

Assessment of Compliance of Hospital Pharmacies with Recommended Operational Standards in Namibia, January 2005

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About RPM Plus

The Rational Pharmaceutical Management Plus (RPM Plus) Program, funded by the U.S. Agency for International Development, works in more than 20 developing countries to provide technical assistance to strengthen pharmaceutical and health commodity management systems. The program offers technical guidance and assists in strategy development and program implementation both in improving the availability of health commodities—pharmaceuticals, vaccines, supplies, and basic medical equipment—of assured quality for maternal and child health, HIV/AIDS, infectious diseases, and family planning and in promoting the appropriate use of health commodities in the public and private sectors.

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ACRONYMS

AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral
CDC	communicable disease clinic
HIV	human immunodeficiency virus
MoHSS	Ministry of Health and Social Services
MSH	Management Sciences for Health
NAD	Namibia dollar
OPD	outpatient department
PHC	primary health care
PMTCT	prevention of mother-to-child transmission
RPM Plus	Rational Pharmaceutical Management Plus Program
SOP	standard operating procedure
TB	tuberculosis
USAID	U.S. Agency for International Development
USD	U.S. dollar
VCT	voluntary counseling and testing

INTRODUCTION

Management Sciences for Health (MSH)/Rational Pharmaceutical Management (RPM) Plus has received funding under the U.S. President's Emergency Plan for AIDS Relief, through the U.S. Agency for International Development (USAID) Namibia office to provide technical assistance to the Namibia Ministry of Health and Social Services (MoHSS), to strengthen the MoHSS pharmaceutical management system to support the scale-up and expansion of HIV/AIDS programs.

During an assessment of the pharmaceutical sector of the MoHSS conducted by RPM Plus in November 2003,¹ lack of adequate infrastructure at facilities was identified as a critical area to address in order to assure quality service provision and provide security for pharmaceuticals, especially antiretrovirals (ARVs).

In July 2004, the MoHSS Pharmaceutical Services Division, in collaboration with RPM Plus Namibia conducted a one-day Operational Standards Development Workshop to define the minimum requirements for pharmacies to ensure that all facilities providing antiretroviral therapy (ART) have the required infrastructure and tools to support the scale-up and expansion of HIV/AIDS programs.²

The workshop concluded that to ensure that patients receive ARV medicines in an environment that will facilitate privacy, adherence monitoring and measurement, and quality pharmaceutical care, each pharmacy at facilities providing ART should have the following—

1. Consulting and counseling room(s)
2. Secure ARV storage area/room with appropriate shelving and lockable cupboards
3. Burglar bars on all external windows and doors
4. ARV standard operating procedures (SOPs)
5. Standard reference literature (see Annex 1)
6. Pharmacy laboratory equipment
7. A telephone
8. Computer(s) and accessories

¹ Aboagye-Nyame, F., L. Akhlaghi, and V. Dias. 2004. *Assessment of the Public Sector Pharmaceutical Supply System of Namibia, November 2003*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program, Arlington, VA: Management Sciences for Health.

² Pereko, D. 2004. *Operational Standards for Hospital Pharmacy Sites for the Management of HIV/AIDS Programs Development Workshop*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program, Arlington, VA: Management Sciences for Health.

9. A refrigerator

10. Pharmacist(s) and pharmacist's assistants trained in Namibia Guidelines for Antiretroviral Therapy

At this workshop, a checklist titled "Operational Standards for Hospital Pharmacies" was developed (see Annex 2).

The next steps agreed upon at this workshop were to conduct a facility assessment/audit to determine compliance with the minimum requirements and make recommendations for upgrading facilities not meeting the requirements.

This report, which forms part of the technical assistance that RPM Plus is providing to the MoHSS to help strengthen pharmaceutical management systems to support the scale-up of ART provision, describes the findings of these assessments.

Objective

The aim of the assessment was to determine if hospital pharmacies currently providing or earmarked to provide ART are in compliance with the minimum requirements agreed upon at the Operational Standards Development Workshop.

Methodology

The audit was carried out from September to November 2004 by MoHSS pharmacists and RPM Plus. The aforementioned checklist (Annex 2), developed at the Operational Standards Development Workshop, was used for the audits.

Thirty-four public hospitals countrywide were audited: all MoHSS, Catholic Health Services, and Lutheran Health Services hospitals where prevention of mother-to-child transmission (PMTCT) and ART services are already being provided or are expected to be provided before the end of 2005.

FINDINGS AND RECOMMENDATIONS

Hospitals with ART Services Operating from a Satellite Pharmacy

Seven of the facilities (Walvis Bay, Oshakati, Katutura, Nyangana, Onandjokwe, Oshikuku, and Andara) each have a separate communicable disease clinic (CDC)/PMTCT center where ART, including dispensing of medicines, is provided.

Walvis Bay District Hospital

Findings

The CDC is situated 2 kilometers from the main building of Walvis Bay District Hospital. The building is a prefabricated structure (part of the old hospital), with no burglar bars on the doors or windows. The pharmacy operates from a small room in the building. The room is equipped with table and chairs, and a lockable cupboard. ARV medicines are stored at the pharmacy in the main hospital, and the pharmacist prepares a small medicine consignment to take to CDC daily.

The Walvis Bay CDC is one of the sites identified by MoHSS for renovation as part of the scale-up of ART services. The plans for construction include a pharmacy store and a counseling room.

Recommendations

1. The pharmacy store should be fitted with a refrigerator, air conditioner, shelves, and burglar bars on the doors and windows.
2. The pharmacy should be provided with—
 - Washbasins (one for hands and another for equipment)
 - Storage cupboard for keeping measuring cylinders, counting trays, labels, medicine bottles, medicine sachets, medicine spoons, syringes, and cotton swabs
 - Bookcase for storing SOPs, reference literature (see Annex 1), pharmacy ART patient records, and Ministerial Guidelines (for example, ART, HIV, TB)
 - Telephone line and telephone
 - Computer
 - Computer table
 - Counting trays, measuring cylinders, and spatulas

- Min-max thermometer for storage and dispensing area
- SOPs for ART management, reference literature, and Ministerial Guidelines

3. The pharmacy should also have a space for repacking/prepacking medicines.

Oshakati Intermediate Referral Hospital

Findings

The CDC pharmacy for the Oshakati Intermediate Referral Hospital is a single room, in which all pharmacy operations are carried out (prepacking, dispensing, patient counseling). The room is equipped with two tables, two cupboards (for storing medicines), a credenza for storing files and paperwork, and a telephone. The room is air-conditioned and has burglar bars on the windows but not on the door.

Renovation plans for the Oshakati CDC include a pharmacy store, two pharmacy counseling rooms, and a dispensing area.

Recommendations

1. The dispensing area should be equipped with washbasins (one for hands and another for equipment).
2. The store should be fitted with shelves, an air conditioner, and a refrigerator.
3. The pharmacy should also be equipped with—
 - Storage cupboard for equipment
 - Bookcase
 - Computer
 - Computer table
 - Counting trays, measuring cylinders, and spatulas
 - SOPs for ART management, reference literature (see Annex 1), and Ministerial Guidelines (for example, HIV, ART, TB)
 - Min-max thermometer
4. The pharmacy should also have sufficient space for repacking/prepacking medicines.

Katutura Intermediate Referral Hospital

Findings

The ART functions at the Katutura Intermediate Referral Hospital are currently carried out in an old classroom. The classroom is used for counseling patients, and the attached cloakroom is used for storing and prepacking medicines. The storeroom is equipped with shelves but lacks a refrigerator. The counseling room has tables and chairs. The storeroom door does not have burglar bars.

The renovation/construction plans for the Katutura CDC include a pharmacy. The plans give no clear indication as to what rooms the pharmacy will have.

