

CONCLUSION

Good laboratory services still exist though the manpower to run them is inadequate. There is therefore a need for strategized interventions to resuscitate this vital service to give a high quality of care to the HIV and AIDS patients in the country.

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LIST OF ABBREVIATIONS

AIDS	**Acquired immunodeficiency syndrome**
HBMLS	**Honours in Bachelor's degree in medical laboratory Sciences.**
C.E.U.	**Clinical Epidemiology Unit**
DMOs	**District Medical officers**
HAQOCI	**HIV/AIDS quality of Care Initiative**
HIV	**Human immunodeficiency virus**
PMDs	**Provincial Medical officers**
SOPS	**Standard Operations Procedures**
VDRL	**Venereal Disease Research Laboratory**

BACKGROUND

AIDS-related illness remains a major cause of the disease burden in Zimbabwe with worsening prospects. This disease has become the commonest cause of morbidity and mortality in Zimbabwe. Life expectancy at birth has dropped from 60 years to 38 years in the last decade. Up to 80% of all hospital admissions are due to AIDS related illness. Good prognosis, diagnosis and care of the patients' infections require a dependable laboratory services. Provision of good quality care has been compromised making this a great challenge for health providers, particularly in resource poor settings like in Zimbabwe.

The HAQOCI was developed to implement an initiative that would improve the quality of HIV/AIDS care in Zimbabwe. As part of this effort tools were developed to assess the baseline situational analysis of the HIV/AIDS quality of care available in the country.

The general Objective of tool 6 was to characterise the prevailing situation with regards supportive laboratory services in the HIV/AIDS quality of care available in the country.

Specific Objectives

Specifically, tool 6 would seek to assess the situation regarding: -

(i) Laboratory policy issues and guidelines

(ii) Training and manpower development

(iii) Staff deployment

(iv) Quality control and quality assurances

Methodology

The C.E.U., through the steering committee, engaged a total of six group leaders to spearhead the development of tools to be used in surveying the areas of OI treatment, Laboratory support services, Discharge planning, Psychosocial care and support, Community home-based care and Maternal and Child Health.

Tool development

In developing the tools, a tool on laboratory support was also developed (tool 6). This tool was developed to capture the current status of laboratory services in Zimbabwe as regards the actual tests being done by a particular level of a laboratory infrastructure, current staff compliment, level of training and quality assurance issues.

The draft tools were presented to stakeholder representatives at a meeting held at the Harare Safari lodge on the 17/5/02 for their review and comments following which the amended tools were field-tested.

The tools were pilot tested in one province and one city, namely Mashonaland East and Harare using research assistants from the respective areas. The sites for the testing included the provincial hospital, district hospital and three rural health centres in Mashonaland East. In Harare, piloting was conducted at one urban referral hospital, polyclinic and one national referral hospital. The pilot exercise was undertaken to field

test the tools vis a vis their appropriateness, their comprehensiveness, their user-friendliness, as well as logistical and technical issues in administration, data handling and analysis. Following the pilot exercise, a debriefing meeting was undertaken with research assistants involved in the field work and a feedback report was prepared and presented to each of the tool developers so that they could incorporate insights from the pilot exercise in the finalisation of the tools.

Respondents For Tool 6

The respondent for the tool were a).

a). PMDs

b). DMOs

c). Chief medical laboratory scientists

d). Senior medical laboratory scientists

e). Medical laboratory scientists

f). Nurses

Sampling

The sampling plan adopted for the survey was based on the national profile that comprises of 10 provinces including the cities of Harare, and Bulawayo. The multi stage sampling procedure that was followed is summarized in the organ gram below. This sampling plan that was drawn up was designed to maximise representative ness by insuring that all 8 provinces and 2 cities were incorporated in the survey. The resultant sampling frame included all provincial hospitals, 3 districts within each province, 3 rural

health centres within each district and the catchments area surrounding the rural health centres (See SAMPLING FRAME Figure 1).

Researcher training

Once the tools had been finalised, a three-day workshop was held at the Cresta Lodge Hotel to train research assistants who were identified by the responsible authorities from the provinces and cities from a list of randomly selected sites. In addition, a team of three data entry clerks was trained during the same period. The research assistants were taken through the objectives of HAQOCI and the aims of the situation analysis survey. They were then introduced to each of the survey tools and together with tool developers, went through each tool item by item. Points which needed clarification were dealt with there and then until there was unanimity on what each tool item meant and what it was designed to uncover/assess given the objective of the overall tool. The next stage involved a translation of some of the tools through group work until there was consensus on semantic equivalency. In addition, trainees were briefed on the logistics of conducting the survey, procedures in the completion of questionnaires and interviewing techniques.

