

Uganda Health Facilities Survey 2002

Ministry of Health
Kampala, Uganda

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MEASURE DHS+, a USAID-funded project, assists countries worldwide in the collection and use of data to monitor and evaluate population, health, and nutrition programs. Information about the Uganda Health Facilities Survey or about the MEASURE DHS+ project can be obtained by contacting: MEASURE DHS+, ORC Macro, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705 (Telephone 301-572-0200; Fax 301-572-0999; E-mail reports@orcmacro.com; Internet: www.measuredhs.com).

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AIM, the Uganda AIDS/HIV Integrated Model District Programme, is a five-year initiative jointly funded by the U.S. Agency for International Development (USAID) and the Centers for Disease Control and Prevention (CDC). The Programme was devised in consultation with the Ministry of Health, the Uganda AIDS Commission, international agencies, non-governmental organizations (NGOs), community-based organizations (CBOs), and those affected by HIV/AIDS. JSI Research and Training Institute and its partners, World Education and World Learning, are carrying out the AIM Programme in Uganda, working with organizations and individuals to increase the provision of HIV/AIDS services at the district and sub-district level resulting in broader access to quality HIV/AIDS prevention, care and support services. Additional information about the AIM Programme in Uganda can be obtained by contacting: Uganda AIDS/HIV Integrated Model District Programme, Nakawa House, 1st Floor, Plot 3-7 Port Bell RD, Kampala, Uganda (Telephone 041-222-011).

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Summary of Findings

Introduction

In recent years, Uganda has been cited as a model throughout the world for its rapid and effective response to addressing the HIV/AIDS epidemic. Prevalence rates have reportedly fallen in Uganda. This is frequently credited to the government providing direct and open information and leadership in curbing the epidemic, a delay in sexual debut and an increase in condom use, particularly with non-regular sexual partners (Uganda Epidemiological Fact Sheet on HIV/AIDS and Sexually Transmitted Infections, 2002 Update, UNAIDS, UNICEF, WHO).

To continue these successes, comprehensive HIV/AIDS prevention, care, and support services are critical. This includes services ranging from testing and counseling; to diagnosis and treatment of sexually transmitted infections (STI), tuberculosis (TB) and other opportunistic infections (OI); to treatment with anti-retroviral therapy; to a range of social and community-based support services. Because of Uganda's successes, international donor funding has increased in recent years to support the expansion of services and for procurement of the health commodities required to offer comprehensive HIV/AIDS services.

The Ministry of Health (MoH) of Uganda conducted the Uganda Health Facilities Survey (UHFS) in June 2002 to evaluate the current availability of HIV/AIDS support services and the health commodities required to offer these services, in addition to assessing the performance of the logistics system, laboratory services, and infection control

and waste management procedures. The U.S. Agency for International Development (USAID) and the U.S. Centers for Disease Control and Prevention (CDC) provided financial assistance for the survey. Technical assistance was provided by John Snow, Inc./DELIVER, JSI Research and Training Institute, Inc./AIDS/HIV Integrated Model District Programme (AIM), CDC/Uganda, and ORC Macro/MEASURE *DHS+*.

The general objectives of the survey were as follows:

- Provide the MoH with current information on logistics system performance and stock status of key health commodities prior to the introduction of the new “pull” request and distribution system for the health commodities.
- Provide the MoH with current information on the availability of HIV/AIDS prevention, care, and support services, including other STIs, TB, and other OIs.
- Provide the MoH with information on the training of staff who manage and/or provide these services.
- Provide a baseline to measure the improvements in the logistics system for health commodities from USAID's support to the MoH through the DELIVER project and other USAID projects.
- Provide a baseline for measuring the improvements in HIV/

AIDS support services from USAID and CDC support to the MoH through the AIM program.

A nationally representative sample of 238 health care facilities was selected from the 2000 Inventory of Health Institutions in Uganda. Facilities at all levels were selected from both the public and private sectors. Twelve government warehouses were also included in this study. The study used a questionnaire to survey clinic managers, clinic staff, laboratory staff, and logistics managers, and to observe clinic infrastructure, laboratory equipment, and availability of commodities. This document presents a summary of the key findings, conclusions, and recommendations from the survey. The final report contains more extensive details about the survey and the findings.

This survey will provide the MoH, USAID and its partners and other stakeholders in Uganda with information on the characteristics and the performance (strengths and weaknesses) of the logistics system and service delivery at all levels of health care in the country. The results will provide information for planning interventions that address problem areas and will provide baseline data, allowing the MoH to monitor progress over time, in order to adjust strategies as appropriate.