Recommendations

1. The construction of the new CDC pharmacy should include a pharmacy store equipped with a refrigerator, air conditioner, and shelves, as well as two counseling rooms, each equipped with table, chairs, and air conditioner.
2. The pharmacy should have adequate space to accommodate the following—
 - Computer and computer table
 - Bookcase
 - Two washbasins (one for hands and another for equipment)
 - Equipment storage cupboard
3. The current pharmacy should be provided with the following—
 - Computer and computer table
 - Counting trays, measuring cylinders, spatulas, and min-max thermometer
 - SOPs on ART management, reference literature, and Ministerial Guidelines
4. While awaiting the construction of the new CDC pharmacy, the security of the existing pharmacy should be enhanced by installing burglar bars on the doors, and the pharmacy should be provided with a refrigerator to store medicines, as well as an air conditioner.
5. The current storage area should be fitted with a door between the toilet area and the place where the medicines are stored.
6. A telephone line and a telephone should be provided for the current CDC pharmacy.

Nyangana District Hospital

Findings

The pharmacy in the voluntary counseling and testing (VCT) center for Nyangana District Hospital consists of one room. The room is used for both storing medicines and counseling patients. The ART pharmacy has two cupboards for ARV storage and is fitted with a ceiling fan. The pharmacy is too small, and it does not have shelves, sinks, a computer, or a telephone. ARV medications that require storage in the refrigerator are kept in the main pharmacy and are collected when needed.

Recommendations

1. The ART pharmacy should be provided with—
 - Second room for patient counseling
 - Shelves for the storage area
 - SOPs on ART management, reference literature, and Ministerial Guidelines (for example, ART, HIV, TB)
 - Computer and computer table
 - Min-max thermometers for daily recording of temperature
 - Refrigerator
 - Air conditioner

Onandjokwe District Hospital

Findings

The PMTCT center pharmacy at Onandjokwe District Hospital consists of two rooms—a storeroom and a dispensing area—as well as a waiting area. The pharmacy is air-conditioned and has shelves and refrigerators in the storeroom. The PMTCT center has burglar bars on all windows and also has an alarm system, which is activated after hours. The pharmacy lacks washbasins to clean equipment and hands, counting trays, reference material, SOPs, computers, and thermometers.

The main pharmacy of the hospital is completely dilapidated, and a new structure (total renovation) is required. The storeroom is not inside the pharmacy, and the walls are cracked.

Recommendations

1. The PMTCT pharmacy should be provided with—
 - Computer and computer table
 - Thermometers for the storeroom and dispensing area
 - Reference material and SOPs
 - Two washbasins (one for hands and another for equipment)
 - Counting trays and spatulas
2. The main pharmacy requires complete renovation.

Oshikuku District Hospital

Findings

The ART provision services are carried out at the VCT center at Oshikuku District Hospital. The pharmacy consists of a single room used for both ARV storage and patient counseling. The room has a sink, seven cupboards for ARV storage, tables, and chairs. It is also equipped with counting trays and measuring cylinders. The pharmacy has burglar bars on the window but not on the door. The pharmacy currently has a patient load of 300.

Recommendations

1. The following should be provided for the ART pharmacy—
 - A second room for patient counseling
 - Shelves for the storage area
 - SOPs on ART management, reference literature, and Ministerial Guidelines (for example, ART, HIV, TB)
 - Computer and computer table
 - Min-max thermometers for daily recording of temperature
 - Refrigerator
 - Air conditioner

Andara District Hospital

Findings

The ART services are provided at the VCT center of the Andara District Hospital. A room has been allocated for the pharmacy, which serves both to store ARVs and to counsel patients. The ARVs are stored in a cupboard in the room. The pharmacy room is not air-conditioned and does not have shelves. The room also lacks washbasins to clean equipment and hands and a refrigerator to store ARVs. Both lighting and ventilation in the room are poor—the room does not have any windows. The pharmacy also lacks reference material, SOPs, and a computer.

Recommendations

1. The following should be provided for the ART pharmacy—
 - Air conditioner should be provided for the pharmacy counseling room.
 - Additional space to store ARVs should be identified and provided.
 - A refrigerator should be provided to the pharmacy as soon as possible.
 - SOPs reference material and a computer should be provided for the pharmacy.

Hospitals Earmarked for Construction of ART Sites

The CDC AIDS Trust Account and the Grain Fund have provided funds to the MoHSS for the construction of ART provision sites at hospitals. To date, 15 hospitals have been identified. These hospitals are Katutura, Oshakati (extensions), Rundu, Grootfontein, Tsumeb, Engela, Outapi, Gobabis, Walvis Bay, Otjiwarongo, Lüderitz, Swakopmund, Karasburg, Katima Mulilo, and Keetmanshoop. Oshakati Katutura and Walvis Bay hospitals have already been discussed above. This section will discuss the findings of the remaining 12 facilities.

Rundu Intermediate Referral Hospital

Findings

The renovation of the current physiotherapy unit to accommodate ART services will not include the pharmacy, which means that the ART pharmacy operations should be carried out at the main pharmacy. The general infrastructure of the pharmacy is good, but the pharmacy store is not large enough to accommodate the required ARV medicines. Currently, some medicines are stored in a cupboard in the pharmacist's office. The pharmacy is adequately equipped with sinks, storage area for equipment, and lockable cabinets, and is air-conditioned. The pharmacy, however, lacks min-max thermometers to take daily temperature readings, a private counseling room, and adequate ARV storage. Currently, a small space between the pharmacist's office and the dispensing area is used for counseling patients. This area is not private and, therefore, the quality of counseling provided is compromised.

Recommendations

1. An additional room in close proximity to the pharmacy should be made available for pharmacy ART counseling. This room should be equipped with tables and chairs and a washbasin for hands.
2. Another lockable room should be made available to store ARVs. This room should be shelved and fitted with burglar bars on both windows and the door to ensure security of medicines. The room must also be air-conditioned and should have a refrigerator.
3. The pharmacy must be provided with—
 - Min-max thermometers
 - Reference material
 - Counting trays and measuring cylinders
 - SOPs for ART management
 - Computer and computer table

Grootfontein District Hospital

Findings

The feasibility study report recommends that, at the Grootfontein District Hospital, the underutilized section of the maternity ward be converted to accommodate ART services. The plans call for a one-room pharmacy area, no separate counseling or storage area, and a pre-test room in the pharmacy.

Recommendations

1. The pharmaceutical ART could be provided at the main pharmacy. The main pharmacy is situated about 800 meters from the proposed ART clinic. The Grootfontein pharmacy is big enough to accommodate a counseling room and even a separate storeroom for ARVs. For the counseling room, dividers could be installed to create a separate counseling room within the pharmacy. Suitable space has been identified as a storage area for ARVs. This space would need additional security in the form of burglar bars installed on the door.
2. Alternatively, ARVs should be stored at the main pharmacy, and the dispensing and counseling should be done at the ART clinic. This arrangement would mean that the pharmacy staff would have to carry enough stock for the day, or even keep enough stock for a week at the ART clinic pharmacy. The following reinforcements are needed for this option—
 - The ART clinic pharmacy should be equipped with a basin for washing hands.
 - Counting trays, measuring cylinders, and spatulas, should be provided to the pharmacy.

- The ART pharmacy should be air-conditioned and have a refrigerator.
- Both the ART clinic pharmacy and main pharmacy should have min-max thermometers for daily recording of temperatures.

During the audit of the main pharmacy, the observers found that the pharmacy lacks burglar bars on windows and doors and also lacks a computer. Security of the main pharmacy should be strengthened by providing and installing burglar bars, and a computer should be provided for the pharmacy. The pharmacy should also be provided with standard reference literature (as per checklist in Annex 2) and SOPs for ART management.

