Chapter 4
Service Provision

While it is feasible to offer outpatient health services under a variety of conditions, there are infrastructure, resource, and health system components that are important for enabling a facility to provide and maintain good quality health services, as well as to increase appropriate utilization by the population being served. The health services that are assessed by this survey include services for HIV/AIDS, opportunistic infections, sexually transmitted infections, and tuberculosis diagnosis and treatment.

The Uganda Health Facilities Survey 2002 (UHFS) assesses the following basic infrastructure and resources related to service availability:

1) Availability of a range of services, with a frequency that meets basic needs;
2) Availability of qualified staff;
3) Infrastructure that provides basic client amenities; and
4) Infrastructure to support 24-hour emergency services and higher technical diagnostic and treatment interventions.

Management and administrative systems are also important, to maintain and support quality health service delivery, to ensure that the health system is meeting the needs of the community, and to increase the probability that services will be appropriately utilized. The UHFS assesses the following basic systems and strategies related to maintaining and supporting quality health service delivery and appropriate utilization, including

1) Management, supervision, and staff development activities;
2) Systems and practices for infection control;
3) Logistics systems to ensure quality and quantity of medicines and diagnostic commodities;
4) Laboratory facilities; and
5) Availability of services, program components, and other aspects of services.

4.1 HIV/AIDS Support Services

The UHFS investigated programs related to HIV/AIDS services in areas including voluntary counseling and testing (VCT), prevention of mother-to-child transmission (PMTCT), “youth-friendly” programs, activities for orphans and vulnerable children (OVCs), home-based care, management of opportunistic infections (OIs) and sexually transmitted infections (STIs), and diagnosis and treatment of tuberculosis (TB). The survey asked if each of these services was offered in the facility. Definitions for these services were provided in the training manuals and were available to the interviewer as probes. For example, VCT service was defined as requiring all three of the following: 1) laboratory test for HIV on request; 2) staff responsible for counseling for all clients on prevention of HIV/AIDS; and 3) staff responsible for counseling positive clients. It is clear from the comparison of the responses to the question about availability of VCT service that the question may not have been well understood. Many of the facilities that reported having VCT services did not actually have laboratory testing for HIV on request. Because some of these definitions may have been a bit loose or may not have been completely understood, we present the availability of services in this section as the perception of the facility that such a service was offered. Details of
the instructions to the interviewers, definitions of services, and the probes used are available in the manual for the survey instrument (Appendix F). Comparisons of this perception of provision of service with the minimum criteria that is used to judge the services in Chapter 5 are useful to evaluate the meaning of these responses.

The survey investigated the components of each type of service, including outreach, partnerships, availability of guidelines, and existence of a register to record program information. Figure 4.1 shows the proportion of health care facilities in the country that reported providing certain HIV/AIDS services in government and non-government facilities. More detailed data can be found in Appendix G.

OI and STI services are much more readily available than the other services studied in all facilities visited. It is clear that a larger percentage of the non-government facilities visited offer VCT, OI, STI, and TB diagnostic services, while a larger percentage of the government facilities visited offer PMTCT and TB treatment.

4.1.1 Voluntary counseling and testing

HIV VCT services encourage safe sex practices to ensure prevention and positive living for those already infected. Since the implementation of the VCT strategy, considerable progress in the health care delivery system has been made, and over 400,000 individuals have been tested for HIV countrywide since large-scale counseling and testing were initiated.

Although HIV/AIDS counseling and testing facilities have been expanded considerably, there are still a number of constraints. These include: 1) inadequate HIV testing and counseling services, particularly in rural areas; 2) limited VCT counselors; and 3) low quality of testing facilities (e.g., staff, laboratories, and consumables) available at some sites.

Based on this analysis, key recommendations have been identified in the Health Sector Strategic Plan (HSSP), including 1) expansion of HIV testing and counseling facilities to all districts; 2) development and provision of VCT guidelines to NGOs undertaking VCT and all districts; 3) training of VCT counselors and technical staff; 4) establishment of additional HIV VCT sites in other districts and subdistricts; and 5) carrying out VCT outreach activities (MoH, 2000).

The UHFS investigates many of these issues by asking questions about program components, outreach, partnerships, availability of guidelines, and existence of a register to record program information. Highlights of the findings are presented in this section. More detailed data can be found in Appendix G.

Voluntary counseling and testing for HIV is reported available in 11 percent of the facilities in the country. VCT is more commonly offered in non-government compared to government facilities (21% and 7%, respectively). Differences among the various facility types and between government and non-government facilities are illustrated in Figure 4.2.
Of those facilities that reportedly offer VCT, the majority, 58 percent, are specialized services. All facilities provide counseling upon request and post-test counseling, and nearly all (99%) offer testing. Most (78%) report that guidelines are available in the clinic, and most (63%) have some type of visual aid to support services. The mean number of clients in these facilities is 39 per month.

4.1.2 Prevention of mother-to-child transmission

Given the heavy disease burden due to HIV/AIDS associated with pregnancies and recognizing the benefits of averting vertical transmission of HIV/AIDS, prevention of mother-to-child transmission has been a focus area for intervention in Uganda. Since 1992, a number of achievements have been recorded in the prevention of HIV through PMTCT, including the launch of national policy guidelines for reduction of mother-to-child transmission.