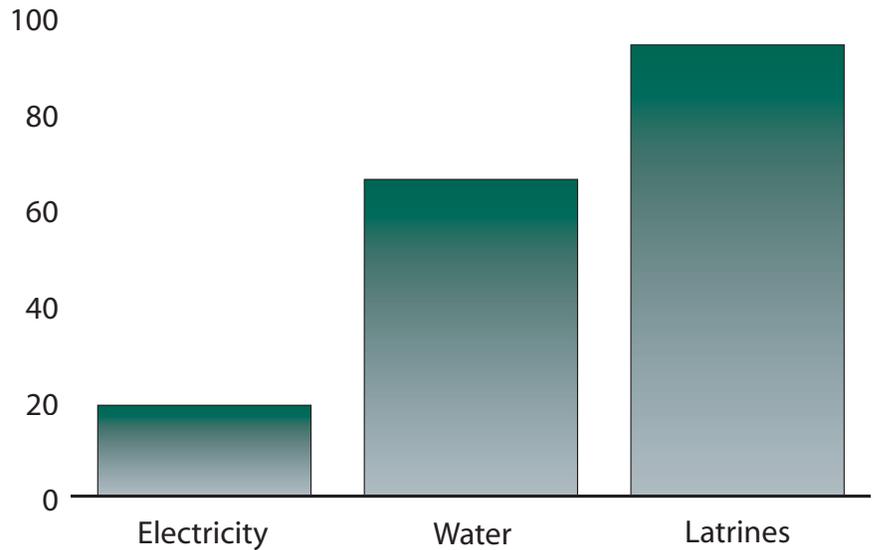
Note: The indicators for evaluation of health services used in this report evaluate the systems and cannot be used as a replacement for certification or needs assessment of particular facilities.

Physical infrastructure

Availability of electricity, an on-site water source, and functional latrines are basic components of physical infrastructure that support infection control at clinical facilities. Figure 1 shows the percentage of all health care facilities in the country (government and non-government facilities) that have electricity from any source, any on-site water source, and latrines.

Almost 20 percent of facilities have electricity, which is important for operating some disinfecting and sterilization equipment. However, 66 percent of facilities have an on-site water source. The majority of facilities have latrines available (over 90%).

Figure 1
Physical infrastructure of health care facilities: Percentage of clinical facilities with electricity, water source, and latrines



Note: Based on observation at time of survey

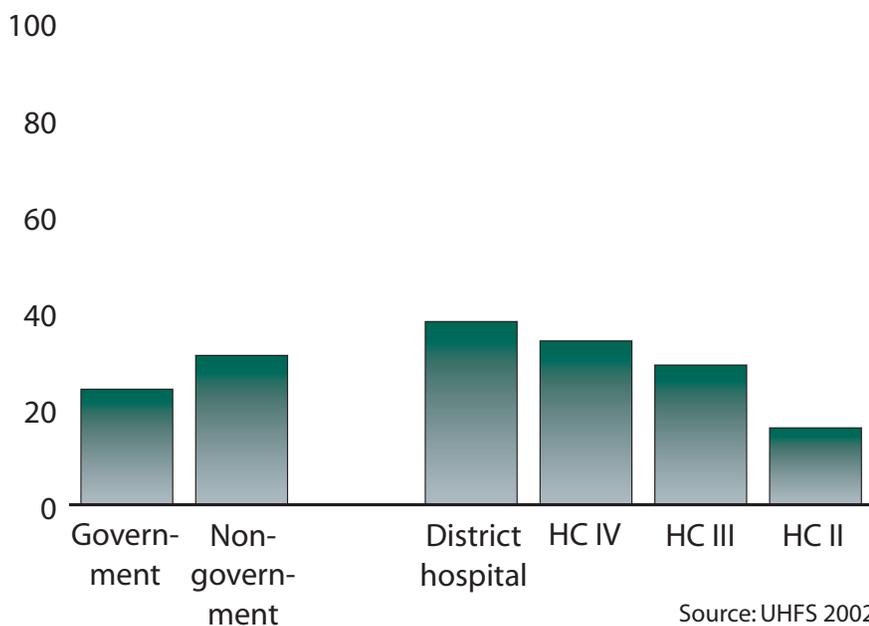
Source: UHFS 2002

Electricity is available in less than 20 percent of health facilities in the country.

Infection control

Figure 2

Percentage of clinical facilities that have soap, water for hand washing, disposable syringes, sharps boxes, disinfectant, and sterilization or HLD capacity, by ownership and type of facility



Source:UHFS 2002

Note: Based on observation or reports at time of survey

“Universal precautions” for infection control at all facilities is the goal of the Ministry of Health of Uganda. This survey has assessed a subset of “universal precautions” that includes availability of soap and water for hand washing, disposable syringes and sharps containers, disinfectant soaking of contaminated equipment, and a final process of sterilization or high level disinfecting (HLD) procedures (dry heat, autoclave, steam, boiling, or chemical). These items had to be either observed or reported at the facility at the time of the survey. Only 26 percent of clinical facilities in the country met all of the criteria.

Figure 2 shows the proportion of facilities that have infection control in place (according to the definition), by ownership and type of facility. Less than 40 percent of hospitals have infection control provisions in place. Non-government facilities are