Engela District Hospital

Findings

Proposals call for constructing the ART clinic at the back of the Engela District Hospital premises. The plans include a pharmacy with a counseling room. Currently, ART is provided at the TB clinic. One room is used for patient counseling by doctors, nurses, and the pharmacy staff. The ARVs are stored in a lockable cupboard in a secure room next to the counseling room. This room, however, is not big enough to accommodate large volumes of medicines, and it lacks a refrigerator. In addition, the refrigerator in the main pharmacy is nonfunctional; therefore, cold-storage of items poses a challenge to the pharmacy.

Recommendations

1. The proposed pharmacy store should be fitted with a refrigerator, air conditioner, shelves, and burglar bars on door and windows.
2. The proposed ART clinic pharmacy be provided with—
 - Washbasins (one for hands and another equipment)
 - Cupboard to store measuring cylinders, counting trays, labels, medicine bottles, medicine sachets, medicine spoons, syringes, and cotton swabs.
3. The proposed ART clinic pharmacy should also have a space for repacking/prepacking medicines.
4. The existing ART pharmacy be provided with—
 - Bookcase to store SOPs, reference literature (see Annex 1), pharmacy ART patient records, and Ministerial Guidelines (for example, ART, HIV, TB)
 - Additional lockable cupboard to store ARVs
 - Telephone line and a telephone

- Computer
- Computer table
- Counting trays, measuring cylinders, and spatulas
- Min-max thermometer for storage area
- Reference literature and SOPs for ART management

Outapi District Hospital

Findings

Proposals call for constructing the ART clinic close the primary health care (PHC) clinic and outpatient department (OPD) at the Outapi District Hospital. The pharmacy will have a store and a counseling area. The renovation plans indicate that the pharmacy store will not be not large enough. The current main pharmacy is also too cramped and cannot accommodate ARVs. In addition, it does not have burglar bars. The pharmacy also lacks reference literature and SOPs on ART management.

Recommendations

1. The proposed pharmacy store should be fitted with a refrigerator, air conditioner, shelves, and burglar bars on the door and windows.
2. The proposed ART clinic pharmacy should also have a space for repacking/prepacking medicines.
3. The proposed ART clinic pharmacy should be provided with—
 - Washbasins (one for hands and another equipment)
 - Cupboard to store measuring cylinders, counting trays, labels, medicine bottles, medicine sachets, medicine spoons, syringes, and cotton swabs
 - Bookcase to store SOPs, reference literature (see Annex 1), pharmacy ART patient records, and Ministerial Guidelines (for example, ART, HIV, TB)
 - Telephone line and a telephone
 - Computer
 - Computer table

- Counting trays, spatulas, and measuring cylinders
 - Min-max thermometer for storage area
4. The existing pharmacy should be provided with—
- A lockable cupboard to store ARVs
 - Burglar bars for the windows
 - Air conditioner for the dispensary
 - Reference material and SOPs
 - Computer and computer table

Gobabis District Hospital

Findings

The new ART clinic will be linked with the existing OPD and other facilities at the Gobabis District Hospital. The new clinic will have a single-room pharmacy.

The existing pharmacy is not big enough to accommodate ARV storage. Currently, ARVs are stored in the schedule 7 room, in the lockable cupboard provided to the pharmacy.

Recommendations

1. An additional room should be added to the new structure for the ART clinic to serve as the ARV storage area.
2. The additional room should be fitted with shelves, a refrigerator, air conditioner, and burglar bars.
3. In the interim, the main pharmacy in Gobabis should be strengthened by provision of—
 - Min-max thermometers
 - Additional lockable cupboards to store ARVs
 - Burglar bars on the doors and windows
 - Equipment: for example, counting trays, measuring cylinders, spatulas
 - Reference material and SOPs for ART management
 - Computer and computer table

Otjiwarongo District Hospital

Findings

The plans for the new clinic include a pharmacy storage area with a mini-pharmacy (a counseling room). Otjiwarongo District Hospital has been identified as a priority hospital for renovations.

Recommendations

1. The main pharmacy will need strengthening in the following areas to effectively provide ART while renovations are taking place—

- Air-conditioning for the small storage area
- An identified room for patient counseling in the hospital, equipped with table and chairs
- Min-max thermometers for the storage and dispensing areas
- Additional lockable cabinets to ensure security of ARVs
- Pharmacy equipment (counting trays, measuring cylinders, spatulas)
- Reference material and SOPs for ART management

2. The new pharmacy should be equipped with—

- Washbasins (one for hands and another equipment)
- Cupboard to store measuring cylinders, counting trays, labels, medicine bottles, medicine sachets, medicine spoons, syringes, and cotton swabs
- Bookcase to store SOPs, reference literature (see Annex 1), pharmacy ART patient records, and Ministerial Guidelines (for example, ART, HIV, TB)
- Telephone line and a telephone
- Computer and computer table
- Counting trays, measuring cylinders, and spatulas
- Min-max thermometer for the storage area

Lüderitz District Hospital

Findings

At the Lüderitz District Hospital, the proposed ART clinic will be situated between the OPD and the main hospital entrance and will include a pharmacy storage area and a dispensing area.

Recommendations

1. The proposed dispensing area should be closed so that it can be double as a place for patient counseling. For this purpose, the pharmacy will need—
 - Min-max thermometers for temperature recording
 - Lockable cabinets to store ARVs
 - Strengthened security by installing burglar bars on all doors and windows (including dispensing window)
 - Large refrigerator (the current refrigerator is too small even for the existing pharmaceuticals)
 - Equipment: counting trays, measuring cylinders, and spatulas
 - Reference material and SOPs for ART management
 - Computer and computer table

Swakopmund District Hospital

Findings

During the time of the assessment and audit, Swakopmund District Hospital pharmacy was undergoing renovations and the pharmacy operations were being carried out in a temporary location. Therefore, the pharmacy could not be properly assessed.

Proposals call for constructing the ART clinic at the Tamariskia clinic to improve patient access. The proposed structure includes a small pharmacy storage area and a counseling room.

Recommendations

1. The pharmacy store should be fitted with a refrigerator, air conditioner, shelves, and burglar bars on the doors and windows.
2. The store should also have adequate space to receive goods (a receiving bay).
3. The pharmacy should be provided with—
 - Washbasins (one for hands and another equipment)
 - Cupboards to store measuring cylinders, counting trays, labels, medicine bottles, medicine sachets, medicine spoons, syringes, and cotton swabs

- Bookcase to store reference literature (including Ministerial Guidelines), SOPs, and pharmacy ART patient records
 - Telephone line and a telephone
 - Computer and computer table
 - Counting trays, measuring cylinders, and spatulas
 - Min-max thermometers for the storage and dispensing area
 - Reference literature and SOPs for ART management
4. The pharmacy should have space for repacking/prepacking medicines.

Eenhana District Hospital

Findings

Proposals call for building a new ART site in the Eenhana District Hospital; however, site plans are not yet available.

The current pharmacy lacks a private counseling room, and there is no possibility of creating one within the pharmacy. The storage area is inadequate to accommodate ARVs. The pharmacy doors do not have burglar bars, and the air conditioners in both the dispensary and store are nonfunctional. The pharmacy also lacks reference material and SOPs for ART management.

The pharmacy is staffed with one pharmacist's assistant and one worker.

Recommendations

1. Repair the air conditioner or provide a new one.
2. Identify a room that can be used as a counseling area and equip it with a table and chairs.
3. Identify a room that can be used as an ARV storage area. This room should have burglar bars on all windows and doors. It should be equipped with lockable cupboards to store ARVs and a refrigerator.
4. Provide min-max thermometers for the existing pharmacy and also for the ART storeroom.
5. Provide the pharmacy with counting trays, spatulas, measuring cylinders, reference material (as per Annex 2 checklist), and SOPs on ART management.
6. Provide the pharmacy with a computer.

