Accredited Medicine Stores Training

Manual for Dispensers
May 2012

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ACRONYMS

a.c.	take medicine before meals/food
ADS	accredited drug shop
AIDS	acquired immune deficiency syndrome
AMS	accredited medicine store
ANC	antenatal care
AS/AQ	artesunate + amodiaquine
b.d., b.i.d	twice a day
Cap.	capsule
COC	combined oral contraceptive
CPR	cardiopulmonary resuscitation
DMPA	depot medroxy progesterone acetate (Depo Provera)
DRABC	danger, response, airway, breathing, circulation
ECP	emergency contraceptive pill
FB	foreign body
FEFO	first expiry, first out
FP	family planning
FSH	follicle-stimulating hormone
FSHRF	follicle-stimulating hormone releasing factor
g	gram
GI	gastrointestinal
GMP	Good Manufacturing Practices
gt or gtts	drop (one) or drops (more than one)
h.s.	at bed time
HIV	human immunodeficiency virus
i.m.	intramuscular
i.v.	intravenous
Inj.	injection
IPR	interpersonal relationship
IUD	intrauterine device
kg	kilogram
L	liter
LAM	lactational amenorrhea method
LH	luteinizing hormone
LMHRA	Liberia Medicines and Health Products Regulatory Authority
LRD	Liberian dollar
mcg	microgram
mg	milligram
mL	milliliter

MOH	Ministry of Health
MSH	Management Sciences for Health
NDA	National Drug Authority
NGO	nongovernmental organization
noct. or nocte	at night
NSAID	non-steroidal anti-inflammatory drug
occul or occulent	eye ointment
oint.	ointment
ORS	oral rehydration salt
p.a.a.	apply medicine to affected parts of the body
p.c.	take medicine after meals/food
p.o.	take medicine by mouth
p.r.n.	take medicine when required
PBL	Pharmacy Board of Liberia
POC, POP	progestin-only contraceptive, progestin-only pill
q.i.d.	four times a day
RDT	rapid diagnostic test
RH	reproductive health
Rx	take
SCJA	sick child job aid
SDSI	Sustainable Drug Seller Initiative
SOP	standard operating procedure
SP	sulfadoxine-pyrimethamine
Stat.	take immediately
STD, STI	sexually transmitted disease, sexually transmitted infection
t.d.s., t.i.d.	three times a day
t.s.p.	teaspoonful
Tab.	tablet
TB	tuberculosis
URTI	upper respiratory tract infection
USD	US dollar
UTI	urinary tract infection
WHO	World Health Organization

INTRODUCTION TO THE ACCREDITED MEDICINE STORES SELLERS TRAINING COURSE

The accredited medicine stores (AMS) training program is for medicine store sellers to help them develop skills in the management of selected disease conditions and medicines and to equip them with business skills so they can sustainably improve access to a selected range of medicines through these medicine stores.

The training course has been divided into four modules:

- Medicines management
- Patient management
- Family planning, reproductive health, and maternal and child health
- Communication, health education, and promotion

It is expected that by the end of this course, participants will have gained an understanding of the AMS concept and will be equipped with the knowledge and skills necessary to operate an AMS profitably within established standards while making significant contributions in the community by availing quality medicines and managing common diseases.

Therefore, participants will become competent in the following areas:

- Evaluating, managing, and referring patients
- Reading, interpreting, and labeling prescriptions
- Dispensing medicines
- Communicating with patients and counseling them on optimal medicines use
- Providing first aid
- Complying with regulations and keeping required legal records
- Managing medicines inventory
- Storing medicines
- Demonstrating professional conduct and health-related ethics

The course lasts three weeks. To enhance learning, the training has been designed with presentations, role playing, group work, and individual exercises. At the end of the training, participants are expected to pass exams; a certificate will be awarded only to those who achieve passing marks.

Participants

Participants attending this course are medicine sellers who have attained a minimum of a nursing assistant course and an ordinary-level certificate from a high school. Medicine store owners who are not sellers and would like to attain business skills can attend the business skills training separate from the dispensers training.

Resources

The training course is adopted from the Uganda accredited drug shops (ADS) and Tanzania accredited drug distributor outlets sellers' training manuals [Ministry of Health, National Drug Authority (NDA) and Pharmaceutical Society of Uganda (PSU): *Accredited Drug Shops Training Manual,* Uganda, 2010; United Republic of Tanzania Ministry of Health and Social Welfare, Tanzania Food and Drugs Authority*. Accredited Drug Dispensing Outlet (ADDO) Dispensers' Training Manual,* first edition, 2007]. This manual also contains a significant amount of information on Liberian laws, regulations, policies, and guidelines in the diagnosis and management of common diseases.

MODULE 1. INTRODUCTION TO MEDICINES MANAGEMENT

Session 1. Background of the AMS

Session 2. Laws, Regulations, and Ethics

Session 3. Basic Principles of Medicines Management or Medicines Handling

Session 4. Appropriate Medicines Use (Rational Drug Use)

Session 5. Management Support and Quality of Medicines

Session 1. Background to the AMS

Objectives

1) Outline the pharmaceutical sector of Liberia
2) Understand the AMS concept
3) Discuss the role of AMS in service delivery

Time

2:30 hours

The Pharmaceutical Sector in Liberia

Liberia is divided into 15 counties and the public health care system is divided into the administrative structure described in the table below.

Table 1. Levels of the Health System

Administrative structure	Council level	Health structure
Community	Primary	Community health workers
District	I	Clinics and health centers
County health team/county health board	II	Hospitals
National	III	National referral

In the public health care system, there is at least one county referral hospital in each of the 15 counties. There are several clinics and health centers in each of these counties; other types of hospitals can also be found in some of the counties.

The public pharmaceutical sector follows the same structure. According to the World Bank, geographical access to pharmaceutical services is limited to 49 percent of the population, i.e., the population living within 5 kilometers (about one hour's walking distance). Rural communities are particularly affected because health facilities are mostly located in towns and along main roads. As a result, it is inevitable that the public pharmaceutical sector is supported by several privately owned pharmacies and medicine stores.

The Government of Liberia recognizes the importance of the private sector and is now encouraging public-private partnership. The Sustainable Drug Seller Initiative (SDSI) project is one such attempt. The SDSI project seeks to build capacity of private for-profit medicine dispensing outlets (medicine stores) to appropriately manage the diseases that are most prevalent in areas where these outlets are located. The project also seeks to increase collaboration between public and private health care providers to encourage cross referral between the two sectors.

Medicines play a major role in health care by saving lives, improving health, and promoting trust and participation in health services. The availability of medicines, the way they are handled, and the way they are used all influence the health of a community. The pharmaceutical sector,

through the National Drug Policy, aims to contribute to the standard of health of the population of Liberia by ensuring that medicines are available, accessible, and affordable at all times. In addition, the Government of Liberia is interested in whether medicines are appropriately handled so as to maintain their quality and ultimately whether they are used appropriately.

Medicine Supply System in Liberia

A percentage of the national health budget is used for procurement and distribution of medicines. In Liberia, the medicine supply system is run by both private and public sector players. The majority of the medicines and equipment for the public sector are obtained from the National Drug Service, an autonomous government agency charged with the procurement, storage, and distribution of essential medicines and supplies to the public sector. The National Drug Service is also the major source for medicines and health supplies for nongovernmental and religious-based health facilities.

Currently, there is no pharmaceutical manufacturer in Liberia. There are 2,939 public sector health facilities, 300 private pharmacies, and over 1000 drug shops from which drugs may be dispensed. Of the private pharmacies and medicine stores in Liberia, nearly 80 percent are in Montserrado County. Limited or no access to pharmaceutical services through registered pharmacies has led to a proliferation of medicine stores in rural areas to cover the gap. Pharmacies are licensed to sell all classes of medicines while medicine stores are only allowed to sell over-the-counter medicines. However, the demand for medicines in rural areas, coupled with the scarcity of pharmacies and the need to make businesses profitable, has driven the medicine stores to sell all types of medicines and supplies, rather than restricting themselves to the classes for which they have been approved. This is further complicated by Liberia's low capacity to regulate these stores. In addition, many medicine stores in Liberia are not registered and therefore not easily regulated or supervised. Because of the inadequate number of personnel qualified in pharmaceutical management, most of the personnel manning the medicine stores do not possess the minimum skills required.

The AMS model aims to improve access to medicines in rural settings by building the capacity of medicine sellers to manage an extended range of quality medicines and appropriately dispense them to the community while remaining profitable. This manual, along with the accompanying training curriculum, is designed to equip AMS sellers and owners in pharmaceutical care delivery and provide them with knowledge, skills, and attitudes regarding appropriate medicines management.

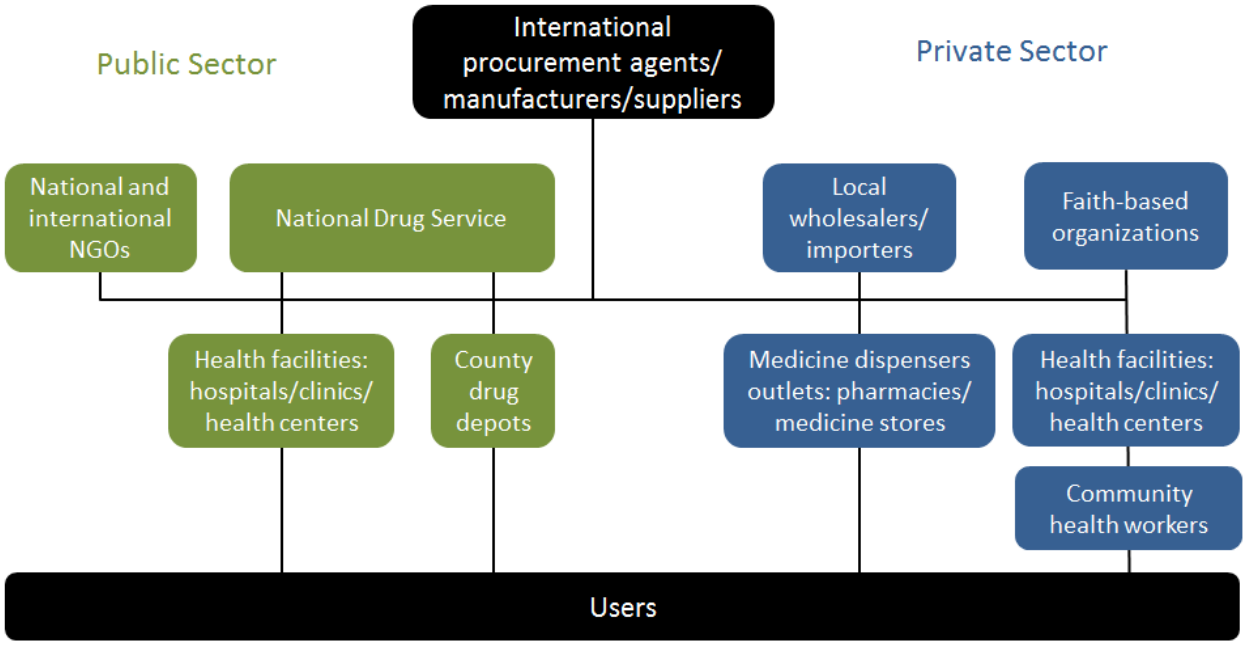


Figure 1. Typical medicine distribution system in Liberia

What is an AMS?

An AMS is a dispensing outlet that deals in human medicines that is accredited after satisfying specific accreditation requirements of the Pharmacy Board of Liberia (PBL) and the Liberia Medicine and Health Products Regulatory Authority (LMHRA)). Specific accreditation requirements for the AMS focus on premises, personnel, products, procedures and all other aspects of operations of medicine dispensing outlet. These requirements make the AMS distinct from other medicine stores and thus, AMS is allowed to stock medicines and other health related commodities beyond what is generally allowed by the laws governing the sale of medicines in Liberia. This expanded medicines list was drafted to cover most of the diseases most prevalent in the communities.
An AMS is a special category of class C medicine store that is accredited by the PBL and allowed to stock medicines that are generally not allowed to be stocked in an ordinary class C medicine store.

What Were the Steps in Developing the AMS Project?

A National Steering Committee was set up to guide activities of the SDSI program in Liberia. From the work of this committee, the standards for the AMS were developed and adapted. The LMHRA and PBL coordinated the AMS project with technical and financial support from Management Sciences for Health (MSH). Medicine stores in Montserrado County were surveyed to identify common challenges in providing good patient care. From this survey, a specific training program was developed.

- Staff from medicine stores in Montserrado County was invited to meet with the AMS steering committee for sensitization to the standards of the AMS project.

- Medicine sellers and owners would be trained in business management, medicines management, and patient care.

- Inspection, accreditation, and support supervisions visits of medicine stores would be conducted.

A public awareness campaign will ensure that the public knows that AMSs are high-quality places to seek medicines in Montserrado County.

The AMSs shall lead to better patient management, better quality of care, and generally improved access to medicines in Montserrado County.

In collaboration with other partners, the AMS program will be rolled out to the other 14 counties in Liberia.

Results of the AMS Baseline Assessment Study

A baseline assessment was done on behalf of SDSI by Pharmaceutical Systems Africa with a sub-grant from MSH. The objective of this exercise was to assess systems, perceptions, and practices of medicines stores and medicine store clients to determine the extent to which the intervention will improve health outcomes in Liberia. The baseline evaluation exercise sought to collect data in three main areas of medicine store practice.

- Product price and availability
- Client perception of medicine store practices
- Quality of services provided in medicine stores

Availability

Most of the tracer items were available in medicines stores in Montserrado County.

Availability of Antimalarials

The chart below shows the availability of antimalarials in medicine stores in Montserrado County.

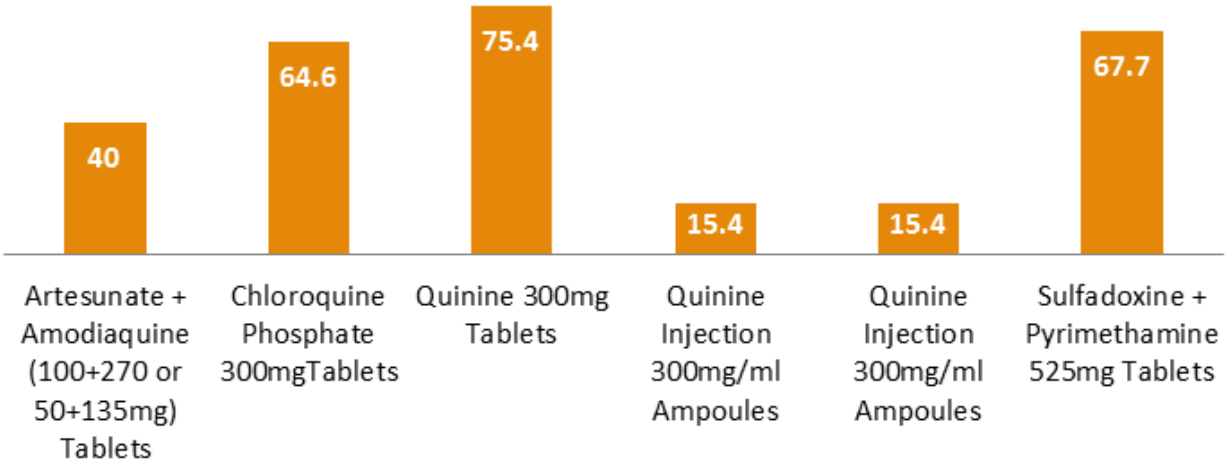


Figure 2. Percentage of AMS antimalarial available at baseline

Quality of Antimalarial Dispensing

The first-line medicine for the management of uncomplicated malaria in Liberia is artesunate + amodiaquine (AS/AQ). The figure below shows the percentage of clients presenting with malaria who were managed with AS/AQ.

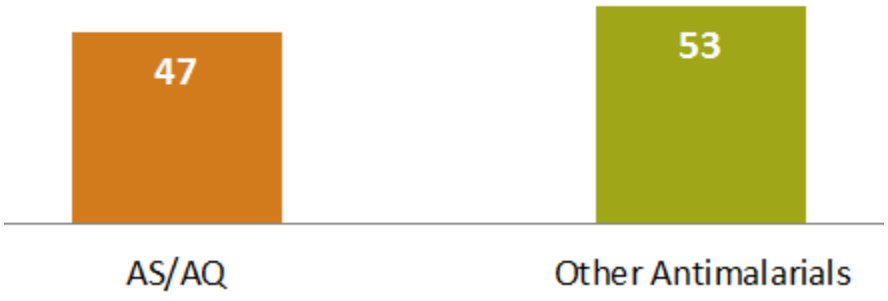


Figure 3. Percentage of encounters with appropriate malaria treatment

Quality of Dispensing Services

Dispensing service indicators generally improve after an AMS intervention; however, room for improvement should be addressed in future training. In the baseline in Montserrado County, the percentage of mystery shopper encounters where the drug seller:

- Asked about symptoms of malaria and pneumonia were 35% and 29%, respectively
- Asked about other medicines the child took for malaria and pneumonia were 50% and 25%, respectively
- Gave instructions on dosing for malaria and pneumonia medicines were about 65% and 52%, respectively

In addition, the percentage of mystery shoppers who were managed for uncomplicated malaria with AS/AQ was about 50%. Based on the standard treatment guidelines, over 36% of medicine store attendants did not provide the correct medication for the management of pneumonia. For malaria mystery shopping encounters, paracetamol was the medicine given most frequently and for the management of pneumonia, the majority of medicines suggested were flu and cold medicines. These were followed by paracetamol and co-trimoxazole.

These results indicate the need for improvement in access and use of medicines in Montserrado County. The success of AMS depends on a number of factors including:

- Strong support from MOH, LMHRA, and PBL
- Strong collaboration and consultation with key stakeholders at every stage of implementation
- Medicine sellers in Montserrado County being committed to improving the standards of the medicine stores and offering better care to communities

Session 2. Laws, Regulations, and Ethics

Objectives

1) Describe the required code of ethics of an AMS seller
2) Discuss the laws governing the AMS
3) Discuss the acceptable standards for setting up an AMS

Time

3-4 hours

Activity. Case Study: Ethics and Professionalism

Mr. Kerkula owns a medicine store in Monrovia. He is fond of drinking and bragging about his academic success and abusing his community mates as failures. One day, Flomo a community mate to Kerkula, comes to the medicine store complaining of stomach pain. Flomo says that his wife and one of his children have similar complaints. Kerkula tells him that he is suffering from ulcers and gives him a dose of ciprofloxacin for two days. Ciprofloxacin was the only medicine in tablet form available at the medicine store and the rest were out of stock. Kerkula charges Flomo LRD 20.00 and tells him that this is the best treatment for ulcers and by evening he will be fine. Flomo pays promptly because he is in such horrible pain.

A day later, Flomo comes back in worse condition, this time unable to stand upright. The medicine seller gives him more ciprofloxacin and tells him to go back home. Flomo objects and says he wants to be admitted. An argument erupts and Flomo leaves the medicine store a dejected man, vowing never to seek care from any medicine store ever again.

1) What ethical and professional issues does the case bring out?

2) How should Kerkula have conducted himself?

3) How should Kerkula have dealt with Flomo's case?

Legal Requirements and Standards for AMS

Definitions

Laws

Laws are rules that govern human conduct and are binding on all persons within a given state or nation. Laws command what is right and prohibit what is wrong. Laws are often called acts or statutes. They are enacted in writing by a law-making body of a state or nation, such as the Senate and House of Representatives of the National Legislature of Liberia. The acts or statutes are usually stated in general terms and their implementation may require development of regulations, guidelines, and policies.

Regulations

Regulations are more specific rules controlling or restricting a specific activity. They are made by the authority responsible for the matters in question, for example, the Minister for Health who is responsible for matters of health and medical services. The Minister makes these regulations after consultation with the technical authoritative body, agency, or group of individuals who are experts on the area or matter in question, e.g., the National Drug Service. These regulations come into force on the date of their being adopted by the responsible authority selected by the legislature and given the power to promulgate regulations. An example of such regulations is the LMHRA/PBL new standards and regulations of 2012.

Guidelines

These are instructions on how to implement or to enforce the laws. They are normally drawn up, laid down, or issued by the government, an authority, or policy-making body such as the LMHRA/PBL.

The difference between guidelines and laws is based on how they are enforced. Violations of law are punishable by courts of law whereas violations of guidelines are punishable by withdrawal of certain rights and privileges one normally enjoys when adhering to the guidelines, e.g., withdrawal of the AMS accreditation certificate.

Policy

A policy is a point of reference or general understanding to guide or influence decision making regarding long-term actions, e.g., the national drug policy on AMS.

Drug Policy

A drug policy is a statement indicating the objectives and strategies to be undertaken to improve the national pharmaceutical sector to ensure availability, accessibility, and affordability of drugs while emphasizing their quality and rational use.

Regulation of Medicines

Regulation of medicines and medicinal devices is a system of laws, regulations, guidelines, and policies that provide a basis of legal and administrative control over the manufacture, distribution, marketing, and post-marketing surveillance of these products. They prescribe and impose duties and responsibilities of the different parties and intermediaries involved in the processes that medicines and medicinal devices go through, from research and design to post-marketing surveillance. Breach of such duties is enforceable by regulatory authorities through sanctions applied by administrative authorities or, ultimately, by the criminal courts.

In relation to AMS, there are specific regulations regarding:

- What medicines can be procured
- Where to procure medicines
- Who should handle medicines
- What documentation must be kept

What Products Are Regulated?

Any product that is presented for diagnosing, treating, preventing, or alleviating disease or compensating for an injury or handicap, including control of contraception, both in humans and animals, is regulated by law.

Grounds for Regulating Medicines

- Increased number of individuals involved in the manufacture and sale of medicines

  The increase in the number of people involved in the manufacture and sale of medicines at different levels created the need to regulate and control activities at the different levels in order to protect the public.

- Patients dependence on health workers for medicine advice

  Patients generally do not select their own medicines; they depend on the expert opinions of health workers. The health workers also depend on the distributors who also depend on the manufacturers. The quality of information that is generated by the manufacturer should be verifiable as it influences what will happen at the proceeding stages in the lifecycle of a medicine. This interdependence necessitates regulating activities that may affect the sale of medicine to the final consumer.

- Conflict of interest

  Health workers also act as sellers of medicines. The potential for a conflict of interest exists because of financial gains versus their professional obligations. Health workers may be motivated to sell more, rather than taking the welfare of the patient as the first priority, e.g., giving an injectable medicine for a condition where tablets would suffice.

- Possibility of medicines causing harm

  Medicines are not like any other commodity of commerce; they are a social commodity that is potentially harmful to the individual using it or to the community, if not used properly. The consequence of misuse of medicines may be fatal, hence the need to put in place system that will moderate the design, manufacture, distribution, and use of medicines.

Reasons for Regulating Medicine

- To ensure that quality medicines are available to retailers and consumers
- To safeguard the welfare of the patient and the community
- To ensure that qualified personnel are involved in the handling of medicines
- To ensure that medicines are supplied and sold in suitable premises using suitable equipment

Control of AMSs and Class C Medicine Stores

Classification of Medicines

For purposes of effective management, medicines are classified into classes A, B, and C.

Medicines are classified to avoid misuse such as irrational dispensing, abuse, potential toxicity, emergence of resistance, etc.

The following criteria are used to classify medicines as prescription only.

- Medicine that is likely to present a danger, either directly or indirectly, even when used correctly, e.g., diclofenac
- Medicine that is frequently abused or misused, e.g., narcotics
- Compounds that are still under research
- Medicines administered by injection

All class A medicines and many class B medicines are prescription only.

By law, class C medicine stores are only allowed to sell class C medicines, those that are available without a prescription.

Licensing of Class C Medicine Stores

The PBL regulations allow a licensed person to conduct business or supply, in a retail setting, drugs other than class A or class B. The regulations also stipulate that licenses will be given to businesses in areas that are not sufficiently served by existing retail pharmacies.

Conditions for Licensing Class C Medicine Stores

- The person to dispense medicines in said store must be at least a high school graduate and/or should have a medical background, e.g., nurses, midwives, and must have received some training in dispensing medicines.
- The applicant must receive certification from the PBL.
- The premises where business is conducted should satisfy the requirements set out in the statute. The premises—
    - Must be permanent in nature
    - Shall not be shared with any other business of a similar nature
    - Shall be located within two miles of an existing pharmacy
- The structure should be sufficient that medicines will be protected from adverse environmental conditions, e.g., sunlight, rain.

- Proper records of all transactions taking place in the shop must be kept and should be available for inspection by the National Drug Authority (NDA) or a police officer.

Regulation of the AMSs

Before an AMS is licensed, it must undergo an accreditation process that will include inspection of the premises and training of medicine sellers. The accreditation and issuance of an accreditation certificate will be the responsibility of the PBL.

Conditions for Accreditation of AMSs

For an AMS to be accredited, the inspectors must verify the following conditions are met:

- The owner and the person operating the AMS are qualified for the task. The person must have undergone and passed the AMS accreditation training program and received his/her certificate.

- The applicant must satisfy all the conditions indicated for licensing a class C medicine store.

Applicants will not be supplied retail medicines outside of class C, although they may sell items from the expanded medicines list approved for AMSs (see below).

Why is it Necessary to Accredit AMSs?

- Surveys have shown that some class C medicine stores are currently selling prescription medicines. In addition to being illegal, this practice has resulted in detrimental effects, such as the emergence of drug resistance.

- Appropriate storage is not assured as most of the medicine store operators hide the illegally sold medicines.

Application and Accreditation Procedure for Medicine Stores

Issuance of Application Forms for Accreditation

In the accreditation process, all medicine stores shall submit their applications to the PBL. All applications shall be submitted and discussed in a timely manner at the PBL's regular meeting. Following these discussions, the joint inspection team of the PBL and the LMHRA shall jointly inspect the sites of the proposed premises. The PBL and the LMHRA shall not be under any obligation to approve an application because of financial commitments made in respect to premises or for any other reason. Approval or rejection of any premises by the PBL shall be on the basis of the report submitted by the joint inspection team of PBL and LMHRA. Approval by the PBL shall be valid for a specific period within which business is expected to commence.

Pre-Inspection Assessment and Inspection of Premises

There shall be a pre-inspection assessment of all medicine stores that wish to become AMSs to qualify the premises' geographic locations.

A joint PBL and LMHRA inspection team shall conduct a preliminary inspection of stores that have applied for accreditation (annex 3). Inspectors will identify deficiencies as per the expected standards of the AMS and will advise accordingly. Medicine stores with noted deficiencies shall be re-inspected to ascertain whether corrective actions were taken. Following the final inspection, the PBL shall either issue a registration form to the owner or provide advice on next options.

Accreditation

Following the final inspection of the premises and issuance of the registration form, the inspection report shall be reviewed and approved during the PBL's regular monthly meeting.

The successful applicant will then be issued the accreditation certificate which signifies that the requirements to operate an AMS have been fulfilled and that both the owner and the dispenser have received the appropriate training.

Routine Inspections (Source: Standards 2012, p. 15)

Inspection and Monitoring Levels

(1) Inspection and monitoring of AMSs shall be provided jointly in partnership involving the following:

a. PBL
b. LMHRA national and zonal levels
c. Pharmacy Division/MOH

Appointment of Inspectors

(2) All AMS inspectors shall be appointed by the PBL or LMHRA. The persons shall undertake a special PBL/LMHRA training course and receive operational tools such as IDs and an inspection checklist.

Limited Authority

(3) Decision-making authority shall principally rest with the central-level PBL or LMHRA. For the purpose of avoiding abuse of power, all AMS inspectors shall have limited decision-making authority.

Accusations and Complaints

(4) Any accusation related to inspectors' impropriety or disagreement with inspectors' findings made by an outlet owner as well as consumer complaints associated with medicine store services shall be directed to the PBL Registrar or LMHRA Managing Director.

Inspection

(5) Upon visiting an AMS for the purpose of inspection, each inspector in the team shall:

a. Provide an official identification to the owner or dispenser

b. Register himself/herself in the Inspectors Register Book provided by the LMHRA/PBL to AMS upon accreditation

c. Upon completion of inspection, write all required information in the Inspectors Register Book and the owner or seller and all inspectors in the team shall sign therein

d. After the inspection, prepare an inspection report, copies of which shall be submitted to the inspectors' immediate supervisory body

AMS Expanded Medicines List

AMSs can dispense medicines from class C as well as from the expanded medicines list below. The expanded list takes into consideration the prescribing levels in line with the national standard treatment guidelines. An effort has also been made to ensure that the public has reasonable access to the most essential (key) medicines needed to treat common diseases found in the community. The medicines on this list are identical to those available at the clinic level, except for injectable medicines.

AMSs are not allowed to stock, dispense, or administer injectable medicines.