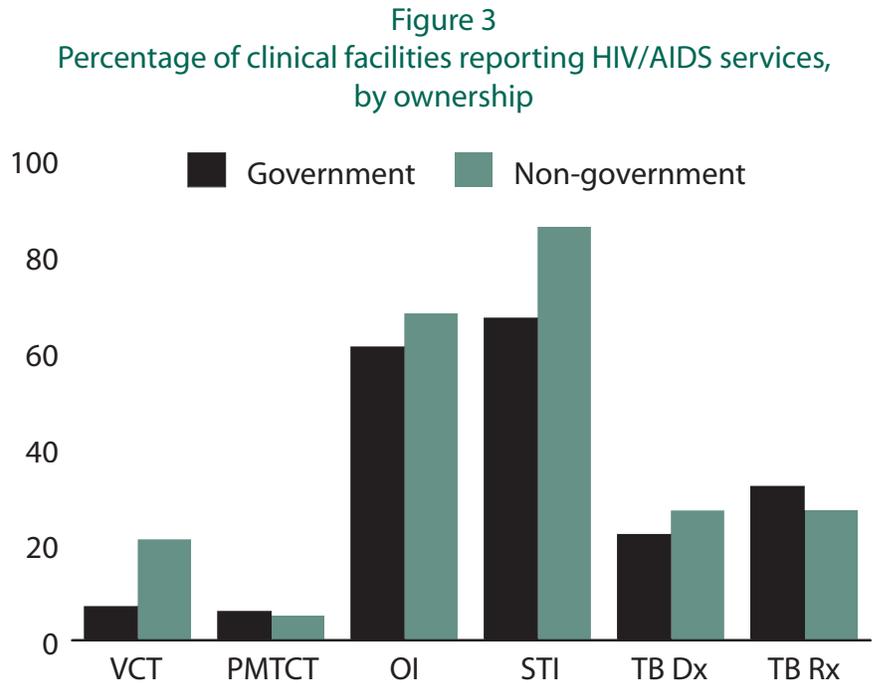
Sharps containers were not available in 51 percent of facilities.

more likely than government facilities to have infection control in place (31% and 24%, respectively). The most common reason that facilities do not meet the infection control criteria is that sharps containers were not available (51% of facilities).

HIV/AIDS services

Figure 3 shows the proportion of facilities that reported offering services related to HIV/AIDS according to ownership (government versus non-government). These results do not describe the quality of services, only the reported availability of services at each facility. The survey asked about the availability of voluntary counseling and testing (VCT) services, prevention of mother-to-child transmission (PMTCT) services, management of opportunistic infections (OIs), treatment of sexually transmitted infections (STIs), and diagnosis and treatment of tuberculosis (in separate bars). The survey also evaluated other HIV/AIDS support services not shown here.

Only 7 percent of government facilities reported offering VCT services compared with 21 percent of non-government facilities. Very few facilities reported offering PMTCT. OI and STI services were more readily available than the other services. Sixty percent of government hospitals and clinics reported managing OIs, and a slightly higher percentage



Note: As reported by facilities

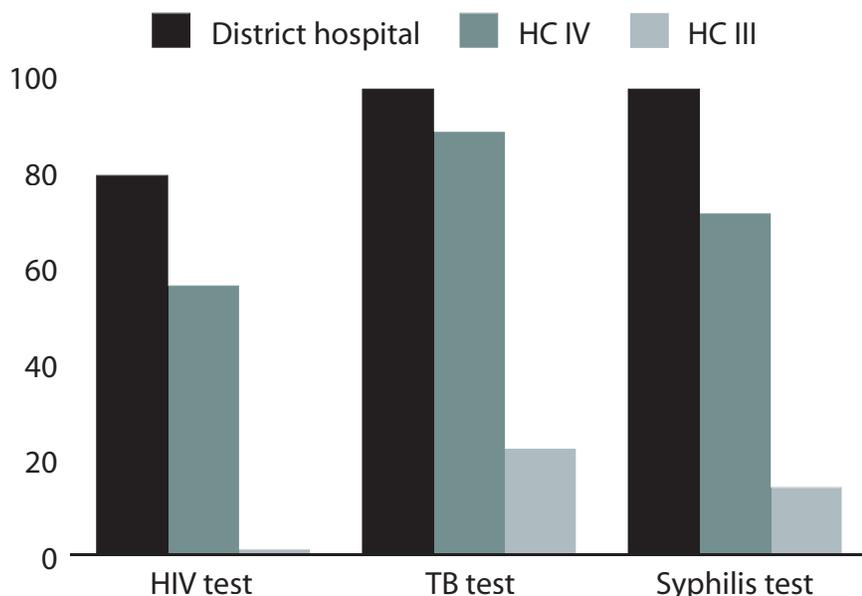
Source: UHFS 2002

of non-government hospitals and clinics. STI services were reportedly available at 67 percent of government and 85 percent of non-government clinics. Between 20 and 30 percent of the clinics reported offering diagnosis and treatment of TB.

The survey also investigated the components of each type of service, including outreach, partnerships, availability of guidelines, and existence of a register to record program information. More detailed findings on the availability of HIV/AIDS support services are available in the full report.

Government laboratory capacity

Figure 4
Percentage of government facilities with laboratory capacity to conduct HIV, TB, and syphilis tests, by type of facility



Note: As reported by facilities

Source: UHFS 2002

According to the 2000 MOH Inventory of Health Institutions in Uganda, all HC IIIs, HC IVs, and hospitals should have the capacity to provide laboratory services for HIV, TB, and syphilis testing. Although laboratory capacity was reviewed in the HC IIs visited, only a small number were found to offer laboratory services for these three diseases and were therefore excluded from the analysis. Among the facilities surveyed for the 2002 UHFS, only 27 percent of government facilities reported laboratory capacity to conduct any tests related to HIV/AIDS, TB, or STIs. Overall, laboratory ca-

capacity in government facilities was most frequently reported at district hospitals (97%), followed by HC IVs (88%); only 26 percent of HC IIIs reported laboratory capacity for testing.