Karasburg District Hospital

Findings

A new structure will be erected to the north of the existing OPD (that is, adjacent to the pharmacy storeroom). Site plans are not yet available. Karasburg District Hospital has been identified as a priority facility for reconstruction.

The existing pharmacy is not air-conditioned and does not have thermometers, except in the refrigerator. The pharmacy does not have a private counseling room or an ARV storage area. In addition, the pharmacy storage area is inadequate for accommodating ARVs. (It is even too small to accommodate the current pharmaceuticals). There are no lockable cupboards to store ARVs in the pharmacy, and there is no space to store the cupboards. The schedule 5 cupboards are used to store ARVs. There is no computer in the pharmacy, and there is not enough working space to accommodate a computer. The pharmacy also lacks counting trays and measuring cylinders.

Recommendations

1. The new ART structure should break out the wall of the current pharmacy storeroom to enlarge the storeroom enough to accommodate storage of ARVs.
2. In addition, a small counseling room should be attached to the new storeroom. Additional shelves should also be included, and an additional refrigerator will be required.
3. While awaiting construction of the new facilities, the existing pharmacy will need to be strengthened in the following areas to ensure adequate provision of ART—
 - Air conditioners should be provided for the pharmacy store and dispensing area.
 - A room should be identified for storage of ARVs. This room should have storage cupboards, refrigerator, and burglar bars on the doors and windows. The store should also be provided with a computer and computer table.
 - The patient waiting area in the pharmacy should be extended.
 - The pharmacy should be provided with min-max thermometers.
 - A room near the pharmacy should be identified for use as a counseling room. This room should be equipped with a table and chairs.
 - The pharmacy should be provided with reference material (as per the list in Annex 1) and SOPs.
 - Counting trays, measuring cylinders, and spatulas should be provided for the pharmacy.

Keetmanshoop District Hospital

Findings

The exact venue for the ART clinic at the Keetmanshoop District Hospital has not been confirmed, and the plans are not yet available.

Currently, ARVs are dispensed in the main pharmacy. The pharmacy lacks a private counseling room, and medication is dispensed through the dispensing window. This arrangement limits privacy and compromises the quality of counseling provided to the patients. ARVs are stored in the schedule 5 and 7 room. The room is not big enough to accommodate the bulk of the ARVs, so that most of the medicines are stored in the pharmacy office, which in turn compromises the security of the medicines. The pharmacy has an air conditioner, which is currently not functioning well. The pharmacy does not have burglar bars but does have an alarm system, which is switched on after hours. The pharmacy lacks a computer, thermometers for the storage and dispensing areas, counting trays, and measuring cylinders.

Recommendations

1. The proposed new pharmacy should have two rooms: one for storage of ARVs and another for patient counseling. The storeroom should be air-conditioned, and equipped with a refrigerator and shelves. It should have burglar bars on the doors and windows.
2. The pharmacy should be equipped with —
 - Washbasins (one for hands and another for equipment)
 - Counting trays, measuring cylinders, and spatulas
 - SOPs on ART management
 - Storage cupboard for equipment
 - A telephone line and a telephone
 - Computer
 - Computer table
 - Bookcase to store reference material, patient records, and SOPs
 - Reference literature
 - Min-max thermometer
3. In the meantime, the existing pharmacy should be strengthened as follows—
 - Repair the air conditioner or provide a new one.
 - Identify a room for patient counseling.
 - Identify a more secure room to store ARVs. This room should be lockable and have burglar bars on the windows and doors, an air conditioner, and a refrigerator.
 - Provide min-max thermometers.

- Provide reference literature and SOPs.
- Provide counting trays, measuring cylinders, and spatulas.

Katima Mulilo District Hospital

Findings

The ART clinic at the Katima Mulilo District Hospital has been completed, but no allocation for the pharmacy was made. Medicines will be dispensed in the room allocated for taking blood. The infrastructure of the pharmacy in Katima Mulilo District Hospital is poor. Some areas of the floor have potholes. The patient waiting area and sitting arrangements are inadequate. The pharmacy lacks a private counseling room and a separate storage area for ARVs, so ARVs are stored in the pharmacist's office. The windows and doors of the pharmacy have no burglar bars. The pharmacy has a computer, but it is damaged. The pharmacy also lacks SOPs and reference material.

Recommendations

1. A high priority should be placed on fixing the pharmacy floor.
2. A room should be identified for patient medication counseling.
3. Burglar bars should be fitted on the windows and doors to enhance the security of pharmaceuticals, especially ARVs.
4. The pharmacy should be provided with lockable cupboards to store ARVs.
5. The pharmacy should also be provided with—
 - SOPs and reference material
 - Pharmacy laboratory equipment (for example, measuring cylinders, counting trays)
 - Computer and computer table
 - Min-max thermometer for the dispensary

All Other Hospitals

The audit team visited 15 additional hospitals: the district hospitals in Okongo, Outjo, Khorixas, Opuwo, Okahandja, Okakarara, Omaruru, Usakos, Tsandi, Okahao, Mariental, Tsumeb, Rehoboth, and Nankudu, as well as Windhoek Central Hospital, the national referral hospital.

Okongo District Hospital

Findings

The general layout of the Okongo District Hospital pharmacy is good. The air conditioner in the storeroom is nonfunctional.

The pharmacy lacks the following—

- A private counseling area (and there is no possibility of creating one in the existing structure)
- Burglar bars on the doors
- Adequate shelving in the storeroom, so pharmaceuticals are stored on the floor
- Pallets for the pharmacy
- Lockable cupboards to store ARVs
- Thermometers, so temperature logs are not kept for all areas of the pharmacy
- Sinks or washbasins for hands and equipment

There is some laboratory equipment, such as tablet counting trays, but not enough.

Recommendations

1. A room near the pharmacy should be identified near the pharmacy for use as a counseling room.
2. Lockable cupboards should be provided to the pharmacy to store ARVs (to ensure security).
3. The air conditioner in the store should be repaired or a new one provided.
4. Burglar bars should be fitted on all pharmacy doors and windows.

Outjo District Hospital

Findings

The general infrastructure of the Outjo District Hospital pharmacy is poor. The pharmacy is small, making it difficult to accommodate all pharmaceuticals required by the district. The pharmacy has no private counseling area, no separate ARV storage area, no computer, no SOPs, and no reference material. Shelving in the storeroom is also inadequate. The only thermometer is in the refrigerator. In addition, the refrigerator is broken and would need to be repaired.

Recommendations

1. One big room has been identified in the theater wing of the hospital to serve as the main pharmacy store. This room is big enough to accommodate all pharmaceuticals. This room should be converted into a pharmacy store by putting in shelves, a cool room (refrigerator), and burglar bars on the windows and doors.
2. The existing storeroom, which has a small inner room, should be converted into a private counseling room and an ARV storage area. The security of this room would need to be reinforced by installation of burglar bars on the doors and windows.
3. The refrigerator should be repaired or a new one should be provided.
4. Air-conditioning should be provided for the pharmacy.
5. Counting trays, measuring cylinders, and spatulas should be provided.
6. The pharmacy should be provided with reference material, SOPs, a computer, and min-max thermometers.

Khorixas District Hospital

Findings

The general infrastructure of Khorixas District Hospital is good. The OPD was renovated recently. However, the pharmacy lacks space for a private counseling room, and the layout of the pharmacy will not accommodate inclusion of a private counseling room. The pharmacy has no separate ARV storage, but a room has been identified that can be used to store ARVs. The pharmacy has adequate counting trays but lacks measuring cylinders and other laboratory equipment. The pharmacy also lacks reference material, SOPs, and a computer.

Recommendations

1. A room should be identified to serve as a counseling area and equipped with table and chairs.
2. The room identified to store ARVs should be fitted with shelves and burglar bars on the doors and windows.
3. The pharmacy should be provided with measuring cylinders, SOPs, and reference material.
4. Lockable cabinets should be provided to the pharmacy.