Pharmacy Board of Liberia

LMHRA

Approved Medicines for Accredited Medicine Stores (AMS)
February 2013

Type of medicine	Medicine name	Strength (if applicable)
Analgesics and other non-steroidal anti-inflammatories	Annusol suppositories	
	ASA (acetylsalicylic acid)	
	Diclofenac sodium tablets	25 mg, 50 mg
	Hydrocortisone ointment/cream	0.5% or 1% (ointment)
	Ibuprofen 200 mg	
	Paracetamol (also known as acetaminophen)*	
Antacids	Aluminum hydroxide	
	Magnesium carbonate	
	Magnesium trisilicate	
	Milk of magnesia	
	Sodium bicarbonate	
Anthelmintic	Albendazole	
	Mebendazole	

Type of medicine	Medicine name	Strength (if applicable)
Anti-allergics/ Antihistamines	Cetirizine hydrochloride tablets	
	Chlorpheniramine (Chlonnene,® Chlortrimeton,® Piriton®)	10 mg
	Cetirizine hydrochloride oral solution	5 mg/5 mL
Anti-amebic	Metronidazole tablets and syrup only	
Anti-asthmatics	Cromolyn sodium (only)	
Antibacterial NOTE: Sales of the injectable forms of any medicine in AMSs are prohibited.	Amoxicillin trihydrate capsules	250 mg, 500 mg
	Amoxicillin trihydrate oral suspension	125 mg/5 mL, 250 mg/mL
	Ampicillin	
	Chloramphenicol eye drops/ointment	1%
	Co-trimoxazole suspension	240 mg/5 mL in 100 mL bottle
	Co-trimoxazole tablets	480 mg
	Doxycycline capsules/tablets	100 mg
	Erythromycin oral suspension	125 mg/5 mL, 250 mg/5 mL
	Erythromycin tablets	250 mg, 500 mg
	Metronidazole tablets	200 mg, 250 mg, 400 mg
	Metronidazole suspension	200 mg/5 mL in 100 mL
	Nitrofurantoin tablets	50 mg, 100 mg
	Phenoxymethyl penicillin suspension	125 mg/5 mL 250 mg/5 mL in 100 mL
	Phenoxymethyl penicillin tablets	250 mg
	Silver sulfadiazine cream	10 mg
	Tetracycline eye drop/ointment	1%
Antidiarrheals	Metronidazole (tablet or syrup dosage form)	
	Oral rehydration salt (ORS)	
Anti-emetics	Metoclopramide	
	Promethazine syrup	
Anti-epileptic	Phenytoin tablets/capsules (sodium salt)	50 mg (tablet), 100 mg (capsule)
	Phenobarbital tablet	50 mg, 100 mg
Anti-fungal	Clotrimazole cream	1%
	Gentian violet, for 1% solution	25 g
	Griseofulvin tablets	500 mg, 100 mg
	Ketoconazole tablets	200 mg
	Nystatin oral suspension	100,000 IU/mL in 30 mL bottle
	Nystatin pessaries	100,000 IU
	Nystatin skin ointment	100,000 IU/g
	Nystatin tablets	500,000 IU,

Type of medicine	Medicine name	Strength (if applicable)
		100,000 IU
Antihemorrhoidal	Bland soothing preparations (e.g. Annusol,® yeast extract, or Preparation H®)	
Antimalarials NOTE: Injectable forms of antimalarials and pyrimethamine in a non-combined form are prohibited.	Artemether + lumefantrine tablets	20 mg + 120 mg
	Artemether + amodiaquine tablets (AS/AQ)	100 mg +270 mg
	Quinine tablets (sulfate or bisulfate)	300 mg
Antispasmodics	Hyoscine butyl bromide tablets	10 mg
Cardiovascular (anti-arrhythmic drugs)	Propranolol tablets (hydrochloride)	10 mg, 40 mg, 80 mg
Dermatological	Benzoic acid / salicylic acid preparation (e.g., Whitfield ointment)	
	Benzyl benzoate (emulsion/lotion)	
	Calamine (e.g., lotion)	
	Clotrimazole (ointment or cream or pessaries)	
	Crystal violet (also gentian violet G.V., /methyl violet)	
	Hydrogen peroxide	
	Povidone iodine	
	Miconazole (ointment, cream, or pessaries)	
	Penicillin ointment (skin)	
	Sulfacetamide (preparations)	
	Sulfadiazine (ointment or cream)	
	Sulfur (ointment or cream)	
	Zinc oxide and other zinc preparations	
Diuretics	Hydrochlorothiazide tablets	25 mg, 50 mg
	Honey preparations	
	Menthol and volatile oils (e.g., eucalyptol)	
Hematinic	Folic acid preparations (single and combined forms)	
	Oral iron preparations (single and combined forms)	
Laxatives	Bisacodyl tablets	5 mg
	Castor oil	
	Magnesium hydroxide	
	Magnesium sulfate (e.g., Andrew's Liver Salt®)	
Mechanical contraceptives	Condom	
Nutrition supplements	Vitamin B complex preparations	
	Vitamin C	
	Mineral preparations	
	Multivitamin preparations (NOTE: except vitamin K)	
	Neurobion forte	

Type of medicine	Medicine name	Strength (if applicable)
	Zinc sulfate tablets	20 mg
Ophthalmic preparations	Chloramphenicol (eye) drops and ointment	
	Sodium cromoglycate (Optrex® drops/ointment)	
	Sulfacetamide eye drops/ointment	
	Tetrahydroxoline (Visine®) wash/drops	
Oral contraceptives	Ethinylestradiol + novethisterone	(0.03 mg) + (0.3 mg)
	Ethinylestradiol + levonorgestrel	(0.03 mg) + (0.15 mg)
Oral hygiene and otics	Gargles/mouth washes (e.g., Listerine®)	
	Alcohol ear wash	
	Chloramphenicol ear drops	
	Hydrogen peroxide	
Sexual stimulants or aphrodisiacs	Ayuverdic preparation (except those with steroids)	
	Non-steroidal aphrodisiacs	
Therapeutic dressing materials	Adhesive tape (or plasters)	
	Antiseptics (or disinfectants,) including rubbing alcohol 50%	
	Bandages	
	Cotton	
	Gauze (compresses)	
Throat preparations	Amylmetacresol, dichlorobenzyl alcohol–contained lozenges (e.g., Strepsils®)	

Source: Standards 2012, p. 19-22

Standards for Operating AMSs

The standards for operating AMSs have been developed to provide a basis for which services will be measured.

A **standard** is a level of quality or a specified level of quality that will be measured. Services will be considered to be of poor quality if they are perceived to fall below the stipulated standard.

Standards of Operation (from Standards 2012, p. 5–13)

(a) Personnel
Accredited Medicine Store Dispenser Basic Knowledge

(1) A minimum qualification of a high school diploma shall be required for any person intending to be trained as an AMS dispenser and/or proprietor.

(2) In addition to requirement (1), every dispenser shall be required to successfully complete an AMS dispenser-training course to be approved by the LMHRA/PBL. The course shall include but not be limited to the following:

a. AMS guidelines, regulations, and standards

b. Code of ethics
c. Common medical illnesses in the community
d. Basic medicine management and dispensing skills
e. Communication skills
f. Record keeping and reporting

The content and duration of the dispenser-training course shall be determined by the LMHRA/PBL.

Dispenser Requirements

(3) Every dispenser, while working in an AMS, shall observe and maintain the following standards:

a. Keep a high standard of personal hygiene

b. Dress in a professional manner—that is, wearing a clean blue coat or dress

c. Never work under the influence of alcohol or illicit drugs

d. Prominently display his/her dispensing certificate

e. Wear a photo identification badge which identifies him/her as an AMS dispenser

f. Be accountable for all activities conducted therein

g. Observe all regulations pertaining to operating the AMS

h. Observe provisions contained in the National Medicine Policy (NMP)/LMHRA Act 2010 and PBL Act

i. Be of sound mind and in sound medical condition

j. Conduct him/herself in a manner that does not cause professional disrepute

Contract between Proprietor and Dispenser

(4) Commitment letters shall be written and signed by the AMS dispensers, committing to work with an AMS for a specific period of time. The letters will be endorsed by the AMS proprietor. Three months' notice shall be required if a dispenser is to resign from a particular AMS.

Proprietor's Requirements

(5) Every owner of the AMS store shall:

a. Ensure that operating procedures comply with the AMS standards and the existing provisions in the NMP/LMHRA Act 2010 and PBL Act

b. Ensure the presence of a trained dispenser at the AMS at all times when the AMS is open

c. If he/she works in the capacity of dispenser, ensure that he/she has a valid AMS certificate

d. Display accreditation certificate prominently in the premises for which the certificate is issued

e. Notify the PBL/LMHRA in writing within seven days when the AMS is permanently closed; and upon receipt of such notice, the LMHRA shall inspect the inventory and provide advice for proper disposal of any inventory or medication

f. Notify the PBL/LMHRA in writing within seven days when an AMS is temporarily closed and inform of the anticipated date of re-opening; and in case the AMS is closed for one year it shall be considered as a new applicant

g. Report immediately to the nearest police station and PBL/LMHRA offices in the case of theft or any unexplained loss of medicines and records.

Proprietor's Training Requirements

(6) Every AMS proprietor shall be required to attend a training course formulated and approved by the PBL/LMHRA; and such course shall include but shall not be limited to the following:

a. AMS guidelines, regulations, and standards
b. Code of ethics
c. Record keeping and reporting
d. Basic business skills

Continuing Education

(7) All AMS dispensers shall be required to attend and complete continuing education to be organized by PBL/LMHRA. The continuing education shall be mandatory and shall constitute a prerequisite for annual license or permit and their renewal.

(b) Premises

Location

(8) Any person wishing to operate an AMS shall:

a. Clearly state the location and address of his/her premises in the application when applying for registration

b. On the basis of local demand and need for such service, locate his/her business in an appropriate location to reduce unnecessary congestion and provide services to underserved communities

c. Prioritize opening an AMS in a rural location near dispensaries and health facilities

d. Search for a location that is a minimum of 2 miles (3.2 km) from any existing retail pharmacy and a distance of 500 ft. from another AMS; and if a new pharmacy is opened

within 2 miles from the AMS, the AMS shall be given an opportunity to upgrade to a pharmacy within 1 calendar year or from the time a new retail pharmacy starts operation in the location

e. Not operate an AMS within the radius from the Catholic Hospital to Caldwell Junction in the city of Monrovia

Premises Requirements

(9) All AMS premises shall be required to meet minimum requirements as follows:

a. The premises shall be geographically and structurally permanent.

b. They shall be roofed with materials which shall make the roof free from leakages and with a leak-proof ceiling.

c. They shall be well protected from entry of rodents, birds, vermin and pests.

d. They shall have adequate space to carry out the primary functions of storage, dispensing and sales.

e. They shall have doors and windows which are well secured to prevent theft and unauthorized entry.

f. They shall be fixed with glass counters and the main door shall include a glass panel for safety.

g. They shall provide adequate ventilation and lighting (fan, air-conditioner, open airways, etc.).

h. They shall have surfaces/floors with a smooth finish that can be washed with disinfectants.

i. They shall be painted with a washable white color.

j. They shall have adequate supply of soap, and clean and safe drinking water.

k. They shall have facilities to wash hands which are clearly marked with a “WASH HANDS” sign.

l. They shall have adequate toilet facilities in clean and good working order.

m. They shall observe general hygiene inside and outside the premises.

n. They shall not be shared with any medical clinic, veterinary surgery or any other business of a similar nature.

o. They shall have a minimum floor length of 13 ft., floor width of 12 ft. and a minimum ceiling height of 9 ft.

(10) The premises shall have the following required signage:

a. An officially approved identification logo, to differentiate it from non-AMSs (see AMS logos in annex F)

b. The name of the AMS and any other authorized branding conspicuously displayed on the wall or store boards, displayed after the final approval of the premises by the PBL/LMHRA

c. A “NO SMOKING” sign conspicuously placed to prohibit smoking in the store

d. All certificates and registration documents on display

(c) Product Quality and Dispensing Procedures

Source of Supply

(11) Products shall meet the following requirements:

a. All health products sold by an AMS shall be registered by the LMHRA in accordance with the LMHRA Act 2010 or other written regulations.

b. The products shall be procured from a registered wholesaler or local manufacturer.

c. AMSs shall not sell expired products. All expired products shall be retrieved from the sales area, warehouse areas, etc., and disposed of by the LMHRA/PBL in collaboration with other relevant agencies.

d. In addition to class C medicines and some medical sundries (e.g., medicated soap, baby products, toothpaste and brushes), there shall be an approved list of medicines to be sold by the AMSs.

e. In addition to class C medicines, wholesalers shall sell products on the approved medicines list to the AMSs.

f. It shall be the responsibility of the wholesalers to verify the credentials of an AMS prior to the sale of medicines provided in the approved medicines list. The wholesalers shall honor orders from the AMS only when the store presents a copy of its accreditation certificate.

g. Wholesalers selling approved medicines to AMSs shall be required to keep easily retrievable documents related to sales and shall also provide to the AMS an invoice/sales receipt for all medicines sold to them.

h. It shall be an offense for a wholesaler to sell any medicine on the approved list to non-AMSs, and also an offense for a wholesaler to sell to AMSs any medicine not permitted for sale in an AMS.

Storage

(12) All medicines shall be properly labeled, packaged, and stored.

a. All pharmaceutical products held in inventory shall be stored in the manufacturer's original packaging and properly labeled with the manufacturer's original label.

b. Removal of labels from containers is prohibited; removal renders the product unfit for dispensing.

c. Repackaging and relabeling of pharmaceutical products not for the purpose of immediate dispensing to clients is prohibited.

d. Measures shall be taken to protect pharmaceutical products from heat, sunlight, moisture, adverse temperatures, insects, rodents and contamination.

e. Damaged and/or expired medicines shall be recorded, sealed, quarantined and labeled with red ink with the statement "Expired/damaged medicines – Not for sale" by the AMS dispenser.

Dispensing Procedure

(13) Medicines shall be dispensed according to proper procedures.

a. Every AMS dispenser shall bear legal liability and professional responsibility for the pharmaceutical products and services provided under his/her care.

b. Every AMS shall only dispense pharmaceutical products registered by the LMHRA in accordance with the NMP/LMHRA Act 2010.

c. The dispenser shall not dispense damaged, counterfeit, substandard or expired medicines.

d. The dispenser shall not dispense or sell medicines to children less than 12 years.

e. Every dispenser shall ensure that—

   i. Prescription medicines are only dispensed against a prescription

   ii. A full dose is dispensed

   iii. Tablets and capsules are dispensed using an appropriate device for counting and packaging

   iv. A record of all medicines dispensed by him/her is maintained in a register approved by the PBL/LMHRA

   v. Medicines are dispensed in accordance with approved regulations

Counseling of Clients

(14) Clients will be counseled about their medicines to ensure proper use.

a. An AMS dispenser shall ensure that the client understands the information and advice given (including directions on the labels of dispensed products) well enough to ensure safe and effective use of the medicine.

b. Information for medicines requiring particular instructions for use must be clearly pointed out to the clients before they leave the AMS.

c. Clients or their representatives must be warned to keep medicines well out of reach of children.

Dispensing Containers

(15) Appropriate containers will be used.

a. All oral liquid preparations must be dispensed in their original re-closable containers.

b. All containers for medicines must be protected from and free of contamination.

c. The containers must be appropriate for both the medicines dispensed and the users.

Dispensing Labels

(16) Appropriate labels will be used.

a. Labeling of dispensed medicines must be clear and legible.

b. Dispensed medicines must bear the necessary cautionary and advisory labels.

c. The label on the container must indicate the name, strength, dosage and total quantity of the medicine sold.

Hygiene

(17) Proper hygiene will be observed.

a. No AMS dispenser should be allowed to work if he/she is suffering from a contagious disease, such as scabies, tuberculosis, etc.

b. Dispensing must always be carried out under conditions which meet acceptable standards of hygiene, including high standards of personal cleanliness.

c. Use of bare hands for counting tablets and capsules is prohibited.

(d) Record Keeping and Documentation

Standards for Record Keeping and Documentation

(18) Proper record keeping and documentation should be followed:

a. All invoices and receipts for approved medicines shall be stored in the premises in an easily retrievable file for not less than two years.

b. A purchase record book shall be kept, which shall minimally include: name of supplier; date of purchase; name and quantity of the medicine, manufacturer; batch number; and expiry date.

c. All AMSs shall maintain, for selected, approved prescription medicines, a register book, which shall minimally include:

   i. Name and age of the client for which the prescription was written or prescription medicine dispensed
   ii. Name of medicine and quantity dispensed
   iii. Date on which the medicine was dispensed
   iv. Origin of the prescription

d. There shall be a record for expired products which shall be kept and maintained by the AMS dispenser and be ready for inspection by PBL/LMHRA.

e. There shall be LMHRA adverse medicine reaction forms maintained in each AMS for the purpose of recording client medicine-related adverse reactions.

f. Every AMS shall keep and maintain:

   i. A special file for keeping all correspondence related to medicines, guidelines from the PBL, LMHRA and other regulatory authorities
   ii. An inspector's record book for the purposes of recording all inspections undertaken therein

(e) Reference Materials

Reference Books

(19) Each AMS shall have and maintain, for easy reference, the following reference books:

a. Accredited medicine store approved medicines list
b. *Accredited Medicine Store Standards and Code of Ethics*
c. Accredited medicine dispenser training manual
d. *National Standard Treatment Guidelines*
e. Other recommended references, including *Essential Medicines List for Liberia*, relevant legislation, and the National Medicine Policy

(f) Offenses and Penalties

(20) Any person who contravenes any provisions of these standards commits an offense and shall be held liable. The violator may be subject to an administrative hearing or appear before a court of law and upon conviction shall be punished either by paying a prescribed fine or serving a prison sentence or both as specified under the LMHRA Act 2010.

Example 1

Any AMS found selling expired medicines or medicines not on the approved medicines list.

Example 2

A person who illegally opens an AMS or medicine store.

Example 3

Like any other business, an AMS shall be liable for taxation. Tax evasion may lead to closure of the premises by law-enforcing bodies and bring about inconveniences to the AMS proprietor, dispenser, and the community served by the store.

Example 4

Purchase of medicines from non-licensed dealers: medicines from unauthorized dealers are often counterfeit, so this practice is prohibited.

Example 5

Dispensing to medicines purchased from unauthorized dealers to clients may cause harm. Such violations of law are punishable on conviction by courts of law. It is therefore important for AMS proprietors and dispensers to adhere strictly to the provisions of the law, guidelines, and standards of operations.

Accredited Medicine Store Code of Ethics and Conduct

Honesty and integrity	All AMS dispensers and proprietors shall, in the course of discharging their duties, act with honesty and integrity.
Patient care	All AMS dispensers and proprietors shall provide their services in a caring and compassionate manner. The well-being of a patient shall be the center of AMS business practice, and therefore dispensers and proprietors shall make sure that the needs of the patient are always given first priority.
Special relationship with clients	AMS dispensers and proprietors shall: • Maintain a special relationship with each client based on ethical agreement • Uphold their moral obligations in return for the trust given to them by the community • Respect the autonomy, individuality, and dignity of each client • Acknowledge the right of clients to participate in decisions related to their

	health • Respect personal, cultural, and religious differences and shall not in any way practice any form of discrimination
Confidentiality	Every AMS dispenser and proprietor shall observe the confidentiality of clients' information acquired in the course of practice and shall not in any way disclose the information given except where authorized by the client or required by the law.
Quality of medical service	AMS dispensers and proprietors shall not either condone the dispensing, promotion, or distribution of medicines or medical services that are not of good quality or participate in any promotional methods or campaigns that encourage the irrational use of medicines or undermine the role played by other health care providers.
Collaboration with other health providers	AMS dispensers and proprietors shall be required to collaborate with other health care providers to achieve the best possible outcomes for clients and to understand the role of other health care providers and refer clients to them when it is appropriate to do so.
Responsibility for assuring and improving competence	Each AMS service provider shall assume responsibility for assuring and improving his/her competence and shall strive for continuous improvement of the quality of service and care he/she provides. AMS providers may offer limited client advisory services but they shall not, in any way, make diagnosis and/or prescribe any medicine.
Illegal conditions	It shall be the duty of AMS owners to make sure that there are no conditions or terms which prohibit the AMS dispensers and proprietors from practicing in accordance with the provisions of these regulations.
Health promotion	Each AMS service provider shall advocate for health promotion at the individual, community and society levels and shall promote the use of cost-effective therapies and rational medicine use.
Commercial relationships	No commercial relationship shall be permitted between health care practitioners and AMS providers.

Source: Standards 2012, p. 17

Session 3. Basic Principles of Medicines Management or Medicines Handling

Objectives

1) Discuss the basic principles of medicines management
2) Discuss the selection processes
3) Discuss methods used to determine quantities to buy
4) Describe good receiving, storage, and distribution principles

Time

4-6 hours

Activity 1. Estimating Quantity to Buy by using the Consumption Method

- Estimate the quantity of doxycycline capsules needed for the BetaMed drug shop
- From the dispensing log, the consumption in one month was 4 × 1000 caps

- Each can of 1000 costs USD 7.00
- Current stock is 150 capsules
- Calculate the quantity and cost of doxycycline to be ordered

Activity 2. Group Work

What challenges do you find at the different stages of the medicines management cycle up to distribution and how can they be mitigated:

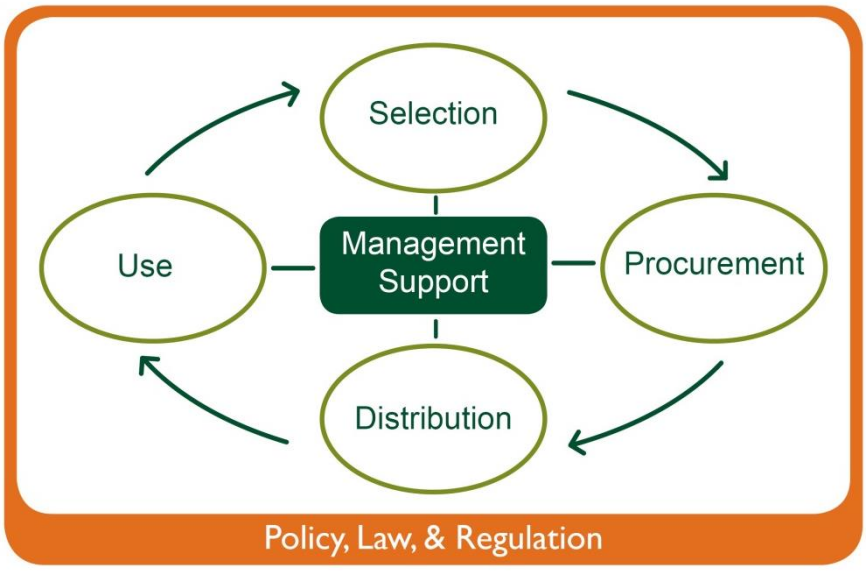
- When choosing which medicines to buy
- When purchasing medicines
- When storing medicines
- When dispensing medicines

What is Medicines Management?

A system of processes and behaviors for coordinating or supervising medicines handling, delivering services to patients, usage of medicines by patients, and delivering health care services to patients to optimize the contribution that medicines make in producing desired patient outcomes.

Medicines Management Cycle

The medicines management cycle includes **selection**, **procurement**, **distribution**, **and use**. These activities are interlinked and reinforced by appropriate management support systems (i.e., tools), and are regulated by a **legal and policy framework**.



Source: Center for Pharmaceutical Management. 2011. *Center for PharmaceuticalManagement: Technical Frameworks, Approaches, and Results*. Arlington, Virginia: Management Sciences for Health.

Figure 4. Medicine management cycle

Selection

Selection of medicines ensures that the medicines that are stocked in the outlet meet the health needs of the community. Selection has been made easier by producing an extended medicine list for the AMS outlets. The items that the outlet will procure are those that are on the extended medicine list.

Medicines on the extended medicines list were selected following the baseline survey. The following was the basis of the selection.

- The medicines cover the most prevalent diseases, ailments, and sicknesses in communities around the country.
- The medicines can be adequately managed by the available cadre of staff, if well trained.
- The medicines are available at the health center in the public sector that provides the same level of health care and has cadres with the same level of training as the private sector.
- The medicines are widely available in the country and at relatively low prices.

On top of the extended medicine list, AMSs will be allowed to stock all the class C medicines according to the National Medicines Policy of Uganda.

Procurement of Medicines

Consumption Method

- This method is based on how much has been used in the past to estimate what will be needed in the near future. The assumption is that there will not be much change in the demand for the medicines.
- The first step is to determine how much was used over a specific period. The quantity consumed is easily obtained by adding up the quantities of a specific product sold over a specific time period. This information should be easily found in the dispensing log which is used to record daily what has been sold.
- This figure is used to calculate the amount needed over a procurement period (period over which the stock is to be used).
- Deduct what is available in stock to get the actual quantity to buy.

Example

- 5 packets of amoxicillin were used over the last month
- 1 packet is left in stock
- Stock is needed for 1 more month
- Quantity to purchase = 5 - 1 = 4 packets
- Determine the cost of 4 packets; each packet is UGX 20,000
- 4 packets = 4 × UGX 20,000 = UGX 80,000
- In cases where there is no consumption data, estimates can be based on the number of cases of a disease seen in a period.

Procedure to Estimate Needs on the Basis of Disease Patterns

- Identify the disease condition the medicine treats
- Estimate how many patients are seen with this particular condition in a week
- Determine the dose, frequency, and duration of treatment
- Estimate the quantity of medicine needed by multiplying the number of cases by the dose, frequency, and duration

Example: Estimating the Quantity of Adult ACT to Purchase

- The number of adult cases of uncomplicated malaria per week is 2
- The dose is 4 tablets twice a day for 3 days = 4 × 2 × 3 tablets = 24 tablets

- Number of tablets per day = 24 × 2 patients = 48 tablets
- Number of tablets per month (if frequency is a month) = 48 × 4 weeks = 192 tablets

When Buying Medicines—

1) Make a precise determination of the dosage form, strength, and pack size of the product required
2) Find out the prices of the different dosage forms and pack size required
3) Allocate funds for each medicine item depending on:
    - Priority nature of the medicine and dosage form
    - Available finances

It is important to accurately estimate the quantity of medicine to be procured to avoid—

- Overstocking which may lead to expiry of medicines and wastage
- Stock out of medicines, which may lead to loss of trust, credibility, and confidence by the community

Estimating the quantity of medicine to procure is based on:

- Population the outlet serves
- Disease pattern
- Seasonal variation in disease pattern, e.g., during the rainy season, there is increase in diarrheal diseases
- Rate consumption of the medicine
- Frequency of procurement
- Available space for storage of medicine
- Distance to the pharmacy where the medicines are to be procured
- Amount of money available

Receiving and Storing Medicines

According to the results of the baseline survey, orders are done by the drug shop owners or their agents physically going to the pharmacy where the medicine is procured. The drug shop owner or agent receives the supplies at the pharmacy and is responsible for transporting the consignment.

Receiving Medicine

When receiving medicines, make sure that the medicines received match the order:

- Cross check to find out if the dosage form, strength, pack size, and quantity ordered match with what is required
- Check the prices
- Check the expiry dates
- Check for quality, color changes, and damages

This exercise should take place at the point medicines are received from the supplier. Any discrepancies noted should immediately be communicated to the supplier who should correct them.

- If the receiving is done at the supplier's premises, the drug shop owner or agent takes the responsibility of choosing the mode of transport of the consignment to his or her premises. The transport chosen should be appropriate to ensure that medicines do not deteriorate during transit.
- It may happen that you receive a drug without a label or with an incorrect label. Never guess what it is! Do not use it; return it to the supplier.
- On reaching the drug shop, cross check again for any damages that may have occurred. Remove any damaged items from the stock. Keep damages separately from the medicines available for sale. Notify the PBL or LMHRA to request assistance with disposing of these medicines.
- Determine/set the price at which the medicines will be sold. The following factors should be considered in determining price:
    - Purchase price
    - Transportation charges
    - Mark up to cover administrative and other costs

Storage of Medicines

Medicines and related supplies are expensive and valuable. They need proper handling, otherwise they may deteriorate. If they deteriorate, they may lose their potency or may have the wrong effects on patients.

- Heat affects all medicines, especially liquids, ointments, and suppositories.
- Light-sensitive medicines, such as injectables, spoil very quickly when exposed to light.
- Humidity can spoil tablets and capsules because they can easily absorb water from the atmosphere, making them sticky and causing them to deteriorate.

Medicines require specially designed, secure, and clean premises to:

- Avoid contamination or deterioration
- Avoid disfiguration of labels
- Maintain integrity of packaging and thereby guarantee quality and potency of drugs during shelf life
- Prevent or reduce pilferage, theft, or losses
- Prevent infestation of pests and vermin

Conditions of the Premises

The premises that are to house the medicine outlet must be in good condition, and all openings secured with grills or bars to prevent theft. The space should be large enough to fit all the supplies and arranged to make the work flow easy.

The premises should be lockable. It is best to put two locks (each with a different key) on the exit door. Make only a limited number of keys and store these in a safe place. If the medicine outlet has a store separate from the dispensing area, access to the store should be limited only to staff members. Position the counter such that the public cannot access the medicines on the shelves.

The premises should protect the medicine from extreme conditions of light, heat, and humidity that may affect the medicines and cause deterioration.

The standard for operating an AMS outlet stipulates requirements for the premises under which medicines should be sold.

Maintaining the Premises

Regularly inspect the physical structure of the premises and repair any damage to the roof, walls, door, windows, and floors.

Control the temperature in the store by ensuring that:

- The premise has a well-maintained ceiling; if there is no ceiling, build one. Ceilings should be as strong as possible, but cardboard from discarded boxes can be used temporarily.
- There is adequate air circulation by opening doors and windows while the premises is open to the public
- A fan is available, if possible; keep it in good working condition

Control the light in the store by:

- Blocking direct light by using tinted glass windows

- Hanging curtains in the windows

Control humidity by:

- Preventing leaks or seepage through the roof, doors, windows, and walls
- Allowing good air circulation
- Repairing leaks and water seepages as soon as they occur
- Including sachets of desiccant in containers of tablets and capsules

  Note: desiccants are non-edible drying crystals that keep the insides of containers dry. **DO NOT** open the desiccant sachet. **Keep the sachet in the container but do not dispense it.** Desiccants are toxic if ingested. Keep the container closed except when dispensing the medicines.

Keep the store free of pests and vermin. Food and sweet juice spills in the premises can attract rats, cockroaches, ants, and wasps. Dark spots within the premises may be hiding spots for pests. Pests can be avoided by:

- Eating only in a designated place on the premises and cleaning all food and juice residue immediately
- Cleaning spills and removing broken containers immediately
- Clearing all bushes around the premises
- Improving lighting and arranging items neatly on shelves
- Avoiding putting boxes directly on the floor
- Regularly mopping the floor and removing all unwanted objects from the premises

Storage Environment

The storage environment should provide:

- Adequate temperature to avoid deterioration
- Sufficient lighting for easy visibility; however, direct light on the medicines should be avoided to prevent deterioration
- Clean conditions, e.g., the floors and shelves should be dusted to avoid contamination
- Humidity control to prevent contamination and deterioration
- Cold storage facilities for medicines that require cold temperature
- Adequate shelving to ensure integrity of the stored drugs

Guidelines for Arranging Medicines on Shelves

In a clean and organized medicine outlet, it is easy to locate medicines and avoid contamination. Medicines are also likely to be in good condition and ready to use. Shelves provide an opportunity to neatly arrange medicines and allow easy circulation of air.

Clean or dust the shelves before placing medicines on them. Shelves should be strong, robust, and easy to clean, preferably of steel or treated wood.

- Top shelves: Store dry medicines (tablets, capsules, oral rehydration packets) in airtight containers. If the top shelf is near the ceiling or out of reach, use that shelf to store items that are **NOT** sensitive to heat and **NOT** used regularly.

- Middle shelves: Store liquids, including syrups and ointments**. DO NOT** put dry medicines below them. If liquids leak, the medicines below may spoil.

- Bottom shelves: Store other supplies, such as surgical items and condoms.

 **Remember, DO NOT store anything directly on the floor!**

Medicines should be arranged systematically in the following way:

- Alphabetic order by generic names of the medicines
- Pharmacological order
- Dosage form
- Or a combination of formats

Each dosage form of a drug is arranged in separate and distinct areas.

Sufficient empty space should demarcate one medicine item or dosage form from another.

The most recently received medicines should be placed behind old stock on the shelf, except when new drugs have shorter expiration dates.

The medicine package should be placed such the name of the medicine is well displayed and easy to read.