The constraints that have been identified in PMTCT within the Uganda health care delivery system include: 1) inadequate supervision and adherence to medical precautions of mothers who give birth at home; and 2) limited capacity of the health care system to offer counseling, testing, and follow-up of clients, especially men, after delivery.

Based on this analysis, the HSSP has made the following recommendations for developing the health care delivery system: 1) initiate a phased implementation of PMTCT in selected health units; 2) strengthen awareness and sensitization on PMTCT in order to facilitate informed decision making and reduce pregnancies among HIV-positive and discordant couples; and 3) promote utilization of disposable or sterile and other necessary maternal and child health, family planning, and safe motherhood equipment (MoH, 2000).

The UHFS looks at many of these issues by asking questions about program components, outreach, partnerships, availability of guidelines, and existence of a register to record program information. Highlights of the findings are presented in this section. More detailed data can be found in Appendix G.

Less than 6 percent of all facilities surveyed reported providing PMTCT services; HC IVs were mostly likely to provide the service, with 15 percent of HC IVs offering PMTCT. Of all facilities surveyed, 20 percent reported offering anti-retroviral therapy (ART).

Figure 4.3 shows the proportion of facilities that offer PMTCT services by ownership and facility type. There are generally low levels of PMTCT services offered in the country.
4.1.3 Services to improve the quality of life for the HIV-positive client

Provision of care for the HIV-positive client remains an important challenge for the health care delivery system of Uganda. Current estimates indicate that 1.9 million people may be infected with HIV, and 400,000–500,000 are living with full-blown AIDS. These people and their families need psychosocial support, health care, and sources of income.

Based on this analysis, key recommendations have been identified in the HSSP, including: 1) providing more support to local NGOs and community-based organizations (CBOs) providing AIDS care and treatment; 2) strengthening palliative care for people living with HIV/AIDS (PLHAs); 3) strengthening modern and herbal treatment for opportunistic infections; and 4) sensitization and education of community members on health care delivery, counseling, hygiene, nutrition and other relevant issues for PLHAs (MoH, 2000).

The UHFS studied many of these issues by asking questions about program components, outreach, partnerships, availability of guidelines, and existence of a register to record program information. Highlights of the findings are presented in the next two sections on management and treatment of opportunistic infections and home-based care. More detailed data can be found in Appendix G.

4.1.4 Management and treatment of opportunistic infections

HIV infection predisposes the infected person to a number of diseases, including pneumonia, cryptococcal meningitis, Kaposi’s sarcoma, cryptosporidial diarrhea, candidiasis of the esophagus, and herpes infections. Tuberculosis is also considered an opportunistic infection (OI). Because of its importance in the Ugandan context, tuberculosis diagnosis and treatment is dealt with in a subsequent section.

Management (prevention, diagnosis, and treatment) of OIs in HIV/AIDS patients is reportedly offered in 63 percent of health care facilities in the country. The service is offered at different levels in different facility types and in government versus non-government facilities (Figure 4.4).
In facilities that offer management of OIs, most provide these services integrated with other services (97%). However, more than 25 percent of district hospitals offer specialized services for OI management. Most facilities that offer OI services provide counseling (88%) and prescribe drugs (99%). However, only one-third of these facilities provide laboratory diagnosis, and only 7 percent offer x-ray services. Guidelines are available in 60 percent of facilities that offer OI management. Most (over 90%) have a register to record program information.

4.1.5 Social, economic, and psychological support

It was recognized early in Uganda that the HIV/AIDS epidemic would result in serious social and economic consequences due to a changed pattern of public expenditures and private savings. The morbidity and mortality rates of the workforce would increase, leading to a serious loss of manpower. NGOs and CBOs have been the lead agencies in the provision of social support to PLHAs. Government ministries, through their AIDS control programs (ACPs), have also extended social support to the respective employees and their dependents.

Contributions of government, NGOs, and community in the following areas have helped mitigate some of the socio-economic impact of the epidemic: 1) development and support of income-generating projects (IGPs) as one way to minimize the adverse socio-economic effects on PLHAs; 2) provision of social support to PLHAs by NGOs/CBOs, religious groups and community; 3) training community-based counselors to enable community members to handle HIV/AIDS issues; and 4) setting up peer post-test clubs.

Based on this analysis, the HSSP has made the following recommendations for development of the health care delivery system: 1) provision of financial and material support (shelter, food, school fees) to AIDS orphans, child-headed households, and guardians/foster families; 2) promotion of economic and material assistance to PLHA families; and 3) promotion of protection of legal, ethical and social rights of PLHAs (MoH, 2000).

The UHFS addresses many of these issues by asking questions about program components, outreach, partnerships, availability of guidelines, and existence of a register to record program information. Highlights of the findings are presented in the next three sections on targeted activities for orphans and vulnerable children, youth-friendly programs, and social support/post test services targeted to HIV-positive clients and their families. More detailed data can be found in Appendix G.

4.1.5.1 Targeted activities for orphans and vulnerable children

Targeted activities for orphans and vulnerable children (OVCs) can include programs and outreach services funded by the facility that address social issues, economic support, or psychosocial counseling for
OVCs and/or their caretakers. These services were reported to be available in 5 percent of facilities in Uganda. One-fourth of HC IVs had OVC services.