Opuwo District Hospital

Findings

The general infrastructure of Opuwo District Hospital is poor. The pharmacy was renovated in 1996; even so, the storage space is inadequate to accommodate all current pharmaceuticals. The

roof of the pharmacy is leaking, letting in rain during the rainy season and compromising the quality of medicines. The pharmacy has no private counseling room and no space to create one. The doors of the pharmacy lack burglar bars. The pharmacy also lacks a computer, counting trays, measuring cylinders, SOPs, reference material, and thermometers.

Recommendations

1. Relocate the pharmacy storage area to a bigger storeroom. Two big stores behind the hospital kitchen are not being used; one of these could be used as the main pharmacy store. The store would need to be equipped with a refrigerator, and the security of the store would need to be reinforced by installing burglar bars.
2. If pharmacy storage is relocated, the existing store could be converted into a counseling area and ARV storeroom.
3. The security of the whole pharmacy should be strengthened by installing burglar bars on the door.
4. The pharmacy should be provided with lockable cupboards, SOPs, reference material, counting trays, and measuring cylinders.

Okahandja District Hospital

Findings

The general infrastructure for the Okahandja District Hospital pharmacy is poor. The space in the department is inadequate to accommodate all required pharmaceuticals for the district. The pharmacy has no private counseling room or separate ARV storage area, although a room has been identified that could be used for patient counseling and as a storage area for ARVs. The pharmacy has an air conditioner, but it does not have enough capacity to cover the whole pharmacy area.

The pharmacy requires the following—

- Additional thermometers
- Laboratory equipment
- Lockable cabinets
- An additional refrigerator for ARV storage
- Reference material and SOPs
- Computer and computer table
- Reinforcement with burglar bars

Recommendations

1. The identified room should be partitioned to accommodate storage of ARVs and patient counseling. The storage portion of the room be fitted with shelves.

2. The identified room should be provided with burglar bars on the doors and windows.
3. A refrigerator should be provided for ARV storage.
4. The pharmacy should be provided with reference material and SOPs, laboratory equipment, thermometers, a refrigerator, lockable cabinets, and a computer.

Okakarara District Hospital

Findings

At the time of the assessment the Okakarara District Hospital pharmacy infrastructure was in poor condition. The hospital is undergoing renovations, and the second phase of the renovation, which includes the theater, OPD, and pharmacy, was due to start in November 2004, but because of a lack of funding, only the theater will be renovated.

Plans call for the pharmacy to be temporarily housed in the old general ward. The ward has six rooms and ablution facilities for males and females. The rooms will be used to store ARVs, clinical supplies, pharmaceuticals, and controlled substances; to dispense medications; and as a patient waiting room and an ARV counseling room.

Recommendations

1. The new pharmacy will require burglar bars on the doors and windows to strengthen security.
2. All storerooms should be shelved.
3. The window to be used as a dispensing window must be replaced by a lockable roll-a-door window.
4. Air conditioners should be provided for all rooms (particularly for storerooms for medicines).
5. Room 3 of the ward should be partitioned to accommodate storage of controlled substances and dispensing area.
6. An additional toilet for staff should be accommodated in the building.
7. A cold room or refrigerator should be provided for the pharmacy.
8. Pharmacy laboratory equipment, such as counting trays, measuring cylinders, should be provided for the pharmacy.
9. Reference material, SOPs, min-max thermometers, a computer, and lockable cupboard should be provided.

Omaruru District Hospital

Findings

Omaruru District Hospital pharmacy has been newly renovated; however, upon audit, it was found lacking in the following areas—

- The pharmacy has functional air conditioner, but the effects of the air conditioner are effective only in the dispensary and not in the store.
- The wooden shelves in storeroom are new but weak. They cannot support items of moderate weight, so those items must be stored on the floor.
- The pharmacy has no private counseling room.
- Small sinks located near the dispensing window are used for hands and equipment. Their location makes the dispensing area (particularly near the window) untidy.
- The only thermometer in the pharmacy is in the refrigerator.

Recommendations

1. An air-conditioning system that adequately covers the storage area should be provided for the pharmacy.
2. Wooden shelves in the store should be replaced with metal shelves. The old pharmacy has metal shelves that are not being used and should be moved in to replace the wooden shelves.
3. A room should be identified near the pharmacy that can be used as a private counseling room.
4. Additional cupboards should be provided to ensure secure storage of ARVs
5. Larger sinks should be installed at the back of the dispensing area to replace the small sinks that are located near the dispensing window.
6. Min-max thermometers should be provided for the pharmacy.
7. The pharmacy should also be provided with reference material, SOPs, pharmacy laboratory equipment, and a computer and computer table

Usakos District Hospital

Findings

The Usakos District Hospital pharmacy consists of one large room that is used to dispense and store pharmaceuticals. Two other rooms in the male ward are used to store large-volume

parenterals and clinical supplies. The pharmacy has lockable cupboards to store Schedule 5 and Schedule 7 medicines but not ARVs.

ARV services will be provided from the Hakhaseb Clinic, 2 kilometers from the hospital once the services fully commence. The pharmacy does not have a private counseling room and also lacks burglar bars on the doors.

Recommendations

1. An evaluation of the site recommended for ART pharmacy should be conducted to determine the needs for the ART pharmacy.
2. The pharmacy should be provided with cupboards to store ARVs
3. The pharmacy should be provided with reference material, SOPs, and laboratory equipment.

Tsandi District Hospital

Findings

The pharmacy at Tsandi District Hospital comprises of two rooms roughly 800 meters apart. One room is used as a storage area for medicines and the other, as a dispensing room.

The storeroom is inadequate to accommodate all pharmaceuticals and has no space to store ARVs. The storeroom also lacks air conditioner and a thermometer—a major problem because this part of the country is quite hot. The doors of the storeroom are metal and, therefore, do not require any additional security enhancement.

The dispensing area also lacks an air conditioner. It is a small room, fitted with shelves and a dispensing table, and has no room to accommodate a private counseling room. The doors and dispensing window are made of wood. The dispensary has no additional security measures. The windows also lack burglar bars.

The pharmacy has a cool room. The pharmacy lacks reference material, SOPs, laboratory equipment and min-max thermometers.

Recommendations

1. Additional storage for the pharmacy should be provided.
2. An additional room should be provided where patient counseling can be done.
3. Air conditioners for the dispensary and storage area should be provided.
4. Reference material, SOPs, and laboratory equipment should be provided.

Okahao District Hospital

Findings

Okahao District Hospital has the same structure as the Tsandi District Hospital. It has a pharmacy consisting of two rooms: a storeroom and a dispensing room. The storeroom is adequately shelved but is not big enough to accommodate pharmaceuticals and has no space to store ARVs. The storeroom also lacks an air conditioner and a thermometer. It also has steel doors and no burglar bars on windows.

The dispensing area is a small room with sinks, a dispensing table, shelves, and a dispensing window. The room does not have space to accommodate a private counseling area. It also has wooden doors and a wooden dispensing window with no additional security enhancement.

The pharmacy lacks reference material, pharmacy laboratory equipment, and SOPs.

Recommendations

1. Additional storage area and a private dispensing area should be provided for the pharmacy.
2. The pharmacy store and dispensing rooms should be provided with air conditioners.
3. The pharmacy should be provided with min-max thermometers, SOPs, reference material, and pharmacy laboratory equipment.

Mariental District Hospital

Findings

The general infrastructure of the Mariental District Hospital pharmacy is good with effective lighting, ventilation, and air conditioning. The pharmacy, however, lacks a private counseling room and burglar bars on the doors. Currently the facility has not started ART provision and, therefore, no separate storage area for ARVs has been identified. The pharmacy has a refrigerator, but it is inadequate to store pharmaceuticals. The pharmacy lacks reference material, SOPs, laboratory equipment, and a computer.

