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**Report from the In Service Training in the pharmacy at
Saint Francis Mission Hospital, Katete, Eastern District**

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Main objectives

The In Service Training on Medicines Management and Rational Use of Medicines aims at quality assurance of routines involved in giving:

The correct medicine of good quality to the right patient at the right time in the correct dosage for the prescribed period of treatment

Methods

Through observations, discussions, and by asking relevant questions, pharmacy staff involved themselves in processes leading to change of knowledge, skills and attitudes. We challenged their ability to plan, implement and evaluate the processes. The training was based on existing guidelines in Zambia.

Summary

The work proceeded according to Project Plan decided upon by CHAZ and FUG April 2008 with the adjustment of working 5 weeks in one hospital instead of 2-3 weeks in two hospitals. We recommend:

- Hospital administration and the pharmacy staff to work together to put pressure on Medical Stores Limited to improve the supply of drugs.
- Hospital administration and the pharmacy staff to work together to establish a computerized system for the main stock in Pharmacy Store.
- Prescribers to continue to adhere to Zambian policies of generic prescribing and if possible use a cheaper alternative with a similar therapeutic effect.
- Pharmacy staff to instruct nurses in safe procedures when dispensing drugs at the wards.
- Hospital administration and the pharmacy to continue to work together adhering to core principles for drug donations according to the national guidelines from Ministry of Health.
- Recommendations for the work in the pharmacy are found on page 8.

Findings at arrival

The Pharmacy Department at Saint Francis Mission Hospital has 11 employees:

Pharmacist Mr. Jeremiah Nyirenda
Pharmacy Technologist Mr. Luckson Botha
Pharmacy Technologist Ms. Senzeni Mtonga,
Pharmacy Dispenser Ms. Virginia Kondongwa
Pharmacy Assistant Mr. Stanslous Kapapi
Pharmacy Assistant Mr. Jacob Phiri
Pharmacy Assistant Mr. Temba Banda
Pharmacy Assistant Ms. Alice Lungu
Pharmacy Assistant Mr. Sande Mbaiwa
Mr. Abraham Phiri working fulltime with ARV-registration
Mr. Smart Phiri

The Pharmacy comprises of 3 main rooms: The Dispensary, the Pharmacy Store and the CSSD Pharmacy.

The Dispensary fills approximately 150 prescriptions (300 items) a day in addition to issuing medicines and medical supplies to 10 wards and all the in-patients. They cater for 13 481 ARV-patients and also go “Out reach” to different villages 2-3 days a week.

The Pharmacy Store

The Pharmacy Store consists of 4 storage rooms for supplies received from Medical Stores Limited (MSL), Churches Health Association of Zambia (CHAZ) and different suppliers in Lusaka. There is one room for antiretroviral medicines (ARVs), one room for antibiotics and cytotoxics, one room for tablets, injections, creams and eye drops and one room for medical equipment and fluids. The latter is also used as an office. There is air condition in the Pharmacy Store and the temperature is documented daily.

Each substance has a stock card where any movements of stocks are recorded. Mr. Luckson Botha is responsible for the Pharmacy Store, and Mr. Sande Mbaiwa is the one updating the stock cards. The pharmacy staff writes lists every day for items taken from the Pharmacy Store to the Dispensary, to the wards or for “Out reach”. Mr. Sande Mbaiwa updates the stock cards every day according to the lists from the previous day. He is also doing a physical count at the end of each month and removing all expired drugs from the shelves.

While doing the monthly physical count we made a list of deviations and assessed the out of stock situation.

Type of item	Number of stock cards	Physical check not in accordance with stock cards	Out of stock situation
ARVs	27	11	1
Antibiotics/cytotoxics	71	12	10
Tablets	82	22	7
Injections	34	3	2
Creams	13	3	4
Fluids	9	Not counted	0
Eye drops	28	Not counted	3
Medical supplies	7	Not counted	0
Refrigerated items	11	Not counted	1
In all	282	51	28