Field survey

The field survey was conducted during the months of August and September 2002 and took 30 working days to complete. In each province the survey was conducted by a team comprising of one co-ordinator and 3 research assistants backed by a field supervisor who reported to a 3-member situation analysis task force. The co-ordinators were tasked to facilitate entry into the field, supervise and monitor data collection and liase with the task force. The provincial supervisors' major task was to trouble shoot, monitor the

progress of data collection in their area, perform quality control checks on the completed questionnaires and forward completed questionnaire to the CEU for Data entry and analysis.

RESULTS

MANAGEMENT, POLICY AND STAFFING - PERSPECTIVE

A total of 183 respondents comprising of chief medical laboratory scientists, senior medical laboratory scientists, medical laboratory scientists and others were interviewed and they were distributed as per Figures 2.1 and 2.2 respectively. The majority of respondents (57.9%) were not from the medical laboratory scientist category. Of these, 35.9% were Nurses. Of the sites that were surveyed, Mashonaland East (41.5%) had the highest number of respondents.

Even though the majority of respondents were not from the medical laboratory profession a total of 154 out of 183 (84.2%) respondents reported that there were standard operating procedures in their laboratory settings and of these, 149/154 (96.8%) indicated that their laboratory followed the laid down standard operating procedures [see table 1 for details]. Established posts in each of the institutions were found to have a mean of 2(0-122) with a wide range, a reflection on the inconsistence of the national policy as regards level of significance or the role of the laboratory in diagnosis, monitoring of Diseases and treatment or generally care of the patients.

Management level perspective on Trained staff

Mean number of qualified staffs in each of the establishment were found to be a mean 2 (0-100) a reflection on the uneven level of understaffing in each sampled site. On the question of the laboratory staffing and training situation, only 52(28.4%) of all the respondents were able to provide information on the number of staff that had been trained to various levels and of these. Of these below a half of them 21/52 (40.4%) said staff had been trained to a specialist diploma level whilst 14/52 (40.4%) said staff had been trained to general diploma level, with 28/52 (53.8%) having attained HBMLS degree level. Of the respondents on the question of how many had a specific specialization 41 provided information on the number of cadres possessing various specializations and of these 29/41 (56.1%) reported Clinical chemists while 14/41 (34.1%) mentioned Hematologists, 2/52(4.9%) reported Microbiologists, 1/52 (2.4%) reported Histologists as the specializations of the trained cadres (Table 2)].

Management level perspective on availability of Laboratory services:

A] DIAGNOSIS OF SEXUALLY TRANSMITTED DISEASES

On the question of the laboratory having capacity to deliver services (Table 3), over 50% of the respondents said that their laboratory facility had the capacity to conduct tests for the diagnosis of all the STIs except for Hemophilus ducreyi (mentioned by 40.4%), with 88.5% of these respondents saying their facility had the capacity to conduct tests for the diagnosis of syphilis (VDRL), Herpes simplex-2, 30/183 (16.4%), Gonorrhea 115/180

(62.8%), Bacterial vaginosis 118/183 (65.5%), Candidiasis 132/183 (72.1%) and Hemophilus ducreyi down to 74/183 (40.4%) respondents. A total of 53/183 (29.0%) respondents reported that their facilities had the capacity to run the HIV tests. Table 3 shows that of the respondents; 92/183(50.3%), 58/183(31.7%), and 31/183(16.9%) respondents indicated that their facilities conduct rapid tests, Eliza and Western Blot respectively. CD4 counts, HIV viral loads and HIV resistance tests were affirmatively responded to by 12 /183 (6.5%); 7/183 (3.8%); 5/183(2.7%) respectively which was very minimal when one considers the magnitude of the HIV/AIDS in Zimbabwe.