Heavy medicine packages should be placed on the lower shelves and lighter ones on top.

Regularly dust the medicine containers and shelves. Dust contaminates supplies and makes labels difficult to read.

For increased safety and convenience, shelves should be labeled.

The position where a specific drug is stored should carry that label in a proper and clear manner to avoid confusion when taking medicines from the shelves. It is more efficient to always store drugs in the same place.

All drugs must have an expiry date.

Always check your new supplies for expiry date. The new supplies may have a shorter expiry date than the old stock. Those that expire first should always be used first. This is called FEFO (first-expiry, first-out) stocking, meaning that the first medicines to expire should be the first to be dispensed.

Medicines should not be used after its expiry date because:

- The drug is no longer as effective

  This is very important, especially with antibiotics. You may not be giving the patient enough dose/strength; this may cause resistance to the antibiotic.

- The drug may become toxic

  As some drugs breakdown, they form toxic substances, which gradually build up and become harmful to the body.

Recommended storage conditions relating to temperature, light, and moisture should be followed as closely as possible to maintain product quality. Stock bottles must be kept closed except when actually in use. A limited range of preparations will be used with the greatest frequency, and these “fast movers” can be placed in the most accessible areas for convenience in dispensing.

Distribution

At the medicine outlet, medicines are dispensed to patients mostly in response to a prescription written by a clinician who has examined the patient and identified the problem and the necessary medicines to heal or improve the patient. Dispensing requires an understanding of the patients (who may not speak or understand the language of the dispenser) and practical skills in dispensing and record keeping. This will be tackled in detail in the courses that follow.

Session 4. Appropriate Medicines Use (Rational Drug Use)

Objectives

1) Describe the processes of good prescribing and good dispensing
2) Equip trainees with knowledge, skills, and attitudes to appropriately conduct the prescribing and dispensing process

Time

4-6 hours

Activity. Dispensing Role Play

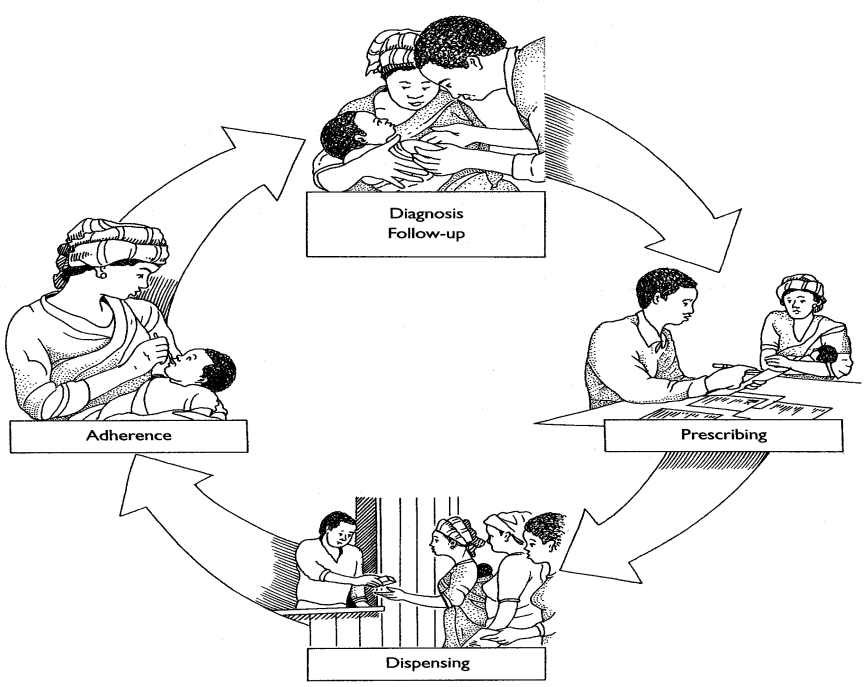
- Divide into five groups
- In each group, one person will present with a prescription while another will dispense medicines
- As each group enacts the scenario, the other groups are making comments on the quality of the dispensing

Appropriate use of drugs is one essential element in achieving quality of health and medical care for patients and the community. Quality of care is of concern to practitioners. Actions or intervention programs to promote the appropriate use of drugs should be continuously implemented and systematically incorporated as an integral part of the health care system.

This session serves as an introduction to the entire issue of promoting rational use of drugs in developing countries. The definition of rational use will be discussed and common examples of irrational drug use will be highlighted. The session addresses the impacts and the underlying factors of irrational use of drugs. A series of examples will be presented.

Definition of Rational (Appropriate) Drug Use

Rational use of drugs requires that patients receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community (WHO 1985).



Source: MDS-3

Figure 5. The drug use process

Appropriate or rational use of medicines therefore requires that the medicine is prescribed for a particular patient after proper diagnosis of a health problem.

The requirements for rational use will be fulfilled if the process of prescribing and dispensing follows the appropriate steps:

- Define a patient's problems (or diagnosis)
- Define effective and safe treatments (drugs and non-drugs)
- Select appropriate drugs, dosage, dosage form, route of administration, frequency, and duration
- Write a prescription
- Give patients adequate information
- Plan to follow up on adherence and evaluate treatment responses

The definition implies that rational use of drugs, especially rational prescribing, should meet the following criteria:

- **Appropriate indication**. The decision to prescribe drug(s) is entirely based on medical rationale, and the drug therapy is an effective and safe treatment.

- **Appropriate drug**. The selection of drugs is based on efficacy, safety, suitability, and cost considerations.

- **Appropriate patient**. No contraindications exist, the likelihood of adverse reactions is minimal, and the drug is acceptable to the patient.

- **Appropriate patient information**. Patients are provided with relevant, accurate, important, and clear information regarding their conditions and the medication(s) that are prescribed.

- **Appropriate evaluation**. The anticipated and unexpected effects of medications are appropriately monitored and interpreted.

Unfortunately, in the real world, prescribing patterns do not always conform to these criteria and can be classified as inappropriate or irrational prescribing. Irrational prescribing may be regarded as “pathological” prescribing when the above criteria are not fulfilled.

Common patterns of irrational prescribing may be manifested in the following forms:

- The use of drugs when no drug therapy is indicated, e.g., antibiotics for viral upper respiratory tract infections (URTIs)

- The use of the wrong drug for a specific condition requiring drug therapy, e.g., tetracycline in childhood diarrhea requiring oral rehydration salts (ORS)

- The use of drugs with doubtful or unproven efficacy, e.g., the use of antimotility agents in acute diarrhea

- The use of drugs of uncertain safety status, e.g., use of dipyrone (Baralgan, etc.)

- Failure to provide available, safe, and effective drugs, e.g., failure to vaccinate against measles or tetanus or failure to prescribe ORS for acute diarrhea

- The use of correct drugs with incorrect administration, dosages, and duration, e.g., the use of IV metronidazole when suppositories or oral formulations would be appropriate

- The use of unnecessarily expensive drugs, e.g., the use of a third generation, broad-spectrum antimicrobial when a first line, narrow spectrum agent is indicated

Some examples of commonly encountered inappropriate prescribing practices in many health care settings include:

- Overuse of antibiotics and antidiarrheals for nonspecific childhood diarrhea
- Indiscriminate use of injections, e.g., in malaria treatment
- Multiple or over-prescription
- Excessive use of antibiotics for treating minor respiratory tract infections
- Multivitamins and tonics for malnutrition
- Unnecessary use of expensive antihypertensives

Factors Underlying Irrational Use of Drugs

Many different factors affect the irrational use of drugs. In addition, different cultures view drugs in different ways, which can affect the way drugs are used. The major forces can be categorized as those deriving from patients, prescribers, the workplace, the supply system including industry influences, regulations, drug information and misinformation, and combinations of these factors.

All of these factors are affected by changes in national and global practices. For example, the frequent use of injections is declining in many African countries because of the fear of AIDS. In some countries, however, the use of injectables remains high because of the false assumption on the part of prescribers that injections will improve patient satisfaction and that they are always expected by the patient.

Table 2. Wrong Reasons to Prescribe Medicines

Patients	• Drug misinformation • Misleading beliefs • Patient demands/expectations
Prescribers	• Lack of education and training • Inappropriate role models • Lack of objective drug information • Generalization of limited experience • Misleading beliefs about drugs efficacy
Workplace	• Pressure to prescribe • Lack of adequate lab capacity • Insufficient resources
Drug supply system	• Unreliable suppliers • Drug shortages • Expired drugs supplied
Drug regulation	• Nonessential drugs available • Informal prescribers • Lack of regulation enforcement
Industry	• Promotional activities • Misleading claims

Impact of Irrational Use of Drugs

The impacts of this irrational use of drugs can be seen in many ways:

- Reduction in the quality of drug therapy leading to increased morbidity and mortality
- Waste of resources leading to reduced availability of other vital drugs and increased costs to the patient and community
- Increased risk of unwanted effects, such as adverse drug reactions and the emergence of drug resistance, e.g., malaria or multiple-drug resistant tuberculosis (TB)
- Psychosocial impacts, such as when patients come to believe that there is “a pill for every illness,” which can cause an increased demand for drugs

What Information Should Be Given to Patients to Ensure Rational Use of Medicines?

The dispenser should verbally give the patient additional information to reinforce the instructions written on the label. This should be in a language with which the patient is familiar. The information should including the following:

- How often to take the drug
- When to take the drug (e.g., before or after meals)
- How long the treatment is to last (e.g., why the entire course of an antibiotic treatment must be taken)
- How to take the drug (e.g., with water, chewing, or swallowing)
- How to store the drug (e.g., avoid heat, light, and dampness)
- Not to share drugs with other persons
- Keep drugs out of the reach of children
- Consult in case the medicine causes undesirable effects or if there is no registered improvement or the patient gets worse

Definition of Dispensing Terms

Adherence or compliance

Adherence or patient compliance is a measure of the extent to which a patient follows instructions on the use of a drug. These instructions should be given by the prescriber and the dispenser. The better a patient follows the instructions, the higher the compliance. The results of the use of a medicine will be better when compliance is high.

Brand or trade name

It is the name of a pharmaceutical product given by the manufacturer. Medicines with the same active ingredient may have different brand or trade names, such as Panadol,® Kamadol,® and Cetamol,® are brand names of medicines that contain paracetamol as the active substance.

Contamination

In pharmacy practice, the raw materials and finished products should not contain unwanted materials. Material that contains any amount of unwanted foreign bodies is said to be contaminated. Contamination may be caused by the manufacturer, transporter, dispenser, or the user. Careful handling of materials and finished products with clean hands or equipment prevents contamination.

Course of treatment

How long a medicine has to be taken for complete treatment or management of the health problem.

Cross-contamination

Cross-contamination occurs when one medicine in the pharmacy is contaminated with another one during the dispensing process. The most common cause is forgetting to thoroughly clean the equipment every time it has been in contact with a different drug. Use of a single spoon when dispensing different drugs is a major source of cross-contamination. It may also happen if bare hands are used when counting tablets or capsules.

Dilution

This is the process whereby a concentrated solution is made weaker, usually before use. Diluting medicines is mostly done with purified water but other liquids are also sometimes used. Disinfectants and antiseptic solutions, such as hydrogen peroxide, very often require dilution. (Refer to the section on the dispensing process for details on dilution of hydrogen peroxide.)

Dispensing

The process of issuing medicines to the patient. The process covers all the activities involved from receiving the prescription to issuing the prescribed medicine to the patient.

Dosage

The amount of medicine (i.e., dose) to be taken over a given period of time (e.g., per day, per week).

Dosage form

Medicines are available in different forms—tablets, capsules, injections, powders, syrups, solutions, ointments, and creams. These forms are called dosage forms. Always read the label of a drug container carefully to understand the right dosage form.

Dose

Amount of the medicine to be administered at one time.

Expiry date

The date found on all medicines after which they are believed to have lost potency (effectiveness). Some medicines may become toxic due to deterioration and presence of toxic products. Never use medicines beyond their expiry date. You can avoid having expired medicines at your facility by maintaining an effective stock control system and practicing FEFO to avoid stock expiring on the shelf.

Generic or non-proprietary names

The name given to a medicine that will be recognized all over the world. It remains the same regardless of which company manufactures the medicine. Paracetamol is a generic name.

Manufacturing date

This is the date on which the medicine was manufactured. This date may be expressed in month and year of manufacturing.

Prescription

This is a written and signed order from an authorized or qualified prescriber to a dispenser. It contains instructions to supply or dispense specified medicines to a specified patient. It should be clearly written for easy reading and to prevent unnecessary mistakes in interpretation. If a prescription is not written clearly, check with the prescriber—never guess! **All class B drugs require a prescription for dispensation**.

Reconstitution

This is a process in which a specified amount of water is added to a powder form of a drug. This method is used when drugs are not stable in water or in solution. This means that the drug breaks down if left in water or in solution for a longer period of time. For this reason, these medicines should only be reconstituted just before use. Such examples of the powder form of drugs include amoxicillin (syrup) and Pen-V syrup.

Volume

Volume provides information about capacity. That is, the amount of space that a material occupies, for example, the contents of a bottle. The base unit for volume is the liter (L). In pharmacy practice, the following units are commonly used to express volume.

Name	Abbreviation	Equivalent to
1 liter	L	1000 mL
1 milliliter	mL	0.001 L

Water (potable, purified, and water for preparation)

Potable water

Drinking water, freshly drawn from the public main water supply. If its quality is assured, it is suitable for the preparation of pharmaceutical products for oral or external use. If the quality is not assured, it must be boiled and cooled before use.

Most of the domestic potable water available in Liberia is not suitable for direct preparation of pharmaceutical products.

Purified water

Purified water is made from potable water by different processes including deionization, distillation, or reverse osmosis to make it purer. If it is not freshly prepared, it needs to be boiled and cooled before using in pharmaceutical products.

Water for preparation

May be either fresh, potable water or purified water freshly boiled and cooled.

Potable water, purified water, and water for preparation cannot be used to reconstitute injections.

Weight

How heavy a certain amount of material is. In pharmacy practice, the base unit is the kilogram (kg). Other common units of measure are listed in the table.

Name	Abbreviation	Equivalent to
1 kilogram	kg	1,000 g
1 gram	g	1,000 mg
1 milligram	mg	1,000 mcg
1 microgram	mcg	0.001 mg

Dispensing Environment

The dispensing environment must be clean, hygienic, tidy, and conducive for interaction between the patient and the medicine seller.

- A clean and hygienic environment will reduce chances of contamination.
- A tidy environment will help prevent mistakes from occurring during dispensing.

- An environment conducive for interaction will promote patients' understanding of instructions on how to use medicines and sellers' understanding of the patients' problems.

The environment, in totality, will promote patient confidence in the medicine outlet.

The ideal surroundings for dispensing are:

- Quiet
- Adequate lighting
- Good circulation
- Clean
- Secure with no idlers

The dispensing area should have:

- Enough space so that work flows smoothly
- Sitting facilities for patients
- Enough furniture for staff
- Work surfaces that are easy to clean so that spills of liquid medicines and powders can be wiped off immediately
- Adequate equipment for measuring liquids, counting tablets, and packaging material

The storage area should have:

- Enough space to hold an adequate amount of stock
- Shelves that are regularly cleaned
- Medicines that are neatly arranged and routinely dusted

The dispensing area should be neatly arranged to facilitate work flow.

- A daily drug use record should be kept in the dispensary.
- A dispensing table should be provided.

Do not overcrowd the dispensing table.

- Documents should be arranged in an orderly manner on the table.
- Clean tablet counters after each use and place within easy reach on the table.
- Avoid dispensing the wrong drugs by arranging drugs on the table in alphabetical order so that the drug being dispensed is not confused with another.

- Always close drug containers from which drugs are not being dispensed to prevent spillage or dispensing the wrong drug.

Dispensing Personnel

The dispensing environment and the dispensing personnel provide the first impression customers have when they come to the medicine outlet. The dispensing person must:

- Be knowledgeable about the medicines dispensed in regard to:
    - Common use
    - Common dose
    - Precautions to be taken while using the drug
    - Common side effects
    - Common interactions with other drugs or food
    - Storage needs
- Possess good calculation and arithmetic skills
- Be able to assess the quality of preparations
- Be accurate and honest
- Be able to communicate effectively with patients
- Exhibit professionalism at all times, whether serving customers and patients or not
- Should be clean and dressed in a way that depicts that he or she is a health worker
- Organized
- Have communication and leadership skills to be valuable to the community and to effectively interact with patients

Prescription

A prescription is a set of instructions written by a qualified prescriber to a dispenser for a supply of medicines after counseling the patient on how to use the medicines. It is very important that prescriptions are clearly written. The prescription should clearly state (using paracetamol as an example):

- The dosage form of paracetamol—tablets
- The strength of the paracetamol tablets—500 mg per tablet
- The number of days for which the paracetamol tablets have been prescribed
- The number of times the tablets should be taken each day
- The number of paracetamol tablets to be taken each time

A prescription should have the following:

- Name of the unit prescribing the medication
- Name of the patient and age (especially if a child)
- Date
- Prescriber's signature and name
- Instructions about the prescribed drugs, including:
    - Generic name and dosage form
    - Dose
    - Frequency of administration
    - Duration of treatment
    - Any other instructions considered important for the patient to know (e.g., how to take the medicine in relation to food)

Examples:

- One capsule every 8 hours
- Take with or without meals
- Do not use alcohol as long as you are on medication
- Finish all drugs as directed for success of treatment
- Do not drive a vehicle when using this drug

Example of a Properly Written Prescription

St Paul River Health Centre Date: 04.05.2010 P.O. BOX 68 St Paul River, Montserrado
Name: Seepo Jeane OPD NO. 340/09 Address: St Paul River Age: Adult Weight: 70 kg
Rx 1. Co-trimoxazole tablets ii b.i.d. x 5/7 2. Paracetamol tablets ii tds x 3/7 Name of Prescriber/qualifications Dr. Thomcellia Emanuel MD (UoL) Signature_____

Frequently Used Abbreviations in Prescriptions

The table below lists some regularly used abbreviations and their meaning. Nevertheless, in some cases, prescribers use local abbreviations that are not standard and that may not be known to you. In such cases, ask prescribers about the meaning of different abbreviations used in the prescription. Do not dispense if you are not sure of the meaning of the abbreviation written in the prescription.

Table 3. Common Prescription Abbreviations

Abbreviation	Meaning
a.c.	Take medicine before meals/food
b.d., b.i.d	Twice a day
Cap.	Capsule
g.t. or g.t.t.s.	Drop (one) or drops (more than one)
h.s.	At bed time
i.m.	Intramuscular
Inj.	Injection
i.v.	Intravenous
noct. or nocte	At night
Occul or occulent	Eye ointment
oint.	Ointment
p.a.a.	Apply medicine to affected parts of the body
p.c.	Take medicine after meals/food
p.o.	Take medicine by mouth
p.r.n.	Take medicine when required
q.i.d.	Four time a day
Rx	Take
Stat.	Take immediately
Tab.	Tablet
t.d.s.	Three time a day
t.i.d.	Three time a day
t.s.p.	Teaspoonful

Basic Dispensing Procedure

If drugs are not dispensed properly to patients, all attempts to correctly prescribe and select the best treatment can be useless.

It is very important to concentrate while dispensing. Remember not to carry out more than one activity at the same time—if you do, you are likely to confuse yourself or the patient. If you pick up a prescription, complete the whole procedure in filling that prescription before you start anything else.

Keep the dispensing area and yourself clean, tidy, and organized. An untidy, dirty, and unorganized dispensing area is the major cause of confusion and possible dispensing errors.

Dispensing Steps

The consistent and repeated use of good dispensing procedure is very important in ensuring that errors are noticed and corrected at all stages of the dispensing process. The term “dispensing process” covers all activities involved, from receiving the prescription to issuing the prescribed medicine to the patient. There are seven major areas of activity.

1) Receive and validate the prescription
2) Understand and interpret the prescription
3) Prepare items for issue
4) Cost, label, and pack the medicines
5) Reread the prescription and check what has been packed
6) Record action taken
7) Issue medicines to the patient with clear instructions and advice, checking the understanding of the patient

Step 1. Receive and Validate the Prescription

Upon receiving a prescription, the staff member responsible should confirm the name of the patient. This is particularly important because there is a possible risk that staff or patients may mix up prescriptions. Cross-checking the name and identity of the patient must also be done when issuing the drugs.

Step 2. Understand and Interpret Prescription

Interpreting a prescription must be done by a staff member who can:

- Read the prescription
- Correctly interpret any abbreviation used by the prescriber
- Confirm that the doses prescribed are in the normal range for the patient (noting sex, weight, and age)
- Correctly perform any calculations of doses and issue the right quantity
- Identify any common drug-drug interactions

It is assumed that the prescription will be in written form. If there is any doubt about what is required by the prescriber, the prescription must be checked with the prescriber. Checking a prescription may save a life.

Step 3. Preparing Items for Issue

Preparation of items for issue is the central part of the dispensing process, and it must include procedures for self-checking or counter-checking to ensure quality. This part of the process begins once the prescription is clearly understood and the quantity has been calculated.

1) Select stock container and pack

   The container label must be read at least twice during the dispensing process.

   When looking for the correct drug, read the label; never pick a drug by looking for a particular color label, a particular size of bottle or container, or a particular shape or color of the drug.

   This practice could be very dangerous because many drugs and containers look alike. In addition, the manufacturer may change the appearance of drugs and containers. For example, doxycycline capsules can be yellow or white, but all contain the same drug. Read the generic name of the drug. This name always stays the same, whereas the trade/brand name changes, depending on the manufacturer.

You should remember this rule when picking up a container for dispensing: As you pick up a container of any drug, read the label, take out the required quantity, label the patient package, and pack the drugs. Before you return the container to its place on the shelf, read the label again and refer to the package you labeled. Before handing the drug to the patient, read it again to ascertain yourself if it is correct. Do these steps every time you pick up a container; never assume that you know it all by heart! This procedure ensures that the drug you have taken and labeled is the same.

2) Check the expiry date and quality of the drug

Once you have found the drug you need, check the expiry date and the quality of the drug.

When checking the expiry date, make sure that you do not confuse the expiry date with the date of manufacture, which may also be on the label.

Never dispense expired drugs.

When checking the quality of the drug, look for the following:

- Tablets and capsules must not be chipped, cracked, broken, or sticky. Check that the smell and color have not changed.
- If a liquid is being dispensed, check that the bottle is not cracked or chipped. Check the color and smell, and look for any unusual cloudiness, crystals, foreign particles in the liquid.
- When dispensing creams and ointments, check that tubes are not cracked or hardened. Check that large, open tins do not contain any growth and have not changed in color and smell.

 **Count quantities of solid dosage forms from stock containers.**

3) Count solid dosage forms (mainly tablets and capsules)

You may have noticed during your daily dispensing work that a high proportion of medicine you dispense consists of tablets and capsules. You spend much of your time counting such medicines. Try to organize this counting activity in a systematic way. This makes your job easier, more efficient and above all ensures accuracy. Remember that re-packaging of large quantities of drugs out from their original containers may lead to deterioration of drug quality due to exposure to moisture and other environmental conditions. Pack drugs only when you have to dispense them to patients at that moment.

Determine the number of tablets in each dose prescribed; multiply that by the frequency of taking the drug and the total duration or number of days the drug is to be taken. For example:

- Amoxicillin capsules 500 mg tds 5/7
- If each tin contains 250 mg capsules of amoxicillin, then dispense 2 × 3 × 5 = 30 capsules

4) Dispensing solid dosage forms (mainly tablets and capsules)

   The simplest or (easiest) way is to use a clean spoon. Never use your hands for counting!

   Using hands is a bad dispensing practice that is very unhygienic and carries a high risk of multiple cross-contaminations and transfer of communicable diseases, such as cholera and worms, to patients. Do you remember how many articles you have touched or hands you have shaken? Can your hands still be clean enough to touch oral products?

   Using a spoon, simply take the medicine out of the original container and count the medicine on the spoon without touching it. Empty the spoon into the container or bag for the patient.

   Make sure that the spoon is cleaned after every count to avoid cross-contamination. Keep several spoons in the dispensing area for that purpose. After counting the tablets or capsules, put the remainder, if any, back into the container. Check the label once more to see that you have taken the correct drug. Close the container well and put it back in its correct place.

5) Dispensing liquid and semisolid dosage forms

   Liquids and semisolid dosage forms should be dispensing in the original packs.

Do not measure any syrup, ointment, or any other forms of liquid and semisolid medicines into any container to be dispensed to the patient. The process of transferring liquids or semisolids from one container to another may lead to cross-contamination. Such medicines should be sold in their original, primary packs.

However, when dispensing liquid dosage forms, it is important to ensure that the pack has clearly graduated measures that patients or care takers can use to measure doses to be administered. If graduated measures are not indicated, give clear instructions on what utensil(s) can be used to measure medications.

Step 4. Cost, Label, and Package Medicines

1) Costing

   Determine the price of the medicines. Using the example above, after determining the number of capsules to be dispensed, determine the total price of the medicine. If each can of 1000 capsules of amoxicillin costs USD 44.00, then the total price for 30 capsules is USD 1.32.

   Cost all the medicines and let the patient know the total price before dispensing.

2) Labeling medicine

Before packing the drug, write the label. It is better to write the label before counting or measuring the drug. If more than one drug is being dispensed, write the label, pack the drug, and return the container before packing the next item. In this way, you are less likely to mix up the drugs and write the wrong label. Labeling before packing will also make it easier to write clearly, without damaging or spilling the medicine.

It is not enough just to tell the patient how to take the drugs(s). By the time he reaches home, he may have either forgotten the instructions or have mixed them up.

It is very important that written labels be attached to the drugs, in addition to providing verbal instructions. Even if the patient cannot read, it is likely that another member of the family will be able to help.

What information should be found on the label?

- Name of the patient
- Name of the drug
- Strength of the drug
- Quantity of the drug supplied
- Instructions on how the drug is to be used
  - How much to take each time
  - How often per day
  - With or without meals
  - With plenty of fluids, etc.
- Date supplied
- Name and address of the health care facility medicine outlet

Written labels must be neat and easy to read. The instructions must be clear so that the patient understands them. Always write instructions in full and avoid abbreviations, such as t.d.s. or 1 × 3 only; instead, write ‘take every 8 hours’ on the label.

3) Packaging medicine

After writing the label and measuring or counting the correct quantity of medicine, the medicine should be packed into an appropriate container. It is very important that the correct container is chosen for each drug, as this will ensure that the medicine is kept clean, dry, and free from contamination so that it remains effective.

Packing material for solid dosage forms (tablets/capsules) includes:

- Plastic dispensing bags
- Paper envelopes
- Small, sterilized bags (avoid if possible because they are expensive)

Packing liquids and semisolid dosage forms (mixtures, syrups, ointments, creams, etc.):

 **Liquids and semisolids should be dispensed in their original or primary pack.**

Step 5. Re-Read the Prescription and Check What Has Been Packed

After the medicines have been packed, check the prescription again to ensure that the medicines packed are exactly what have been prescribed in terms of the name, dosage form, number of doses, frequency, and duration.

Step 6. Record Action Taken

Records of issues to patients are essential in an efficiently run medicine outlet. Such records can be used to verify the stocks dispensed, and they will be required to trace any problems with medicines issued to patients.

When the prescription is retained, the dispenser should sign it, file it, and enter the details into a record book (prescription book).

When the prescription is returned to the patient, details of the medicines dispensed must be entered into a record book (prescription/poisons book) before the items are issued to the patient. Enter the date, patients' name and age, medicine name and strength, amount issued by the prescriber, and dispenser's name.

Step 7. Issue Medicine to Patient with Clear Instructions and Advice

The medicine must be given to the named patient, or the patient's representative, with clear instructions and any appropriate advice about the medicine. The amount of detailed advice that should be given about possible side effects varies from patient to patient. Verbal advice is important because both illiteracy and poor labeling may be the cause of problems.

Apart from emphasizing the dose, frequency, length of treatment, and route of administration, the priority is to give the patient information that will maximize the effect of the treatment. Advice should therefore concentrate on:

- When to take the medicine (particularly in relation to food and other medicines)
- How to take the medicine (chewed, swallowed whole, taken with plenty of water)
- How to store and care for the medicine

Warnings about possible side effects should be given with care. Common but harmless side effects (nausea, mild diarrhea, urine changing color) should be mentioned to prevent a frightened patient from stopping treatment.

Every effort should be made to confirm that the patient understands the instructions. Every patient must be treated with respect. The need for confidentiality and privacy when explaining the use of some types of medicine (e.g., suppositories, pessaries) must be recognized. It must be emphasized that the success of the treatment rests on the accuracy of the dispenser's communication with the patient.

You should understand that dispensing drugs and counseling are some of the most important aspects of the drug dispensing process. Your task is to not only ensure that a patient receives medication, but also to ensure that the patient knows how to use it properly to achieve adequate results from treatment.

All the efforts that have been invested into pharmaceutical preparations, from the time of production through all stages of buying and distribution, until the point that products are dispensed will be wasted if the patient does not use the prescribed medication in the correct way.

You have to ensure that the use of the medicine is explained to the patient in such a way that he or she fully understands how to use it in the most effective and prescribed manner.

Go through the following steps to ensure that the right patient is picking up the medication and the patient follows instructions while using the medicine.

- Call the patient by loudly reading the name written on the prescription. This confirms that the right prescription is dispensed to the right patient.

- For each drug dispensed, verbally repeat the instructions on the label; provide any additional information specific for each drug.

  NOTE: Always try to ask a female patient if she is pregnant or lactating, and check for proper instructions to be given to pregnant women.

- Before handing the medicines over to the patient, confirm that the instructions are well understood. You may ask the patient to repeat the essential part of the explanations. If they repeat your instructions correctly, you will know that they have understood. This exercise may take some time, but it will considerably increase compliance by the patient.

- Do not forget to give all the necessary information on how to store the drugs safely for them to remain effective (e.g., some drugs have to be stored in cool places, just like vaccines and insulin preparations).

- Provide warning to store drugs away from the reach of children.

Useful Drug Information for Patients

How much is to be taken (dose)?

Some people think that if they take more tablets together, they will get better more quickly. This could be very dangerous. You must clearly explain exactly the amount that the patient should take.

How often should it be taken (frequency)?

It is important to explain how many times a day the dose should be taken and how many hours apart they should be taken. The dose taken should be spread evenly throughout the day. For example, two capsules to be taken every six hours instead of two capsules four times a day (or 2 × 4).

For how long should it be take (duration)?

Some patients only take their medicines until they feel better. It might not be serious if the treatment was for a minor problem, such as headache. However, if the drug was for treatment of high blood pressure or an infection, such as bloody diarrhea, and the patient stops taking the drugs, he/she could become seriously ill or the microorganism might become resistant to the drug. Always tell the patient how many days or weeks he/she should take the medicines, and stress the importance of completing the full course of treatment.