Among those facilities that reported having OVC services, most offer these services integrated with general services (62%). More than 95 percent of these facilities offer counseling, 49 percent offer support, and 53 percent organize groups. Guidelines for OVC services were available in 13 percent of the facilities.

4.1.5.2 Youth-friendly programs

“Youth-friendly” programs address adolescent audiences, focusing on youth participation, utilization of services, or outreach services funded by the facility. These services may relate to preventative education for HIV, VCT, diagnosis and treatment of STIs, family planning and safe motherhood services. Youth-friendly services were reported available in 12 percent of facilities in the country. One-fourth of HC IVs and 39 percent of hospitals have youth-friendly programs.

Among those facilities that reported having youth-friendly programs, most offer them integrated with general services (89%), and 85 percent have outreach programs. Ninety-five percent of these facilities offer STI diagnosis and treatment, and VCT is offered in 36 percent of those programs. Table 4.1 describes the level of the various program components in youth-friendly services by ownership and facility type. Guidelines for youth-friendly services were available in 34 percent of the facilities.

<table>
<thead>
<tr>
<th>Table 4.1 Youth-friendly services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Among facilities with youth-friendly services, percentage of facilities offering various specific services, by ownership and facility type, Uganda Health Facilities Survey 2002</td>
</tr>
<tr>
<td>Ownership/facility type</td>
</tr>
<tr>
<td>Ownership</td>
</tr>
<tr>
<td>Government</td>
</tr>
<tr>
<td>Non-government</td>
</tr>
<tr>
<td>Facility type</td>
</tr>
<tr>
<td>District hospital</td>
</tr>
<tr>
<td>HC IV</td>
</tr>
<tr>
<td>HC III</td>
</tr>
<tr>
<td>HC II</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

4.1.5.3 Home-based care

The demand for palliative care services by patients with HIV/AIDS is expected to increase further as more people are infected. The annual population per hospital bed has risen to 800. Likewise, health personnel are now attending to many more patients as a result of the HIV/AIDS epidemic. As of 1997, patients with HIV/AIDS-related illness occupied more than 55 percent of hospital beds. Furthermore, health workers also experience psychosocial stress due to fear of being infected, while some may exhibit stigma. This implies that a proportion of PLHAs are turned away.

Home-based care is reportedly offered by 12 percent of the facilities in the country. Of those facilities that offer home-based care, 69 percent offer services that are integrated into general services, and 31 percent have specialized services. Over 87 percent of the facilities offer outreach services. Over 90 percent of the facilities that offer home-based care offer services in home, train caretakers, and do commu-
nity education and advocacy, while only 14 percent offer material support. Guidelines for providing home-based care are available in less than 30 percent of facilities.

4.1.5.4 Social support/post-test services targeted to HIV-positive clients and family

The AIDS epidemic has also adversely affected the economic sector. Unlike other illnesses, it selectively affects adults in their prime productive years. Sickness and death due to HIV/AIDS affects places of work through absenteeism and loss of skilled or trained employees. At the household level, treatment cost of AIDS financed from household savings reduces the capital available for investment in agriculture, education, and other areas. Furthermore, the time spent by relatives on care for AIDS patients is deducted from the time spent on production and income-generating activities. This tends to worsen poverty and increases inequality.

Social support/post-test services targeted to HIV-positive people and their families were reportedly available in 8 percent of facilities in the country. Half of hospitals and one-quarter of HC IVs had social support and post-test services. Services were available at approximately equal levels in government and non-government facilities (7%).

Among those facilities that have social support and post-test services, 48 percent offered them as integrated with general services, and 89 percent have outreach programs. All of the facilities offering social support and post-test services provided counseling, 21 percent provided support, and 66 percent had social programs. Guidelines for social support and post-test services were available in 44 percent of the facilities.

4.1.6 Sexually transmitted infections

The close association between the presence of an STI and HIV infection has made STI prevention and treatment an important component of HIV/AIDS prevention. Progress in the area of STI care includes 1) development and distribution of guidelines on syndromic management of STIs; 2) training service providers in diagnosis and syndromic management of STIs; and 3) integrating STI services with primary health care, maternal and child health, and family planning services.

In spite of the progress realized, there are still a number of constraints in implementing the strategy of preventing HIV transmission through the prevention and treatment of STIs. These include 1) limited number of trained personnel in STI syndromic management; 2) low partner notification of STI infection (about 5–15 percent of STI patients ever notify their partners about their STI status [MoH, 1999]); and 3) inadequate treatment of STIs resulting in resistance to drugs.

Based on the assessment of the HSSP, recommendations include: 1) strengthen syndromic management of STIs through comprehensive screening and treatment and special studies to keep track of STI transmission and prevalence in core groups; and 2) integrate STI prevention and treatment into other health services (MoH, 2000).

The UHFS looks at many of these issues by asking questions about program components, outreach, partnerships, availability of guidelines, and existence of a register to record program information. Highlights of the findings are presented in this section. More detailed data can be found in Appendix G.

STI services are reportedly provided by 72 percent of facilities in the country. Figure 4.5 shows the level of STI services by facility type and ownership. STI services are available in 67 percent of government facilities and 86 percent of non-government facilities. Most STI services are integrated into general services (98 percent).
4.1.7 Diagnosis and treatment of tuberculosis

Tuberculosis (TB) has been identified as one of the common HIV-associated infections. A study conducted among a pediatric cohort revealed that 18 percent of HIV-infected infants developed TB compared with 1.4 percent of those not infected with HIV, and the successful response to treatment was 31 percent and 83 percent respectively.