Drugs out of stock

Acyclovir 400 mg tablets	Premarin 0,625 tablets
Acetyl salicylic acid 500 mg tablets	Bromocriptin 25 mg tablets
Ascorbic acid 100 mg tablets	Cefotaxime 1 gram injection
Finasteride 5 mg tablets	Dactinomycin 0,5 mg injection
Phenytoin 100 mg tablets	Lidocaine/Dextrose 5% / 7.5% injection
Multivitamin tablets	Dental cartridges 1,8 ml
Ketoconazole 200 mg tablets	Acyclovir cream
Deltaprim 12,5 mg tablets	Nystatin cream
Cotrimoxazole 480 mg 100 tablets	Anti-haemorrhoidal ointment
Cifdinir 300 mg capsules	Hydrocortisone cream 1%
Ethambutol/Isoniazid 400/150 mg tablets	Pilocarpine HCL eyedrops 2%, 0,5%
Dapsone 100 mg tablets	Chloramphenicol + Dexamethasone 1%
Procaine Penicillin 3 MEGA injection	Gentamycin eyedrops 0,3%
Methotrexate 50 mg/2 ml injection	

The pharmacy staff wants to exchange the manual stock card system with a computer system. This will make it easier to control the stock at any time, reduce the number of working procedures which again lead to fewer deviations in stock. Hospital administration is working on establishing a software program for the Pharmacy Store. To make this possible we made an index on all existing stock cards, and we made stock cards for the rest of the items in the Pharmacy store.

We found expired medicines together with the non expired ones on the shelves in the Pharmacy Store and in the Dispensary. The principle of "First in- first out" was not systematically followed and the staff does not always collect from the left.

Items are ordered monthly from MSL according to a schedule. It takes approximately 14 days from ordering until receiving the items. All the medicines received from MSL are already paid for by the government. MSL does not deliver all the drugs ordered by the pharmacy. August 2009 the pharmacy received 55 % of the items ordered and that is representative for most of the monthly deliveries.

If the pharmacy runs out of stock while waiting for delivery or if they can't get the medicines from MSL, they might have to buy this from different suppliers in Lusaka. The latter needs release of money from accounts at the hospital unless the medicines are paid for by AidsRelief fond (CHAZ).

Saint Francis Hospital receives a lot of donations, mostly from cooperation partners in UK and the Netherlands. These are very useful and are ordered/asked for in advance. The Pharmacy also receives some donations from USA in addition to some random donations which are mostly useless and often expire on the shelves.

The CSSD Pharmacy

This is a separate building for storage of disposable medical equipment. Pharmacy staff supplies all hospital wards once a week. Most of the items here are donations. Before we came there were no stock cards (except for examination gloves) and no index for all items in stock.

The Dispensary

The Dispensary receives drugs from the Pharmacy Store and serves out-patients, in-patients and discharged patients.

Discharged patients and out-patients come with their prescriptions to the dispensary. The prescriptions indicate name of the drug, sometimes brand names, sometimes generic names and often abbreviations. In addition the prescription indicates the dosage and the duration of treatment. The age or weight of the patient is sometimes written on the prescription, especially for children.

Staff uses counting trays or their fingers when dispensing medicines to the patient. They don't cut tablets in halves or quarters, they only indicate the dosage on the medicine bag and the patient has to cut the tablets themselves. The pharmacy staff makes pre-packs for the most frequent drugs to save time in the dispensing process. The pre-packs are labelled with name of drug and standard dosage, ready for being given to the patients.

Dispensed tablets for individual prescriptions are put in medicine bags labelled with drug name, sometimes brand name and sometimes generic name. The dosage is well documented, but the numbers of tablets, the patient name, dispensing date and expiring date are missing on the medicine bags. Information to the patient about how to use the medicine is always presented in the local language Nyanja and is usually good.

Nurses present prescriptions for admitted patients. Sheets are brought in tray and marked with * to incline what drugs are needed. Pharmacy staffs sign for dispensed drugs.

The hospital has 10 wards. Each ward has their own Requisition Book where they write their orders. The book is delivered to the Dispensary by a nurse in the morning. The pharmacy has made a schedule for which days different wards can place their orders, but they tend to come more often. The pharmacy staff considers if the ordered amount is appropriate before they supply and sign for the amount issued. The nurse collects the items in the afternoon. One copy of the requisition is kept in the pharmacy.