B] DIAGNOSIS OF OPPORTUNISTIC INFECTIONS

As regards the diagnosis of opportunistic infections a total of 143/183 (78.1%); 112/178 (61.2%); 45/183 (24.6%); 37/183 (20.2%); 113/183(62.8%) and 59/183(32.2%) of respondents reported that their facilities could test for TB by ZN stain, Cryptococcal by India ink, Cryptococcal infection by antigen detection, Pneumocystis carinii by staining techniques, Candidiasis infections and Cryptosporidiosis infection by staining techniques, respectively. More than 35% of the respondents reported that their facilities had the capacity to run the main hematological and of these respondents the responses were distributed as follows for FBC 121/183(66.1%) and HB 142/183 (77.6 %) test) and for the biochemical tests Urea and electrolytes test 87 /183(47.6%) and the liver function tests 68/183(37.2%).

C] DAY-TO-DAY RUNNING OF THE LABORATORY

Table 4 reflects information on the day to day running of the laboratory. Of note, from the table is the fact that the majority of the respondents reported that their laboratories serve mostly outpatients 40(0-10,400) and that there was adequate space 63/183 (34.4%), continuous power supply144/183(78.7%), a working refrigerator173/183 (94.5%), a working microscope163/183 (89.6) and a working centrifuge156/183 (85.2%) Very few respondents reported that their laboratories sometimes sent clients elsewhere 22/183 (12.4%) for STI, 88/183 (48.1%) for HIV and 56 (31.5) for opportunistic infection related tests. The above may indicate that laboratory services infrastructure are available or in place but are under utilized by the doctors and nurses. Further more the laboratory may have to be revamped so that they may meet the new demands due to the HIV/AIDS care envisaged.

C] REFERRAL SYSTEM

Table 5 reflects information on the referral systems with respect to laboratory services. Over 60% of respondents reported that they sometimes collect blood for specimen and send them somewhere for hematological and biochemical testing 117/183 (63.9%) even though 46/183 (25.1%) of them reported sometimes sending clients elsewhere for these services. This is a very useful system in place that can be taken advantage of so that tests that are not done at lower level laboratory can be carried out at the higher-level laboratory.

DISCUSSION

Even though the majority of respondents indicated that they had SOPs; the tool was not designed to assess the utilisation level. There was lack of consistency relating to policy issues and availability of guidelines noted among respondents in general. This problem was noted to be both intra-institutional and inter-institutional

Availability of policy documents and guidelines such as SOP was not verified during the survey, as this was not strictly speaking an audit but a situation analysis. It was however interesting to note that the non-medical laboratory scientist manning the laboratories were aware of the need for SOPs. Therefore there may be need at some point in time to re-visit the issue of what really obtains at the ground level given the apparent contradictions in the reports during the survey.

As regards training and manpower there was again lack of consistency relating to the number of cadres trained in particular disciplines and types of courses attended. This was mostly intra-institutional and it was also noted that the majority of the respondents were nursing staff that have nothing to do with the laboratory. Some health institutions were short staffed that respondents e.g. doctors were reluctant to give time to interviews about the laboratory. It is not known whether this was due to attrition or just the lack of knowledge about the significance of Laboratory services. Training for the Medical laboratory scientist is now under the auspice of the University of Zimbabwe Medical School and graduates channelled out to augment the earlier specialisation Diploma cadres

degree seem to relocate or seem to be employed in other fields. Staff attrition rate was found to be very high across the board with rural areas being worst affected. Conditions of services and salaries may need to be reviewed so that trained staff can relocate to such rural areas.

Equitable distribution of staff was being affected by high attrition rate and all institutions reported significant vacancies in nearly all disciplines and this obviously has implications for quality of care given by any given laboratory institution. The shortages of both human and material resources hampered provision of quality care for HIV/AIDS patients. It is however interesting to note that, with the observed shortage of staff or uneven distribution of the trained laboratory staff in the various laboratories, maximum and effective use of staff would be the status quos when such a referral system is taken advantage of. The laboratories would thus have to stretch their services to give good services in the HIV/AIDs care envisaged.

The existence of a referral system of patients and specimens between the different levels of hospitals or heath institutions is a very useful system in place that can be taken advantage of so that laboratory tests that are not done at lower level laboratory can be carried out at the higher-level laboratory in the HIV/AIDS care services.