Figure 4 shows the percentage of government facilities that reported having the capacity to conduct each of the specified tests by type of facility. Almost all of the district hospitals (97%) reported the ability to test for TB and syphilis, while at the HC IV level, 88 percent could test for TB and 71 percent could test for syphilis. The numbers are lower for HIV

testing, with 79 percent of the district hospitals and 56 percent of the HC IVs reporting the ability to test for HIV.

Less than one-quarter of the HC IIIs could conduct any of these tests. It is important to note that, with syphilis, many practitioners at lower-level facilities rely on syndromic diagnosis. The current target of the MOH is for all facilities to have a functioning laboratory support system. At present, clients seeking laboratory services in the public sector will have to go to urban or semi-urban areas to receive a clinical diagnosis.

The 2002 UHFS also looked at specific indicators to measure laboratory capacity to diagnose HIV, TB, and STIs. These indicators are the following: a) trained laboratory personnel; b) laboratory equipment to conduct the tests including availability of at least one test kit and reagents, a functioning microscope, glass slides, and a functioning refrigerator, as appropriate; c) sufficient power source for refrigerator; and d) infection control items such as soap and water for hand washing, sharps container, disposable syringes, and waste receptacle with lid and liner. A maximum of two laboratory staff were interviewed at each facility to gather information on in-service training for conducting each of the tests. Detailed findings are available in the full report.

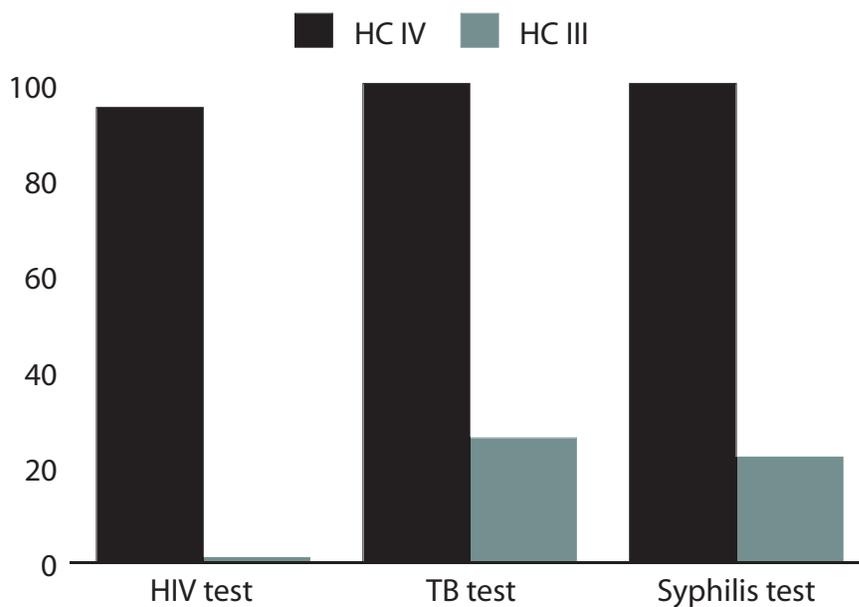
Non-government laboratory capacity

At non-government facilities, 100 percent of HC IVs and 31 percent of HC IIIs reported having the capacity to test for at least one of the three diseases (HIV, TB, and syphilis). Overall, 46 percent of all non-government facilities reported the capacity to test for at least one of the three diseases.

Figure 5 shows the percentage of non-government facilities that reported having the capacity to conduct HIV, TB, and syphilis testing. One hundred percent of the HC IV facilities reported that they could conduct a TB sputum test and a syphilis test. Ninety-five percent of HC IV facilities reported that they could test for HIV. Almost none of the HC IIIs reported the capacity to test for HIV; 26 percent could test for TB and 22 percent could test for syphilis.

The specific indicators used to measure laboratory capacity at non-gov-

Figure 5
Percentage of non-government facilities with laboratory capacity to conduct HIV, TB, and syphilis tests, by type of facility