We looked through all the requisitions from 2 different weeks to see how many items were issued according to the ordered amount:

	Week 1	Week 2	Total	Percentage
Issued in accordance with the order	135	134	269	54,9 %
Issued in reduced quantity	67	69	136	27,8 %
Not issued	9	28	37	7,6 %
Out of stock	14	34	48	9,8 %
Total numbers of orders	225	265	490	

The ordered items out of stock were Metoclopramide i.v, Potassium chloride i.v, Hydralazine i.v, Salbutamol nebulizer, hand cleanser, incontinent sheets, maternity pads, diapers, multivitamin tablets, medicine cups and spoons, POP bandages, triangular bandages, Florence bandages and medicine packs.

The Dispensary has a small scale laboratory where the pharmacy staff makes some products like morphine mixture, syrups of medicines for children and oral glucose water.

The temperature in the dispensary is not documented. Neither was the temperature in the fridges.

ARV-dispensing

The ARV-patients are served from a separate room called the ARV-dispensary. The patients bring their own journal, entering the dispensary and are allowed to have a seat inside. The pharmacy staff gives the patient the prescribed medicines, asking relevant questions about dosage, adherence, side-effects and nutrition. The journal is then transferred to the ARV-registration room where the information is entered in the software from CHAZ. Reports go to CHAZ every month.

Two persons from the pharmacy go “Out reach” with the hospital ARV-team 2-3 times a week to different villages to reach as many patients as possible. The dispensing procedure is the same as in the ARV-dispensing room in the pharmacy.

We attended two different “Out reach” to a community health centre outside Chipata.

To the “Out reach” 30.09.09 the pharmacy supplied medication to 131 adults and 10 small children, and 07.10.09 we supplied medication to 72 women, 40 men and 17 children. Most of the patients were given ARVs for 2 or 3 months supply, and they often got some other drugs (antibiotics, painkillers, antiemetics) in addition.

<i>Number of patients:</i>	<i>Out reach 30.09.09</i>		<i>Out reach 7.10.09</i>	
Received ARVs	97	68 %	76	59 %
Received Co-trimoxazole, no ARVs	32	23 %	42	33 %
Received other medications only	12	9 %	11	9 %
Total number of patients served that day	141		129	

Organisation of the pharmacy

Mr. Jeremiah Nyirenda is in charge of the pharmacy and has the responsibility on a daily basis in the Pharmacy Department. He is responsible for ordering drugs from MSL and other suppliers, and does most of the paperwork and reports to different institutions. He is a member of the Therapeutic Committee.

Mr. Luckson Botha is second in charge and has been working as the in charge for 6 months while Mr. Nyirenda has been on vacation. He is responsible for the Pharmacy Store and together with Mr. Jeremiah Nyirenda for making the lists of drugs that are running short or are out of stock.

Ms. Senzeni Mtonga is responsible for the small scale production needed to fill certain prescriptions, and to prepare some products to be used in the wards.

Mr. Sande Mbaiwa is mainly working in the Pharmacy Store, updating the stock cards every day and doing physical count every month. On arrival of drugs from different suppliers, everything is checked according to delivery lists by Mr. Mbaiwe and Mr. Botha. In the end Mr. Nyirenda has to approve the received orders.

Mr. Stanslous Kapapi is responsible for the CSSD Pharmacy.

All the pharmacy staffs rotate between the different daily tasks in the Dispensary and going “Out reach” except for the pharmacist in charge.

Standard Operational Procedures (SOPs) from AidsRelief describe some procedures about ordering and receiving medicines.

The pharmacy staff has internal staff meetings from time to time, sometimes with written minutes.

Rational use of drugs

The hospital has an essential drug list to be used by the prescribers, and there is a special drug list to be used for children.

Mr. Botha or Mr. Nyirenda gives a short presentation of the drugs which are currently out of stock or are running short on the clinical meetings every Tuesday morning.

The hospital has a Therapeutic committee meeting once a month. The pharmacy has the secretary function in the committee. The executive director Dr. Sheilagh Parkinson is the chairperson of the committee.