Why are they taking the drug (indication)?

If the patient is told the condition for which the medicine has been given, they will be more motivated to take the medicine as they have been instructed. If a patient doesn't know why he/she has been told to take a particular medicine, they are unlikely to take it correctly or to finish the whole course of treatment. While informing the patient why she/he should take the medicines, bear in mind the need for privacy. It will be embarrassing if a very private problem is announced openly to the rest of the patients in the counseling room.

What other information does the patient need to know?

- Some medicines work best if they are taken on an empty stomach, for example, amoxicillin taken at least half an hour before meals is better absorbed.
- Antacids, e.g., magnesium trisilicate, work best if taken one or two hours before meals.
- Iron and aspirin tablets may cause gastric irritation and should be taken with food.
- Doxycycline should not be taken together with antacids and iron tablets because they decrease doxycycline's effectiveness. Antacids and iron tablets should be taken after or during meals.

Drugs with Alcohol

Alcohol interacts with a number of drugs, so patients must be advised accordingly. For example, alcohol should not be taken with metronidazole, paracetamol, antihistamines, etc.

Side Effects of Drugs

The patient must be told or warned about the side effects of the drugs given. For example, antihistamines (e.g., chlorpheniramine) may cause drowsiness and patients should not drive or operate machinery.

Oral Contraceptives

When taken with oral contraceptives, some drugs, such as antibiotics, render the oral contraceptives less effective, and the patient may get pregnant. Always ask your female patients if they are on oral contraceptives and advise them accordingly.

Drug Storage by Patient

Advise patients to keep their drugs out of the reach of children. Some brightly colored drugs are very attractive to children.

Reconstitution/Dissolving Dry Powders

How to Reconstitute Dry Powders

Most antibiotics and antibacterial preparations, such as amoxicillin syrup, are supplied in bottles as dry powders because they are not stable in liquid form. A specified amount of purified water must be added immediately before it is dispensed to the patient. The amount to be added is usually indicated on the bottle or label.

Some manufacturers mark their bottles with the final level of the reconstituted volume. The following is the procedure for correct reconstitution of powders:

- Disperse the dry powder by first shaking it. This breaks up any powder lumps in the bottle that would be difficult to disperse if water was added without this step.
- If the volume to be added is given on the label, measure that amount; if only a final volume mark is given on the bottle, you need not measure any liquid.
- Now add the water in small volumes, shaking the bottle each time a portion of water is added. Do so until the powder is homogeneously dispersed in the water.
- Finally, add the remaining water up to the final volume point or to finish the given volume of liquid that you were instructed to measure.

The reasons water should be added in small portions are:

- Dispersion of powder is not easy because a lot of gas is trapped in the bottle. If there is a lot of gas in the closed bottle, it may even blow up during shaking.
- When only the final marked volume point is given, adding water up to that level all at once will result in excess water, thus diluting the syrup.

How to Dissolve Powders

In the treatment of diarrhea, ORS is frequently used. ORS is usually supplied in pre-packed sachets that contain a mixture of salts and sugar, sufficient to make half or one liter of ORS.

When such sachets are dispensed to patients for use at home, give the following instructions to ensure proper preparation:

- Measure half or one liter of clean, boiled, and cooled potable water in a clean container or pot. Tell your patients that the volume of one tumpeco mug or one Nile special beer bottle equals half a liter or 500 mL.

- Add the contents of one sachet into the water, stir until the liquid is clear and without visible powder particles. The powder is now dissolved.

- Please note that ORS solutions should be used within 24 hours. If any of it remains, it should be discarded because older solutions may have bacterial growth due to presence of sugar. Prepare larger amounts of ORS only if you are sure that it will be used within 24 hours.

Diluting Hydrogen Peroxide

There are some concentrated liquid preparations that may have to be diluted before dispensing (common for antiseptics and disinfectants). For example, hydrogen peroxide is often diluted with purified water before use as a disinfectant or antiseptic. The following are the dilution instructions for hydrogen peroxide.

First Aid

To arrest bleeding and disinfect wounds, dilute 1 part hydrogen peroxide with 3 parts purified water; apply using a piece of cotton wool on the affected area

To Remove a Dirty Dressing

Dilute 1 part hydrogen peroxide with 3 parts purified water; soak the dressing with the diluted solution and leave it for some minutes before removing the dressing

Mouth Wash and Deodorant

Dilute one tablespoon to one glass of water and gargle

Record Keeping and Documentation

Medicine outlets are required to keep all invoices and receipts for non-prescription and permitted prescription drugs for at least two years. This is important because if documentation is required for a certain purpose, it can be easily retrieved.

The shop should maintain a ledger of receipt and issue/dispensation for all permitted prescription drugs. The ledger should include:

- Date received and dispensed
- Name of patient, drug, and quantities dispensed
- Balance remaining

This important record will enable the medicine outlet to:

- Monitor and establish prescription records of every permitted prescription drug and thereby avoid stock-outs.

- Identify patients that have been prescribed suspect medications, if adverse drug reactions occur.

- Assist LMHRA inspectors when conducting their supervision duties.

Furthermore, the medicine outlet is required to keep and maintain a special file for all correspondences related to medicine directives and services from regulatory authorities.

Session 5. Management Support and Quality of Medicines

Objectives

1) Explain the basics of quality in medicines management
2) Explain causes of poor medicines quality
3) Recognize signs of poor/bad quality medicines
4) Understand importance of maintaining medicines quality and stability
5) Discuss and internalize good medicine storage practices
6) Discuss steps and procedures for quality assurance in a medicine outlet
7) Able to track drug expiries and damages

Time

1.5-2 hours

Management Support

Efficient medicine management requires commitment of financial and human resources to ensure that systems run smoothly. Adequate funds should be available to ensure that medicines are procured in appropriate quantities and that quality systems are put in place and maintained. Adequately trained personnel should be recruited and motivated to manage the system and to effectively perform their tasks. Documentation of activities, collection of relevant data, and generation of reports helps monitor system performance. Personnel should be provided with job aids or standard operating procedures (SOPs) for performing critical activities in medicine management.

Regulation and Policy Framework

The regulatory framework under which medicines are sold has been discussed in previous modules. It is, however, important to emphasize that in regard to efficiency, regulations and guidelines must be adhered to as tasks in the medicine management system are being performed.

Quality

The supply of medicines of quality is a prerequisite for effective delivery of health care. Without assurance that medicines meet acceptable standards of quality, safety, and efficacy, health services will be compromised. It is critical that reliable systems are put in place to ensure that patients receive quality medicines.

Drugs of poor quality not only have health consequences but also economic consequences as money is wasted in purchasing such products. At the same time, patients using poor-quality medicines will remain ill for a longer period, delaying their engagement in productive economic activities, such as work. It is everybody’s role, including the user, to ensure that medicines maintain their quality throughout their shelf life or until they are used.

The quality of medicines must be monitored throughout the life cycle of the medicine—from product development and manufacture through transportation, distribution, and storage to dispensing and use of the medicine. A considerable degree of care should be observed at each stage as medicines move through their life cycle such that medicines made available to the public meet all quality requirements.

Manufacturing

As part of quality assurance, LMHRA must grant permission, or manufacturing authorization, to whoever intends to manufacture medicines in Liberia. This ensures that the medicines are manufactured:

- In appropriate premises that meet standards stipulated by LMHRA
- By personnel competent for the task of manufacturing
- By using machinery appropriate for the specific medicine
- Following Good Manufacturing Practices (GMP)

The LMHRA regularly inspects medicine manufacturing plants to ensure compliance to the set standards.

Distribution and Sale of Medicines

Quality assurance during distribution and sale of medicines ensures that medicines do not lose their quality and efficacy before they reach the final consumer. To ensure this LMHRA performs the following tasks.

Registration of Drugs

Drug registration ensures that all medicines sold on the Liberian market meet the required standards. Registration starts with a thorough inspection of the manufacturing company by the LMHRA. Once Liberia is satisfied that the company meets all GMP requirements for the manufacture of the particular medicine and after testing the product in its laboratories, LMHRA will then add the medicine to its register.

AMSs should:

- Sell only medicines registered by LMHRA
- Buy medicines only from authorized sources (i.e., registered pharmacy wholesalers)

From time to time, LMHRA inspects medicine outlets to ascertain that all the medicines sold are registered. It is an offence if an outlet is found with unregistered medicines.

Possible Causes of Poor Drug Quality

Poor Manufacturing Conditions

If medicines are not manufactured according to GMPs, they are most likely to be of poor quality. Manufacturers that have not been inspected or not approved by the NDA are likely not meeting all GMP requirements. Many counterfeit medicines are manufactured under poor manufacturing conditions. Counterfeits are medicines that look like registered medicines, but do not contain the right ingredients. AMSs should avoid buying medicines from unauthorized dealers to minimize the risk of buying counterfeits.

Poor Packaging

Packing of drugs is important at all levels. Although medicines are may be correctly packed at the factory, medicines may be incorrectly packed when being sold to patients. Medicines inappropriately packed may easily spoil and lose their potency. To avoid this, medicines should be supplied in their original pack; if this is not possible, good quality plastic bags should be used. Paper bags may be used, but are not preferred.

Ideally, AMSs should try to buy medicines that are packed in strips or blisters. Large containers of loose tablets are better suited for hospitals.

Poor Transportation and Storage Conditions

Appropriate storage and transport facilities must be available to prevent degradation of the product by exposure to excessive moisture, heat, or light during transportation or storage. AMS owners and sellers should be aware that medicines are sensitive and easily destroyed

Poor Knowledge of Personnel

Medicine outlet owners and sellers should be appropriately trained in handling medicines. This program is intended to provide that basic knowledge and understanding to all owners and sellers and to establish a continuing education system for them to improve the quality of both medicines and services.

How to Prevent Poor-Quality Drugs

Preventing poor-quality drugs from entering the market is the responsibility of the NDA and everyone engaged in manufacturing, distribution, and provision of pharmaceutical services.

How Can a Medicine Outlet Prevent Poor-Quality Medicines from Reaching Patients?

Adhering to laws, regulations, policies, and guidelines is the most important way to prevent poor-quality medicines from reaching the market. It is important as medicine sellers that we comply with the regulatory framework discussed previously. The following guidelines should be followed:

1) Make sure the building where medicines are sold does not allow exposure to moisture, excessive heat and light, and vermin

2) Cross-check all new consignments of medicines for any physical changes in the medicines

3) Routinely cross-check medicines for quality

4) Regularly clean the medicine outlet

5) Maintain neat and clean shelves; do not keep medicines on the floor

6) Record all transactions to help track the source of poor-quality medicines

7) Make sure medicines are adequately packed when dispensed to patients

8) Give patients information on how to keep medicines at home

9) Remove all expired and damaged medicines from stock and contact NDA for their proper disposal

Some Signs of Poor Drug Quality

Medicines have particular properties or characteristics such as color, smell, viscosity, clearness, and shape. These are important indicators of medicine quality that can be noted through physical and visual examination. Some attributes to look for include:

- Broken or ripped packaging
- Missing, incomplete, or unreadable labels
- Tablets or capsules that are/have:
    - Discolored
    - Sticky
    - Crushed or crumbled
    - An unusual smell
- Liquids that are/have:
    - Discolored
    - Sediment
    - Cloudy
    - An unusual smell
    - A broken seal on the bottle
    - Cracks on the bottles
    - Damp packaging

An expiry date must be indicated on the container. This should not be altered. None of the medicines on the shelves should have reached their expiry dates. Sometimes the physical characteristics of a product may change before reaching the expiry date. Such medicines are not fit for human consumption and should be removed from stock.

Keep all expired and damaged medicines separate from medicines for sale, preferably in a sealed box. Inform the nearest NDA inspector and request information about proper disposal.

Keep a record of all expired medicines. The following should be recorded:

- Name of the medicine
- Dosage form and strength
- Quantity
- Batch number
- Expiry date

Job Aids and SOPs

Job aids are devices or tools such as SOPs, instruction cards, wall charts, etc., that allow an individual to quickly access information needed to perform a particular task.

An SOP is a set of written instructions that document a routine or repetitive activity that an organization follows. SOPs give a step-by-step procedure on how to perform a particular task.

Why SOPs?

- To provide consistent quality; all processes undertaken during the provision of pharmaceutical services should be conducted in a uniform manner irrespective of when and who is performing them

- To provide predictable quality; whenever the processes are undertaken , the outcomes are expected and correct

- To facilitate compliance with regulations

- To facilitate on-the-job training and orientation of new employees

Benefits of SOPs

The following benefits will accrue if SOPs are consistently and accurately used:

- Minimization of variation and errors
- Promotion of quality services and medicines
- Promotion of compliance to regulations
- Reduction of work effort
- Maximum efficiency and effectiveness from the employees

- Easy delegation of work and shift tasks

List of SOPs Needed

- Receiving medicines
- Storing medicines
- Dispensing medicines
- Counseling patients
- Physical counting
- Cleaning and maintaining the outlet

MODULE 2: BASIC PRINCIPLES OF PATIENT MANAGEMENT

Session 1. Introduction to Patient Management

Session 2. First Aid

Session 3. Introduction to Management of Fever, Pain and inflammation

Session 4. Management of Malaria

Session 5. Management of Upper Respiratory Tract Infections

Session 6. Gastrointestinal Conditions

Session 7. Management of Anemia and Nutritional Deficiencies

Session 8. Management of Dermatological Conditions

Session 9. Management of Eye, Ear, Nose, and Throat Infections and Disorders

Session 1. Introduction to Patient Management

Objectives

1) Understand principles of patient assessment
2) Define health, disease, and some pharmaceutical terminologies used in patient management
3) Identify the different dosage forms and routes of administration
4) Recognize common drug reactions
5) Identify patients for immediate referral or otherwise
6) Understand the ethical issues surrounding patient management
7) Discuss the necessity and extent of treatment education

Time

2 hours

Activity 1. Discussion

- There are a number of cultural beliefs about the causes of diseases in Liberia. Mention the various ways that our cultures perceive certain diseases and their causes.
- List factors that an AMS should consider before dispensing medicines.
- Give the ages in months/years for the following categories of patients:
    - Neonate
    - Infant
    - Child
    - Adults
    - Elderly person

Activity 2. Role Play a Patient Assessment

- In your groups, perform a role play on patient assessment; practice good communication skills between the patient and prescriber
    - Patient 1 - uncomplicated malaria
    - Patient 2 - malaria in pregnancy
    - Patient 3 - child with bloody diarrhea
    - Patient 4 - 17-year-old boy with a sexually transmitted disease
- As one group performs, the other members listen and make notes for discussion in the plenary

Patient Assessment

Patient assessment is the process through which the health worker obtains information related to the patient, either from the patient themselves, family members, care givers, or other sources, and evaluates the information for the purpose of deciding how to manage the patient's problem.

It is very important that the medicine seller assesses the patient's health, past medication history, and social issues and beliefs about that condition. This provides an opportunity for the medicine seller to adequately understand the patient's problem.

The following information may be needed during patient assessment:

- Complaints/symptoms from the patient in his or her own words
- Recent history that pertains to those symptoms
- Past medical history
- Medication history, including compliance and adverse effects
- Allergies
- Social and family history, etc.

The following skills and attributes should be used during patient assessment:

- Listen actively
- Display empathy
- Be non-judgmental
- Be kind
- If possible, speak in a language the patient understands

Communication

Medicine sellers need to be aware of the way people in a particular locality express their feelings, both verbally and with body language. This important as it will help both the medicine seller and the patient understand each other better.

Steps to be Followed during Patient Assessment

1) Receive the patient courteously and respectfully. This creates a foundation for an honest and open interaction between medicine seller and patient.

2) Take a history about the patient's condition. Ask the following in this order:

    - What is the patient's main complaint/illness

    - How long has the patient had the illness or felt this way

    - Has any treatment been received for this condition; if medicines have been given, ask how they were taken/swallowed

    - Ask the patient about any history of drug allergies

    - Depending on the condition, establish the family and social history

- Obtain other useful information related to specific conditions, for example, use of mosquito nets for malaria patients, general sanitation and hygiene for diarrheal diseases, etc.

The information obtained from the patient should be kept confidential to maintain trust and a good relationship.

3) Evaluate the acquired information and decide what to do for the patient; treat the patient, give initial treatment and refer, or refer the patient right away

4) Explain to the patient about their condition and the action taken. If you are treating the patient, educate the patient about the treatment given.

Factors that Impact Patient Assessment

Health Beliefs and Practices

Patients usually come for health care with predetermined beliefs and preferences, which are influenced by their culture. Patterns of shared meanings, beliefs, and behaviors are learned and acquired by a group of people during the course of history. Culture reflects the whole human behavior including values, attitudes, and ways of relating to and communicating with each other. It also encompasses an individual's concepts of self, universe, time, and space as well as health, disease, and illness.

Medicine sellers must keep in mind that patients will have various views of health, illness, disease, and cure that are shaped by their particular culture and beliefs. One important aspect that medicine sellers must keep in mind is what the patient believes causes disease and illness.

Family Relationships

The family is the basic social unit for most people. Because the family is an integral part of most people's lives, it affects how they view and, ultimately, how they utilize health care services.

When attending to patients, try to understand how the family can help him or her to make recovery quick. For example, in many cases, patients may require bed rest or a special diet that the family must provide.

Administration of Medicine

For medicines to produce the desired effects, they must be delivered to the site where action is needed. It is important to know how medicines work to produce the desired effects.

The medicine must be administered to the patient through the appropriate route so that it will be absorbed into the body, distributed through the body to reach the site of action, metabolized (broken down) by the body, and finally eliminated from the body.

Factors to Consider When Administering Medicines

Before administering medicine to the patient, take note of the following:

- Age
- Weight
- Time of administration
- Formulation (pharmaceutical factors)
- Route of administration
- Special conditions of administration, e.g., presence or absence of food in the stomach

Other factors that need to be considered include:

- Genetics of the patient, e.g., family history of allergy
- Biological factors, e.g., sex

Routes of Administration

There are several routes by which the drugs reach the site of action.

Oral Route

By mouth is the safest and most convenient route by which drugs are taken.

Advantages

- Convenience
- Acceptability
- If the gastrointestinal (GI) tract is being treated, the drug is being placed at the site of action
- Quick, e.g., sublingual, buccal
- Easy and uncomplicated, does not need technical supervision

Disadvantages

- Gastric irritation
- Erratic absorption, depends on the status of the GI tract (with or without food, age, etc.)
- Destruction of drug in the GI tract before absorption
- Not all drugs can be taken by mouth

Parenteral Route

This refers to administering medicine by injection. The medicines, needles, and syringes should all be sterile. Also, the environment should be appropriate.

Advantages

- Rapid absorption

- Useful in emergencies, when the patient is vomiting or unconscious
- Preferred when the medical condition is severe and a fast therapeutic effect is needed to save life

The medicine can be injected sub-continuously (s.c.; under the skin), intramuscular (I.M.; into the muscle), intravenous (I.V.; in the vein), and other routes.

Disadvantages (I.M. and I.V.)

- Route is not easy, needs technical expert to administer
- Painful
- If not properly done, may cause serious damage to tissues or even paralysis
- Not acceptable by children and some adults
- High risk of infection

Rectal Route

Some drugs are inserted into the rectum to for either a systemic or local effect. Drugs usually used for rectum insertion are in the form of suppositories or special solutions.

Advantages

- Useful for drugs that irritate the stomach, for example, diclofenac, indomethacin
- Suitable for vomiting patients, motion sickness (travel sickness)
- Suitable for patients who have difficulty swallowing, are unconscious, or are convulsing (e.g., use of rectal diazepam in a convulsing patient)
- Suitable for patients that may not be cooperative (e.g., the mentally ill)

Disadvantages

- Potentially embarrassing to the patient
- Rectal inflammation may occur if the patient uses this route very often
- Absorption can be unreliable, especially if rectum is full of feces
- Incorrect insertion may lead to poor absorption

Topical Application

Medicines are applied directly to the skin, eyes, or ear to get either topical or systemic effect. You should always take care that medicines that are meant for topical treatment are not applied to open wounds because it may be absorbed internally and cause serious problems. Medicines containing steroid products for topical application may be absorbed, especially when used on children.

Advantages

- Provides high, local concentration
- Easy to apply, self-treatment

Disadvantages

- Skin irritation
- Drugs for topical use only may be absorbed
- Uncertainty of absorption for drugs meant to produce systemic effect

Inhalation

Inhalation is taking a drug through the respiratory system by breathing in. This route is very effective and fast. It is mostly used to effectively control asthmatic attacks or other serious problems that need immediate intervention. Drugs administered primarily through this method are bronchodilators, such as Salbutamol, although other drugs may be administered this way as well.

Common Definitions

Dosage

The total amount of medicine given to a patient over a period of time to treat a particular condition

Dose

The amount of medicine administered (swallowed, injected, applied on the skin, etc.) to a patient at a time

Formulation

Refers to how the medicine is presented by the manufacturer for use, e.g., tablet, capsule, ointment, syrup, etc.

Maximum dose

The largest amount of a medicine that can be given without causing toxic side effects

Minimum dose

The smallest amount of medicine given that produces the desired effect

Side effects

These are the effects of a medicine other than those that are intended. No drug is entirely free from undesirable side effects. That is why it is important make sure that the patient is taking the right dose and to ask that the patient immediately report any undesirable side effects. Undesirable side effects may influence how the patient takes their medicines and therefore affect the treatment outcome.

Therapeutic dose

A dose between the minimum and the maximum doses that produces the desired effect without toxic effects

Toxic dose

An amount of a given medicine that causes serious unwanted effects

Some Common Side Effects of Medicines

Abdominal Discomfort

Medicines that are taken orally usually cause stomach problems that may be characterized by abdominal pain, feeling of a full stomach, diarrhea, nausea, and vomiting, among others. Medicines such as pain killers (diclofenac, Brufen, aspirin) and antibiotics (erythromycin) commonly cause abdominal discomfort.

Allergic Reactions to Drugs

Allergy is an undesirable reaction specific for some drugs and some individuals**.** For example, penicillin formulations (amoxicillin, benzyl penicillin, Pen V) and sulfonamide formulations (co-trimoxazole/septrin, sulfadoxine-pyrimethamine (SP)/Fansidar) commonly cause very serious allergic reactions in some individuals. However, most people do not get such reactions after taking these medicines. The first signs of such a reaction include; itching, skin rash/eruption and if the medicine was taken orally swelling around the mouth.

Anaphylaxis (Acute Hypersensitivity)

Anaphylaxis is a life-threatening clinical response that appears within minutes after administration of a medicine. Common examples of medicines that cause anaphylaxis are penicillins, sulfonamides, vaccines, and blood products. Anaphylaxis is one form of very severe allergic reaction that may be caused by medicines, however, there may be other causes, such as insect stings.

 **Before dispensing penicillin or sulfonamide formulations, it is very important to ask the patient if he/she has ever had any reaction after using these medicines**.

Drowsiness

Certain antihistamines may make patients feel sleepy and unable to remain alert. Examples of such medicines include chlorpheniramine and promethazine. Many of the medicines used for treatment of colds and allergies contain antihistamines and therefore may cause drowsiness. However, sometimes such medicines may be used to induce sleep. In such a case, drowsiness is not a side effect, but the intended therapeutic effect.

Other Common Side Effects

Other common side effects include headache and photosensitivity.

Session 2. First Aid

Objectives

1) Understand the basic principles of first aid
2) Identify minor injuries and common poisoning
3) Be able to provide first aid for minor injuries and common poisoning

Time

2.5-4 hours

Activity 1

1. What does first aid mean?
2. Why may an AMS need first aid skills?
3. List emergency situations in your community that may require first aid.
4. What do you do when faced with such emergencies?

Objectives of First Aid

1. To preserve life
2. To prevent the illness or injury from becoming worse
3. To promote recovery

Definitions

Casualty

The person who is injured or ill

Emergency situation

A serious health situation or occurrence that happens unexpectedly and demands immediate medical action

First aid

Emergency help given to an injured or suddenly ill person using readily available materials

First aider

Anyone who takes charge of an emergency situation and gives first aid; a first aider also comforts (reassures) the casualty, family, and friends and ensures that the emergency scene is cleaned up and unsafe conditions that may have caused the injury are corrected.

First aid and the law

There are two legal situations under which one can give first aid:

- Giving first aid as part of your job, e.g., health workers, a person trained as a first aider, police, fire brigade, Red Cross workers, etc.
    - You have a legal duty to respond to an emergency situation at your work place
    - You have a duty to use reasonable skill and care based on your level of training
- Giving first aid as a passer-by who sees an emergency situation and wishes to help an injured or ill person. You should use reasonable skill and care based on your level of training.

Good Samaritan

A Good Samaritan is a person who helps a person in need when they have no legal duty to do so.

Safety and first aid

- Giving first aid safely is the number one rule. The first aider must ensure that his/her actions don't put him/her or anyone else in danger. This necessitates that you take time to look for any danger and assess the risks of the actions you take.
- Preventing infection: the first aider and casualty are always in close contact, thus infection can pass from one person to the other. The first aider should be cautious of diseases caused by viruses and bacteria. These can be spread through blood or in the air through coughing or sneezing, e.g., TB, HIV, AIDS, and hepatitis B.

 **Always use universal precautions to apply first aid to minimize the risk of transmission of infection.**

These include:

- Gloves: use gloves to prevent direct hand contact between you and the casualty, especially if you might touch blood, body fluids, open wounds, or sores.
- Face masks or shields: use a face mask or shield when doing cardiopulmonary resuscitation (CPR). Follow manufacturer's instructions on their use, care, and disposal. Face masks should be used if you suspect the patient has an airborne condition, such as TB, common cold, etc.
- Hand washing: wash hands with soap and running water immediately after any contact with a casualty

Steps in Incident Management

1) Look for dangers to yourself then to the casualty.

2) Assess the situation.

3) Find out what happened and take precautions to avoid a similar occurrence.

4) If you are at the incident scene, make the situation safe by removing or reducing the cause. If the casualty has been brought to the medicines outlet, advise caretakers on how to remove or reduce danger.

5) Assess casualties and decide on what action to take as soon as possible.

6) Give initial treatment; if the patient requires further attention, refer to other health facility or call in specialized assistance if the patient can't be moved.

7) After the incident, tidy up the treatment site and restock the first aid kit.

Casualty Management and Initial Assessment

1) Actions

- Check for dangers to yourself and the casualty
- Remove the dangers safely or move the casualty if the danger cannot be removed

2) Response

- Check to see if the casualty is conscious
- Ask questions, such as, are you alright?
- Give a command, such as, open your eyes
- Give a gentle shake

3) Airway

- Quickly check for any obvious obstruction; the tongue may slip back and block the airway
- Open the airway by lifting the chin while carefully tilting the head back

4) Breathing

- Check for breathing by opening the airway and placing your cheek just above the casualty's mouth and nose
- Look at the chest and watch for movement
- Listen for breathing
- Feel for breath against your cheek
- Check for 10 seconds

6) Decide what action must be taken

- Send for help if there is somebody with you
- If the casualty is unconscious and breathing, put them in the recovery position immediately (teacher should demonstrate)
- If the casualty is unconscious and not breathing, start resuscitation immediately (teacher should demonstrate)

7) Circulation

There are two ways in which circulation affects the way oxygen moves around the body:

The heart may stop.

- Check for the heartbeat by taking the pulse in the neck (carotid pulse) for 10 seconds
- To find the pulse, place two fingers in the groove between the voice box and the large muscle in the neck and press down gently

There may be bleeding.

8) The initial assessment and priorities can be remembered by the letters **DRABC**

Danger

Response

Airway

Breathing

Circulation

Consider your actions immediately.

First Aid for Some Common Conditions

Choking

- Signs
  - Difficulty breathing or speaking
  - Grasping at the neck
  - Pointing at the mouth and throat
  - Purple/red color around the face and neck
  - Blueness to lips
- Aim: to remove obstruction and allow the casualty to breathe normally
- Actions

1) First step – backslaps

    - Reassure the casualty
    - Bend casualty forward with head lower than the chest
    - Encourage him/her to cough
    - Slap between the shoulder blades up to 5 times (the force of the slap should be moderate and not cause further injury)
    - See if you can remove the obstruction

2) Second step – abdominal thrusts; if backslaps are unsuccessful, try up to 5 abdominal thrusts

    - Stand behind casualty
    - Link your hands below the their rib cage
    - Pull sharply, inwards and upwards
    - If not successful, call for help
    - Keep repeating the cycle of backslaps and abdominal thrusts until airway is clear or help arrives

Fainting

- Signs

    - Collapse and loss of consciousness
    - Pale or grey, cold, clammy skin
    - Slow pulse, increases as casualty recovers

- Aim: improve the blood supply to the brain and reassure the casualty

- Actions

    1) Assess DRABC and treat any priority conditions
    2) Lay the casualty down and gently raise and support the legs
    3) Provide a source of fresh air if possible
    4) Reassure the casualty and keep onlookers away
    5) When casualty recovers, sit him/her up slowly; if they feel faint again, lay them down
    6) If the casualty does not regain consciousness quickly, reassess DRABC, place in recovery position, and call for medical help

Shock

- Signs

    - Pale or grey, cold, clammy skin
    - Rapid pulse, becoming weaker
    - Fast, shallow breathing
    - Feeling weak and dizzy
    - Feeling sick, may vomit
    - Feeling thirsty

- Restless and anxious, may be aggressive
- Yawning or gasping for air
- Level of consciousness will get lower and may become unconscious
- Breathing may fail and the heart may stop

- Aims

  - To treat any obvious cause
  - Increase blood supply to the brain, heart, and lungs
  - Get urgent medical help

- Actions

  1) Assess DRABC and treat priorities
  2) Lay casualty down, raise the legs gently
  3) Keep casualty still and quiet, reassure
  4) Loosen tight clothing around the neck, chest, and waist
  5) Keep warm
  6) Call for medical help
  7) Keep checking breathing, pulse, and level of consciousness; may have to resuscitate and put in recovery position
  8) Make notes for ambulance crew on your findings and actions
  9) **DO NOT DO THE FOLLOWING**

     - Do not move the casualty unless it is to escape from danger
     - Do not apply direct heat
     - Do not leave the casualty alone
     - Do not allow the casualty to eat, drink, or smoke

Wounds and Bleeding

- Aims

  - Control blood loss
  - Treat for shock
  - Prevent infection, e.g., tetanus
  - Arrange for transport to nearest health facility

- Minor bleeding (small cut):

  1) Encourage the wound to bleed for a few minutes
  2) Apply direct pressure for 10 minutes
  3) If dirty, clean it with an antiseptic, e.g., surgical spirit, hydrogen peroxide, etc., and gently dry the area
  4) Cover with sterile dressing (plaster or clean dressing)
  5) Refer for further medical attention

- Major bleeding

    1) Carefully expose the wound
    2) Apply direct pressure to the wound
    3) If there is an embedded object, apply pressure around the sides of the wound
    4) Raise the limb
    5) Lay casualty down
    6) Use a clean pad or sterile dressing
    7) Treat for shock
    8) Keep pressure on the wound for ten minutes
    9) When bleeding is controlled, apply a sterile dressing and bandage on top of the original pad
    10) If blood seeps through the dressing, add another dressing
    11) Make a report and refer to the nearest health center with more specialized facilities and health workers

Nose Bleeds

1) Sit casualty down and ensure that their head is tipped forward
2) Instruct casualty to breathe through their mouth and to pinch the nose just below the bridge for 10 minutes
3) Instruct casualty not to blow their nose or sniff
4) Release nose after 10 minutes; if still bleeding, pinch again for 10 minutes
5) If nose bleed lasts over 30 minutes, refer the casualty to a health center for specialized care
6) Clean area with warm water once bleeding has stopped
7) Advise casualty to rest for a few hours and avoid blowing the nose or picking any clots

Burns and Scalds

- Signs

    - Superficial: redness, tenderness, and swelling
    - Medium: redness, tenderness, swelling, and blistering
    - Deep: pale and waxy, charred tissue

- Aims: stop the burning, relieve pain and swelling, and minimize risk of infection

- Actions

    1) DRABC
    2) Flood injured area with cold running water or any harmless, cold fluid (do not over cool the casualty)
    3) Gently remove any rings and watches that are around the affected area
    4) Lay casualty down and treat for shock
    5) Apply antiseptic cream (e.g., silver sulfadiazine) to the burn site and, where appropriate, cover the area with a sterile dressing
    6) Refer to a health center for further management of moderate and severe burns

Fractures

For fractures other than fore and hind limb fractures, immediately refer the casualty for specialized care. Only offer advice to immobilize the possible fracture site and give some pain killers.