RECOMMENDATIONS

Even though very strategic infrastructures of the Laboratory service settings are in place in the country the actual laboratory services are now collapsing. There is therefore a need for strategized interventions to resuscitate this vital service to give a high quality of care to the HIV and AIDS patients in the country. Since there is a high turn over of staff there is also a need to increase the training of the laboratory cadres by first strengthening the training colleges both in manpower and capacity requirements and secondly improve conditions of service and the provision of the required equipment and reagents. It is also prudent that the government authorities and the users (Medical persons esp. Doctors) recognize the exisistance and role-played by the Laboratory services in the care of patients with HIV and /or AIDs. There is a need for the increase of budget allocations for the maintenance and improvement of the available laboratory services. Other profession that have held fort in the absence of trained persons should together with the trained ones be given continued education via seminars, conferences, short courses etc so that they keep abreast with the ever changing pattern of the diseases spectrum now that HIV and AIDs have established themselves and confounded disease presentations. To reduce staff attrition there is need for the staff to be motivated and the full compliments of the established post filled.

FIGURE1: FLOW CHART 1- SAMPLING OUTLINE

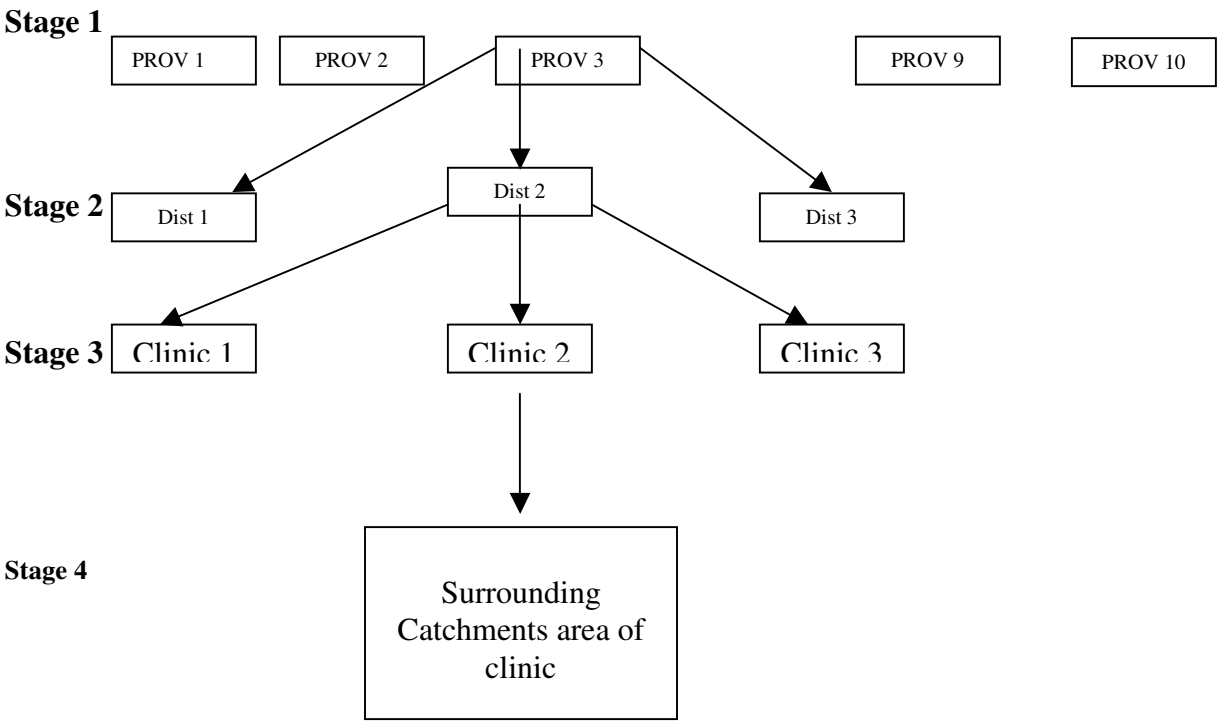

FIGURE 2.1:- DISTRIBUTION OF RESPONDENTS

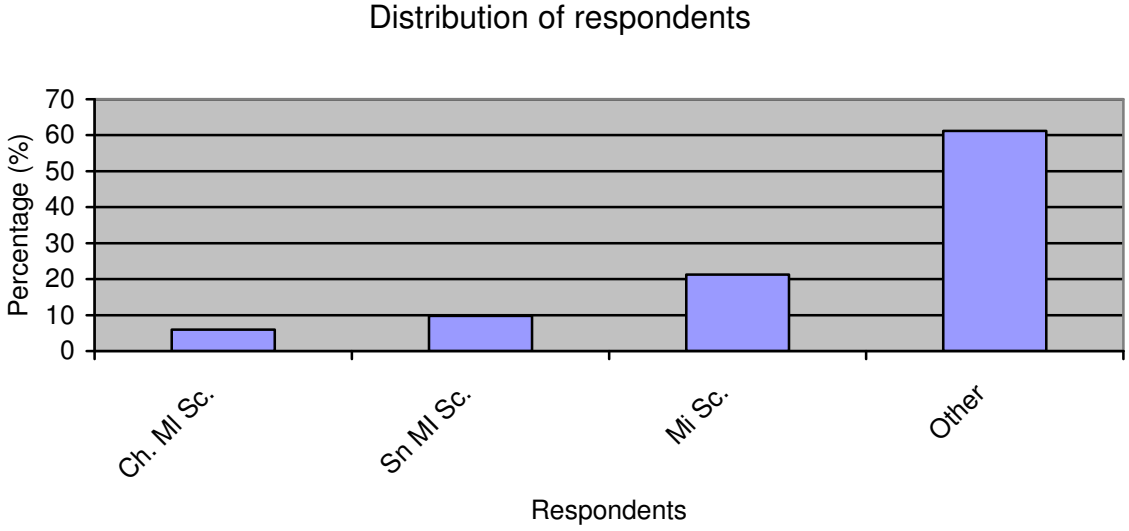

FIGURE- 2.2

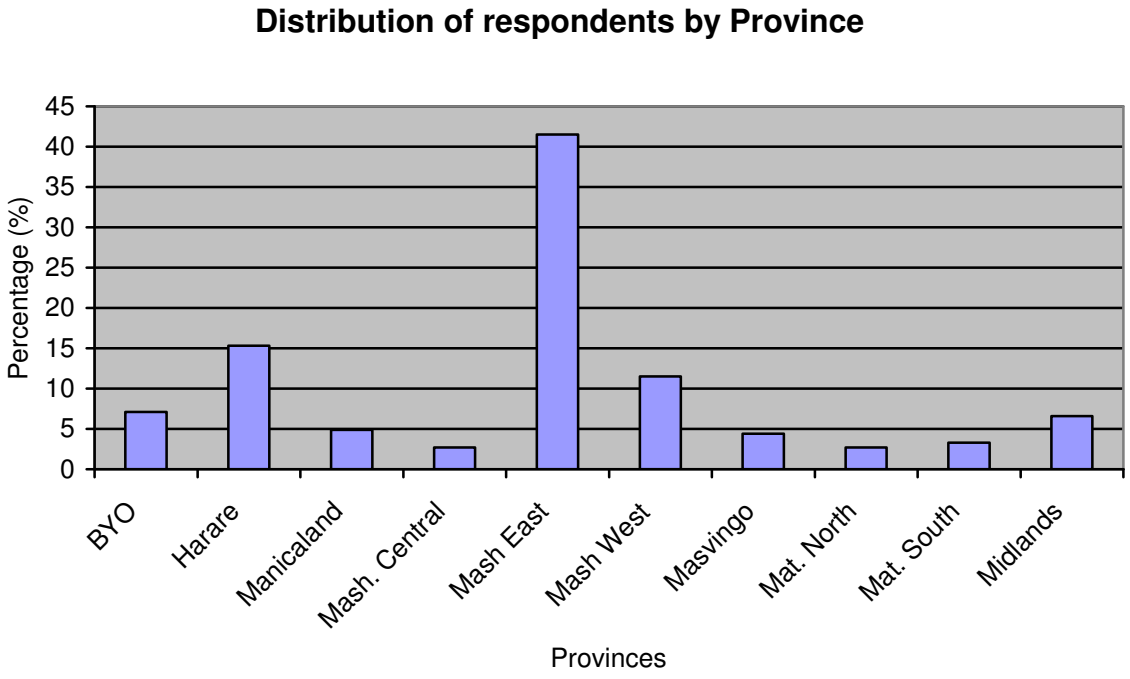
Distribution of respondents by Province
Percentage (%)
45
40
35
30
25
20
15
10
5
0
BYO
Harare
Manicaland
Mash. Central
Mash East
Mash West
Masvingo
Mat. North
Mat. South
Midlands
Provinces