Because the cost of TB treatment spreads over a long period of time, the capacity of hospitals and dispensaries is often over-stretched. The management of other infections commonly associated with HIV/AIDS also generally involves long periods of stay in hospitals and is expensive. Consequently, there is a general shift of emphasis from hospital-based care to home-based care as a means of reducing the pressure on hospitals and health units and providing similar services to PLHAs and community members wherever they may be. It is also recognized that integrating primary health care, AIDS care, and counseling into home-based care would enhance the quality of care for PLHAs while reducing the cost of care. The expansion of the DOTS tuberculosis treatment system to all health facilities is a goal of the current HSSP.

The UHFS addresses many of these issues by asking questions about program components, outreach, partnerships, availability of guidelines, and existence of a register to record program information. More detailed data can be found in Appendix G.

Figure 4.6 presents the proportions of all facilities in the country that reported providing tuberculosis diagnosis and treatment by ownership and facility type. Tuberculosis diagnosis and treatment are available in 23 percent and 31 percent, respectively, of health care facilities in the country.
Hospitals are most likely to offer these services.

Over 90 percent of tuberculosis diagnosis services are integrated into general services across ownership and facility type. Tuberculosis treatment services are also highly integrated (over 85% of all facilities offering treatment).

4.2 Facility infrastructure and resources

4.2.1 Provider training and supervision

The UHFS interviewed providers of HIV/AIDS-related services in each facility regarding their basic training and experience, as well as recent (in the past three years) in-service training and experience with being personally supervised. Data collectors were instructed to interview all staff who were providing the services being assessed on the day of the survey. Anticipating that time might not be sufficient for this in large facilities, a minimum of 4 different staff interviews was required, with the selection ensuring that providers for all four of the following service areas would be interviewed:

1) HIV/AIDS counseling and testing services, including VCT and PMTCT;
2) Management of OIs;
3) Management of STIs; and
4) Tuberculosis diagnosis and treatment.

Where staff members provided more than one service, an attempt was made to identify other providers to ensure that interviewed providers covered as many of the specific services assessed in this survey as possible. It can be assumed that in most cases these criteria result in a sample where findings are positively biased, as staff whose attendance is irregular, or who are less active in providing services, are less likely to have been present.

The next three sections draw on the “Provider Interview” component of the instrument.

4.2.1.1 Training and experience

A total of 366 providers of HIV/AIDS-related services were interviewed. Of those interviewed, the majority were women (women 62%, men 38%). Professional midwife was the most common level of education among providers (23%), followed by medical assistants (22%), and professional nurse (20%). Only 2 percent of the interviewed providers were doctors.

4.2.1.2 In-service training

In order to maintain levels of knowledge and technical competence achieved during basic training, it is essential that health workers be provided continuous exposure to current and new information, both to refresh knowledge and to update practices as new policies and protocols are introduced. This is most often achieved through in-service education. In addition, supportive supervision is important to ensure that standards and protocols are followed at the facility level and to promote an “organizational culture” where it is expected that these standards and protocols will be implemented.

Figure 4.7 shows the proportion of all interviewed health care providers who reported receiving in-service training in the preceding three years for any HIV/AIDS-related topics. Prevention and support counseling were the most frequently reported in-service training received by providers (32% each). In-service training for DOTS was reported by 11 percent of providers (data not shown), although, as noted in Chapter 3, DOTS had not yet been implemented in all districts at the time of the survey.
Table 4.2 shows the proportion of health care providers interviewed who reported receiving any in-service training in the past three years by ownership and facility type. Providers working in hospitals are most likely to have received any in-service training in the past three years, with over 80 percent of hospital providers receiving training.

Figure 4.7 In-service training in HIV/AIDS-related topics in the past three years

<table>
<thead>
<tr>
<th>Facility type</th>
<th>Government</th>
<th>Non-government</th>
</tr>
</thead>
<tbody>
<tr>
<td>District hospital</td>
<td>84.0</td>
<td>NA</td>
</tr>
<tr>
<td>HC IV</td>
<td>62.5</td>
<td>66.2</td>
</tr>
<tr>
<td>HC III</td>
<td>43.9</td>
<td>44.3</td>
</tr>
<tr>
<td>HC II</td>
<td>41.8</td>
<td>43.8</td>
</tr>
</tbody>
</table>

NA = Not applicable

4.2.1.3 Supervision

Supervision of individual staff members helps to promote adherence to standards and to identify problems that contribute to poor quality services. The UHFS documents whether staff members report they have been personally supervised by someone from outside the facility during the past six months and, if so, how many times during the past six months they were supervised.