Note: As reported by facilities

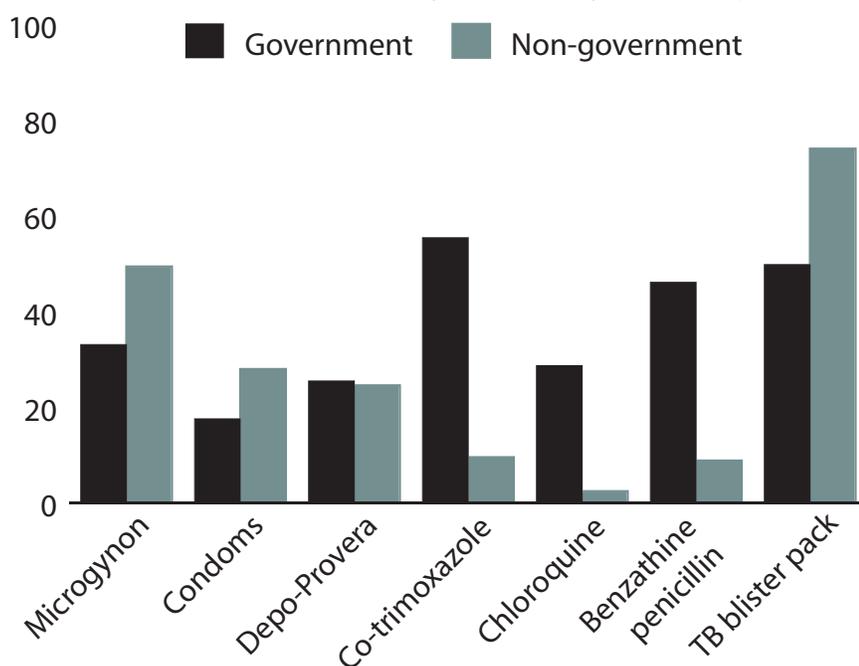
Source: UHFS 2002

In government facilities, almost 80 percent of district hospitals and over half of HC IVs had laboratory capacity to test for HIV. In non-government facilities, 95 percent had laboratory capacity to test for HIV.

ernment facilities can be found in the full report.

Stockout rates

Figure 6
 Percentage of facilities at which specific commodities were not available sometime during December 1, 2001–May 31, 2002, by ownership



Note: Stockouts are defined as observed missing commodities on the day of the survey or a report of missing commodities during the specified period.

Source: UHFS 2002

Logistics managers at clinical facilities strive to ensure a consistent and reliable supply of the commodities required for delivery of health services. A key indicator used to measure whether a logistics system has achieved this goal is stockout rates or, the opposite, stock availability rates. For this analysis, a stockout occurs when a facility has no supply of a particular brand although there may be supplies of other brands that can be used for the same purpose. When facilities experience stockouts, they are unable to serve clients with a comprehensive range of health commodities or services.

At each facility visited for this survey, data collectors interviewed facility staff and reviewed stock records to collect information on stock availability on the day of the visit and for the six-month period preceding the survey (December 1, 2001 to May 31, 2002). A six-month period is reviewed to capture a more accurate picture of stock availability and to allow for seasonal trends in consumption (e.g., malarial drug use increases during the rainy season) and availability (e.g., periodic shipments of supplies).

Figure 6 shows the percentage of facilities that experienced at least one

commodity stockout during the six-month period, among facilities that are supposed to manage the specified commodities. This is shown for all facility types combined (all levels, all districts), according to ownership.

In the past six months, a larger proportion of facilities had a stockout of Microgynon than the other two contraceptive methods shown (condoms and Depo-Provera). Only about 20 percent of facilities experienced a stockout of condoms or Depo-Provera during this period. Over 50 percent of government facilities experienced a stockout of co-trimoxazole, 29 percent of chloroquine, 46 percent of benzathine penicillin, and 50 percent of TB blister packs. For Microgynon, condoms, and TB blister packs, non-government facilities were more likely to have stockouts than government facilities. For the essential drugs distributed (co-trimoxazole, chloroquine, and benzathine penicillin), government facilities were more likely to experience a stockout than non-government facilities. Contraceptive methods and TB drugs are supposed to be kept in full supply to meet the needs of all clients. All hospitals, HC IVs, and HC IIIs are supposed to have co-trimoxazole, chloroquine, and benzathine penicillin in stock. As can be seen in the figure, this is not happening in practice.

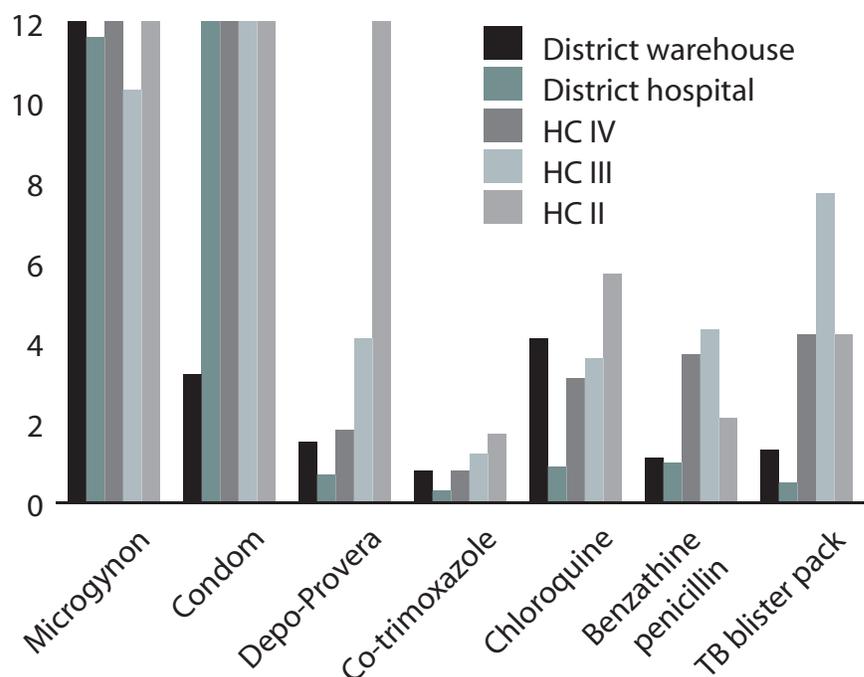
Stock status

Figure 7 shows the levels of stock available (average number of months of stock on hand) at each type of government facility for a selected number of commodities. An assessment of the stock status of health commodities is an important complement to stockout rates and offers an estimate of how long the commodities will be available. Reviewing stock status provides a more comprehensive picture of how commodities are being managed by the logistics system.