TABLE 1:

Table 1.1 Standard operating procedures		**Frequency N = 183 N (%)**
Q2.	Number of respondents reporting that there are Standard operating procedures (SOP)?	154 (84.2)
Q3.	Number of respondents reporting that their Laboratory follows laid down SOP?	149 (96.8)

TABLE 2

Table 2.2 Staffing and Training		**Frequency N = 183 N (%)**
4a	What is the number of established posts at this Facility? Median (Range)	1 (0 - 122)
4b	How many qualified officers are in post at this Facility? Median (range)	2 (0 - 100)
5.	How many have been trained to these levels?	
	a. BHMLS Degree	28 (53.8)
	b. Specialist Diploma	21 (40.4)
	c. General Diploma	2(3.8)
	d. Other	1 (1.9)
6.	How many of them have the following specialization?	N = 41
	a. Clinical Chemist	23 (56.1)
	b. Hematologist	14 (34.1)
	c. Microbiologist	2 (4.9)
	d. Histologist	1(2.4)
	e. Other	1(2.4)

TABLE 3

Table 3.3 Supportive laboratory investigations	**Frequency N = 183 N (%)**
13. Number of respondents reporting that their facility had the capacity to conduct tests for the diagnosis of the following STIs?	
a. Syphilis (VDRL)	162 (88.5)
b. Gonorrhea	115 (62.8)
c. Herpes simplex-2	30 (16.4)
d. Trichomonas vaginalis	141 (77.4)
e. Bacterial vaginosis	118 (65.5)
f. Candidiasis	132 (72.1)
g. Hemophilic ducreyi	74 (40.4)
16 Number of respondents reporting that their facility had the capacity to run HIV tests	53 (29.0)
17. Number of respondents reporting that their facility ran the following HIV-related tests?	
Rapid test	92 (50.3)
Elisa	58 (31.7)
Western Blot	31 (16.9)
CD4 counts	12 (6.5)
HIV viral load	7(3.8)
HIV resistance test	5 (2.7)
20. Number of respondents reporting that their facility had the capacity to run the following tests for Opportunistic Infections.	
a. Ziehl Nielsen (TB)	143 (78.1)
b. India ink (Cryptococcal)	112 (61.2)
c. Antigen Test (Cryptococcal)	45 (24.6)
d. PCP Test (Pneumocystis carinii)	37 (20.2)
e. Candidiasis Test	113 (62.8)
f. Cryptosporidiosis Test	59 (32.2)
23. Number of respondents reporting that their facility had the capacity to run the following Hematological and Biochemical tests?	
a. FBC Test	121 (66.1)
b. Hemoglobin Test only	142 (77.6)
c. Urea and Electrolytes Test	87 (47.6)
d. Liver function Tests	68 (37.2)

TABLE:- 4

Table 4.4 Services Provision and capacity	**Frequency N = 183 N (%)**
7. How many of these types of patients does the Laboratories serve per month?	
a. Outpatients Median (Range)	40 (0 – 10 400)
b. Inpatients Median (Range)	0 (0 – 8000)
8. Number of respondents reporting that there was Adequate laboratory space?	63 (34.4)
9. Number of respondents reporting that there was Continuous power supply?	144 (78.7)
10. Number of respondents reporting that a refrigerator was Present and in working order?	173 (94.5)
11. Number of respondents reporting that a light Microscope was present and in working order?	163 (89.6)
12. Number of respondents reporting that a centrifuge was Present and in working order?	156 (85.2)
15a Number of respondents reporting that they sometimes Send clients elsewhere for STI-related tests?	22 (12.4)
18a Number of respondents reporting that they sometimes Collect HIV specimens and send them elsewhere for testing.	88 (50.0)
19a Number of respondents reporting that they sometimes Send clients elsewhere for HIV-related tests?	41 (23.6)
21a Number of respondents reporting that they sometimes collect Opportunistic Infections specimens and send them Elsewhere for testing.	56 (31.5)

TABLE:- 5

Table 5.5	**Referral system**	**Frequency N = 183 N(%)**
24a	Number of respondents reporting that they Sometimes collect blood specimens and send them Elsewhere for Hematological and Biochemical Testing.	117 (66.1)
25a	Number of respondents reporting that they Sometimes send clients elsewhere for Hematological and biochemical testing?	46 (26.0)