Table 4.3 shows the proportion of interviewed providers who reported being personally supervised by someone external to the facility within the past six months and the average number of times they were supervised, by ownership and facility type. Health care providers in Uganda reported being supervised an average of 3.4 times during the prior six months by external supervisors, with 86 percent of those inter-

Table 4.3 Outside supervision of providers

<table>
<thead>
<tr>
<th>Facility type</th>
<th>Percentage receiving outside supervision</th>
<th>Average number of times supervised</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Government</td>
<td>Non-government</td>
</tr>
<tr>
<td>District hospital</td>
<td>58.6</td>
<td>NA</td>
</tr>
<tr>
<td>HC IV</td>
<td>88.1</td>
<td>64.9</td>
</tr>
<tr>
<td>HC III</td>
<td>89.2</td>
<td>82.4</td>
</tr>
<tr>
<td>HC II</td>
<td>96.6</td>
<td>79.5</td>
</tr>
</tbody>
</table>

NA = Not applicable
viewed providers having been supervised at least once.

Staff at government facilities were much more likely to receive supervision and at a higher frequency than non-government facilities. Among government facilities, an increasingly greater percentage of facilities at the lower levels received outside supervision.

4.2.2 Laboratory capacity and facilities

As stated in the MoH Annual Health Sector Performance Report (AHSPR), TB rates have steadily increased 8 percent each year since 1994. This is mainly due to the increasing number of people living with HIV/AIDS. The reported HIV prevalence rate in Uganda as of 2002 is 6 percent. People with STIs are at greater risk of contracting HIV.

Comprehensive and well-functioning laboratory services are imperative for the prevention, diagnosis and control of HIV/AIDS, and related communicable diseases such as TB and STIs. Laboratory tests are essential for early diagnosis of TB and for implementing and monitoring the effectiveness of treatment programs (such as DOTS). They are also essential for diagnosing HIV/AIDS (for VCT and PMTCT), and for monitoring effectiveness of treatments, including anti-retroviral therapy. In addition, laboratory diagnostic testing provides accurate diagnoses of STIs and OIs so appropriate treatment can be provided.

4.2.2.1 Indicators for laboratory diagnostics

In order to assess laboratory capacity for diagnosis of HIV, TB, and STIs, the survey identified basic criteria that must be available at each laboratory on the day of the visit. To conduct an HIV, TB, or syphilis test, laboratories require: a) trained laboratory personnel; b) laboratory equipment to conduct each of these tests, including availability of at least one test kit and reagents, a functioning microscope, glass slides, and a functioning refrigerator; c) sufficient power source for the refrigerator; and d) infection control commodities, such as sharps containers, disposable syringes, a waste receptacle with lid and liner, and soap and water for handwashing. A maximum of two laboratory staff persons were interviewed at each facility to gather information on in-service training on conducting one of these tests.

According to the 2000 MoH Inventory of Health Institutions in Uganda, all HC IIIs, HC IVs, and hospitals should be able to provide laboratory services. Although laboratory capacity was reviewed in the HC IIIs visited, a very small number from the analysis presented in this report were found to offer laboratory services for these three diseases; therefore, HC IIIs were excluded from the analysis presented in this report.

Among the surveyed facilities, only 27 percent of government facilities had the laboratory capacity to conduct any tests related to HIV/AIDS, TB, or STIs. Laboratory capacity in government facilities was most frequently found at district hospitals (97%), followed by HC IVs (88%), and least frequently in HC IIIs (26%). At non-government facilities, 100 percent of HC IVs and 31 percent of HC IIIs reported they had the capacity to test for at least one of these illnesses. Overall, 46 percent of all non-government facilities had the capacity to test for at least one of these conditions.

Qualified laboratory technicians are vital to providing proper testing and diagnosis. According to the MoH standards for staff at health center levels, facilities at the HC III level should employ at least one trained laboratory assistant, and at the HC IV and hospital levels, there should be at least one trained laboratory technician and one trained laboratory assistant. Table 4.4 shows the qualifications of the laboratory staff interviewed on the day of the visit at government and non-government facilities and what levels of training they received. Of the laboratory staff interviewed on the day of the visit, laboratory assistant is the most common qualification, while laboratory technologist or higher is the least common qualification.
Table 4.4 Qualifications of laboratory staff

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Labor. assistant</th>
<th>Laboratory technician</th>
<th>Laboratory technologist or higher</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>63.8</td>
<td>20.2</td>
<td>6.3</td>
<td>3.2</td>
</tr>
<tr>
<td>Non-government</td>
<td>45.6</td>
<td>33.2</td>
<td>7.2</td>
<td>14.0</td>
</tr>
</tbody>
</table>

Table 4.5 shows the percentage of facilities that reported having the capacity to run HIV, TB, and syphilis tests.

The table illustrates that the majority of district hospitals and HC IVs reported the capacity to conduct HIV, TB, and syphilis tests. However, less than one-fourth of HC IIIIs could conduct any of these tests.

4.2.2.2 HIV diagnosis

In order to diagnose HIV, laboratories must have at least two HIV test kits on hand and a functioning refrigerator with a sufficient power source to store HIV test kits that require a cold chain. Of the HIV test kits surveyed, Capillus, Bionor, Serocard, and Multispot require refrigeration. Of the 226 facilities surveyed, 12 percent reported the capacity to conduct an HIV test. Of the 16 government facilities that reported the capacity to conduct an HIV test, 99 percent reported having a functioning refrigerator, and 100 percent of the 10 non-government facilities reported a functioning refrigerator. At the government facilities, 100 percent of district hospitals and 98 percent of HC IVs reported having a functioning refrigerator. Not only do facilities need a functioning refrigerator to store HIV test kits requiring refrigeration, but they must also have a sufficient power source for the refrigerator to function properly to ensure that the cold chain and the efficiency of the test are preserved. Of the facilities that reported the capacity to conduct an HIV test and have a functioning refrigerator, 99 percent of government and 100 percent of non-government facilities reported having a sufficient power source.