Recommendations

1. A counseling room should be provided.
2. The pharmacy should be supplied with a refrigerator.
3. Cupboards to store ARVs should be in place as soon as the program starts.
4. Reference material, SOPs, and laboratory equipment should be provided for the pharmacy.

5. A computer and computer table should be provided to the pharmacy.
6. Security of the pharmacy should be enhanced by installing burglar bars on all doors.

Tsumeb District Hospital

Findings

The Tsumeb District Hospital pharmacy is well equipped with a functioning air conditioner, burglar bars, and thermometers. The pharmacy, however, lacks a private counseling room, a separate secure storage area for ARVs, lockable cabinets, pharmacy equipment, reference material, and SOPs. Although the storage area is shelved, the shelves are inadequate for all pharmaceuticals, so stock is stored on the floor. The pharmacy also lacks sinks and washbasins. The refrigerator is inadequate to accommodate all pharmaceutical items requiring refrigeration.

Recommendations

1. The pharmacy should be provided with a refrigerator.
2. Cupboards to store ARVs should be provided.
3. Reference material, SOPs, and laboratory equipment for the pharmacy should be supplied.
4. A room to be used for patient counseling should be constructed.

Rehoboth District Hospital

Findings

Rehoboth District Hospital has a separate PMTCT center where patients are seen and and counseled, but ARVs are dispensed at the main pharmacy. The counseling area is not private. Nurses counsel patients at the PMTCT/VCT center on medication use.

The pharmacy store has neither an air conditioner nor a thermometer to measure the temperature in the pharmacy. Both, however, have been ordered. The pharmacy store is inadequate to store pharmaceuticals and also lacks adequate shelving. A storeroom outside the pharmacy has been allocated to the pharmacy as additional storage for pharmaceutical and clinical supplies; however, this space is also unsuitable because it is not shelved and not secure.

The pharmacy has an old computer but lacks reference material and SOPs. The pharmacy has recently been provided with laboratory equipment.

Recommendations

1. Storage space in the pharmacy be expanded. The additional room allocated to the pharmacy should be fitted with shelves and burglar bars to make it suitable to store pharmaceuticals.

2. The pharmacy should be provided with air conditioner.
3. SOPs and reference material should be provided for the pharmacy.

Nankudu District Hospital

Findings

The general infrastructure of the Nankudu District Hospital pharmacy is good, but the pharmacy has no private counseling room or separate storage area for ARVs. The pharmacy storage area does not have an air conditioner. The only thermometer in the pharmacy store and dispensing areas is in the refrigerator. The shelving in the store is good. The waiting area for the pharmacy is small and does not have sufficient seating space. The pharmacy does not have burglar bars on the doors. The pharmacy also does not have a computer, adequate counting trays, measuring cylinders, reference material, or SOPs.

Recommendations

1. Cupboards to store ARVs should be provided.
2. A room should be identified to be used for patient counseling, or alternatively, a counseling booth should be set up in the pharmacy.
3. An air conditioner should be provided for the storage area.
4. Thermometers, reference material, SOPs and laboratory equipment should be provided for the pharmacy.
5. Computer and computer table should be provided for the pharmacy.

Windhoek Central Hospital (National Referral)

Findings

The general infrastructure of the Windhoek Central Hospital pharmacy is good. There is adequate storage space for pharmaceuticals including ARVs. The storeroom, however, does not have adequate air-conditioning.

The pharmacy does not have a private counseling room and also does not have space to erect one. The security of the pharmacy is good except that one door does not have burglar bars. The pharmacy does not have an adequate waiting area or benches for patients. The pharmacy will need reinforcement of laboratory equipment and reference material. Also needed are SOPs for ART management.

A separate area has been identified in the hospital that will be used for ARV services. The room will require furniture, air-conditioning, and a computer.

Recommendations

1. Cupboards should be provided for secure storage of ARVs.
2. The ARV pharmacy should be provided with furniture (table, chairs, computer, and computer table).
3. Reference material, SOPs, and laboratory equipment (for example, counting trays, measuring cylinders) should be provided to the pharmacy.

DISCUSSION AND SUMMARY

Counseling and Consulting Rooms

Lack of private counseling areas in the pharmacies compromises the quality of counseling provided to the patient and hence the provision of pharmaceutical care. Because most of the counseling is done through the dispensing window and is audible to other patients, confidentiality is not maintained, and patients find it difficult to ask questions.

The audit team, therefore, recommends that the identified facilities (see the summary in Table 1) be provided with additional rooms to serve as a patient counseling area. In pharmacies that have space to accommodate a private counseling area, minor renovations could be done to accommodate a counseling area. Where a room cannot be provided, the possibility of having a counseling booth in the pharmacy should be explored.

ARV Storage Area

Security of pharmaceutical products is of great importance when the cost of these items and the consequences of having shortage of medicines is considered. The security aspect is even more pronounced for ARVs because should these medicines fall in the wrong hands, they will most certainly be used inappropriately and, hence, would promote development of resistant strains of HIV in the communities, ultimately reducing the effectiveness of highly active ART and limiting future treatment options for HIV-positive patients.

Security

The security of pharmaceutical products, including ARVs, should be enhanced by putting in burglar bars on all doors and windows leading to the pharmacy (including dispensing windows), and replacing all wooden doors by metal doors and wooden dispensing windows by steel roll-a-door windows.

For facilities that require enhanced security, see Table 1.

Storage Conditions

Apart from secure storage areas, pharmaceuticals should be stored in such a manner that the integrity of the products is preserved (that is, stored at the right temperature). Places where medicines are kept should have refrigerators and should also have air conditioners (to keep products at room temperatures). The storage area should also be equipped with a min-max thermometer for daily monitoring of temperature and shelves so medicine boxes are not stored directly on the floor.

In facilities where the ARV patient load is not heavy enough to justify a separate storage area, lockable cupboards to store ARVs should be provided.

Access to the ARV storage area should be limited to authorized personnel only, and the storage area should be locked at all times.

See Table 1 for facility requirements.

Table 1. Summary of Facility Requirements

No.	Hospital	AC	BB	CR	SR	RM	Equipment	Refrigerator	Cupboard
1	Walvis Bay		✓			✓	✓	✓	
2	Oshakati		✓			✓	✓		
3	Katutura	✓	✓			✓	✓	✓	
4	Nyangana	✓		✓		✓	✓	✓	
4	Onandjokwe	New structure required				✓	✓		✓
6	Oshikuku	✓	✓	✓		✓	✓	✓	
7	Andara	✓			✓	✓	✓	✓	
8	Rundu	✓	✓	✓	✓	✓	✓	✓	
9	Grootfontein		✓			✓	✓		
10	Engela					✓	✓	✓	✓
11	Outapi	✓	✓			✓	✓		✓
12	Gobabis		✓			✓	✓		✓
13	Otjiwarongo	✓		✓		✓	✓		✓
14	Lüderitz					✓	✓	✓	✓
15	Swakopmund					✓	✓		
16	Eenhana	✓	✓	✓	✓	✓	✓		
17	Karasburg					✓	✓		
18	Keetmanshoop	✓	✓	✓	✓	✓	✓	✓	
19	Katima Mulilo		✓	✓		✓	✓	✓	✓
20	Okongo	✓		✓		✓	✓		✓
21	Outjo	Plans to relocate pharmacy				✓	✓		✓
22	Khorixas			✓	✓	✓	✓		✓
23	Opuwo	Plans to relocate pharmacy				✓	✓		✓
24	Okahandja		✓	✓	✓	✓	✓	✓	
25	Okakarara	✓	✓			✓	✓	✓	✓
26	Omaruru	✓		✓		✓	✓		✓
27	Usakos					✓	✓		✓
28	Tsandi	✓	✓	✓	✓	✓	✓		
29	Okahao	✓	✓	✓	✓	✓	✓		
30	Mariental			✓		✓	✓	✓	✓
31	Tsumeb			✓		✓	✓		✓
32	Rehoboth	✓	✓		✓	✓	✓		
33	Nankudu	✓		✓		✓	✓		✓
34	Windhoek Central Hospital					✓	✓		✓
—	TOTAL	16	16	15	9	34	34	12	15

Note: AC = air conditioner; BB = burglar bars; RM = reference material; CR = counseling room ; SR = storeroom; Equip = pharmacy lab equipment

Reference Materials and SOPs

The pharmaceutical services department in an institution is responsible for the evaluation and dissemination of comprehensive information about medicines and their use to the institution's staff and patients. It is also responsible for monitoring and ensuring adherence to treatment guidelines. To effectively carry out these responsibilities, the pharmacy should keep current unbiased drug information sources on hand, as well as all current ministerial protocols and treatment guidelines.