To ascertain whether stock levels of health commodities are adequate, the average number of months of stock on hand is calculated. To do this, data collectors must first calculate a rate for the average monthly consumption or issues of products. This rate is then compared with the physical inventory at each facility on the day of the visit to establish the number of months of stock available to be dispensed to clients or issued to other facilities. The indicator shows how many months the current stock will last to serve clients. It can also identify situations where commodities are overstocked, which can lead to commodity expiration and wastage, or understocked, which can lead to rationing of commodities or stockouts.

Figure 7 shows the average number

Figure 7
Average number of months of stock on hand (for specified health commodities) at government facilities on the day of the survey, by type of facility



Source: UHFS 2002

of months of stock on hand at each type of facility. Two of the contraceptive methods, Microgynon and condoms, were significantly overstocked on the day of the visit, with 12 months or more of stock at all of the facilities. For condoms, these high stock levels were likely due to a year's supply of condoms being distributed to facilities between March and July 2002, during the period the survey was being carried out. For most of

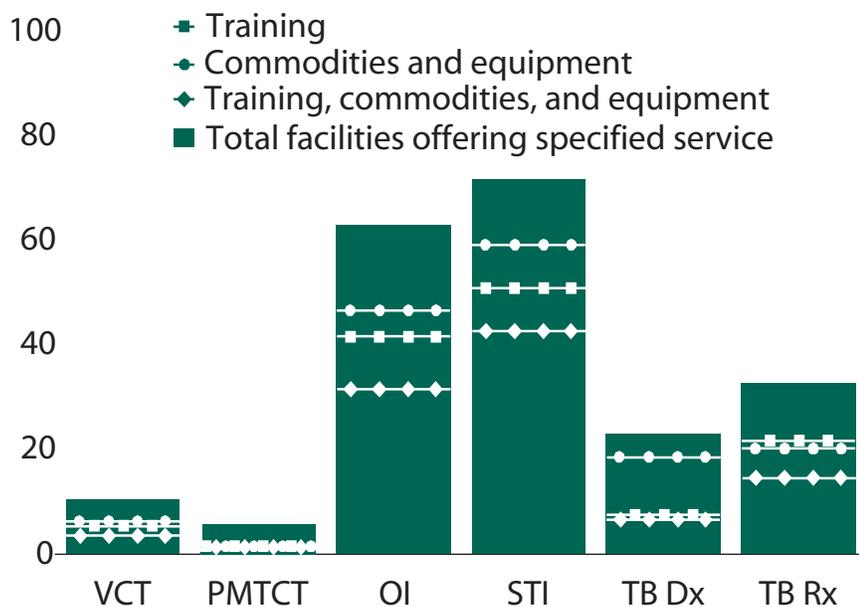
the remaining commodities, the stock levels were low at the higher level facilities, such as warehouses, and high at the lower level facilities, where they need to be to serve clients. Most of these commodities were stocked according to the established inventory control levels, with the exception of co-trimoxazole, which was understocked at all levels, and TB blister packs, which were overstocked at the HC III level.

Stock levels were low at the higher-level facilities, such as warehouses, and high at the lower-level facilities, where they need to be to serve clients.

Evaluation criteria for HIV/AIDS services

Figure 8

Percentage of facilities offering specific HIV/AIDS services, and percentage meeting evaluation criteria for training, commodities, and equipment necessary to offer the services



Source: UHFS 2002

Quality health care must include a minimum level of commodities, appropriate equipment, and trained staff. The figure evaluates selected HIV/AIDS services at facilities in Uganda by applying a set of criteria created for this study. The services evaluated include voluntary testing and counseling (VCT), prevention of mother-to-child transmission (PMTCT), management of opportunistic infections (OI), treatment of sexually transmitted infections (STI), and tuberculosis diagnosis (TB Dx) and treatment (TB Rx). The evaluation criteria for offering each service, as defined here, include the presence of trained staff and the availability of the commodities and equipment necessary for offering each service.

Training is measured by the presence of a staff person working in each service area who has received in-service training in the past three years related to that service. For service areas where laboratory capacity is required (VCT, PMTCT, and TB diagnosis), the criteria require facilities to also have at least one laboratory staff person who has received in-service training in laboratory diagnosis using (where applicable) HIV test kits or TB sputum testing procedures in the last three years.

The criteria for commodities and equipment are defined for each service as follows:

- For VCT/PMTCT services, the fa-

cility had at least two HIV test kits available for use and a functioning refrigerator to store certain HIV test kits—with a sufficient and consistent power source—on the day of the visit.

- For STI and OI services, the facility had at least one dose of any of the drugs that the survey looked at for the treatment of STIs or OIs on the day of the visit. The STI drugs included ciprofloxacin (Cipro), benzathine penicillin, doxycycline, and metronidazole (Flagyl). The OI drugs included fluconazole (Diflucan), co-trimoxazole (Septrin), and acyclovir (Zovirax/Cyclovax).
- For TB diagnostic services, the facility had a functioning microscope and slides on the day of the visit.
- For TB treatment services, the facility had any stock of TB blister packs for the treatment of TB on the day of the visit.