As stated in the HSSP and according to the Uganda HIV/AIDS Control Project (UACP), district-level initiatives for HIV services include mobilization for and provision of VCT and PMTCT services. In order to offer these services at all HC IIIs, HC IVs, and district hospitals, all of these facilities must ensure that HIV test kits, functioning refrigerators, and sufficient power source are available. The facility must also have trained staff who can administer the range of HIV tests that are used in Uganda. Of the 26 facilities that reported the capacity to conduct an HIV test, Figure 4.8 shows the percentage of government and non-government facilities that had at least one staff person who had received in-service training within the past three years on administering HIV tests. The figure shows that the majority of government hospitals and HC IIIs had staff who had received in-service training in conducting an HIV test in the past three years, although none of the non-government HC III facilities did. However, at the HC IV level, a greater percentage of non-government facilities had at least one staff member who had received training in HIV testing in the past three years.
Among laboratories that reported the capacity to conduct an HIV test, Table 4.6 shows the percentage of staff who reported being trained within the past three years to conduct and read results for laboratory diagnosis using each HIV test studied. More than half of the government staff interviewed had received training on using Capillus, Bionor, Serocard, and Multispot. Among non-government staff, the majority were trained to use Capillus and Serocard.

<table>
<thead>
<tr>
<th>Table 4.6  Staff trained in HIV laboratory diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of interviewed staff who reported having received in-service training in conducting or reading results for various kinds of HIV tests in the past 3 years, by ownership, Uganda Health Facilities Survey 2002</td>
</tr>
<tr>
<td>Ownership</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Government</td>
</tr>
<tr>
<td>Non-government</td>
</tr>
</tbody>
</table>

In order to provide VCT and PMTCT services, the laboratory staff must conduct a primary screening test and a secondary confirmatory test for HIV. If the results of the first and second test are discordant, then a third “tiebreaker” test must be used to give a final diagnosis. To ensure that the right test kits are available at the right laboratories, it is necessary to assess what tests facilities are using. The survey teams asked about which tests were used and the principal usage for each test. At both government and non-government facilities, Capillus was found to be the most commonly used primary test and Bionor the second most commonly used primary test. Serocard and Determine are the most commonly used secondary tests. Serocard and Multispot are most frequently used as a confirmatory or tie-breaking test.

### 4.2.2.3 TB diagnosis

Many different reagents are used in Uganda for conducting a sputum test for TB diagnosis, making it difficult to pick one or two reagents as indicators for testing. Consequently, the availability of the minimum requirement of equipment was used as an indicator of the laboratory’s ability to carry out a TB test on the day of the visit. This equipment includes a functioning microscope and glass slides. Of the 65 laboratories that reported they had the capacity to conduct a TB test on the day of the visit, 43 are government facilities and 22 are non-government facilities. A functioning microscope was found in 92 percent of the government facilities, and 94 percent had glass slides. Of the non-government facilities, 98 percent had a functioning microscope, and 98 percent had glass slides.

Laboratory staff must be trained how to diagnose TB using a sputum test. Of the laboratory staff that were interviewed on the day of the visit, 64 percent of the government facility laboratory staff had received in-service training in how to conduct a sputum test, and 47 percent of the non-government facilities reported they had received training. Figure 4.9 shows the percentage of facilities that had at least one staff member who received in-service training for TB sputum testing in the past three years, among the 65 facilities that had the capacity to conduct a TB sputum test.

![Figure 4.9 Availability of laboratory staff trained in testing for tuberculosis, by ownership and facility type](image)

Note: HC IIs are excluded because of small sample size.
The figure shows that a greater percentage of government facilities have a staff member trained in conducting a TB sputum test, and that the highest percentage of both government and non-government facilities with trained staff are at the HC IV level.

4.2.2.4 Syphilis laboratory diagnosis

Of the 226 facilities surveyed, 21 percent reported the capacity to conduct a syphilis test on the day of the visit. The equipment and test kits required to conduct a syphilis test include a functioning microscope, glass slides, and a VDRL test kit, RPR test kit, or TPHA test kit. Of the 46 facilities that reported having the capacity to run a syphilis test on the day of the visit, 26 are government facilities and 20 are non-government facilities. Seventy-four percent of the government facilities reported that they had a functioning microscope, and 58 percent reported having at least one of the three syphilis test kits. Eighty-three percent of the non-government facilities had a functioning microscope, and 75 percent had at least one of the syphilis test kits. Laboratory staff must be trained on how to test for syphilis. Of the laboratory staff interviewed on the day of the visit, 37 percent of those in government facilities reported receiving training in how to conduct a syphilis test, compared with 58 percent of those in non-government facilities.

Figure 4.10 shows, among the 46 facilities that had the capacity to conduct a syphilis test, the percentage that had at least one staff member who received in-service training for syphilis testing in the past three years. For HC IVs, a higher percentage of both government and non-government facilities have laboratory staff who received in-service training in diagnosis for syphilis in the past three years. It is important to note that many lower-level facilities rely on syndromic diagnosis for STIs.