- Signs
    - Recent fall or blow
    - Sound of snapping from the injury site
    - Difficulty moving the limb
    - Severe pain and tenderness over the site of the injury
    - Deformity, swelling, or bruising
    - Signs of shock, if injury is severe
- Aims
    - Prevent movement at the site of the injury
    - Arrange transfer to medical aid while keeping the casualty comfortable
- Actions
    - Do an initial assessment
    - Advise the casualty to keep still
    - Treat any priorities from the initial assessment
    - If the injury is an upper limb, the casualty is probably supporting the injured limb in a comfortable position
    - If the injury is in a lower limb, provide support with your hands above and below the injury
    - Refer immediately for further management

Poisoning

- Signs
    - Burns or redness around the mouth and lips, from drinking certain poisons
    - Breath that smells like chemicals, such as gasoline or paint thinner
    - Burns, stains, and odors on the person or their clothing or on furniture, the floor, rugs, or other objects in the surrounding area
    - Empty medication bottles or scattered pills
    - Vomiting, difficulty breathing, sleepiness, confusion, or other unexpected signs
- Aims
    - To maintain an open airway, breathing, and circulation
    - Maintain or make safe an environment for the casualty and yourself
    - Obtain urgent medical aid
    - Identify the poison if possible

- Actions
  - Inhaled poisons
    - Remove casualty to open air or open windows
    - If possible, cut off the source of the poison
    - Make an initial assessment
    - If casualty is breathing but unconscious, place in recovery position and monitor DRABC
    - If casualty has stopped breathing, commence artificial ventilation and chest compressions
    - Refer for further management in a health center
  - Swallowed poisons
    - Make initial assessment
    - If casualty is unconscious, put in recovery position and monitor
    - DRABC and be prepared to resuscitate
    - If casualty is conscious, place in recovery position and try to find out what has been taken

    Do not induce vomiting

    - If casualty has taken a corrosive poison, give frequent sips of water or milk
    - Use barrier to protect yourself if resuscitation is required
    - Refer to more specialized health center for further management
    - If casualty vomits, save a sample for the medical team
    - Identify containers that held poison, if possible, and give to medical team
  - Skin contact
    - Make an initial assessment
    - Do not touch affected area with bare hands
    - Wash away the poison with large amounts of water; avoid splashing onto yourself and into casualty's eyes, mouth, or nose
    - If chemical is causing burns, keep splashing with water for at least 20 minutes
    - Do not re-use same water
    - Remove any clothing contaminated by the poison where possible and if it is safe
    - Try to preserve casualty's privacy, if possible
    - If casualty is unconscious, place into recovery position and monitor DRABC
    - Be prepared to resuscitate; use barrier if face is contaminated
    - If no improvement, refer to more specialized health facility for further management
  - Injected poisons
    - Make an initial assessment
    - If casualty is unconscious, put in recovery position and monitor
    - DRABC and be prepared to resuscitate
    - Place in recovery position, even if casualty is conscious; keep him/her calm and quiet and monitor DRABC
    - If possible, identify injected syringes, needles, samples, or the substance itself

- Refer to more specialized health facility for further management

Animal Bites

- Aims: To control bleeding, minimize risk of infection to yourself and casualty, and obtain medical attention

- Actions

1) Make initial assessment
2) Flush superficial wounds with running water for at least 5 minutes
3) Wash the wound with soap and water
4) When dry, cover with a sterile dressing
5) Advise casualty to seek further medical attention and to check whether anti-tetanus and rabies injections are required
6) For more serious wounds, control bleeding with direct pressure
7) Cover with sterile dressing and refer for further medical attention

Insect Stings

- Aims: To relieve pain and obtain medical aid, if required

- Actions

  - Make initial assessment
  - Carefully remove sting if visible; be careful not to squeeze any poison sac attached
  - Apply cold compress to relieve pain and antihistamine creams to relive itching and swelling
  - Advise casualty to seek further medical attention if the pain and swelling don't reduce in a day or so
  - If sting occurs in the mouth, refer for further medical attention urgently, monitor DRABC and reassure casualty while waiting
  - If it is a swarm attack causing multiple stings, do not approach until it is safe
  - Place casualty in the most comfortable position
  - Keep casualty quiet and reassure him/her
  - Monitor DRABC and be prepared to resuscitate
  - Arrange urgent transfer to a specialized medical facility

Snake Bites

- Aims: To reassure the casualty, prevent spread of the venom, get urgent medical aid

- Actions

  - Little or localized swelling

    - Wash the wound with soap and water if available
    - Reassure casualty to reduce anxiety

- Keep the casualty at rest, lying down with affected part level with his/her heart
- Get further medical attention as soon as possible
- If bite is on a limb, apply a pressure bandage to immobilize the area, apply a splint if necessary

- Severe localized swelling: refer immediately for further medical attention

- **Do NOT do the following**

  - Cut the wound
  - Apply suction to the wound
  - Use a tourniquet or constricting bandage
  - Apply or inject chemicals or medicines into the wound
  - Use ice on the wound

- Non-poisonous snake bites: treat the bite as any other wound, however, casualty should be seen by medical aid

If the casualty has any of the following conditions, refer immediately for more specialized care: heart attacks and angina, non-breathing adult, adult with no heartbeat (needing CPR).

Session 3. Introduction to Management of Fever, Pain and inflammation

Objectives

1) Understand fever and its causes
2) Appreciate the role of the AMS in the management of fever
3) Recognize fevers for referral to a health facility

Time

2 hours

What is Fever?

Fever is a rise in the body's normal temperature. The average normal body temperature is 37 °C. Fever is part of the body's defense mechanism. When our bodies are fighting infections, body temperature rises. Fever is the body's natural response to fighting germs.

Fever may have several causes. If the cause of the fever is established, the patient should be appropriately managed to eradicate the cause. Sometimes the cause of the fever may not clearly manifest, making it difficult to establish the cause in the medicine outlet; in such a case, the patient must be referred for further management.

How to Determine Body Temperature

Body temperature is usually measured in the armpit by a thermometer being held there for 5 to 8 minutes.

Causes of Fever

- Bacterial infections: tonsillitis, otitis media, bronchitis, pneumonia, tetanus, urinary tract infection (UTI), wounds, GI infections
- Viral infections: colds, flu, measles, mumps, chicken pox, AIDS
- Medications
- Illicit drugs
- Heat illnesses
- In children 2 months to 5 years, the most common causes include malaria, measles, ear infections, URTIs

Signs and Symptoms of Fever

Signs and symptoms of fever may be obvious or subtle; the younger the child, the less obvious the symptoms.

Infants

- Irritable
- Hard to please
- Tired
- Quiet
- Feels warm or hot
-
- Crying
- Rapid breathing
- Exhibits changes in sleeping or eating habits
- Elevated body temperature on the thermometer

Adults and Older Children

- Feels hotter or colder than others in the room who feel comfortable
- Body aches
- Headache
- Difficulty sleeping or sleeps more
- Poor appetite
- Has shivers and chills when the fever is rising especially rapidly and sweats when the fever is dropping or breaking

In Children 2 Months to 5 Years, Symptoms Help Determine the Cause of Fever

- Fever by history (feels hot or temperature 37.5 °C or above) **indicates malaria**
- Cloudy cornea; deep, extensive mouth ulcers; and pus draining from eye or mouth ulcers **indicates measles**
- Tender swelling behind the ear, pus draining from the ear, and ear pain **indicates an ear problem**

Management

The three goals of care for a patient with fever are:

- Control the temperature
- Prevent dehydration, particularly if the patient is a child
- Monitor for serious or life-threatening illness

The First Goal is to Control Temperature

Paracetamol/aspirin, diclofenac, and ibuprofen are used to reduce temperature. Follow the dosage and frequency instructions printed on the label or refer to a credible reference or resource.

Remember to continue to give the medication over at least 24 hours or the fever will usually return. If fever persists, refer for further management.

Do not use aspirin to treat fever in children, especially for fever caused by chicken pox. Aspirin has been linked to liver failure in some children. Ibuprofen use is also questionable in patients with chickenpox. Use paracetamol in this case.

When to Refer for Further Medical Care

Children and adult patients with fever should be referred under any of the circumstances listed below.

- Child is younger than 6 months of age since birth (regardless of prematurity)
- Fever cannot be controlled
- The child is or may become dehydrated from vomiting, diarrhea, or not drinking (sunken eyes, dry diapers, tented skin, cannot be aroused, etc.)
- Patient is getting worse or new symptoms have developed despite the treatment given
- Patient is having convulsions
- Child has a purple or red rash
- A change in consciousness occurs or patient is hallucinating
- Child's breathing is shallow, rapid, or difficult
- Patient has complex medical problems or takes prescription medications on a chronic basis (medications ordered for more than two weeks)
- Child with malaria has a stiff neck (indicates severe disease)
- Child has deep mouth ulcers, a cloudy cornea, or tender swelling behind the ears (indicates severe disease)

Dosing Regimens for Commonly Used Fever Medicines

Paracetamol

Presentation

- 500 mg tablets
- 120 mg/5 mL syrup

Indication

- Light to moderate pain
- Light to moderate fever
- Alternative to aspirin

Dosages (for Children and Adults)

- Children: 2.5–10 mL every 8 hours
- Adults: 500 mg–1000 mg every 6-8 hours, maximum of 3 g/24 hours

Precautions

- Avoid giving to patients with liver-kidney diseases

- Avoid giving to alcohol addicts

Side Effects

- Rare

Vital Information for the Patient

- Store the drug away from the reach of children
- If pain persists, go for medical advice

Ibuprofen

Presentation

- Tablets 200 mg and syrup 100 mg/5 mL

Indications

- Pain and inflammation in rheumatic disease, dysmenorrhea, fever, and pain in children

Dosage (for Adults and Children)

- Adults: 200-400 mg every 6 to 8 hours per day

- Children: 1-2 years, 2.5 mL every 6 to 8 hours per day
  3-7 years, 5 mL every 6 to 8 hours per day
  8-12 years, 10 mL every 6 to 8 hours per day

Precautions/Contraindications

History of GI diseases, hepatic and renal impairment, GI ulceration or bleeding, history of hypersensitivity to aspirin

Side Effects

GI discomfort, nausea, diarrhea, occasional bleeding, and ulceration

Vital Information for the Patient

Do not use any other non-steroidal anti-inflammatory drug (NSAID) while taking this drug; keep away from children

Diclofenac

Presentation

Tablets 25 mg, 50 mg, 100 mg

Indications

Severe pain and inflammation in rheumatic disease, other musculoskeletal disorders, acute gout, and postoperative pain

Dosage (for Adults)

Adults: 50 to 150 mg in 2-3 divided doses per day; total daily dose by any route should not exceed 150 mg

Precautions

See under previous NSAIDs above.

Side Effects

As for other NSAIDs

Vital Information to the Patient

Take with food or after meal with plenty of water

People older than 75 years are at more risk of significant stomach problems, such as ulcers, from NSAIDs, especially if they have had previous ulcers. Elderly individuals also typically have higher risk factors for heart attack and stroke.

Supportive Management for Children with Fever

The first goal is to lower the fever. Advise the parent or guardian not to overdress children indoors.

- Overdressing prevents the body from cooling.
- The most practical solution is to dress the child in a single layer of clothing, then cover the child with a sheet or light blanket.

Advise the parent to give the child a sponge bath in warm water as this helps reduce the fever.

- Such a bath is usually not needed but may more quickly reduce the fever.
- Put the child in a few inches of warm water, and use a sponge or washcloth to wet the skin of the body and arms and legs.
- The water itself does not cool the child. The evaporation of the water off the skin does, so do not cover the child with wet towels, which would prevent evaporation.

The second goal is to keep the child from becoming dehydrated. Humans lose extra water from the skin and lungs during a fever.

- Encourage the child to drink clear fluids such as juice or non-carbonated drinks without caffeine—not water. Water does not contain the necessary electrolytes and glucose. Other clear fluids such as ORS are available in medicine outlets.
- Tea should not be given because it contains caffeine, which increases urinary output and may contribute to dehydration.
- Children should produce light-colored urine at least every four hours if well hydrated.

The third goal is to monitor the child for signs of serious or life-threatening illness.

- If both the first and second goals are met and the patient still appears ill, a more serious problem may exist, and the patient should be referred for more specialized care.

Prevention

Prevention of illnesses that cause fever revolves around personal and household hygiene. Advise patients and their care takers to use these strategies to prevent the spread of viruses and bacteria:

- Wash your hands with soap and water.
- Cover your mouth and nose when sneezing and coughing.
- Handle food with clean hands.
- Properly immunize your child.
- Eat a healthy diet including fruits and vegetables.
- Get enough sleep.

What is Inflammation?

Inflammation is a basic way in which the body reacts to infection, irritation, or other injury. The key features of inflammation are redness, warmth, swelling, and pain.

What Is Pain?

Pain is an unpleasant sensation. Pain can be sharp or dull, burning or numbing, minor or major, acute or chronic. It can be a minor inconvenience or completely disabling.

How is Pain Diagnosed?

There is no way to tell how much pain a person has. No test, device, or instrument can measure the intensity of pain. In most cases, care providers find that the best aid to diagnose pain is the patients' own description of the type, duration, and location of pain, e.g. headache, backache, etc. Defining pain as sharp or dull, constant or intermittent, burning or aching may give the best clues as to the cause of pain. These descriptions are part of what is called the pain history, taken by the health worker during the assessment of a patient with pain.

Causes of Pain

- Arthritic conditions characterized by joint pain in the legs and arms
- Back pain caused by nerve damage, degeneration, and rupture of discs of the backbone
- Sports injuries and other trauma, such as sprains, strains, bruises, dislocation, and fractures are always accompanied by pain
- Burn pain is usually agonizing; sometimes healed patients have chronic pain at the burn site
- Headaches that may be acute or chronic; chronic headaches include migraines, cluster, and tension headaches arising from stress or an underlying disease
- Muscle pain can range from an aching muscle, spasm, or strain to severe spasticity that accompanies paralysis
- Neuropathic pain results from injury to nerves in any part of the body it is normally described as a hot, burning sensation

How are Pain and Inflammation Treated?

The goal of pain and inflammation management is to improve function, enabling individuals to work, attend school, or participate in other day-to-day activities. And because the major concern of patients with pain and inflammation is the pain associated with the inflammation, management focuses more on the pain.

Patients and their care providers have a number of options for the treatment of pain and inflammation; some are more effective than others. Sometimes, relaxation and not thinking about the pain or inflammation may provide relief.

All pain medications relieve inflammation. The effects of pain medication are different for different people. Also, the tolerance of pain varies greatly from one person to another. For this reason, one medication will not be right for everyone with the same injury. The right pain medication depends on the person experiencing the pain, not on the condition that is causing the pain. The following medicines can be used in the management of pain:

- Paracetamol
- Ibuprofen
- Diclofenac

Dosing Regimens for Commonly Used Pain Relieving Medicines

Medicines used in relieving pain are similar to those used in management of fever. Refer to the section Dosing Regimens for Commonly Used Fever Medicines on page 87

Supportive Management

- Resting/sleeping is an adjunct to pain medication
- Exercise reduces stress which usually contributes to pain
- Counseling

Session 4. Management of Malaria

Objectives

1) Understand the disease burden due to malaria in Liberia
2) Understand the causes, signs, and symptoms of malaria in children and adults
3) Understand the National Malaria Treatment Policy for uncomplicated malaria
4) Understand how to prevent and control malaria
5) To recognize complicated/severe malaria, provide appropriate management, including referral

Time

2.5 hours

Activity. Case Study: Malaria and Fever

JK, a 5-year-old boy returned from school with a headache and felt warm to the touch. Although he is usually quite a happy and active child, for the past two days, he has complained of feeling tired and he hasn't been hungry at meals. He was taken to a health center 2 where he informed the nurse that he had vomited once and that his arms and legs are hurting. These symptoms have worsened as time has passed.

JK's mother says that he doesn't sleep under a mosquito net and that he fears nurses because they administer painful injections to young children. He is the first-born in a family of three. His 3-year-old brother and 1-year-old sister are fine back at home.

The health worker concludes that JK has uncomplicated malaria and suggests treatment for him. Because some of the medicines are not available at the health center, JK's mother has to buy them from a nearby AMS. While at the drug shop, she complains about the total cost of the medicines and asks if it is okay to get a few doses today and then come back for the rest later.

Tasks

1) What signs and symptoms does JK have that indicate the presence of malaria?
2) What are the possible causes of JK's malaria?
3) What medicine alternatives are available for treatment of uncomplicated malaria in this patient?
4) What information should be provided to the patient/care taker to enhance adherence, ensure successful treatment, and minimize adverse effects?
5) What treatment, if any, would be appropriate for his brother and sister?
6) What advice do you have for JK's mother on how to control or prevent malaria?
7) How would you solve JK's mother's dilemma on the total cost of medicines?

Background

The **public health** goal of treatment is to reduce malaria transmission to others and prevent emergence and spread of drug resistance.

For the **individual**, the goal is full and rapid recovery from the malaria episode. In uncomplicated malaria, the objective is to cure malaria and prevent progression to severe disease.

The malaria control policy objective is to ensure:

- Early diagnosis and prompt, effective treatment of malaria
- That all malaria diagnoses are supported by parasitological diagnosis and, where feasible, rapid diagnostic tests (RDTs)

Life Cycle of Malaria

Malaria is an acute febrile illness caused by infection with malaria parasites of the genus *Plasmodium,* the species being *P. falciparum, P. vivax, P. ovale,* and *P. malariae.* Of these, *P. falciparum* is responsible for over 95% of malaria episodes in Liberia and is the sole cause of severe malaria.

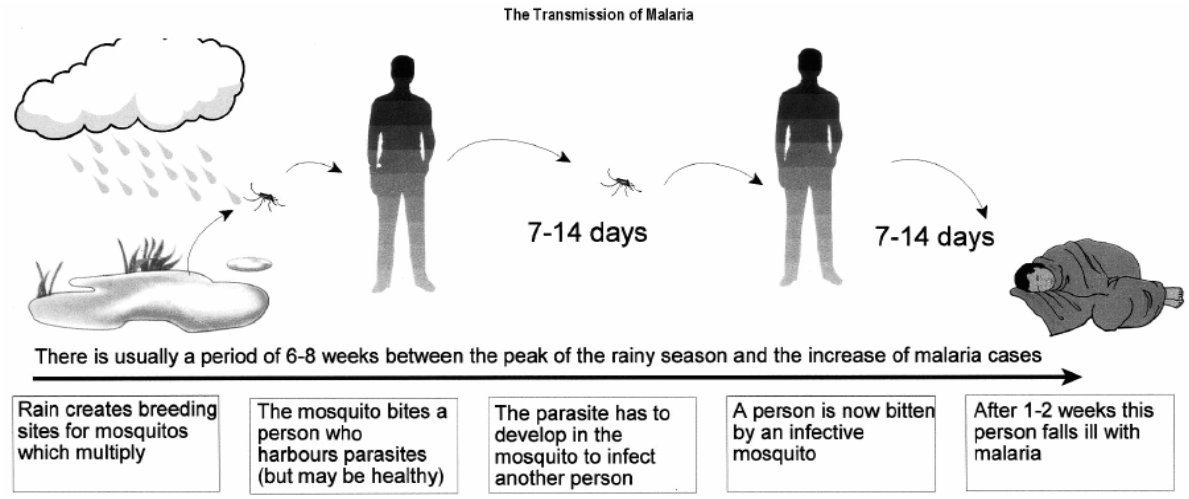


Figure 6. Transmission of malaria

How is Malaria Diagnosed?

Malaria presents with fever which is intermittent—it comes and goes many times. The body temperature may be normal during a clinical visit. A typical malaria attack has three phases:

- The cold stage when the patient feels cold and shivers
- The hot stage when the patient feels hot
- The sweating stage, which is associated with profuse sweating and relief of symptoms

For proper treatment of malaria, it is important to take a good history. Only then can the patient be adequately managed.

Also check for danger signs that require immediate action. Checking for danger signs is particularly important in those most at risk of severe malaria—children less than 5 years old, non-immune adults, and pregnant women.

Ask the patient or caretaker and observe for the signs and symptoms of malaria:

- What is the presenting complaint?
- Have there been or are there any danger signs now?
- Look for signs and symptoms of other diseases
- Also establish when the illness began, how it began, and if medicines have been taken, especially antimalarial medicines. If medicines have been taken, establish the type, dose, and duration of treatment. Establish whether the medicines were not vomited.

Symptoms of Uncomplicated Malaria

Children under 5 years

- Fever (raised temperature detected by thermometer or touch) or a history of fever
- Loss of appetite
- Weakness
- Lethargy
- Vomiting

Older children and adults

- Fever (raised temperature detected by thermometer or touch) or a history of fever
- Loss of appetite
- Nausea
- Vomiting
- Headache
- Joint pains
- Muscle aches
- Weakness
- Lethargy

Signs of Uncomplicated Malaria

Physical examination of patients should include taking the temperature and weighing the patient.
Look out for any of the following signs:

- Raised temperature (above 37.5 °C par axilla)
- Mild anemia (mild pallor of palms and mucous membranes); occurs commonly in children
- Dehydration (dry mouth, coated tongue, and sunken eyes); in adults, sunken eyes are usually a sign of severe dehydration

When Is It Necessary to Refer Patients for Further Care?

The following are recognized as danger signs of severe illness, and patients should be referred immediately for further care:

- Convulsions or fits within the last two days or at present
- Not able to drink or breast-feed
- Vomiting everything
- Altered mental state (lethargy, drowsiness, unconsciousness, or confusion)
- Prostration or extreme weakness (unable to stand or sit without support)
- Severe respiratory distress or difficulty breathing
- Severe anemia (severe pallor of palms and mucous membranes)
- Severe dehydration (sunken eyes, coated tongue, lethargy, inability to drink)

Look carefully at the patient and answer the following questions:

a) Level of Consciousness

- Is the patient awake and attentive?
- Is the patient oriented and interested in or aware of the surroundings?

In young children:

- Does the child look at the mother or caretaker?
- Does the child follow an object moved in front of his/her eyes?
- Does the child react to loud noises?

One or more negative answers indicate reduced consciousness!

b) Severe Anemia

- Look at the tongue, the conjunctivae, and the palms
- Are these parts very pale?

If so, there is severe anemia!

c) Dehydration

- Is the mouth dry?
- Are the eyes sunken?

- Pinch the skin (of the abdomen in children or forehead in adults) between your thumb and index finger and then suddenly let go; does the skin go back very slowly?

If the answer to one or more of the above questions is yes, then there is dehydration!

Remember to use weight and/or age to determine the right dose of antimalarial treatment especially for young children!

General Principles for Managing Uncomplicated Malaria

- Ensure early diagnosis and prompt, effective treatment of malaria
- Ensure that all malaria diagnoses are supported by parasitological diagnosis, where feasible, necessitating the use of RDTs
- Always give a full course of treatment—the right number of tablets over the right number of days
- Give the medicine orally unless the patient vomits repeatedly
- If symptoms persist, but there are no danger signs, wait at least 48 hours before changing the treatment
- Malaria parasites may develop resistance against antimalarial medicines; this means that the medicine cannot cure the patient or, after initial improvement, the symptoms come back within 14 days

If a patient does not respond to the first-line medicine after two days and no laboratory facility is available, give the second-line medicine if there is no evidence of any other cause of the fever.

Treatment with AS/AQ

Table 4. Dosing for AS/AQ (Fixed-Dose Combination)

Weight	Age	Tablet content	Dosage
≥ 4.5 kg < 9 kg	2 to 11 months (infant)	25 mg AS + 67.5 mg AQ	1 tablet/day × 3 days
≥ 9 kg < 18 kg	1 to 5 years (toddler)	50 mg AS + 135 mg AQ	1 tablet/day × 3 days
≥ 18 kg < 36 kg	6 to 13 years (child)	100 mg AS + 270 mg AQ	1 tablet/day × 3 days
≥ 36 kg	≥ to 14 years (adult)	100 mg AS + 270 mg AQ	2 tablets/day × 3 days

Source: National 2011

NB: Children with < 5 kg body weight and pregnant women in the first trimester should be given oral quinine at 30 mg/kg in two or three divided doses (15 mg/kg b.i.d. or 10 mg/kg t.i.d. × 7 days).

Vital Patient Information

Patients with malaria frequently lose their appetite. Patients should be encouraged to drink, preferably milk, and advised to start eating, preferably fatty food, as soon as possible. This improves absorption of AS/AQ.

- This medicine should not be used in patients with a history of reactions to amodiaquine (commonly known as camoquine).

- Just like with all antimalarial medicines, patients should be advised to always complete the dose, even when they feel better.

Side Effects

Sometimes it is hard to tell the side effects of antimalarial medicines as they tend to be similar to the symptoms of malaria. The most common side effects include sleeping disorders, headache, dizziness, abdominal pain, anorexia, diarrhea, vomiting, nausea, and skin rash.

Most of the side effects of this medicine are due to the amodiaquine component. The most common being visual disturbance, pigmentation of the finger nails and skin, nausea, vomiting abdominal discomfort, and general body weakness.

Alternative First-Line Treatment with Artemether 20 mg + Lumefantrine 120 mg

Artemether + lumefantrine combination treatment can be used as a first-line treatment for uncomplicated malaria in situations where AS/AQ is not available.

Alternative First-Line Treatment with Duo-Cotecxin (Dihydroartemisinin 40 mg and Piperaquine 320 mg)

Available in packs of 8 tablets

Table 5. Recommended Dosage for Duo-Cotecxin

	Over 16 years	11-16 years	6-11
Day 1	3 tabs	2 tabs	$1^1/_2$ tabs
Day 2	3 tabs	2 tabs	$1^1/_2$ tabs
Day 3	2 tabs	2 tabs	1 tab
Total	8 tabs	6 tabs	4 tabs

Source: National 2011

Vital Patient Information

Duo-Cotecxin is not advised during the first trimester of pregnancy unless recommended by a doctor. And a new course of Duo-Cotecxin treatment should not be taken within four weeks of finishing the first one.

Side Effects

Few cases of side effects have been reported, and most of them were related abdominal disorders such as nausea, diarrhea, loss of appetite, and skin reactions, such as rash and itching.

Other available combination treatments for uncomplicated malaria are: artesunate + SP and artesunate + mefloquine.

It is important for medicine sellers to always read medicine inserts and labels to get more detailed information regarding medicines.

Treatment of Uncomplicated Malaria with Quinine Tablets (Second-Line Medicine)

Quinine tablets are the second-line medicine for the treatment of uncomplicated malaria. Second-line treatment should only be given when the first-line medicine (AS/AQ) has failed or when it is contraindicated.

Quinine tablets (300 mg salt) are given as a dose of 10 mg/kg (up to a maximum of 600 mg) every 8 hours for 7 days.

Table 6. Dosage for Quinine 300 mg Tablets or Quinine Syrup 100 mg/5 mL

Age group	Weight	Dose (to be given every 8 hours for 7 days)
3 months up to 1 year	5 to 10 kg	75 mg ($^1/_4$ tab) or 5 mL syrup
1 to 5 years	10 to 18 kg	150 mg ($^1/_2$ tab) or 7.5 mL syrup
5 to 7 years	18 to 24 kg	225 mg ($^3/_4$ tab) or 10 mL syrup
7 to 10 years	24 to 30 kg	300 mg (1 tab)
10 to 13 years	30 to 40 kg	375 mg ($1^1/_4$ tab)
13 to 15 years	40 to 50 kg	450 mg ($1^1/_2$ tab)
15 years and above	Over 50 kg	600 mg (2 tabs)

Source: National 2011

Supportive Treatment and Counseling for Uncomplicated Malaria

Good management of uncomplicated malaria does not consist of antimalarial treatment alone. It also should include the following supportive treatment:

- Antipyretic treatment
- Fluids and food
- Counseling

Antipyretic Treatment

If the fever is high (axillary temperature 38.5 °C and above), an antipyretic should be given. Children less than 8 years of age should only receive paracetamol and older children and adults can be given either paracetamol or aspirin. The dosage of paracetamol is 10 mg/kg body weight up to a maximum of 1000 mg in 8 hours.

Table 7. Dosage of Paracetamol 500 mg Tablets or Syrup 120 mg/5 mL

Age group	Dose (to be given every 8 hours)
From 2 months up to 3 years	125 mg ($^1/_4$ tab) or 5 mL syrup
3 to 7 years	250 mg ($^1/_2$ tab) or 10 mL syrup
7 to 10 years	500 mg (1 tab)
10 to 15 years	750 mg ($1^1/_2$ tabs)
15 years and above	1000 mg (2 tabs)

Source: National 2011

In addition to the antipyretic, undressing and sponging with lukewarm (tepid) water can be used to lower the temperature.