Figure 8 shows the percentage of all health care facilities (government and non-government) visited that reported offering specific HIV/AIDS support services. Facility staff reported that OI and STI services are available at more than half the facilities. TB diagnosis and treatment are available at approximately one-third of the facilities, and VCT and PMTCT services are available at only a small proportion of the facilities. The lines on the bars show the actual availability of these services.

The lines with squares on the bars show the percentage of facilities that have a staff person trained to offer the specified service. The majority of facilities offering OI, STI, TB treatment, and VCT services have a staff person trained to offer the services, while less than half the facilities offering PMTCT and TB diagnosis have a staff person trained to offer those services.

The lines with circles show the percentage of facilities that have the commodities and equipment necessary to offer the specified service on the day of the survey. Fifty percent or more of the facilities that reported offering VCT, OI, STI, TB diagnosis, and TB treatment services also had the commodities and equipment needed to provide the service on the day of the visit. However, those that reported offering PMTCT services were usually lacking the commodities and equipment needed.

Finally, the lines with diamonds show the percentage of facilities that

the service, a facility is not, in fact, able to offer the service. Approximately half the facilities that reported offering OI, STI, and TB treatment meet the evaluation criteria of this study. Only a minority of the facilities offering other services meet the evaluation criteria.

Among all of the facilities, less than 5 percent can offer VCT with the training, commodities, and equipment criteria used here. Less than 35 percent can offer an OI service according to this definition. Among all the facilities in the country, less than half offer STI services that meet the evaluation criteria. TB diagnosis and treatment are offered at less than 20 percent of all facilities.

It is important to note that the criteria shown in the figure are very lenient. A stricter set of criteria could be applied to represent the actual availability of services.

Facility staff reported that OI and STI services are available at more than half the facilities. TB diagnosis and treatment are available at one-third of the facilities. VCT and PMTCT services are available at a small proportion of facilities.

have both trained staff and the commodities and equipment needed to provide the specified service, i.e., the minimum requirements to offer the service. Without trained staff and the required commodities and/or laboratory equipment needed to provide

Findings, conclusions, and recommendations

I. Service Provision

A. Findings

1. The Ministry of Health (MoH) has set a target that all health units provide HIV voluntary counseling and testing (VCT) services. Currently, about 11 percent of all facilities report that they provide VCT services. However, less than half these facilities have trained staff (received in-service training in the past three years) and equipment for services, i.e., at least two HIV test kits and a working refrigerator (4% of all facilities).
2. Effective management of STIs and opportunistic infections in all health units is another target of the MoH Strategic Plan. Cur-

Universal precautions for infection control are not being followed in most health care facilities.

rently, 72 percent of all facilities report that they provide STI services. Staff trained in syndromic management (received in-service training in the past three years) are present in 71 percent of facilities. Medication for at least one of the common STIs is available in only 82 percent of facilities. Both trained staff and commodities are available in only 60 percent of facilities. Similar findings were reported for OI management.

3. The report defined infection control as the presence of soap and water for hand washing, disposable syringes, ability to soak equipment in a disinfectant, and some method of high level disinfection (e.g., boiling). Less than half of all hospitals met these criteria, and only a few small facilities were found able to control infection according to this definition.

4. A national target for tuberculosis control is 100 percent national coverage with community DOTS. Currently in Uganda, 28 percent of facilities provide diagnosis of TB by trained personnel and have adequate laboratory facilities. Regarding treatment for tuberculosis, only 45 percent of facilities have trained personnel and any medication.

5. Capillus and Serocard were found to be the most commonly used HIV test kits. Capillus was used most often as the primary test. Use of the other six test kits studied was inconsistent.

B. Conclusions

1. The Health Sector Strategic Plan lays out a number of important goals for 2005. The 2002 Uganda Health Facilities Survey

measures progress towards these goals. For the goals that can be evaluated by this study, it was found that most health facilities in Uganda are far from reaching the targets.

2. Training remains an important challenge, especially in areas of clinical care such as HIV that are

It is thought that there are serious financial barriers to the purchase of medications and commodities in Uganda.

changing rapidly. There is a need for in-service training in all areas of HIV, STI, and TB services.

3. Availability of services is strong at the district level but weak at smaller facilities (HC II and III). New services such as VCT and PMTCT are available at very few of the smaller facilities. Even for long-standing programs like tuberculosis treatment and control, most small facilities do not provide services.
4. While this study provides a national picture of provision of care in the government and non-government health care delivery system, it does not examine the utilization of services. Commercial pharmacies provide medication, especially in towns, but were not covered in this study.

Access to medication through these pharmacies should improve the health care picture provided by this report. However, it is thought that there are serious financial barriers to the purchase of medications and commodities in Uganda.

5. Universal precautions for infection control are not being followed in most health care facilities.

C. Recommendations

1. *Efforts to improve the quality of and access to care for deadly and highly prevalent infectious diseases such as syphilis and tuberculosis should receive the highest*

priority as the country moves toward development of the health system and health care reform. While efforts to extend PMTCT and anti-retroviral therapy to the entire population are important, deadly and debilitating diseases like syphilis and tuberculosis are endemic and under-treated in the country.