4.2.3 Infection control

“Universal precautions” is a term applied to infection control measures used to prevent cross-infection from blood and body fluids. The infection control measures are to be utilized by all health workers who may come into contact with blood or other body fluids, under the assumption that anyone may have an infectious condition that can be transmitted through these means.

The components of general infection control and universal precautions selected for this survey of facilities, as relevant to the services being assessed, are:

a) High-level disinfection (HLD) practices;
b) Reliable electricity source to operate sterilization equipment;
c) Latrines for client use;
d) Presence in area where injections are administered of

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1 Based on Blumenthal and McIntosh (1996), USAID (1994), and USAID (1997).
1) Soap and water for handwashing;
2) Decontamination solution for immediate immersion of contaminated equipment that will be reused;
3) Puncture-proof covered containers for disposing of needles, blades, or other sharp items (sharps containers) to prevent accidental injury and possible subsequent infection with HIV or hepatitis; and
4) Disposable syringes with needles; and
e) Safe disposal of contaminated (biohazardous) materials.

Administrative capacity to manage infection control is another important part of quality assurance. The UHFS asked questions about the existence of infection control coordinators and committees. Only 31 percent of health care facilities had an infection control coordinator, and 23 percent had an infection control committee. Hospitals fare much better. No hospital was without a coordinator, and only 13 percent were without committees. Most facilities (80%) had not seen the Ministry of Health Infection Control Protocol. Even in district hospitals, 38 percent had not seen the Infection Control Protocol.

### 4.2.3.1 Capacity to disinfect equipment

For most equipment, either sterilizing or HLD procedures are sufficient to prevent the spread of infection. Dry heat sterilizers, autoclaves (pressurized steam heat), boiling, steaming, and soaking in disinfection solution are all accepted methods, if the appropriate temperature, pressure, and processing time are adhered to. Larger facilities may process equipment at different locations. Where this is the case, this survey assesses the processing for basic outpatient department equipment.

To properly sterilize equipment, the equipment must be cleaned (most often it is soaked in a 0.5 percent chlorine solution for at least 10 minutes to decontaminate after use) and then brush-scrubbed with soap and water. The equipment must then be processed at the proper temperature for the proper time, it must be stored under sterile conditions (dry and stored in sterile wrapping or a sterile or high-level disinfected clasped box), and the date of sterilization should be indicated since the sterility cannot be ensured after one week unless the item is also sealed in plastic.

Most (85%) of the facilities surveyed in Uganda soak medical equipment in a disinfectant prior to final disinfection. The most common method of final disinfecting was boiling (87%), with chemical sterilization being second (12%). At the time of the survey, 7 percent of facilities reported non-functioning disinfection systems. Table 4.7 shows the levels of use of soaking in disinfectant prior to final processing, by ownership and facility type. All hospitals in the country use soaking.

<table>
<thead>
<tr>
<th>Ownership/facility type</th>
<th>Medical equipment soaked in disinfectant solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>84.3</td>
</tr>
<tr>
<td>Non-government</td>
<td>87.5</td>
</tr>
<tr>
<td>District hospital</td>
<td>100.0</td>
</tr>
<tr>
<td>HC IV</td>
<td>86.7</td>
</tr>
<tr>
<td>HC III</td>
<td>83.9</td>
</tr>
<tr>
<td>HC II</td>
<td>84.4</td>
</tr>
<tr>
<td>Total</td>
<td>85.0</td>
</tr>
</tbody>
</table>

The availability of electricity to power sterilization equipment is critical for operation and varies by ownership and facility type (Figure 4.11). Most hospitals (75%) have electricity.
4.2.3.2 Infection prevention in the service delivery area

To make a reasonable assumption that the provider can wash hands before and after seeing each client, soap and water must be in the immediate vicinity of the area where patients are being seen. Knowing that a facility has water does not provide any indication as to whether it is in a location convenient to service providers. For example, it is unlikely that providers will go to a water pump or tap outside of the building between each client. Because of the frequency with which even inside piped water systems malfunction due to seasonal fluctuations in water or maintenance problems, the presence of soap and water in each of the service areas must be ensured. In addition, the service delivery area must have a sharps container (to decrease injury as well as inadvertent exposure to blood-borne pathogens), five or more disposable syringes with needles, and a container with chlorine-based disinfection solution (for placing reusable contaminated equipment such as speculums, minor surgical equipment) if relevant to the service being provided.

Universal precautions for all facilities is a target of the HSSP. This survey has assessed a subset of universal precautions that includes availability of sharps containers, disposable syringes, soap for handwashing, water for handwashing, soaking contaminated equipment in a disinfectant, and a final process of sterilization or HLD (dry heat, autoclave, steam, boiling, or chemical). The definition included observation or report of existence of the equipment at each facility at the time of the survey. Only 26 percent of the facilities in the country meet these criteria.

Table 4.8 shows the percentage of facilities with sharps containers, disposable syringes, soap and water for handwashing, disinfectant for soaking equipment, and high-level disinfection capacity, by ownership and facility type. Sharps containers were available in 49 percent of facilities; soap was available in 74 percent of facilities. Both government and non-government facilities were likely to have water for handwashing.
Soap and water for handwashing, disinfectant, and high-level disinfection were available on the day of the interview in 100 percent of district hospitals. Sharps containers were in use in 57 percent of hospitals.