The audit team recommends that—

1. SOPs for the management of ARVs be developed as a matter of urgency and made available to all facilities providing ARVs and training on these be conducted
2. Every hospital pharmacy be provided with at least one copy of all ministerial (MoHSS) standard treatment guidelines, manuals, and policies
3. Available SOPs as well as training on these be made available to all hospitals pharmacies
4. Existing SOPs from all treatment facilities be harmonized and a Pharmacy Policy and Procedure Manual be developed; this action will promote efficient and uniform performance of pharmaceutical functions by all personnel, regardless of which hospital they work in
5. All pharmacies be provided with current editions of identified essential reference and resource material (see Annex 1)

Pharmaceutical Equipment

Although most of the pharmaceutical products in pharmacies are ready for use, pharmacies still need to perform some basic compounding. In preparing these extemporaneous and bulk products, the pharmacy is obliged to ensure that their products are of good quality and comply with good manufacturing practices. This quality assurance can be better achieved by ready availability of suitable quantities and types of pharmaceutical laboratory equipment. A major function of the pharmacy is the dispensing of medicines. Pharmaceutical laboratory equipment is required to help promote good dispensing.

Tablet counting machines help to speed up the prepacking of tablets and are essential in pharmacies that see large numbers of patients each day. The audit team recommends that pharmacies tending to heavy patient load be provided with tablet counting machines. Pharmacy equipment such as counting trays, spatulas, weighing balances, different sizes of measuring cylinders, beakers, conical flasks, pipettes, burettes, funnels, mortars and pestles and ointment slabs should be purchased for all hospital pharmacies. Refer to Annex 3 for proposed pharmacy equipment and quantities. Annex 4 presents the detailed costing.

Computerization

Good inventory management and stock control systems are essential to ensure security of pharmaceuticals. To enable comprehensive record keeping, ready traceability of ARVs and other pharmaceuticals, effective stock control, and complete ART patient management, all hospital pharmacies should be computerized.

NEXT STEPS

The next steps are the following—

1. Present the report to MoHSS (Pharmaceutical Services Division, Directorate of Special Programmes, and Planning Division) and USAID for discussions.
2. Identify areas that RPM Plus can support based on mandate financial resources available.
3. Obtain detailed quotation per facility for burglar bars, air conditioners, and cupboards.

RPM Plus will procure, deliver, and install the equipment in accordance with the identified areas of support.

ANNEX 1. REFERENCE MATERIALS LIST

Reference	Hospital Level
MoHSS Policies, Guidelines, and Manuals	
NEMList (latest edition)	DH, IH, RH, RO
Treatment manuals for clinics	DH, IH, RH, RO
Standard treatment guidelines (TB, malaria, sexually transmitted diseases, acute respiratory infection, control of diarrheal disease, vitamin A)	DH, IH, RH, RO
PHC formulary	DH, IH, RH, RO
Windhoek Central Hospital compounding formulas	DH, IH, RH, RO
National medicines policy	DH, IH, RH, RO
National Pharmaceutical Master Plan	DH, IH, RH, RO
Stock management manual	DH, IH, RH, RO
Paediatric medicines formulary	DH, IH, RH, RO
HIV treatment guidelines	DH, IH, RH, RO
Namibia Guidelines for Antiretroviral Therapy	DH, IH, RH, RO
Legal References	
Pharmacy Professions Act (current)	DH, IH, RH, RO
Medicines and Related Substances Control Act (current)	DH, IH, RH, RO
Other References	
Medicines formulary (e.g. BNF, SAMF)	DH, IH, RH, RO
<i>Daily Drug Use</i>	DH, IH, RH, RO
<i>Good Pharmacy Practice</i>	DH, IH, RH, RO
<i>Managing Drug Supply</i>	DH, IH, RH, RO
Medical dictionary	DH, IH, RH, RO
<i>Merck Manual</i>	IH, RH, RO
Pharmacopoeia (for example, Martindale, <i>U.S. Pharmacopoeia</i> , European)	IH, RH, RO
<i>Managing Clinically Significant Drug Interactions</i>	IH, RH, RO
<i>Pharmacological Basis of Therapeutics</i>	IH, RH
<i>Handbook of Injectable Drugs</i>	IH, RH
<i>Medical Toxicology: Diagnosis and Treatment</i>	IH, RH
<i>Current Medical Diagnosis</i>	IH, RH
<i>Pharmacotherapy</i>	IH, RH
<i>Handbook of Pediatrics</i>	IH, RH
<i>Drugs in Pregnancy and Lactation</i>	IH, RH
<i>British Pharmaceutical Codex</i>	RH

Notes: DH = district hospital; IH = intermediate referral hospital; RH = national referral hospital; RO = regional pharmacist's office

ANNEX 2. OPERATIONAL STANDARDS FOR HOSPITALS AND PHARMACIES

Name of facility: _____	District/Region: _____
Assessor name: _____	Date of visit: _____
Person in charge: _____	

	Yes	No	Comments
GENERAL INFRASTRUCTURE			
FIXTURES			
Is the floor surface of impermeable and washable material?			
Is there suitable and effective lighting?			
Is there suitable and effective ventilation?			
Is there a well functioning air conditioning system?			
In storage area			
In dispensing area			
Is there running water?			
Is there access to distilled water?			
Are there thermometers?			
Main storage area			
Refrigerator			
Dispensary			
Is there adequate waiting area?			
Does the waiting area have adequate sitting arrangement?			
Is there a private counseling room?			
Are there any barriers to counseling? (language, privacy)			
Is there a separate secure storage area for ARVs?			
Is there adequate shelving?			
In the main store			
In dispensing area			
In ARV storage area			
Are there lockable cabinets?			
Are there burglar bars?			
On windows			
On doors			
Is there a dedicated sink for washing hands and/or washing equipment?			
Is there a dedicated sink for dispensing purposes (for example, mixing liquid forms)?			
Is there a toilet for pharmacy staff? (indicate location)			

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	Yes	No	Comments
EQUIPMENT			
Is there a medical waste disposal system/incinerator?			
Is there a separate and adequate bulk storage area?			
Is/are there the following?			
Security			
Space			
Shelving			
Pallets			
Ventilation			
Pest Control			
Are there counting trays? (indicate number)			
Are there any measuring cylinders?			
Any other laboratory equipment? (State name and number)			
Is there a clearly demarcated goods receiving area?			
Is there a refrigerator?			
Is the refrigerator in good working order?			
Does the refrigerator have a thermometer?			
Is the size adequate?			
Is the pharmacy connected to the hospital emergency generator?			
Is there a computer?			
Are there adequate plug points for computers to be installed?			
REFERENCE MATERIAL/DOCUMENTS			
Are there written SOPs?			
Dispensing			
Stock management			
Prepacking			
Handling of Schedule 7 medicine			
Handling of ARVs			
Manufacturing (mixing of liquids, etc.)			
Patient information leaflets on ARV			
Are the following references available?			
HIV treatment guidelines			
Namibia Guidelines for Antiretroviral Therapy			
Pharmacy Professions Act			
Medicines Control Act and regulations			
Medicine Formulary			
Treatment Manual for Clinics			
Standard Treatment Guidelines (TB, STD, Malaria, ARI, CDD, Vitamin A)			
PHC Drug Formulary			
National Drug Policy			