2. *Policy guidelines for the provision of VCT and PMTCT services must be established.* This includes the selection of HIV test kits and anti-retroviral drugs and the development of protocols for their distribution and management (with consideration for electric-

Deadly and debilitating diseases like syphilis and tuberculosis are endemic and under-treated in the country.

ity and refrigeration limitations).

3. *Laboratory capacity to manage and conduct the tests to support VCT and PMTCT services will also need to be improved.*
4. *Service providers will need to be trained in the provision of VCT and PMTCT services, which involve new protocols, procedures, and skills.*

II. Health Commodity Management and Logistics System Performance

A. Findings

1. Less than 50 percent of Ugandan health facilities had stockouts of the commodities surveyed in the six-month period preceding the survey. However, at district hospitals, HC IVs, and HC IIIs, many of the stockouts were of long duration. Furthermore, many of the facilities that had stockouts during the survey period were not keeping their stock

cards up to date, particularly regarding contraceptive methods. The most common reason given by facilities for the occurrence of stockouts was that a higher level facility did not send the commodities in time.

2. Microgynon and condoms were significantly overstocked at all levels. Co-trimoxazole, fluconazole, metronidazole, doxycycline (at all but HC IIs), and ciprofloxacin (at all but HC IIs) were understocked at all levels. TB blister packs were overstocked at the HC III level. Other commodities were stocked

appropriately on the day of the survey, with lower stock levels at the higher level facilities and higher stock levels at the lower level facilities.

3. Although the majority of facilities reported using stock cards, a smaller percentage of facilities were actually found to be using the cards on the day of the survey.
4. Approximately one-quarter of the facilities place commodity orders about every two months, which is the same frequency as the new pull system protocol. These facilities are, to some de-

Some facilities are, to some degree, already assessing their commodity needs to place orders.

gree, already assessing their commodity needs to place orders.

5. In both government and non-government facilities, at all levels of the system except district warehouses and some district hospitals, health commodities are not routinely managed by staff trained in logistics. However, staff at higher levels of the logistics system are more likely to have received formal training in logistics management than staff at lower levels. Many staff learn to perform daily logistics tasks informally on the job.
6. Supervisory visits occur regularly and include limited monitoring of logistics tasks such as record keeping and stock management. Supervision is more routine at the lower levels of the health care system—the majority of HC IIs and HC IIIs received supervisory visits during the month preceding the survey.

B. Conclusions

1. The frequency of stockouts in the public sector is high, including full-supply products. These stockouts include critical drugs required for contraception and disease prevention and to treat STIs, TB, and other infectious diseases.

Stockouts are reported most frequently because a higher-level facility did not send the commodities in time.

2. Commodity availability in the public sector is inconsistent and insufficient. The data on levels of stock on hand show that inventory management practices have led to over- and understocked facilities. This can lead to stockouts and product wastage through expiration and the inability of facilities to meet clients' needs.
3. Health commodity security is additionally threatened by inadequate record keeping and information systems.
4. The district warehouses do not maintain large quantities of health commodities in stock and serve primarily as pass-through points from the National Medical Stores (NMS) at the central level to the store-rooms at the health sub-districts (HSD).
5. Performance improvement interventions in logistics management are needed to ensure a smooth transition to a pull system. In light of the rapidly changing MoH logistics system, the information and processes taught to these staff may be inconsistent or outdated, particularly for ordering and inventory management.

C. Recommendations

1. *Improve product availability by collecting key logistics data through the health management information system (HMIS).* Information at the facility level is needed to evaluate and justify

Health commodities are not routinely managed by staff trained in logistics.

the orders placed. To ensure that the logistics data needed to make forecasting, ordering, and procurement decisions are collected through the existing information system, the commodity order forms should be redesigned to include stock on hand at the facility level. (Note: since the survey was conducted, the order forms have been reworked, in part due to the preliminary findings from this survey.)

2. *Analyze data collected through the HMIS and use data for decisionmaking at the central level (e.g., for forecasting and procurement).* At present, the data are not systematically collected and analyzed at the central level. As NMS takes over forecasting and procurement functions for health commodities, they will need logistics data to forecast future needs. The MoH will also need this information for budgeting purposes.
3. *Establish protocols for transferring overstocked commodities and*

disposing of expired products. A preliminary recommendation of the survey was to schedule a national “dejunking” of warehouses and health centers. This has been scheduled for 2003. Protocols should be established to create a mechanism for facilities to transfer stocks between facilities to avoid stock imbalances.

pervisory visits should be used as a cost-effective means of reinforcing skills and for on-the-job training of staff. Because routine supervision is already taking place, it can be used as a tool for monitoring logistics system performance in order to resolve problems quickly and for performance improvement interventions for staff.

4. *Decentralize the transportation of health commodities.* NMS and the MoH should investigate the cost-benefit of delivering supplies directly to the HSD level, rotating through districts every two months. (Note: Since the survey was conducted, DELIVER carried out a cost study in December 2002 to evaluate this option. Detailed findings are available from DELIVER.)
5. *Establish a human resources plan to identify staff needs and funding to meet these needs.* Staff shortages have affected product availability, reporting, and overall logistics system performance.
6. *Create a performance improvement plan of action for logistics management to ensure commodity security and quality of care.* This activity can be implemented largely through on-the-job training and during supervision visits by reinforcing good commodity management practices. The plan should include an added emphasis on monitoring and evaluation of logistics activities and system performance. Su-