Fluid and Food

Patients with fever lose a lot of fluid through sweating and respiration. They should be encouraged to drink plenty of fluids to avoid dehydration! Although a sick person should not be forced to eat, care must be taken that the energy supply is sufficient. Light foods or fruit juices should be offered frequently. Babies should continue to be breast-fed.

Counseling

A patient can comply with the treatment a lot better if he/she fully understands why and how to take the treatment and what to expect during its course. Therefore, you should explain to the patient or the caretaker the following:

- That the cause of the illness is malaria. The disease is characterized by fever and is transmitted by mosquitoes.
- The correct way to take the medicines. In order to be totally cured, the patient must take the full course of treatment.
- Symptoms may not disappear immediately after taking the first dose. Improvement may take up to two days.
- The patient should consult a health worker immediately if symptoms worsen or if they persist beyond two days.
- The patient should take another dose if he/she vomits the medicine within 30 minutes.

- The patient should not change treatment by himself/herself.

- Before giving any medication, always ask about a history of reactions and avoid medicines which caused serious reactions in the same patient.

Make sure that the patient understands the illness and its treatment while at home. Talk to the patient about the prevention and control of malaria, emphasizing the importance of sleeping under insecticide-treated nets.

Prevention and Control

Malaria can be controlled by preventing mosquitoes from reaching and biting humans, reducing the population of mosquitoes, and reducing the malaria parasite load in the human population.

Prevention of Contact between Mosquitoes and Humans

- The best way to prevent bites is to sleep under insecticide-treated mosquito nets. Such nets create a physical barrier that prevents man-mosquito contact. They also repel and kill mosquitoes.
- Putting mesh in windows, doors, and ventilators reduces the entry of mosquitoes into houses. Doors and windows should also be closed early in the evening.
- Residential houses should be built far away from marshes and other collections of stagnant water where mosquitoes breed.

Reduction of the Mosquito Population

- Destruction of adult mosquitoes

    - Spraying of the internal walls of human dwellings with residual insecticides
    - Use of insecticide-treated mosquito nets

- Destruction of mosquito larvae

    - Intermittent cleaning and drying of water containers and intermittent crop irrigation at least once every 7 days ensures that mosquitoes do not have sufficient time to complete their breeding cycle.
    - Putting chemicals, fish, or bacteria that kill larvae into stagnant water bodies (known as “larviciding”) interrupts the mosquito breeding cycle.

- Reduction of mosquito breeding sites

    - Peri-domestic sanitation, e.g., reducing breeding places around the home by proper disposal of broken utensils and plastic bags, old tires, and filling in holes in the ground
    - Environmental management, e.g., constructing drainage channels for storm water and rivers and drainage of stagnant water bodies
    - Water management, e.g., protection of sources of water for domestic, agricultural, or industrial use

Destruction of Malaria Parasites

- Early diagnosis and prompt treatment of malaria cases (case management)
    - Effective treatment reduces the length of morbidity and the risk of mortality. Those who are successfully treated also cease to serve as sources of malaria parasites.
- Preventive treatment
    - Intermittent preventive treatment of pregnant women reduces the risk of poor pregnancy outcomes, e.g., maternal anemia, maternal death, abortion, and low birth-weight babies
    - Chemoprophylaxis for special risk groups (e.g., people with sickle cell, non-immune visitors, children prone to very frequent febrile convulsions) reduces the risk of morbidity and mortality.

Session 5. Management of Upper Respiratory Tract Infections

Objectives

1) Causes, signs, symptoms, and clinical manifestations of common URTIs
2) Management of common URTIs
3) Common medicines used in treatment of URTIs
4) Patient information and conditions for referral

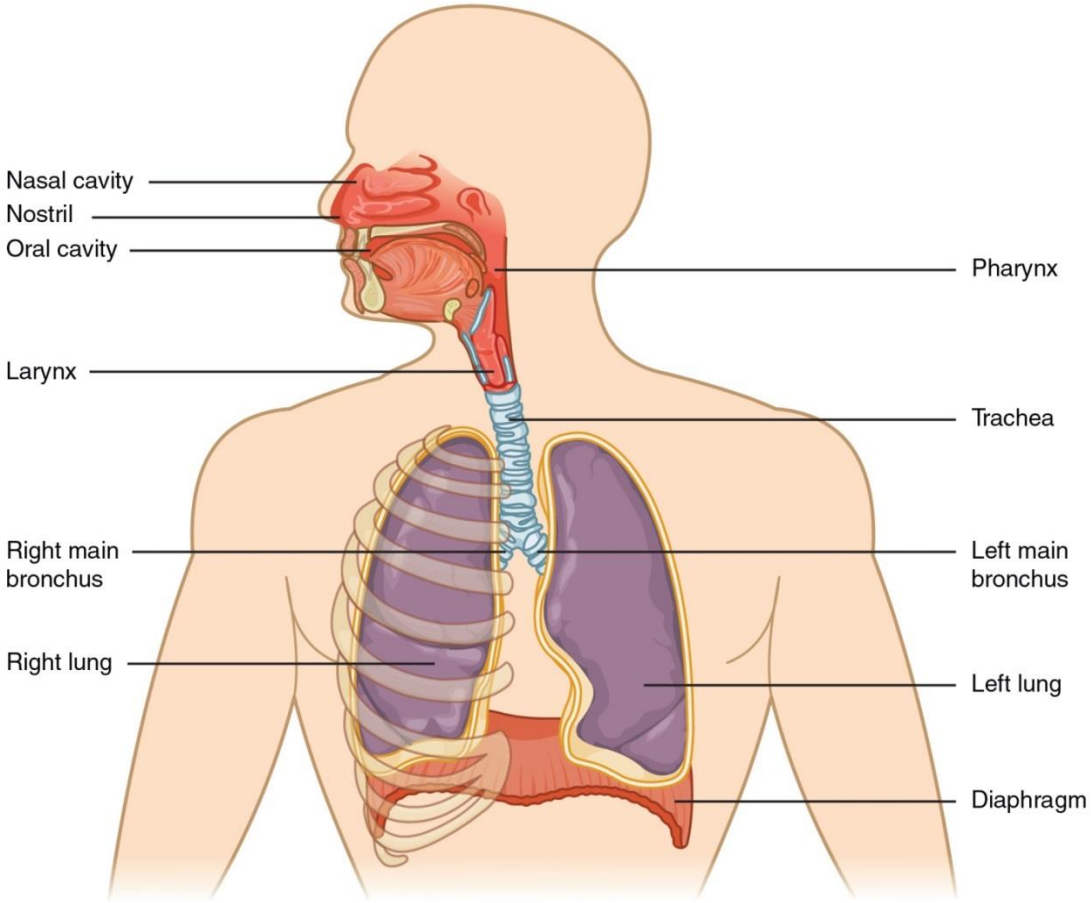
Time

3 hours

Activity. Role Playing Measuring Breathing Rates

Work in pairs to measure each other's breathing rates. Begin with slow breathing and then go on to fast breathing. Determine whether the breathing rate is normal or fast for the respective ages.

Age	Rate
3 weeks	54
3 months	55 and 60 (60 is the rate recorded on the second measurement)
3 months	53 and 45
6 weeks	75 and 70
2 years	45 and 56
1 year	60 and 65



Source: OpenStax College. Organs and Structures of the Respiratory System [OpenStax-CNX Web site]. July 8, 2013. Available at: http://cnx.org/content/m46548/1.8/.

Figure 7. Human respiratory tract

Definition of Upper Respiratory Tract Infection

A URTI is an infection by bacteria or viruses of the upper part of the respiratory system, which is above the lungs. These infections may affect the throat (pharyngitis), nasopharynx (nasopharyngitis), sinuses (sinusitis), larynx (laryngitis), trachea (tracheitis), or bronchi (bronchitis). These infections usually present as cold, sore throat, flu, and coughs.

Common Cold

A common cold is an illness that may cure without any specific treatment except supportive management (symptomatic management). Common cold is caused by any 1 of more than 200 viruses. It produces mild symptoms lasting only 5–10 days. It is different from 'flu' influenza, which can have severe symptoms.

Mode of Transmission of the Common Cold

The primary means of spreading a cold is by hand-to-hand contact or from contaminated objects such as door knobs and telephones touched by an infected person. The typical transmission occurs when a cold sufferer rubs his or her nose and then shortly thereafter shakes hands with someone who, in turn, touches his or her own nose or eyes.

Symptoms of the Common Cold

The most common complaints associated with the cold are usually mild.

- Runny nose
- Sneezing
- Nasal and sinus blockage
- Headache
- Sore throat
- Cough

When to Refer a Cold for Medical Care

If symptoms become severe or the patient develops the following symptoms, it may the flu virus, bacterial pneumonia, or another illness that needs to be managed at a more specialized health facility.

- Shaking, chills
- Profuse sweating
- Muscle aches
- Nausea
- Vomiting
- High fever (greater than 39 °C)

Management of the Common Cold

Because the common cold is viral, **ANTIBIOTICS SHOULD NOT BE USED**; antibiotics kill bacteria, not viruses. There is no cure (antiviral medication) that targets the 200 different causative viruses of the common cold.

Therefore, management of common cold involves several steps that alleviate the cold symptoms.

Pharmacological Management

- Pain and fever are treated as outlined in the section on management of pain, fever, and inflammation.

- Nasal congestion and cough are managed by antihistamines and cough preparations. Preparations containing pseudoephedrine can be used to alleviate nasal congestion.

- Cough suppressants act by blocking the cough reflex. As a general rule, use a suppressant (contains dextromethorphan) for a dry, hacking cough.

- Expectorants are for a cough associated with excessive mucus production, or phlegm (contains guaifenesin).

- Lozenges and topical sprays can provide relief from sore throat pain. A warm saltwater gargle can relieve a scratchy throat. There are many mixtures, syrups, tablets, and capsules that combine pain killers, antihistamines, and cough medicines available over the counter. Medicine outlet sellers are encouraged to familiarize themselves with products available on the market by reading medicine packages and inserts.

 **Avoid giving too many medicines where one formulation would suffice.**

Supportive Management

- Drink plenty of fluids to help break up congestion. Drinking water or juice will prevent dehydration and keep the throat moist. Drink at least 8-10 glasses of fluids daily. Cola, tea, and coffee are not recommended because they increase urine output and hence decrease fluids in body system.

- Inhaled steam may ease congestion and drippy nose. Hold your head over a pot of boiling water and breathe through your nose. Be careful. If the steam burns your nose, breathe in more slowly.

Prevention

- Wash hands frequently.
- Avoid touching the nose and eyes.
- Do not share utensils or towels at home.

Sore Throat

Sore throats are usually defined by the anatomical site affected.

- Pharyngitis involves pain and inflammation of the pharynx, which is the area of the throat directly behind the mouth and soft palate.

- Tonsillitis involves inflammation of the tonsils, which are located on either side of the base of the tongue.

- Laryngitis involves the larynx, which is the top portion of the windpipe (trachea). Laryngitis is pain and inflammation of the larynx (often associated with a hoarse voice). Croup is a form of laryngitis in children (it tends to be associated with a seal bark-cough and difficulty inhaling air).

Causes of Sore Throat

- Infection by viruses (often the same viruses that cause colds and other upper respiratory illnesses) or bacteria

- Chemicals (cigarette smoke), injury (swallowing a fish bone), allergy or postnasal drip, or, rarely, cancer (early cancer often presents with painless symptoms)

Signs and Symptoms of Sore Throat

- Symptoms of sore throat throughout the body include fever, headache, nausea, and malaise. These may be present with either a viral or bacterial infection.

- Symptoms specific to the throat include pain with swallowing for pharyngitis and a hoarse voice when laryngitis is present. Cold viruses tend to cause more coughing and runny nose than bacteria.

- Other signs and symptoms include:

    - Pus on the surface of the tonsils (can happen with bacteria or viruses)
    - Redness of the oropharynx (the pharynx viewed though the mouth)
    - Tender neck glands (inflamed lymph nodes)
    - Drooling or spitting (swallowing becomes too painful)
    - Difficulty breathing (inhaling can be especially difficult when the passage through the pharynx or larynx becomes too narrow for a normal stream of air)

Diagnosis

History and physical examination based on above signs and symptoms are usually adequate.

When to Refer a Patient with a Cough for Further Care

When the patient has the following symptoms that point to the possibility of a bacterial infection, seek more advanced medical care.

- Severe sore throat without much of a cough, swallowing hurts enough that salivating occurs
- Persistent fever over 38 °C
- Associated headache, abdominal pain, or vomiting
- Difficulty in breathing, which may be a symptom of more serious illness
- Dehydration (dry mouth, sunken eyes, severe weakness, or decreased urine output); symptoms of dehydration in adults may be different from symptoms of dehydration in children

Pharmacological Management of Sore Throat

- Throat lozenges often prove inadequate for all but the most minor cases.
- Gargling with salt water is sometimes helpful (try mixing table salt with warm water and gargling).

- Although they may be rough on the stomach, NSAIDs (aspirin, ibuprofen) are often more effective pain relievers than paracetamol.

Supportive Management

Drinking enough fluids is very important.

- A fever can increase fluid requirements, and painful swallowing can decrease fluid intake.
- When it is hard to drink, it is important to decrease your body's requirements for fluids by resting and lowering any fever.
- Pain treatment can help increase fluid intake.

Antibiotics

- Antibiotics are ***not*** helpful when a virus causes a sore throat.
- Sometimes it is difficult to determine whether the cause is viral or bacterial, so antibiotics may be given as a precaution.
- Antibiotics are helpful in preventing rheumatic fever (an uncommon but severe complication of a streptococcal infection).

Prevention

- Avoid close contact with ill people.
- Children should stay home from school and day care during infectious periods.

Cough

A cough is an action the body takes to get rid of substances that are irritating to the air passages, which carry the air you breathe in from the nose and mouth to the lungs. A cough occurs when special cells along the air passages get irritated and trigger a chain of events. One can choose to cough (a voluntary process), or one's body may cough on its own (an involuntary process).

Causes of Coughs

Acute cough may be caused by infectious and non-infectious agents.

- Infectious causes include viral URTIs (common cold), sinus infections, pneumonia, and whooping cough
- Non-infectious causes include flares-up of the following: chronic bronchitis, emphysema, asthma, and environmental allergies

Chronic cough may be caused by the following:

- Environmental substances, e.g., cigarette smoke, dusts, pollen, particulate matter, industrial chemicals, pollution, and low environmental humidity
- Common causes include asthma, emphysema, and chronic bronchitis
- An often overlooked cause of chronic cough is gastroesophageal reflux disease, which commonly manifests as heartburn; it occurs when acid from the stomach travels up the esophagus. This abnormal condition can cause irritation of the esophagus and larynx resulting in the reflex production of a cough.

Signs and Symptoms of Cough

Although the signs of a cough are self-explanatory, what differentiates the cause of a cough is the associated signs and symptoms and whether it is acute or chronic.

Acute coughs are divided into infectious and non-infectious causes.

If the cough is due to an infection, the patient will have fever, chills, body aches, sore throat, nausea, vomiting, headache, sinus pressure, runny nose, night sweats, and postnasal drip. Sputum, or phlegm, sometimes indicates an infection is present, but it is also seen in non-infectious causes.

If the cough is of a non-infectious cause, signs and symptoms include coughs that occur when exposed to certain chemicals or irritants in the environment, coughs with wheezing, coughs that routinely worsen at certain locations or doing certain activities, or coughs that improve with inhalers or allergy medications.

Assessing Cough in Children 2 Months to 5 Years

Table 8. Signs and What to Do

Signs	Classify as	Treatment
Any general danger sign or chest in-drawing or stridor in a calm child	Severe pneumonia or very severe disease	• Give first dose of an appropriate antibiotic • Give vitamin A • Refer urgently to hospital
Fast breathing	Pneumonia	• Give an appropriate antibiotic for 5 days • Soothe the throat and relieve the cough with a safe remedy • Give vitamin A • Advise mother when to return immediately • Follow up in 2 days • Counsel and refer to check for symptomatic HIV
No signs of pneumonia or very severe disease	No pneumonia, cough, or cold	• If coughing more than 30 days, refer for assessment • Soothe the throat and relieve the cough with a safe remedy • Advise mother when to return immediately • Follow up in 5 days if not improving

How to Assess Breathing in Children

Use a respiratory timer to determine the number of breaths per minute.

Table 9. Fast Breathing Rates for Children

Child's age	Child has fast breathing if the count is
0 to 7 days	60 or more breaths per minute
2 months to 1 year	More than 50 breaths per min
1 to 5 years	More than 40 breaths per min

Management of Cough in Adults and Older Children

The treatment of a cough will depend largely on its severity and underlying cause. The treatment of an acute cough is directed primarily at decreasing the cough and related symptoms in addition to treating the underlying cause.

Symptomatic relief of cough can be provided by over-the-counter or prescription cough remedies cough mixtures and syrups.
Antibiotics are often given if suspect a bacterial cause is suspected. It is important that antibiotics are given in appropriate doses for age in a sufficient quantity for the appropriate duration of treatment.

Cough Conditions that Necessitate Referral

- Cough fails to get better after other symptoms go away or lessen
- Cough that changes in character
- Trial therapy shows no signs of reducing the cough
- Coughing up blood
- Cough interferes with the activities of daily living or sleep cycles
- Shortness of breath or difficulty breathing could imply more serious medical problems
- Cough that is caused by a chronic condition; discuss what signs and symptoms warrant seeking specialized care
- Elderly people or people with weakened immune systems who develop a cough and high fever

Prevention

- Measures used in preventing cough are similar to those used in preventing common cold
- Patients must be encouraged to complete the medicines given, particularly if antibiotics are given. The medicine outlet seller should always give a full dose of antibiotics.

Session 6. Gastrointestinal Conditions

Objectives

1) Describe the gastrointestinal system
2) Explain the causes, signs, symptoms, and clinical manifestations of common gastrointestinal diseases and disorders
3) Explain the management of common gastrointestinal disease and disorders
4) Describe what information patients need and condition for referral

Time

3.5-5 hours

Activity 1. Diarrhea Case Study

John is a 35-year-old man who comes to the AMS with a prescription from a nearby clinic for co-trimoxazole tab 480 mg b.d. for 5 days and magnesium suspension 10 mL three times a day. The diagnosis on the prescription is for gastroenteritis due to an infection.

John complains that he has diarrhea and has not been able to eat because he feels very bad. He also has nausea, vomiting, pain, and watery stool. He was well until two days ago when he began to experience some nausea that occurred after taking a cold chapatti and tea at a nearby "eating joint." He also tells you that he has not taken any medicine and he is now feeling achy and warm. He has not been able to eat solid foods or even small amounts of water without throwing up. Since yesterday, he has had seven liquid stools, but he has not noticed any blood in the stool.

John is not taking any medicines. He experienced itching and rash on his legs when he used co-trimoxazole 10 years ago. John is not married. He does not smoke, but drinks local brew for social reasons; he claims that he does not over indulge in alcohol.

Questions

1) What are the possible causes of John's diarrhea?
2) What types of non-drug therapy should be considered for this patient?
3) Was the correct medicine and dose prescribed for John? Give reasons for your answer. If no, what steps would do you take regarding the medicines prescribed for John?
4) What medicine alternatives are available for treatment of diarrhea in this patient?
5) What information should be provided to John to ensure that he completes the treatment?
6) How can John prevent diarrhea in the future?

Activity 2. Worm Infestation Case Study

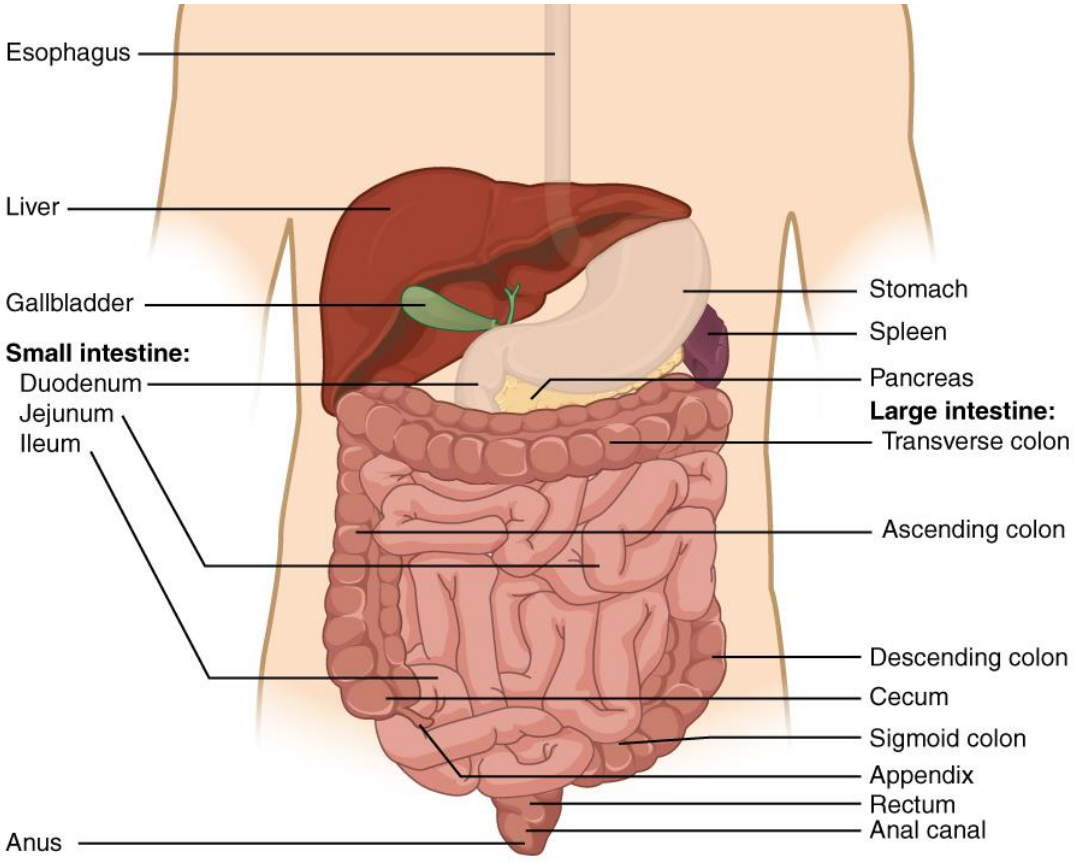
Maria, the mother of James, a 5-year-old boy in primary one, comes to the drug shop concerned because her child keeps scratching himself in the buttocks and it is discomforting. This has been going on for two weeks and she is wondering if this is normal for James or if it is an illness.

On talking to Maria, she reveals that James does not wash his hands before settling down to eat. Also, during the just concluded mango season, James ate mangoes every day without washing them first. She also notes that James had a skin reaction in the form of blisters four days ago, though it disappeared without any treatment.

Maria asks for treatment for this problem and also asks about how she can prevent the same from happening to James' young sister.

Questions

1) What is James suffering from?
2) What are the other signs and symptoms that James may present with?
3) What medicine, dose, schedule, and duration are best for James and why?
4) What information should be provided to Maria to enhance adherence, ensure complete treatment, and minimize adverse effects?
5) What advice would you provide to James' mother to prevent these conditions from happening to her children again?



Source: OpenStax College. Overview of the Digestive System [OpenStax-CNX Web site]. June 4, 2013. Available at: http://cnx.org/content/m46506/1.3/.

Figure 8. Human GI tract

Diarrhea

Diarrhea is the frequent passage (four or more times in 24 hours) of loose, watery, soft stools plus bloating, pressure, and cramps commonly referred to as gas. The most significant cause of severe illness is loss of water caused by the diarrhea, which is often accompanied by vomiting. Fluids pass through the body before they can be absorbed in the intestine, which leads to dehydration. Most deaths from diarrhea occur in the very young and the elderly, whose health may be put at risk from a moderate amount of dehydration.

More specific forms of diarrheal diseases include:

- Chronic diarrhea in people who have had loose or liquid stool for over 2 weeks
- Acute enteritis which means inflammation of the intestine
- Gastroenteritis is diarrhea associated with nausea and vomiting
- Dysentery is diarrhea that contains blood, pus, or mucus

Causes of Diarrhea

- **Viral infections** cause most cases of diarrhea, usually mild-to-moderate symptoms with frequent, watery bowel movements, abdominal cramps, and low-grade fevers. Diarrhea generally lasts from three to seven days. Viral infections are the common cause of epidemics of diarrhea among adults and school age children.

- **Bacterial infections** cause the more serious cases of diarrhea. The most common source of bacterial infections is food poisoning. Bacterial infections cause severe symptoms with vomiting, fever, and severe abdominal cramps or abdominal pain. In more serious cases, the stool may contain mucus, pus, or bright red blood.

- Protozoa infections, e.g., amoebiasis, giardiasis

- Malnutrition, e.g., kwashiorkor

Symptoms of Diarrhea

- Watery, liquid stool: the stool may be any color. The passage of red stool suggests intestinal bleeding and could mean a more severe infection. The passage of thick, tarry, black stool suggests significant bleeding in the stomach or upper portions of the intestine and is not usually caused by acute infections.

- Abdominal cramps: occasionally, mild-to-moderate abdominal pain will be present. Severe abdominal pain is not usually common, but if present, suggests more severe disease.

- Fever: a high fever is usually not common, but if present, suggests more severe disease.

- Dehydration: if not well managed, diarrhea may lead to dehydration, which is a sign of potentially serious disease.

- Dehydrated adults may be very thirsty or appear to have dry mouths.

- The skin of older people may appear to be loose. The elderly may also become very sleepy or have behavior changes and confusion when dehydrated.

- Dehydrated infants and children may have sunken eyes and dry mouths. They may appear very sleepy or may refuse to eat or drink from a bottle.

Investigation

Investigation is mostly by clinical examination, however, specific diagnosis is based on stool examination.

Supportive Management of Diarrhea

In most cases, support treatment is sufficient in diarrheal management because diarrhea is almost always self-limiting. However, if the cause is a bacterial or protozoan infection, antibiotics can be used.

Adults

- Make sure the patient does not become dehydrated. Advise the patient to drink plenty of fluids. Avoid milk because it will make the diarrhea worse.

- Greasy and fatty foods should also be avoided. Infants and children should be encouraged to eat bananas and rice. After the diarrhea stops, alcoholic beverages and spicy foods should be avoided for at least two days.

- Advice the patient to continue his or her usual activities if mildly ill with diarrhea, but to avoid strenuous exercise until they feel better because strenuous exercise increases the risk of dehydration.

Children

- Dehydration is a major concern. It poses significant problems in very young infants. Children should be drink solutions such as ORS frequently. These fluids also contain necessary salts lost with diarrhea.

- Give zinc sulfate dispersible tablets to replace zinc lost in stool.

- Children with frequent stools, fever, or vomiting should stay home until these symptoms go away. In addition to allowing the child to rest and recover, this also helps prevent other children from becoming ill.

- Because viruses cause most cases of diarrhea, antibiotics will not work. Even the more severe diarrhea caused by bacteria will usually go away in a few days without antibiotics.

When to Refer Patients

- Unable to tolerate any food or drink

- Signs of dehydration (e.g., for children, sunken eyes and dry mouth, appears very sleepy or may refuse to eat or drink from a bottle)
- In cases of severe dehydration, IV fluids are required, but these can only be administered at a health center
- High fever; significant abdominal pain; very frequent, loose bowel movements
- If the patient is elderly or has serious underlying medical problems, particularly diabetes, heart, kidney, or liver disease, or HIV or AIDS
- If patient is a newborn or an infant
- If symptoms do not improve in 2-3 days or appear to become worse
- If the diarrhea appears to contain blood (may be bright red or may look like black, thick tar)
- If patient appears very sleepy or is acting unusual

Oral Rehydration Salt

Presentation

ORS sachets with powder for preparation of or 1 liter of ORS solution (always read the label to find out the right quantity of water to be added).

Dosages for Children and Adults

- Give orally; how often the patient takes it depends on the degree of dehydration

Precautions

- Severe dehydration needs IV infusion
- Do not stop normal feeding, including breast feeding

Vital Information to the Patient

- The contents of one sachet is dissolved in 1 liter (half a liter equals one beer bottle)
- The solution should be used within 24 hours
- Cover any leftover solution tightly and store in a cool place

Zinc Sulfate Dispersible Tablets (ZINKID)

Presentation

Each tablet contains 20 mg of elemental zinc

Dosage for Children

2-6 months:	½ tablet per day for 10 days
6 months-5 years:	1 tablet per day for 10 days

Precautions

No particular precautions

Vital Information

Continue zinc supplement after diarrhea stops

Prevention

- Adults and children should wash their hands after visiting the toilet
- Practice safe food-handling; always wash hands before and after handling food
- Always eat food when it is ready and still hot
- Utensils that come in contact with raw food should be cleaned with soap and hot water
- Fruits and vegetables consumed raw should be thoroughly rinsed in clean water
- Avoid eating foods from street vendors
- Boil all water for drinking
- In case of cholera, report to the health authorities so that the victim is isolated

Table 10. Management of Diarrhea in Children 2 Months to 5 Years

Signs	Classify As	Treatment
• Lethargic or unconscious • Sunken eyes • Not able to drink or drinking poorly • Skin-pinch goes back very slowly	**Severe dehydration**	**Refer URGENTLY to hospital, with mother giving frequent sips of ORS on the way**
Any 2 of the following signs: • Restlessness • Sunken eyes • Drinks eagerly, thirsty • Skin-pinch goes back slowly	**Some dehydration**	• Give fluid and food for some dehydration (plan B) • Give zinc supplements • Advise mother when to return immediately (in case of danger signs)
Not enough signs to classify as some or severe dehydration	No dehydration	• Give fluid, zinc supplements, and food, and treat diarrhea at home • Advise mother when to return immediately
Diarrhea present	Severe persistent diarrhea	• Treat dehydration • Refer to hospital
No dehydration	Persistent diarrhea	• Advise the mother on feeding a child who has PERSISTENT diarrhea • Give 3 doses of vitamin A and zinc for 14 days • Follow up in 5 days • Counsel and refer to check for symptomatic HIV
No dehydration	Dysentery	• Give oral antibiotic (metronidazole) for dysentery for 5 days • Give zinc supplements • Follow up in 2 days

Source: Gove 1997

Conditions Associated with Diarrhea

Gastroenteritis

Gastroenteritis is a condition that causes irritation and inflammation of the stomach and intestines. The severity of infectious gastroenteritis depends on the immune system's ability to resist the infection. Most people recover easily from a short bout with vomiting and diarrhea by drinking fluids and easing back into a normal diet. But for others, such as infants and the elderly, loss of bodily fluid with gastroenteritis can cause dehydration, which is a life-threatening illness unless the condition is treated and fluids restored.