Annex 2. Operational Standards for Hospitals and Pharmacies

	Yes	No	Comments
National Pharmaceutical Master Plan			
Monthly Index of Medical Specialities (< 12 months old)			
Stock Management Manual			
Namibia Essential Medicines List			
<i>Good Pharmacy Practice</i>			
<i>Daily Drug Use</i>			
<i>Managing Drug Supply</i>			
Medical dictionary			
Drug interactions reference book			
Drugs used in pregnancy			
Pharmacopoeia (<i>United States Pharmacopoeia</i> , Martindale)			
Handbook of Pediatrics			
Toxicology and Poisoning Reference (referral hospitals only)			
Pharmacology/pharmacotherapy textbook			
HUMAN RESOURCES			
Are there pharmacists? (state number)			
Are there pharmacists' assistants? (state number)			
Are there any support staff? (state number)			
Nurse			
Clerk			
Work hand/institutional worker			
Other			
Is the staff trained in ART?			
How many?			
MANAGEMENT INFORMATION SYSTEMS/RECORDS AND REPORTS			
Is there any record of prescriptions dispensed? Record of patients serviced?			
Is a prescription book kept?			
Are the stock control cards—			
In bulk storage?			
In dispensing area?			
Are the stock cards updated regularly (monthly)?			
Is there an ARV patient register?			
Are there adverse drug reaction forms?			
Is there a temperature control log?			
In main storage area?			
In dispensing area?			
In refrigerator?			

ANNEX 3. PHARMACY LABORATORY EQUIPMENT LIST

Description	Size	Proposed Number per facility			Total
		DH	IH	RH	
Measuring cylinder plastic	1,000 ml	2	4	4	76
	500 ml	1	2	2	38
	100 ml	3	5	5	200
	50 ml	2	2	2	68
	25 ml	2	2	2	68
	10 ml	2	2	2	68
Beakers, plastic	5,000 ml	2	3	3	72
	1,000 ml	2	3	3	72
	600 ml	1	3	3	42
	250 ml	2	4	4	76
	50 ml	1	2	2	38
Erlenmeyer flasks glass, N/Neck	500 ml	1	2	2	38
	250 ml	1	2	2	38
Tablet counting trays		5	10	10	190
Tablet counting machines		Depending on patient numbers	1	1	
Mortar and pestle, glazed	80 mm	Total of 2 different sizes	Total of 4 different sizes	Total of 4 different sizes	68
	100 mm				
	130 mm				
	155 mm				
Ointment slabs		1	2	4	40
Weighing balance	Capacity: 200g/250g Readability: 0.1g	1	1	1	34
Min-max thermometers	-30°C to +50°C	3	4	4	106
Stirring rods		2	3	3	72
Pipettes, graduated	5 ml	1	1	1	34
	10 ml	1	1	1	34
	25 ml	1	1	1	34
Burettes glass stopcock (no bulb)	25 ml	1	1	1	34
	50 ml	1	1	1	34
Spatula knife palette	250-300 mm	1	1	1	34
	150-180 mm	1	1	1	34
	100 mm	1	1	1	34
Funnels filter glass	50 mm	2	2	2	68
	75-80 mm	2	2	2	68
Hot plate		-	-	1	1

Notes: DH = district hospital; IH = intermediate referral hospital; RH = national referral hospital

ANNEX 4. DETAILED COSTING

Table A4-1 Reference Material Costs

Title	Unit cost (USD)	Quantity required	Total (USD)	Books available only in Republic of South Africa (R)	
<i>Managing Drug Supply</i>	30.95	55	1,702.25		
<i>Daily Drug Use</i>	—	50	—	200.98	10,049.00
<i>South African Medical Formulary</i>	—	50	—	307.02	15,351.00
<i>Good Pharmacy Practice</i>	—	50	—	120.00	6,000.00
Medical dictionary	38.95	37	1,441.15		
Martindale Extra Pharmacopoea	375.00	17	6,375.00		
Merck Manual	40.00	17	680.00		
<i>Managing Clinically Important Drug Interaction</i>	68.95	4	275.80		
<i>Medical Toxicology (Diagnosis and Treatment)</i>	135.05	4	540.20		
<i>Pharmacological Basis of Therapeutics</i>	139.00	4	556.00		
<i>Current Medical Diagnosis</i>	53.84	4	215.36		
<i>Pharmacotherapy</i>	155.00	4	620.00		
<i>Handbook of Injectable Drugs</i>	219.00	4	876.00		
<i>Pediatric Dosage Handbook</i>	46.95	4	187.80		
<i>Manual for Pediatric Therapeutics</i>	39.95	4	159.80		
<i>Manual for Pediatric House Officers</i>	44.95	4	179.80		
<i>Drugs in Pregnancy and Lactation</i>	78.21	4	312.84		
<i>British Pharmaceutical Codex</i>		1			
			14,122.00		31,400.00
Total Republic of South Africa books in USD (rate = 6.5)			4,830.77		
Total for all books (In USD)			18,952.77		
Postage, United States			5,000.00		
Postage Republic of South Africa USD (exchange rate = 6.5)	590.76		590.76		
Total cost of books and postage			24,543.53		

Table A4-2. Equipment Costs

Equipment	Size	Quantity required	Unit cost (NAD)	Total cost (NAD)
Measuring cylinders	1,000 ml	76	84.00	6,384.00
	500 ml	38	61.00	2,318.00
	100 ml	200	28.00	5,600.00
	50 ml	68	21.00	1,428.00
	25 ml	68	22.00	1,496.00
	10 ml	68	18.00	1,224.00
Beakers	4,500 ml	72	154.00	11,088.00
	1,000 ml	72	32.00	2,304.00
	600 ml	42	20.00	\$840.00
	250 ml	76	15.00	1,140.00
	50 ml	38	8.00	304.00
Conical flasks	500 ml	38	17.00	646.00
	250 ml	38	16.00	608.00
Tablet counting trays		190	195.00	37,050.00
Tablet counting machine		35	65,771.95	2,302,018.25
Pestle and mortar		68	62.33	4,238.44
Ointment slabs		40	129.54	5,181.60
Weighing balance		34	930.00	31,620.00
Min-max thermometers for rooms		106	61.00	6,466.00
Stirring rods (plastic)		72	6.00	432.00
Pipettes, graduated	5 ml	34	15.00	510.00
	10 ml	34	16.00	544.00
	25 ml	34	27.00	918.00
Burettes, glass (no bulb)	25 ml	34	181.49	6,170.66
	50 ml	34	115.40	3,923.60
Spatula knife palette	250–300 mm	34	189.00	6,426.00
	150–180 mm	34	95.00	3,230.00
	100 mm	34	76.00	2,584.00
Funnels	50 mm	68	28.00	1,904.00
	75–80 mm	68	18.00	1,224.00
Hot plate		1	2,037.00	2,037.00
			Total	2,451,857.55
Total cost USD (exchange rate = 6.5)	377,208.85			

Table A4-3. Other Costs

Description	Quantity	Unit Cost (NAD)	Total Cost (NAD)	Comments
Refrigerator	16	5,000.00	80,000.00	
Air conditioner (average price)*	16	8,000.00	128,000.00	
Cupboards (steel lockable)	15	1,050.00	15,750.00	More than 1 per facility might be needed
Burglar bars (standard door)	16	3,000.00	48,000.00	Actual measurements for each window and door per facility need to be made.
Burglar bars (standard window)	16	2,000.00	32,000.00	

Note: NAD = Namibia dollar