The objectives of this committee are:

- reduce cost of drug treatment at all levels of care
- increase efficacy and efficiency of drug treatment/management
- improve drug treatment in accordance with accepted current trend of practice within the limited available resources
- improve the quality of human resources by providing drug information, training and institutional collaboration
- monitor and report side effects to the Provincial medical officer and Ministry of Health

Expired drugs

The expired drugs from the pharmacy and from hospital wards are kept in a container in a locked area at the hospital ground. They have to be transported to the Provincial Health Office 4 times a year. Some drugs expire on the shelves before used. The cause might be doctors changing the prescription patterns/treatment guidelines, excess of certain drugs in stock and short expiry dates on some items received from different suppliers. The latter is often found among donations.

Ward inspection

Pharmacy staff does a monthly ward inspection. There is a short ward inspection schedule to be followed. Objectives for inspection are:

- inspection of the cleanliness of the ward pharmacy store room
- inspection of storage and arrangement of drugs in the ward pharmacy
- inspection of expiry dates
- retrieving the overstocks pharmaceutical products

The ward inspection does not include an inspection of the nurses` dispensing techniques.

After inspection a report is written and discussed with the pharmacist, and then on the therapeutic committee meeting the following month.

Working with pharmacy staff

Recommendations

The Dispensary

The pharmacy staff decided upon the following (SOP 1):

- Use preferably counting trays and spatulas for dispensing. If using fingers for dispensing make sure they are clean.
- Use a separate counting tray when counting antibiotics. Keep the antibiotics on the left side on the working table.
- Make a routine for cleaning counting trays regularly. Wipe of counting trays between each drug dispensed.
- Cut the tablets with a tablet cutter if possible before putting them into the medicine bag
- After filling the prescription, close lid of drug container and put it back on assigned place, except for those you use frequently. Do not leave container-lids open.
- Tick off/sign for each dispensed drugs on the prescription
- All medicine bags should be labelled with generic name and strength of drug, number of tablets, dosage, patients name, dispensing date and other information if necessary.
- For pre-packed drugs the label should contain generic name, strength, number of tablets, standard dosage and preferably expiry date.
- Each prescription should be double checked before given to the patient.
- Give oral information to patients on drug usage. Make them repeat the dosage.
- Use generic names on medicine bags and when dispensing to wards. Always write strength and expiry date when dispensing to wards.
- Clean shelves at least once a month and at the same time check for expired drugs
- Mark open boxes by writing X at the front of the box or on the lid
- At monthly ward inspections the dispensing techniques should be checked. Check also that all the opened vials have been marked with time and date of opening.
- Document temperature in dispensary and refrigerator, report any deviation from defined temperature to the one in charge

Pharmacy Store

The pharmacy staff decided upon:

- Always use the “first in first out” principle. Collect from the left.
- Items in stock must be easily identified: face out. That includes all the big boxes on the shelves
- When issuing part of a box/carton write X in front of the box
- Stock cards to be placed in a secure way, like under or in between medicine boxes/medical supplies.
- Used (full written) stock cards to be filed after the index in the appropriate folder.
- Remove nil-stock cards from the shelves and arrange them after the index in the folder «Out of stock bin cards»
- Perform physical count in the end of each month and make a list of all deviations found and discuss this in staff meeting (SOP 2). Remember to check the expiry dates.
- Document any removal from stock as soon as possible
- Expired medicines/items to be immediately removed from shelves and documented in the stock cards and on a separate list

Rational use of drugs

The pharmacy staff decided upon:

- Pharmacy staff to make a list of overstock and of short supply every month and present it to provincial pharmacist for possible exchange of drugs with other institutions (SOP 3)
- To document the interventions done by pharmacy staff
- To inform patients about the dose and duration of treatment and the importance of adherence. Most important for ARVs and antibiotics.
- To inform the doctors if cheaper alternatives with similar therapeutic effect is available

Expired drugs

- Expired drugs to be kept separate from not expired drugs
- Expired drugs to be transported quarterly to the Provincial Health Office

Standard Operation Procedure's (SOP`s)

- To implement SOP 1: Drug dispensing to in/out-patients
- To implement SOP 2: Monthly physical count
- To implement SOP 3: Drug overstock/in short supply
- SOP's are working documents and should be discussed at staff meetings
- The SOP's to be discussed in the Therapeutic Committee

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