Less than 40 percent of hospitals have provisions for infection control that stop the spread of infectious diseases, including HIV, as defined here. Non-government facilities were more likely than government facilities to have infection control provisions in place (31% and 24%, respectively). The most common reason that facilities do not meet the infection control criteria used in this survey is that sharps containers were not available in the majority of clinics (51% of facilities).

Availability of electricity, an onsite water source, and functional latrines are general facility accommodations that support infection control. Figure 4.12 shows the percentage of health facilities with electricity, water source, and latrines.

![Figure 4.12 Facilities with electricity, water source, and latrines available](image)
4.2.3.3 Laboratory infection control

When studying the availability of laboratory services, it is necessary to assess the infection control practices and standards of each laboratory facility. Without standard infection control procedures, both clinical staff and patients are at risk of infection. It is important for laboratories to collect blood specimens and dispose of used needles and syringes safely as well as dispose of infectious health care waste safely. At a minimum, all laboratories should have the following: a) a sharps container in order to dispose of used sharps safely, b) disposable needles and syringes, c) waste receptacle with lid and liner, d) soap for handwashing, and e) water for handwashing.

Of the total number of facilities surveyed, 71 reported the capacity to conduct any one of the laboratory tests studied (HIV, TB sputum, and syphilis). Figure 4.13 shows the percentages that had each of these items available on the day of the visit. The chart shows that a greater percentage of non-government facilities have infection control items than the government facilities, except for soap for handwashing. Relatively low levels of facilities had sharps containers and proper waste receptacles available for infection control. At the government facilities, only 7 percent had all items for infection control, and at the non-government facilities, 25 percent had all items for infection control.

Although having these items available does not necessarily mean that they are being used routinely or correctly for infection control, it does give an indication of whether staff have the minimum resources to follow standard procedures for infection control.

4.2.3.4 Management and disposal of hazardous health care waste

Hazardous health care waste consists of items such as soiled bandages, used needles, syringes that may be contaminated by blood, or other biological waste that might be infectious if touched. The most effective means for disposal is incineration and subsequent burial of the remains. Burying items in deep pits is also an effective means of disposal. The most important issue to be assessed is whether there is a process for disposal that eliminates the possibility of contamination through contact. If the waste is visible and not protected from people or animals, either prior to or after processing, this increases the chances that people can inadvertently come in contact and risk subsequent infection.

The UHFS looked at both the management of hazardous health care waste in the health facility, as well as final disposal. About one-fourth of facilities stored their infectious waste in a firmly covered bin prior to disposal (27%), while 29 percent of all facilities stored this waste in an open but protected bin. Thirty percent of facilities stored infectious waste in another non-protected area prior to final disposal. This potentially leaves both staff and clients exposed to infection through contact with this hazardous waste.
Methods of final health care waste disposal include incineration, burning in an open pit, burning and burying, burying, disposing in a pit latrine or an open pit, and transporting waste off site to a municipal dump. According to the survey, the most common mode of disposal of infectious health care waste was burning in an open pit (55% of all facilities), followed by disposal in an open pit (31%). In 58 percent of facilities, at all levels and particularly at district hospitals (75%), this waste was visible and was not properly protected. In only 24 percent of all facilities was there no waste visible around the health facility site. Again, if the location of final disposal of infectious health care waste is not secured, staff, clients, and the surrounding community are potentially at risk of infection through contact with this waste.

4.2.3.5 Management and disposal of sharps

Proper management and disposal of sharps (such as needles and blades) in a clinical setting is also key to infection control. The UHFS asked a series of questions about the handling of sharps and their disposal after use, including their handling before disposal, the use of sharps containers, and final disposal of sharps containers. The majority of health facilities in Uganda separate the needle from the syringe before disposing of the needle (59%). This practice is commonly used at both government and non-government facilities and in all facility types. Thirty-six percent of facilities disinfect the needle prior to disposal and 21 percent do nothing.

For disposal in the clinical setting, more facilities discard the needles into a non-sharps container (55%) than use a properly designated sharps container (41%). Once the sharps containers are full, 20 percent of all facilities store them in a secure location with limited access prior to final disposal, while 13 percent store them in a secure location that has open access. The most commonly used method for final disposal of used sharps containers is to burn them in an open pit (21% of all facilities), while throwing them into a pit latrine was the second most common method of final disposal (11% of all facilities). Only district hospitals used municipal dumps to any extent (13%).

According to the WHO Safe Management of Wastes from Health-Care Activities (1999), for the complete destruction of needles through burning, temperatures must reach at least 800–900 degrees Celsius, which is unlikely in a standard open pit fire. In order to properly destroy the sharps, specially designed incinerators are an option. There are several types of incinerators, including single chamber, double chamber (pyrolytic), and rotary kiln. For high temperature incinerators that specifically treat health care waste, the average temperature needs to reach 900–1200 degrees Celsius, and for medium temperature incinerators, the average temperature needs to reach 800–900 degrees Celsius for the combustion process. At the time of the survey only 3 percent of all facilities were burning sharps in a proper incinerator, almost exclusively at the district hospital and HC IV levels (13% of government hospitals at the district level, no government HC IVs, and 44% of non-government HC IVs).

Contaminated health care waste, including used sharps, must be properly handled in a clinical setting to ensure the safety of staff, clients, and the surrounding community at all times.