Common Symptoms

- Low grade fever to 37.7 °C
- Nausea with or without vomiting
- Mild-to-moderate diarrhea
- Painful abdominal cramps with bloating

More Serious Symptoms

- Blood in vomit or stool
- Vomiting for more than 48 hours
- Fever higher than 40 °C
- Swollen abdomen or abdominal pain
- Dehydration: weakness, dry skin, dry mouth, and lack of sweat and tears

Treatment

- Give ORS
- Vomiting can be treated using antiemetic medicines such as promethazine
- Antibiotics are used if bacterial causative organisms are believed present; antibiotics to be used are ciprofloxacin or co-trimoxazole, if ciprofloxacin is contraindicated; see the dosage below

Dysentery

Dysentery is a serious form of diarrhea accompanied by passage of blood and mucous. It is due to infection and inflammation of the colonic mucous membranes, resulting in ulceration. It is commonly caused by amoebiasis (amoebic dysentery) or shigellosis (bacillary dysentery).

Amoebic Dysentery

This is a protozoal intestinal infection caused by *Entamoeba histolytica.* The source of the infection is fecal matter containing the encysted form of the parasite, and transmission occurs by ingestion of contaminated food or water.

Symptoms

Symptoms of amoebiasis may be observed at any time from a few days to several years after infection, although they occur most commonly during the first four months. Onset may be sudden and symptoms may vary in severity from mild diarrhea to dysentery. The problem may spread to other organs, such as the liver, causing liver, lung, or brain abscesses. The infection resolves spontaneously in some individuals, but others experience relapses over several years.

Treatment

In addition to supportive treatment, medicines such as metronidazole can be given. Dosage is indicated below.

Giardiasis

Giardiasis is a protozoal intestinal infection caused by *Giardia lamblia.* The source of the infection is human feces containing the encysted (infective) form of the parasite. Transmission usually occurs by ingestion of food or water contaminated with fecal matter, although direct transmission from person to person may take place.

Symptoms

The incubation period is a few days to several weeks. Giardiasis may be acute or chronic, and the severity of symptoms may vary, from asymptomatic to severe diarrhea with malabsorption and weight loss. Abdominal pain, distension, flatulence, and nausea may be experienced. Stools are usually yellow, frothy, and stinking.

Treatment

In addition to supportive treatment, medicines such as metronidazole can be given. Dosage is indicated below.

Bacillary Dysentery (Shigellosis)

It is an acute disease involving the large and small intestines, characterized with bloody mucoid diarrhea. It is caused by shigella bacteria.

Symptoms

Bloody mucoid diarrhea, fever, nausea, vomiting, and abdominal cramps; the patient feels the need to defecate, but does not product a significant amount of feces.

Treatment

In addition to supportive treatment, medicines such as ciprofloxacin can be given. Dosage is indicated below.

Cholera

It is an acute infection caused by the bacteria *Vibrio cholera* that involves the entire small bowel. It usually occurs as an epidemic.

Symptoms

Mild to severe painless, watery diarrhea (rice water stool); in some cases vomiting, muscular cramps, dehydration, and collapse

Treatment

In addition to supportive treatment, antibiotics, such as doxycycline or ciprofloxacin, can be given in adults. Children under the age of 8 should be given co-trimoxazole or erythromycin instead. Dosage is indicated below.

Drugs to Treat GI Conditions

Metronidazole

Presentation

Tablets 200 mg or 250 mg
Suspension 200 mg/5 mL

Dosages for Adults and Children

Amoebiasis

Adults

Over 12 years: 750–800 mg every 8 hours for 5 to 10 days or 10 mg/kg body weight every 8 hours for the same period

Children

0–1 year:	62.5–125 mg every 8 hours for 5–10 days
1–5 years:	125–250 mg every 8 hours for the same period
5–12 years:	200–400 mg every 8 hours for the same period

Giardiasis

Adults:	2 g orally once daily after food for 3 days
Children:	30 mg/kg body weight (maximum 1.2 g) once daily for 3 days

Precautions/Contraindications

- Do not give to chronic alcohol-dependent patients

- Avoid use in pregnancy during the first 3 months
- Do not use the drug during breast feeding
- Do not use the drug for more than 10 continuous days

Side Effects

- Headache, diarrhea, nausea, vomiting, and stomatitis
- Dark urine and sometimes leaves a metallic taste in the mouth
- Makes the patient unable to tolerate alcohol

Vital Information for the Patient

- Do not take any alcohol or alcoholic drink during the entire period of treatment or immediately after treatment
- Take the whole dose, or the treatment may fail
- Take with food

Ciprofloxacin

Presentation

Tablets 500 mg or 250 mg

Bacillary Dysentery and Bacterial Gastroenteritis

Adults: 1 g single dose; avoid in children and pregnancy; use co-trimoxazole instead

Co-Trimoxazole

Presentation

Sulfamethoxazole 400 mg and trimethoprim 80 mg tablets; sulfamethoxazole 200 mg/5 mL and trimethoprim 40 mg/5 ml suspension

Dosages for Adults and Children

Cholera: 48 mg/kg body weight/24 hours in two divided doses for 3 days

Other infections: depends on the type of infection; usual doses are:

- Adults and over 12 years: 960 mg every 12 hours for 5 to 7 days
- Children 6 months to 5 years: 240 mg/5 mL every 12 hours
- 6-10 years: 480 mg/10 mL every 12 hours

Precautions/Contraindications

Do not use in patients:

- With known allergy to sulfonamide or trimethoprim

- Under the age of 6 months
- With serious liver/kidney diseases
- Who are pregnant

Use with caution:

- During breast feeding
- In AIDS patients; they experience high incidences of serious reactions, particularly with higher dosages

Monitor blood count if treatment exceeds 14 days continuously

Vital Information to Patient

- Take a complete dose, otherwise treatment may fail
- Suspensions should be shaken well immediately before use
- Drink a lot of water, fluids during treatment

Other GI Diseases

Salmonella Infections

Salmonella infections are caused by bacteria of the genus *Salmonella* which are gram-negative. They are responsible for typhoid and paratyphoid fever or, collectively, enteric fever.

Typhoid Fever

Typhoid fever is caused by *Salmonella typhi*, which is endemic in many parts of Uganda, which has poor standards of sewage disposal. *S. typhi* bacilli are excreted in feces and, to a lesser extent, urine and transmitted via contaminated drinking water and food. They can withstand freezing and drying and even remain viable for long periods on soiled clothing or bedding. The only reservoir of infection is man.

Symptoms

Typhoid fever is marked by phases of about one week's duration. The initial phase starts with headache, fluctuating fever, and abdominal pain. Constipation occurs more frequently than diarrhea in the early stages, although later, diarrhea becomes frequent. Other symptoms may include loss of appetite, non-productive cough, epistasis (nose bleeding), furred tongue, and muscular rash on the abdomen. In later stages, the fever may become persistent, toxemia may develop, and there could be signs of mental deterioration and eventually comma. Final symptoms include greenish diarrhea and melena (black tarry feces) and even perforation of the intestine may result. The infection may resolve; however, there can be relapses and, in a few cases, complications may be fatal.

Paratyphoid Fever

It is caused by *S. paratyphi A*, *B*, or *C*. It is transmitted in a similar way to typhoid fever.

Symptoms

Paratyphoid fever resembles typhoid fever, but with a more abrupt onset, milder symptoms, and a shorter course. Complications, relapses, and fatalities occur less frequently.

Treatment

If typhoid or paratyphoid fever is suspected, refer patient for further management.

Gastritis

This is an inflammation of the gastric mucosa, which may be acute or chronic.

Acute Gastritis

Acute gastritis may result from irritation due to drugs or alcohol. Corrosive agents, irritation, irradiation, bacterial toxins (e.g., staphylococcal), a bacterial infection, (e.g., salmonella), trauma, or surgery may precipitate symptoms.

Symptoms

Acute gastritis is usually asymptomatic, but anorexia (loss of appetite for food), epigastric pain, nausea, and vomiting may follow. Acute gastritis due to the ingestion of corrosive materials is characterized by severe chest pain, epigastric pain, hemorrhage, vomiting, shock, and perforation may occur.

Chronic Gastritis

The causes of chronic gastritis are not clear, but are said to be autoimmune diseases (e.g., thyroid disease), diabetes mellitus, and prolonged gastric irritation. It is commonly associated with peptic ulceration, cancer of the stomach, and gastric surgery.

Symptoms

Uncomplicated forms are usually asymptomatic although anorexia, epigastric pain, nausea, and vomiting may occur.

Treatment

Gastritis is managed mainly by removal of the causative agent; in the case of acute gastritis, avoidance of alcohol and NSAIDs. In the case of chronic gastritis, the resulting anemia can be treated with replacement therapy. If it is due to bacterial infection, an appropriate antibacterial or antibiotic may be used.

Magnesium trisilicate, which can be purchased over the counter, neutralizes stomach acid and is used to treat gastric and duodenal ulcers, gastritis, and heartburn.

Presentation

Mostly tablets of 500 mg or mixture of solution

Dosage

One to two chewable tablets or 10-15 mL of the mixture should be taken every 4-6 hours, on or after meals and at bed time.

Precautions

Avoid when patient is vomiting or has kidney problems.

Side Effects

May cause mild diarrhea

Vital Information to the Patient

More effective if the tablets are chewed, not swallowed; for the mixture, shake the bottle well each time before taking a dose.

Irritable Bowel Syndrome

Irritable bowel syndrome is a chronic motility disorder of the colon with no demonstrable cause.

Symptoms

It is characterized by recurrent episodes (attacks) of abdominal discomfort, pain, and altered bowel habit. The pain may be colicky or continuous; a dull ache is commonly related to food intake. It may be relieved by defecation or on the passage of flatus. There may be alternating diarrhea and constipation; the feces may be described as “marbles, pellets, or rabbit droppings,” and mucus or other lesions may also be present. Other symptoms include abdominal distension and flatulence (presence of excess gas in the stomach).

Treatment

Reassure the patient by explaining the nature of the problem. Treatment may consist of advising the patient to eat foods with a high fiber-content, like vegetables.

Constipation

Constipation is an increased difficulty and reduced frequency of bowel evacuation, and may be acute or chronic. Normal frequency of defecation varies from three times per day to once every three days. Simple chronic constipation can be due to dietary fiber or poor bowel training. Acute constipation implies a sudden change in bowel habit. There are several other causes of constipation. Constipation may be a side effect of drug administration and laxative abuse. Therefore, before advising your patient to use any unnatural laxatives, enquire about the history and duration of the problem; advise the patient to use natural fiber or bulk-forming foods to solve the problem.

Treatment

Most cases of constipation can be successfully treated by dietary measures alone. Long-term constipation should be treated by increasing the intake of bulk-forming products such as foods with a lot of roughage and by drinking plenty of water; if symptoms persist, refer for further management.

Peptic Ulcers

In the digestive system, an ulcer is an area where tissue has been destroyed by gastric juices and stomach acid. Peptic ulcer disease is a general term for ulcers that occur in the stomach or duodenum (upper part of the small intestines). This breakdown causes a gnawing or burning pain in the upper middle part of the belly (abdomen).

Cause of Peptic Ulcers

Peptic ulcers occur when hydrochloric acid and the enzyme pepsin overcome the defense mechanisms of the G tract and cause erosion in the mucosal wall.

Some people are naturally more prone than others to develop peptic ulcers. However, lifestyle factors also play a role in the development of peptic ulcers. They weaken the protective mucosal barrier of the stomach, which increases the chances of getting an ulcer and slows healing of existing ulcers. Some of the lifestyle factors include:

- Use of aspirin, NSAIDs (such as ibuprofen, diclofenac, and naproxen), and newer anti-inflammatory medications
- Excessive use of alcohol
- Physical (severe injuries or burns, major surgery) or emotional stress
- Excessive use of caffeine
- Cigarette smoking
- Radiation therapy used to treat diseases such as cancer

Symptoms of Peptic Ulcer Disease

The most common symptom of peptic ulcers by far is abdominal pain.

- The pain is usually in the upper middle part of the abdomen, above the belly button (navel) and below the breastbone.
- The pain can feel like burning or gnawing, and it may go through to the back.
- Pain often comes several hours after a meal when the stomach is empty.
- The pain is often worse at night and early morning.
- It can last anywhere from a few minutes to several hours.
- The pain may be relieved by food, antacids, or vomiting.

Other symptoms of peptic ulcers include:

- Nausea
- Vomiting
- Loss of appetite
- Loss of weight

Treatment of Peptic Ulcers

Always refer patients that you suspect are suffering from peptic ulcers. However, over the counter anti-acid medicines, such as magnesium trisilicate, Relcer gel, Alcid, may be given as a first treatment.

Supportive Management

- Don't smoke and avoid coffee and alcohol. These habits increase gastric acid production and weaken the mucosal barrier of the GI tract, thus promoting ulcer formation and slowing ulcer healing.

- Don't take aspirin or NSAIDs. Paracetamol is a good substitute for some conditions.

- If symptoms are mild, try an antacid. No particular diet is helpful for people with peptic ulcers.

Common Worm Infestations

Worm infestation is sometimes referred to as helminthic infestation. Most worms are hosted in the GI tract, though few may invade specific organs outside the GI tract. Most infestation is a result of ingestion of food and drink that is contaminated with worms at any stage of development. Others, such as hook worms and filarial worms, enter the human host through the skin. These worms are parasites to the human body in that they depend on their host for survival. When these worms reach large numbers in the human body, they interfere with the normal functioning of the host systems and organs, causing physiological problems and disease of the host.

Infestations are classified based on the type of worm with characteristic symptoms for each type.

Ascariasis

Infection by *Ascaris lubricoides*, the intestinal roundworm, is the most common worm infection in humans.

Ascaris eggs are found in the soil. Infection occurs when a person accidently ingests (swallows) infective ascaris eggs. Once in the stomach, larvae (immature worms) hatch from the eggs. The larvae are carried through the lungs, then to the throat where they are then swallowed. Once swallowed, they reach the intestines and develop into adult worms. Adult female worms can grow over 12 inches (4.8 cm) in length. Adult male worms are smaller. Adult female worms lay eggs that are then passed in feces; this cycle takes two to three months. Adult worms can live one to two years.

Infection occurs worldwide. It is most common where sanitation and hygiene are poor. Children are infected more often than adults.

Domestic animals can be infested with ascaris; occasionally infestation occurs in humans when waste products from these animals are used as manure and humans pick it up from contaminated soil.

Signs and Symptoms

Infestation is often silent. But if someone is heavily infected, they may have abdominal pain. While the immature worms migrate through the lungs, they may cough and have difficulty breathing. And if someone has a very heavy worm infection in the intestines, the intestines may become blocked. Chronic ascaris infection can stunt the growth of children.

Pinworms (*Enterobius vermicularis*)

Any individual may develop a case of pinworms. The infection occurs most frequently in school children between 5 to 10 years of age. Pinworm infections occur in all socioeconomic groups; however, human-to-human spread is favored by close, crowded living conditions. Spread among family members is common. Animals do not harbor pinworms; humans are the only natural host for this parasite.

Signs and Symptoms

The most common symptom of pinworms is an itchy rectal area. Symptoms are worse at night when the female worms are most active and crawl out of the anus to deposit their eggs.

Thread Worms (*Strongyloides stercoralis*)

The infection is usually asymptomatic, but patients may have vague symptoms, such as abdominal pain, nausea, flatulence, vomiting, acute fatty diarrhea, epigastric pain, and weight loss. Heavier infections are more likely to produce stronger symptoms. Adult *Strongyloides stercoralis* live in the gut and produce larva that penetrate the gut wall and invade the tissues, resulting into auto-infections.

Hook Worm (Ancylostomiasis)

Hookworm disease is caused by infection of the small intestine with *Ancylostoma duodenale* or *Necator americanus*. It is one of the major clinical causes of anemia in many communities. The majority of patients are asymptomatic.

A patient should be advised to take ferrous sulfate if anemic.

Tape Worms (Cestode Infections)

A person gets tapeworms by eating raw or undercooked beef infected with *Cystricercus bovis*, the larval stage of *Taenia saginata* (beef tapeworm) or uncooked food containing pork tapeworm. Most tapeworm infections are symptomless and the most common way of presentation is the appearance of segments in the stool. There may be mild epigastric discomfort, nausea, weight loss, and diarrhea. Chronic worm infection may result in anemia, allergic reactions, and fatigue.

Diagnosis

- Diagnosis is primarily clinical on the basis of signs and symptoms.
- Where possible, stool may be examined.

To Prevent Worm Infestations

- Avoid contacting soil that may be contaminated with human or domestic animal feces.
- Do not defecate outdoors.
- Dispose of human excreta in a pit latrine.
- Wash hands with soap and water before handling food.
- Wash, peel, or cook all raw vegetables and fruits before eating.
- Avoid scratching the anal region.
- Avoid biting the fingernails.
- Keep fingernails short and clean.
- Wash all bedding and pajamas regularly.
- Be sure your child changes underwear daily.
- Avoid eating half-cooked food.

Treatment of Worm Infestation

Most commonly used medicines in work infestations include mebendazole and albendazole. These medicines are effective and appear to have few side effects. Additional stool exams are done 1 to 2 weeks after therapy; if the infection is still present, treatment is repeated.

Drugs to Treat Worms

Mebendazole

Presentation

Tablet 100 mg; suspension 100 mg/5 mL

Indication

Treatment of round worms, pinworms, hookworms, threadworms, and tapeworms

Dose for Adults and Children Over 2 Years

100 mg every twelve hours for 3 consecutive days or 500 mg single dose

Side Effects

Rare; hypersensitivity reactions, abdominal pain

Precautions

- Not indicated during the first 3 months of pregnancy

- Not indicated for children under two years

Vital Advice to Patient

- Take a full dose, otherwise treatment may fail.
- It is better to chew the tablets before they are swallowed with sufficient water.

Albendazole

Presentation

Tablet 200 mg, 400 mg; suspension 400 mg/10 mL

Dose for Adults and Children

Over 2 years: 400 mg single dose

However, in severe infections, 400 mg every 12 hours for 3 days, which can be repeated after 3 weeks if necessary.

Contraindications

- Not for pregnant or lactating mothers
- Use non-hormonal contraception during treatment and for one month after treatment

Side Effects

GI disturbances, headache, dizziness

Vital Information to the Patient

- Woman should not take oral contraceptives during treatment
- Chew the tablet(s) and swallow with enough water
- Avoid driving or operating machinery if feeling dizzy

 **Always counsel patients on how to prevent getting infected or spreading the infection to others.**

There are other worm infestations, such as schistomiasis or bilharzias, but these are normally handled by more specialized health facilities.

Session 7. Management of Anemia and Nutritional Deficiencies

Objectives

1. Understand the manifestation and causes of anemia
2. Understand key features of severe anemia
3. Understand the appropriate management of all forms of anemia
4. Understand nutrition diseases in children, their management, and prevention

Time

1.5-2 hours

Activity. Case Study in Nutrition

Precious, a 19-year-old mother of two children comes to ask for advice on proper nutrition for her children. She says her first born has gradually developed bleeding gums and wounds that take long to heal.

Questions

1) Advise the mother on a balanced diet
2) Outline the benefits of eating green vegetables and fruits

Anemia

This is a condition caused by inadequate blood hemoglobin levels.

Causes of Anemia

- Loss of blood or increased break down of blood cells
- Iron deficiency due to malaria, malnutrition, or acute or chronic blood loss, e.g., hemorrhage, trauma, hookworm infestation, pregnancy, abortion, heavy menstrual loss
- Vitamin deficiency/malabsorption as in folic acid and vitamin B_{12} deficiencies
- Blood disorders, e.g., leukemia
- Congenital disorders, e.g., sickle cell anemia
- Chronic infections, e.g., TB, AIDS (especially in adults), schistosomiasis

Clinical Features

- Tiredness
- Headache, dizziness, palpitations
- Swelling of body or feet
- Pallor of palms and mucous membranes (tongue, eye)
- Breathlessness
- Poor appetite
- Heart failure

In Children

- Severe wasting
- Edema of both feet
- Palmor pallor

Differential Diagnosis

It is important to rule out the following conditions which may manifest with similar symptoms.

- Conditions which cause heart failure
- Conditions which cause general body weakness

Management of Anemia

- Iron deficiency anemia: ferrous sulfate 200 mg every 12 hours with food for 3 months to replenish iron stores

- Children:

  - 2 to 4 months or 4 to 6 kg: 30 mg elemental iron
  - 4 months to 3 years or 6 to 14 kg: 60 mg elemental iron
  - 3 to 5 years or 14 to 19 kg: 90 mg elemental iron
  - Starting at the age of 1 year, children should receive a 400 mg dose of albendazole every 6 months to prevent worms.
  - The mother should be counseled to feed the child foods rich in iron, e.g., green leafy vegetables, liver, etc. The child should be followed up after 5 days.

- Pregnant women should be given ferrous sulfate + folic acid tablets.

Prevention

- Improve nutrition by giving foods rich in iron and vitamins, e.g., vegetables, fruits, meat, liver
- Get prompt and effective treatment of infections and infestations, especially malaria, hookworm, and respiratory infections

Nutrition

A balanced diet is a meal containing all the necessary nutrients in the correct quantities for normal growth and maintenance of health and general well-being.

Essential Components

- Energy sources (carbohydrates): unrefined glucose, rice, sweet potatoes, yams, cassava

- Body building (proteins): meat, chicken, fish, milk, eggs, liver, beans, peas, soya porridge, groundnuts, simsim

- Fats: milk, cooking oils, meat

- Vitamins and minerals: these are needed in small amounts but are vital to well-being; foods rich in these nutrients include:

    - Vegetables: cabbage, spinach, Irish potatoes; these foods should not be overcooked or the nutritional value is lost
    - Fruits : mangoes, pineapples, fenne (jackfruit), avocado, passion fruit, tomatoes
    - Milk, meat, and carrots are rich in vitamin A and minerals such as iron and calcium

Conditions That Can Lead to Deficiency

- Insufficient intake: malnutrition, under nourished; unbalanced diet; alcoholism; poor appetite; chronic diseases

- Reduced absorption: parasitic infections (hookworms, malaria, bilharzia), advanced age (the elderly), alcoholism, smoking

- Increased requirements: increased physical activity, growth, infection, and healing time after sickness, pregnancy, and lactation

Signs and Symptoms

It is difficult to detect slight or even severe vitamin and mineral deficiencies. Vague symptoms can include fatigue, tiredness, weakness, loss of appetite, and lowered resistance to certain infections.

Protein or energy deficiencies (kwashiorkor, marasmus) are caused by reduced consumption of protein and high-energy foods. Those with kwashiorkor or marasmus present with wasting, stunting (children looking younger than their real age), muscle wasting (especially at the buttocks), boniness, edema of both feet, misery, poor attitude (apathy), irritability, poor appetite, thinning and brown hair, wise old-man facial appearance, severe pallor of palms and soles, and dehydration.

Management

- Advise the mother or caretaker on proper feeding
- Check for other diseases (malaria, diarrhea)
- Give foods rich in proteins especially soya meal, groundnuts, milk
- Give children multivitamin syrup to improve appetite
- Check immunization status for children under 5 years and refer if needed

Growth Promotion and Monitoring

Review charts provided in class on growth promotion and monitoring to assess if a child is under weight. There are new growth curves for males and females.

The lack of important vitamins and minerals (listed in the tables below) in children’s diet can severely affect their growth. If any of these symptoms are apparent, advise the parent and treat accordingly.

Review the chart provided in class on immunization of children under 5.

- National policy and schedule for children under five years of age
- Supplementation of post-partum mothers within 2 months of delivery

Table 11. Signs and Symptoms of Vitamin Deficiencies

Vitamin	Symptoms of deficiency	Treatment
A	• Dry skin (rough and thickened; toad like) and mucous membranes • Bulging eyes • Night blindness • Blurred vision	• Give vitamin A supplements • Eat foods rich in vitamin A (e.g., milk, carrots, vegetables, avocado)
D	Bow legs	• Give vitamin D supplements • Get enough early morning sunlight • Eat foods rich in vitamin D (e.g., vegetables, milk, meat, eggs)
K	Tendency to bleed	• Give multivitamin supplements • Advise increase in meaty foods and vegetables
B_1	• Weak appetite • Nerve problems, especially in alcoholics (e.g., itching, back pain, shaking)	• Give vitamin B complex supplements • Advise on nutrition
B_2	• Mouth sores • Pain when looking at light • Uncontrolled tearing • Itching eyes • Weak vision	• Give vitamin B complex supplements • Advise on nutrition
B_3	• Skin flaking and itching • Diarrhea • Confusion	
B_6 pyridoxine	• Hyperirritability • Depression • Nerve problems • Mouth sores and peeling • Diarrhea • Constipation • Stomach ache	
B_{12}	Pernicious anemia	
C	• Delayed wound healing, • Mouth wounds • Brittle bones and teeth • Bleeding gums, loose teeth • Anemia	• Treat anemia • Give vitamin C supplements • Advise on nutrition
Folic acid	Anemia	Treat as anemia; give iron + folic acid + vitamin B supplements

Table 12. Signs and Symptoms of Mineral Deficiencies

Mineral	Symptoms of Deficiency	Treatment
Potassium	• Dizziness • Muscle weakness • Confusion	Feed potassium rich foods, e.g., bananas, citrus fruits
Calcium	• Bone abnormalities • Weak teeth • Bone pains • Weak nails	Milk, calcium supplement
Magnesium	• Psychiatric abnormalities • Muscle cramps • General weakness	Milk
Sodium	• Excessive sweat • Dizziness • Confusion • Muscle cramps	Common salt, ORS
Zinc	• Delayed wound healing • Reduction in taste, smell • Growth abnormalities	Milk
Iron	• Anemia • Restlessness • Tiredness • Pallor	As for anemia

Patient Counseling

- Advise on adequate feeding and balanced diet and ensure that they have understood. Ask mother/caregiver what foods child eats, how often, fluids, fruit and vegetable intake, how large are the servings, breastfeeding habits.

- Monitor response to treatment, e.g., routine weighing, level of appetite, loss of edema, sensory and emotional changes, no longer withdrawn; in general, resolution of symptoms is a good sign.

- Advise on prompt and proper management of infections and infestations (malaria, worms).

- Give vitamin A to children with measles, chronic respiratory infections, and persistent diarrhea and to lactating mothers. Ask if child has had vitamin A in the last 6 months; if not, give.

- Check deworming; ask if patient has been dewormed, especially children in the last 3 months; if not give mebendazole.

Conditions for Referral

- Severe deficiencies which have resulted in associated disease; decide on the basis of the severity of the symptoms listed above

- Identify and refer patients at high risk of malnutrition and deficiencies; for example, pregnant women, smokers, alcoholics, the elderly, people trying to lose weight, growing children who are very wasted, persons with or recovering from other diseases, and people chronically using medications.

Table 13. Common Medications for Nutrition Deficiencies

Name	Dose	Common preparations
Iron, ferrous sulfate	Adults: tablets 200 mg three times a day	FEFOL, Ferro B, Vitaglobin, ferrous sulfate tablets (these preparations may cause GI disturbance)
Folic acid	Single daily dose for 14 days • < 5 years, 2.5 mg • > 5 years, 5 mg	Folic acid tablet
Vitamin A	Give 3 doses (days 1, 2, 14) • < 6 months, 50000 IU • 6-12 months, 100000 IU • > 12 months, 200000 IU	Vitamin A caps
Vitamin C	100 mg orally every 8 hours, max. 4 g	Vitamin C caps
Multivitamin preparations		Rinavit syrup
Calcium		Calcium lactate tabs
Vitamin B complex		Vitamin B complex tabs

Session 8. Management of Dermatological Conditions

Objectives

1) Understand commonly occurring dermatological conditions and their management
2) Identify cases for referral

Time

2.5 hours

Activity. Case Study on Dermatological Conditions

Sam, a 15-year-old boy, comes to your accredited shop to buy betamethasone cream. He says his younger brother has “coins” in the head and a neighbor recommended that cream for him. You ask him if he shares bathing sponges, basins, and towels with his young brother, to which he says “yes”. On close observation of his hands, you realize he has round patches of discolored skin.

Tasks

1) Would you dispense the cream to Sam? Give reasons for your answer.
2) What condition are Sam and his brother suffering from? Give reasons for your answer.
3) What are the possible causes of the condition?
4) What medicine alternatives are available for to treat Sam and his brother?
5) What information should be provided to ensure that he completes the treatment?
6) What advice do you have for Sam on how to control or prevent the above condition?

Skin Diseases

The skin is the first line of defense against infections to the body. When the integrity of the skin is disrupted, the body is exposed to infections. Several factors may disrupt the integrity of the skin. Although many of these are external to the body, in some instances, changes on the skin may be a sign of a bigger problem in the body.

Generalized skin problems that cover a large part of the body and localized skin problems that the medicine seller may not recognize should be promptly referred for specialized attention.

Boils

A boil is a localized bacterial infection deep in the skin; it is also referred to as a skin abscess. A boil generally starts as a reddened, tender area. Over time, the area becomes firm, hard, and tender. Eventually, the center of the abscess softens and becomes filled with infection-fighting white blood cells that the body sends from the bloodstream to eradicate the infection. This collection of white blood cells, bacteria, and proteins is known as pus. Finally, the pus “forms a

head" which can be surgically opened or spontaneously drain out through the surface of the skin.

Clinical Features

There may be one or more acute, tender, painful swellings at the site of infection. The site of the boil may feel hot, and be accompanied by an inflamed lymph node and sometimes fever.

Management

The primary treatment for most boils is heat application, usually with hot soaks or hot packs. Heat application increases the circulation to the area and allows the body to better fight off the infection. Advise the patient to apply hot soaks and to take paracetamol to relieve pain.

 **Do not incise the boil because the infection may spread to other areas; immediately refer patients with accompanying fever and generalized lymph node inflammation.**

Ringworm (Tinea)

Ringworm is a fungal infection that occurs on the surface of the skin. It is characterized by round spots that may occur on any part of the skin such as head, feet, back**,** face, etc**.** Ringworm causes a scaly, crusted rash that may itch. Depending on the location**,** types of ringworm infections are:

- **Tinea barbea**: Ringworm of the bearded area of the face and neck, with swelling and marked crusting, often with itching, sometimes causing the hair to break off.
- **Tinea capitis**: Ringworm of the scalp commonly affects children, mostly in late childhood or adolescence. This condition may spread in schools. Tinea capitis appears as scalp scaling that is associated with bald spots.
- **Tinea corporis**: When fungus affects the skin of the body, it often produces the round spots of classic ringworm. Sometimes, these spots have an "active" outer border as they slowly grow and advance.
- **Tinea criris**: Tinea of the groin ("jock itch") tends to have a reddish-brown color and to extend from the folds of the groin down onto one or both thighs.
- **Tinea faciei**: Ringworm on the face, except in the area of the beard. On the face, ringworm is rarely ring-shaped. Characteristically, it causes red, scaly patches with indistinct edges.
- **Tinea manus**: Ringworm involving the hands, particularly the palms and the spaces between the fingers. It typically causes thickening (hyperkeratosis) of these areas, often on only one hand.
- **Tinea pedis**: Athlete's foot may cause scaling and inflammation in the toe webs.

- **Tinea unguium**: Fungus can make the fingernails and, more often, the toenails yellow, thick, and crumbly, often referred to as fungal nails.

Management

- All types of ringworm infections can be treated topically with clotrimazole cream, Whitsfield's ointment, or sulfur ointment, which should be applied twice a day on the affected part after bathing.

- If the infection does not respond to topical preparations, refer for specialized attention.

Prevention

Minimizing sweat and moisture and improving personal hygiene can help prevent fungal infections.

Scabies

Scabies is a contagious skin disease associated with severe itch. It is caused by a parasitic mite that is transmitted through personal contact.

Clinical Features

The main clinical features are itching initially between the fingers or on the buttocks or genitals or other body folding that may latter become generalized. If not well managed, infected areas may be infected by bacteria that may lead to other complications, such as rheumatic fever and glomerulonephritis.

Management

- Advise patient to wash the body thoroughly and apply benzyl benzoate every 12 hours; avoid contact with the eyes
- Give antihistamines such as chlorpheniramine to relieve itching
- Treat all close contacts, especially children in the same household, with benzyl benzoate
- Wash clothing and bedding and leave in the sun to dry
- In cases where secondary bacterial infection are characterized by septic sores, refer for specialized attention
- Advise that the itch may continue for several weeks

Prurigo-Papular Itching Rash

This presents as an itching rash with small papules and scratch marks and dark spots with pale centers.

Treatment

- Apply calamine lotion

- Give antihistamine by mouth, e.g., cetrizine
- If no improvement, use hydrocortisone 1%

This rash can be an early sign of HIV, and patients should be referred to a health facility for counseling and assessment for HIV.

Chicken Pox

- Appears as vesicles over the body; the vesicles appear progressively over days and form scabs after they rupture

- Treat itching with calamine lotion and give antihistamine by mouth; if not improved, use hydrocortisone 1%

- Refer urgently if pneumonia or jaundice appear

Herpes Zoster

Herpes zoster, also known as shingles, is due to the resurgence of the varicella zoster virus, which also causes chickenpox. Severe burning pain precedes a rash which is vesicular and almost always unilateral, although it does not cross the midline.

In uncomplicated cases, the rash disappears in 24 weeks; in the hemorrhagic necrotizing form, (HIV related) scarring often remains.

Among HIV-positive individuals, it is a clinical stage 2 defining disease

Management

- Give analgesic (see pain management)
- Diclofenac may be helpful in the acute phase
- Apply topical calamine lotion
- Refer health facility for management

Nappy Rash

It is a reddish, yellow skin rash in areas covered by a baby's nappy, such as buttocks, external genitalia, thighs, and lower abdomen, caused by persistent dampness of wet nappies that leads to irritation of the skin.

Management

- Advise parent to change the child's nappy more frequently
- Apply calamine lotion twice a day
- If the rash persists or becomes worse, refer for further management

Allergic Reactions

Skin Allergy/Urticaria

An acute, sub-acute, or chronic inflammation of the skin caused by contact with a multitude of agents that induce allergic reactions

Clinical Features

Skin inflammation characterized by redness, itching, and edema

Management

- Try to establish the cause and remove it
- Apply calamine lotion 15% twice a day
- Give pain killers such as paracetamol to relieve pain

Treatment

Chlorpheniramine

Adults: 4 mg every 8 hours
Children: 2 mg per dose (frequency to be determined by physician)

Promethazine

Adults: 25 mg once a day or every 12 hours
Children: 6.25 mg-12.5 mg once a day or every 12 hours

Cetrizine

Adults and children over 6 years: 10 mg once a day
Children 2-6 years: 5 mg once a day

Note: children under 12 years should be given the syrup form of the medicine

Eczema

Signs

Appears as wet, oozing sores or excruciated thick patches. It is commonly found in children.

Management

- Soak sores with clean water to remove crusts (no soap) where present
- Dry skin gently
- Short-term use of topical steroid, e.g., hydrocortisone to treat itching

Fixed Drug Reactions

Reactions to medications such as penicillins (amoxicillin), cephalosporins (cephalexin), and sulfur drugs (co-trimoxazole)

Signs

Usually presents as generalized, red, and widespread with small bumps or blisters or one or more dark skin areas

Management

- Stop medications
- Give oral antihistamines
- If peeling rash, refer

Stevens–Johnson Syndrome

Stevens–Johnson Syndrome is a severe reaction to co-trimoxazole or nevirapine involving the skin as well as the eyes and mouth; might cause difficulty breathing.

Management

Stop medication and refer immediately

Wounds

A wound is an injury to the skin that exposes tissue beneath the skin. The injury be due to an object cutting through the skin, burns due to chemicals or heat, or may be the result of an infection. Because wounds break the body's first line of defense, badly managed wounds may get infected, leading to complications such sepsis, tetanus, etc.

Management

- Large wounds and wound that have lasted for several weeks are more likely to be infected and may expose patients to complications and should be referred immediately for a specialist's attention.

- Minor, particularly fresh, ones can be managed by applying antiseptics, such as iodine tincture, and antibiotic creams, such as silver sulfadiazine cream, to prevent infection.

Session 9: Management of Eye, Ear, Nose, and Throat Infections and Disorders

Objectives

1) Understand the various diseases of the eye, ear nose and throat and how they manifest
2) Understand pre-referral care and conditions that should be referred to a higher level

Time

2.5-3 hours

Activity. Eye stye

Weah, a 19-year-old man, comes to your drug shop and presents with a complaint of a swollen left eye. On close examination, you realize Weah has a swelling on the lower skin just below the eye. He explains that this is not the first time this has happened, and he usually applies eye drops or tetracycline eye ointment.

Questions

1) Explain to Weah the potential cause of a stye.
2) Counsel him on the right medicine to use and provide information to ensure proper use and adherence.
3) How should Weah prevent future problems of the same nature?

Eye Conditions

Some eye conditions are short-lived and can successfully be managed at the AMS. However, many of them need to be referred for specialized attention as they can be a sign of serious complications that may easily lead to permanent eye damage or even loss of vision.

It is highly recommended that when drug sellers encounter eye conditions they provide first aid and refer the patient for further medical attention.

Eye Conditions That Can Be Managed by Drug sellers

Foreign Body (FB) in the Eye

Causes

Solids (dust, insects, metal or wood particles) and liquids (splashes of irritating fluids)

Clinical Features

May be severe pain, tears, or redness; FB may be visible

Differential Diagnosis

Other injury or trauma

Management (All Patients)

Make a thin ‘finger’ of moistened cotton wool, move the eyelid out of the way, and gently remove the FB

- If this fails, refer to an eye specialist
- For irritating fluids in the eye, wash the eye with plenty of clean water or saline; if the cornea is damaged, apply tetracycline eye ointment, cover the eye, and refer to an eye specialist

Stye (Hordeolum)

A stye is a localized infection of the hair follicle of the eyelids caused by bacteria called *Staphylococcus aureus.*

Signs and Symptoms

Itching in the early stages, swelling, pain, tenderness, pus formation; the stye may burst spontaneously

Management

- Usually the stye will heal spontaneously; avoid rubbing the eye as this might spread the infection
- Apply a warm/hot compress to the eye
- Apply tetracycline eye ointment 1% 2-4 times daily
- Remove the eye lash when it is loose

Prevention

- Remove any loose eyelashes
- Good personal hygiene

Conditions that Need to be Recognized and Referred

Cataracts

Opacity of the lens inside the eye; by far the commonest cause of blindness in Uganda

Cause

Old age, trauma, genetics, severe dehydration in childhood

Signs and Symptoms

- Reduced vision
- Pupil is not the normal black color, but is grey, white, brown, or reddish
- Condition is not painful unless caused by trauma
- Eye is not red unless condition is caused by trauma

Management (Adults and Children)

Do not give any medicines. Explain to the patient that the condition is very treatable and refer to a cataract surgery center (hospital).

Prevention

- Give early treatment for childhood diarrhea and vomiting to prevent severe dehydration
- Wear protective goggles when hammering, sawing, chopping, grinding, etc.
- Caution children about playing with sticks and the risk of eye injuries

Conjunctivitis

Causes

Infection (bacterial or viral) or trauma (chemicals, FBs), smoke, dust, allergies

Clinical Features

- Watery discharge (virus or chemicals)
- Pus discharge (bacteria)
- Cornea is clear and does not stain with fluorescein
- Visual acuity is normal
- Redness (usually both eyes, but may start/be worse in one, usually reddest at outer edge of the eye)
- Swelling
- Itching may be present

Management

Adults and children: apply tetracycline eye ointment 1% HCl or chloramphenicol eye ointment 1% for 7 days; refer to a higher health center

Caution

Do not use steroid preparations unless sure of the diagnosis because steroids may mask infections.

Prevention

- Personal hygiene; daily face washing
- Wear protective goggles when using dangerous chemicals, hammering, sawing, chopping, grinding
- Warn children playing with sticks about the risk of eye injuries
- Avoid irritants and allergens

Keratitis

Inflammation of the cornea

Cause

Infection (bacterial, viral, or fungal, leading to corneal ulceration) or trauma (chemical, FBs)

Clinical Features

- Same as for conjunctivitis except that the cornea is **not** clear and vision is not clear
- Condition is often in only one eye
- The eye is painful

Management

- Adults and children: apply tetracycline eye ointment 1%
- Explain the seriousness of the condition to the patient
- Refer to a qualified eye health worker

Prevention

- Wear protective goggles when hammering, sawing, chopping, grinding, etc.
- Warn children playing with sticks about the risk of eye injuries

Ophthalmia of the Newborn

Purulent discharge from the eyes in babies <1 month

Causes

Infections, usually from mother's birth canal or poor hygiene of the person caring for the newborn; bacterial, e.g., *Gonococci*, chlamydial

Clinical Features

- Reddening of one or both eyes
- Swelling of the eye lids
- Purulent discharge
- Excessive production of tears (lacrimation)
- If not treated early, will result in scar formation or perforation of the cornea, either of which will lead to blindness

Prevention and Prophylaxis

- Good antenatal care (ANC) with screening and treatment of the mother for genital or UTIs
- Clean delivery; prophylactic treatment of all neonates

Management

Apply tetracycline eye ointment 1% twice daily, carefully clean away any purulent discharge as required, and refer for further management

Trachoma

A chronic infection of the outer eye caused by *Chlamydia trachomatis,* a type of bacterium

Signs and Symptoms

Early stages: reddening of the eye, itching, follicles (grain-like growth) on the conjunctiva

Later stages: scar formation on the eyelids causing the upper eyelid to turn inwards and causing the eyelashes to scratch the cornea; scarring of the cornea leading to blindness

Management

Adults and children: Apply tetracycline eye ointment 1% twice daily and refer for further management

Prevention

Good personal hygiene, regular face washing; clean deliveries

Xerophthalmia

Dryness of the part of the eye ball exposed to air and light; due to vitamin A deficiency

Clinical Features

Starts with night blindness, followed by dryness of the conjunctiva and cornea; eventually the cornea melts away, the eye perforates, and total blindness occurs

Management

Vitamin A supplements

Prevention

Good, balanced diet, especially for children, women, long-term hospital in-patients, boarding school students, etc.

Ear Conditions

Ear conditions may be an indication of a serious and complicated condition that may easily result in deafness. It is important that when a medicine seller recognizes an ear condition, the patient must be referred to a specialist.

 **It is highly recommended that when drug sellers encounter cases with ear conditions, they provide first aid and refer the patients for further attention.**

FB in the Ear

Causes

- Children may insert FBs in their ears as they play, typically insects (e.g., flies, cockroaches, ants), seeds, beads
- Adults: usually insects, cotton buds
- Occasionally the FB may penetrate adjacent parts and lodge in the ear

Signs and Symptoms

- Blockage, FB may be visible
- Noise in the ear
- Hearing loss
- Bleeding or discharge from the ear, if attempts have been made to remove the FB

Management

These are normally mechanically removed using special equipment. Because such equipment may not be present at the medicine outlet, the patient must be referred to a specialist.

 **Attempts to remove the FB at the medicine outlet may lead to eardrum perforation that may lead to deafness.**

Otitis Media (Middle Ear Infection)

May or may not present with pus effusion

Cause

Blockage of the eustachian tube by adenoids, infection in the tube, thick mucoid fluid, tumors, unresolved acute otitis media, viral or bacterial infection (e.g., *Streptococcus pneumoniae*, *H. influenzae*); commonly follows an acute infection of the upper respiratory tract

The condition is considered chronic if it lasts more than two weeks.

Clinical Features

- Primarily hearing impairment, which often fluctuates, i.e., the patient sometimes can hear, sometimes can't
- Presence of non-purulent fluid in middle ear
- Buzzing noise in ears/head
- Retracted or bulging ear drum
- Loss of usual color of ear drum or dullness
- Acute onset of pain in the ear, redness, fever, pus discharge
- Bulging of the eardrum

Management

- Give an antibiotic ear drop, e.g. chloramphenicol ear drop
- Give amoxicillin 500 mg every 8 hours for five days; for children: 15 mg/kg per dose
- Give paracetamol 1 g every 8 hours and as indicated above in children
- Refer to ear, nose, and throat specialist in cases of otitis media with no pus or otitis media with pus lasting for more than 7 days
- Review after 5 days; if eardrum is still red, repeat the above course

Prevention

- Health education, e.g., advising patients on recognizing the discharge of otitis media (believed by some to be 'milk in the ear')

- Early diagnosis and treatment of otitis media and URTI

Otitis Externa (Infection of the Outside Ear)

Infection of the external ear canal which may be localized or generalized (diffuse)

Causes

Bacterial, fungal, viral infections

Clinical Features

- Pain, tenderness on pulling the pinna (external ear)
- Itching
- Swelling

- Pus discharge

Investigation

Good history and physical examination are important in making a diagnosis. If discharge is white or black, it is fungal; if discharge is yellow, it is bacterial.

Management

- Thoroughly clean external ear canal
- Apply antibiotic drops, e.g., chloramphenicol 1% ear drops, 2 drops into the affected ear every 8 hours for 14 days
- Paracetamol 1 g every 8 hours and as indicated above in children
- If fungal infection is suspected, apply gentian violet 1% 2 or 3 times daily; continue until discharge dries up
- Amoxicillin 500 mg every 8 hours for seven days, *child*: 15 mg/kg per dose
- Refer to ear, nose, and throat specialist if condition does not improve or is severe

Wax in the Ear

An accumulation of wax in the external ear

Cause

Excessive and/or thick wax production, small and/or hairy ear canal

Clinical Features

Blocked ears, buzzing sound, sometimes mild pain

Management in Adults and Children

Wax in the ear is normal and usually comes out naturally from time to time. If it accumulates to form a wax plug and causes a problem for the patient:

- Soften the wax by inserting drops of vegetable oil or glycerin into the ear 3 times a day for a few days; after this, the wax may fall out on its own
- Refer to the health center where the ear may be cleaned
- Advise the patient not to poke anything into the ear in an attempt to clean it, as this may damage the eardrum

Mastoiditis

Inflammation of the mastoid bone behind the ear

Causes

Usually a complication of a middle ear infection with pus

Clinical Features

Pain or tender swelling felt over the mastoid bone, with or without pus discharge from the ear, fever

Management

Apply chloramphenicol ear drops, give pain killers, and refer to a hospital urgently

Table 14. Summary: Management of Common Ear Problems in Children under 5

Signs or symptoms	Classify as	Management
Tender swelling behind the ear	Mastoiditis	• Treat with chloramphenicol ear drops and paracetamol for pain • Refer immediately
• Pus is seen draining from the ear and discharge is reported for less than 14 days • Ear pain	Acute ear infection	• Treat with chloramphenicol ear drops and paracetamol for pain • Dry ear by wicking • Advise to check for HIV infection • Follow up in 5 days
Pus is seen draining from the ear and discharge is reported for 14 days or more	Chronic ear infection	• Treat with chloramphenicol ear drops • Dry ear by wicking • Advise to check for HIV infection • Follow up in 5 days

Nasal Conditions

Nose Bleeding

Bleeding from the nostrils may be arterial or venous. Nose bleeding may be a symptom of a serious disease.

Causes

Nose-picking, trauma, infections of the nose, tumors, high blood pressure, bleeding disorders, pertussis, sickle-cell trait/disease, kidney failure, or it may be genetic

Clinical Features

- Bleeding from the nose; on examination, the site of bleeding may be seen
- Signs and symptoms of shock, if bleeding is severe

General Management

- Sit the patient up (if patient not in shock)
- Instruct patient to pinch the nose between the finger and the thumb for 15 minutes, breath through the mouth, and spit out any blood
- Manage as indicated in the course on first aid
- If bleeding has not stopped in 5-10 minutes, refer to hospital for further management

Prevention

- Avoid picking the nose
- Treat/control predisposing conditions

Nasal Allergy

An abnormal reaction of the nasal tissues to certain allergens that tends to start in childhood, although it may start at adolescence. It may be hereditary or may be predisposed by infections.

Causes

Changes in humidity and temperature, dust mites, certain foods and medicines, and infection

Clinical Features

- Often present in school-age children, sometimes preceded or followed by eczema or asthma
- Sneezing in spasms
- Profuse watery nasal discharge
- Nasal obstruction, variable in intensity and may alternate from side to side
- Postnasal drip (mucus dripping from the back of the nose)

Management

- Avoid precipitating factors (most important)
- Give antihistamines, e.g., chlorphenamine 4 mg every 12 hours when necessary
- Reassure and refer if no improvement
- Do not use vasoconstrictor nasal drops, e.g., ephedrine and xylometazoline because (especially with repeated or prolonged use) they cause rebound congestion and alter the nasal environment making structures hardened

Sinusitis (Acute)

Inflammation of air sinuses of the skull

Causes

Allergies, FBs in the nose, dental focal infection, viruses (rhinovirus) often as a complication of URTI, or bacteria, e.g., *Streptococcus pneumoniae, Haemophilus influenzae, Streptococcus pyogenes*

Clinical Features

- Throbbing headache above the eyes, sinus tenderness
- Discharge from nostrils and into the throat; clear when due to viruses, yellow (purulent) when due to bacteria
- Nasal blockage (sometimes)

Management

- Give pain killers and give supportive management as in common cold
- Refer if symptoms persist or if become severe

 **Other nose conditions such as adenoid disease and atrophic rhinitis should be referred for specialized attention.**

MODULE 3: FAMILY, REPRODUCTIVE HEALTH, MATERNAL, AND CHILD HEALTH

Session 1. Management of Diseases of the Reproductive System

Session 2. Family Planning

Session 3. Maternal and Child Health

Session 1. Management of Diseases of the Reproductive System

Objectives

1) Describe the common problems related to RH
2) Discuss AMS management of some of the RH problems
3) Identify RH problems that AMS refer to a health facility

Time

4-6 hours

Activity 1. Case Study: UTIs

Prince, a 35-year-old married man comes to your AMS with a prescription from a nearby clinic for metronidazole tab 400 mg t.d.s. for five days and diclofenac tab 50 mg t.d.s. for three days. The diagnosis on the prescription is for a UTI.

On interaction with Prince, he informs you that he experiences a burning pain during urination and that his frequency of urination has increased. He says that sometimes the urine is cloudy and foul smelling. This has lasted three days and the symptoms are getting worse.

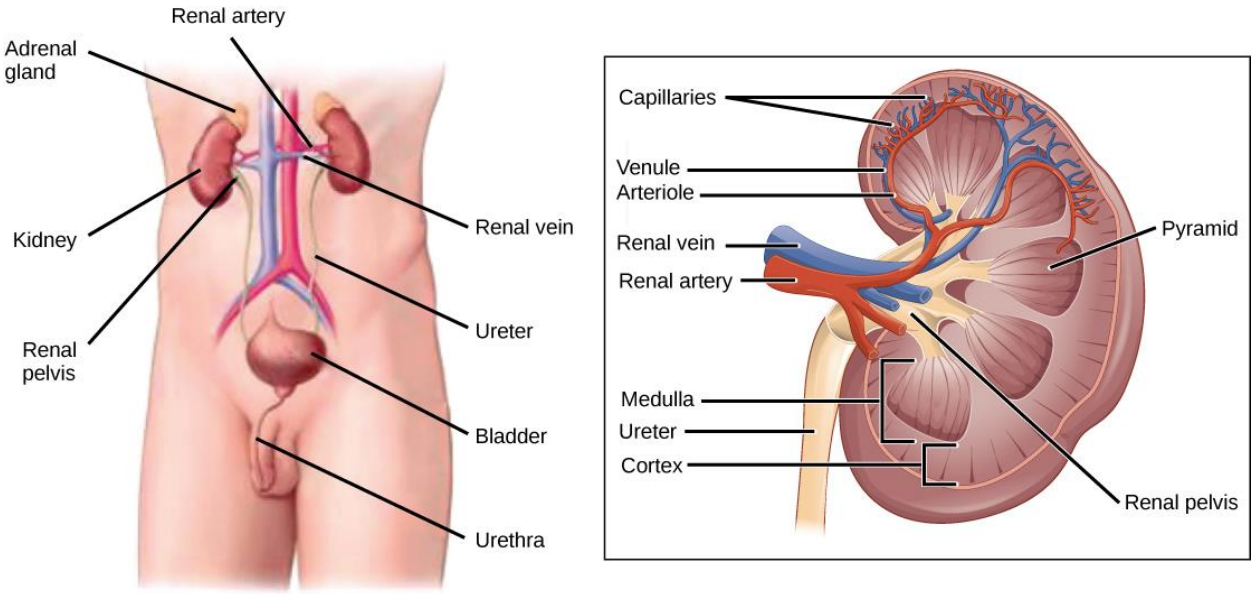
Prince admits to having more than one sexual partner, but is worried about what to tell his wife who he has not seen in four weeks. He also confesses that his latest partner had an unusual vaginal discharge. On further discussion, Prince reveals that he does not use condoms during his sexual encounters.

Tasks

1) Was the correct medicine and dose prescribed for Prince? Give reasons for your answer. If no, what steps would you take regarding the medicines prescribed for Prince?
2) What medicine alternatives are available for treating Prince's condition?
3) What information should be provided to Prince to ensure adherence and successful therapy and minimize adverse effects?
4) What advice do you have for Prince on how to prevent this condition?
5) How should Prince's partners be handled in the above case?

Review of the Genitourinary System

The genitourinary system refers to structures that urine passes through before being eliminated from the body as shown in the diagram.



Source: OpenStax College. Homeostasis and Osmoregulation [OpenStax-CNX Web site]. April 8, 2013. Available at: http://cnx.org/content/m45534/1.2/.

Figure 9. Human genitourinary system

Urinary Tract Infections

A UTI is an infection involving the kidneys, ureters, bladder, or urethra. As a rule, the farther up in the urinary tract the infection is located, the more serious it is.

- The upper urinary tract is composed of the kidneys and ureters. Infection in the upper urinary tract generally affects the kidneys (pyelonephritis).
- The lower urinary tract consists of the bladder and the urethra. Infection in the lower urinary tract can affect the urethra (urethritis) or the bladder (cystitis).

UTIs are usually referred to as simple or complicated.

- Simple infections occur in healthy urinary tracts and do not spread to other parts of the body. They usually go away readily with treatment.
- Complicated infections are caused by anatomic abnormalities, spread to other parts of the body, or are resistant to many antibiotics. They are more difficult to cure.
- UTI is much more common in adults than in children, but about 1-2% of children do get UTIs. UTIs in children are more likely to be serious than those in adults and should not be ignored.
- These infections are much more common in girls and women than in boys and men younger than 50 years. The reason for this is not well understood, but sexual activity may be partially responsible in sexually active women.

Causes of UTIs

Urine is normally sterile. An infection occurs when bacteria get into the urine and begin to grow. The infection usually starts at the opening of the urethra where the urine leaves the body and moves upward into the urinary tract. The commonest cause is *Escherichia coli*, bacteria that normally live in the bowel (colon) and around the anus.

- These bacteria can move from the area around the anus to the opening of the urethra. The two most common causes of this are poor hygiene and sexual intercourse.

- Usually, the act of emptying the bladder (urinating) flushes the bacteria out of the urethra. If there are too many bacteria, urinating may not stop their spread.

- The bacteria can travel up the urethra to the bladder, where they can grow and cause an infection.

- The infection can spread further as the bacteria move up from the bladder via the ureters.

- If they reach the kidney, they can cause a kidney infection (pyelonephritis), which can become a very serious condition if not treated promptly.

Symptoms

Lower UTI (cystitis): The lining of the urethra and bladder becomes inflamed and irritated.

- Dysuria: Pain or burning during urination
- Frequency: More frequent urination (or waking up at night to urinate)
- Urgency: Sensation of not being able to hold urine
- Hesitancy: Sensation of not being able to urinate easily or completely (or feeling that you have to urinate but only a few drops of urine come out)
- Cloudy, bad smelling, or bloody urine
- Lower abdominal pain
- Mild fever (less than 39 °C), chills, and “just not feeling well” (malaise)

Although most people have symptoms with a UTI, some do not.

Which UTI Symptoms Necessitate Referral?

If a patient has symptoms of a lower UTI and any of the following, they may have a UTI that involves the kidneys and therefore needs to be referred:

- Vomiting and inability to keep down clear fluids or medication
- Not better after taking antibiotics for two days
- Pregnancy; an unrecognized infection can cause miscarriage or other pregnancy complications
- Diabetes or another disease that affects the immune system (for example, AIDS)

Infants, children, and elderly people with any of the signs and symptoms should be referred to a health center IV or hospital.

- Fever, lethargy, and poor appetite may be signs of something more serious.
- UTIs have the potential to make these vulnerable people very ill.

Also, patients with an upper UTI (pyelonephritis) should be referred immediately. Symptoms develop rapidly and may or may not include the symptoms for a lower UTI.

- Fairly high fever (higher than 38 °C)
- Shaking, chills
- Nausea
- Vomiting
- Flank pain, pain in the back or side, usually on only one side at about waist level

In newborns, infants, children, and elderly people, the classic symptoms of a UTI may not be present. Other symptoms may indicate UTI.

- Newborns: Fever or low body temperature, poor feeding, jaundice
- Infants: Vomiting, diarrhea, fever, poor feeding, not thriving
- Children: Irritability, eating poorly, unexplained fever that doesn't go away, loss of bowel control, loose bowels, change in urination pattern
- Elderly people: Fever or low body temperature, poor appetite, lethargy, change in mental status

 **UTIs should always be referred for further management.**

Supportive Treatment

- Take a pain-relieving medication.
- Use a hot-water bottle to ease pain.
- Avoid coffee, alcohol, and spicy foods, all of which irritate the bladder.
- Avoid smoking. Smoking irritates the bladder and is known to cause bladder cancer.
- Ensure adequate intake of fluid (oral or IV) to irrigate the bladder and dilute bacterial concentrations.
- Ensure peri-anal hygiene.
- Ensure regular complete emptying of the bladder and/or double voiding (additional attempt to empty bladder after initial urine flow ceases).
- Finish all antibiotic medication even if the patient is feeling better before the medication is gone.

Pharmacological Treatment

The usual treatment for both simple and complicated UTIs is antibiotics. The type of antibiotic and duration of treatment depend on the circumstances.

- In an otherwise healthy young female, a three-day course of antibiotics is usually enough. Some providers prefer a seven-day course to be sure of getting rid of the infection. Occasionally, a single dose of a powerful antibiotic is used.

- Adult males with a UTI require 7 to 14 days of antibiotics. If the prostate is also infected (prostatitis), four weeks of antibiotic treatment may be required.

- Adult females with potential for or early involvement of the kidneys, urinary tract abnormalities, or diabetes are usually given a five- to seven-day course of antibiotics.

Sodium Bicarbonate Solution 5%

Dissolve 5 g in 100 mL water and drink twice daily; will make the urine alkaline and may help relieve symptoms in mild cases.

Co-trimoxazole

Adults: 960 mg twice daily for 10-14 days
Children: 24 mg/kg, twice daily for 10-14 days

Amoxicillin

Adults: 500 mg every 8 hours for 10-14 days
Children: 15 mg/kg every 8 hours for 10-14 days

If poor response or recurrent infections, do not continue to treat 'blindly'; refer to more specialized health center for investigation of culture and sensitivity and further management.

Prevention

- Women and girls should wipe from front to back (not back to front) after going to the bathroom. This helps prevent bacteria from the anus entering the urethra.
- Empty the bladder regularly and completely, especially after sexual intercourse.
- Drink plenty of fluids.
- Improve personal/genital hygiene.
- Avoid sharing bathing basins, towels, soap, etc.

Sexually Transmitted Diseases

Sexually transmitted diseases (STDs) are spread through sexual intercourse and mostly affect sex organs or the mouth; the infection can also be spread through contact with blood during sexual activity. STDs are among the most common infectious diseases in Uganda.

For effective management of these conditions, a syndromic approach is used where medicine is given for all the suspected causative organisms depending on the symptoms.

- STDs affect men and women of all ages and backgrounds.

- STDs have become more common, partly because young people are becoming sexually active at a younger age and have multiple partners.

- Frequently, STDs cause no symptoms, especially in women. However, they remain infective to their sexual partners.
    - Health problems from STDs tend to be more severe for women than for men. Some STDs can cause pelvic infections that may lead to scarring of the reproductive organs, which can result in an ectopic pregnancy (a pregnancy outside the uterus) and infertility for women.
    - STDs can be passed from a mother to her baby before, during, or immediately after birth.
- Because the method of becoming infected is similar with all STDs, a person can easily pick up more than one infection at a time.
- Experts believe that having an STD that is not AIDS increases one's risk for becoming infected with AIDS.

Take Special Care with STD Patients

Sometimes people with STDs are too embarrassed or frightened to ask for help or information. However, most STDs are easy to treat. The sooner a person seeks treatment and warns sexual partners about the disease, the less likely the disease will do permanent damage, be spread to others, or be passed to a baby.

Once a diagnosis of an STD has been made, the patient should:

- Seek treatment to stop the spread of the disease.
- Be encouraged to notify sexual contacts and urge them to have a check-up.
- Take all of the prescribed medication.
- Sometimes, follow-up visits and tests are important.
- Consult a health worker with any specific needs and questions.
- Avoid sexual activity while being treated for an STD.

Urethral Discharge Syndrome (Males)

Causes

A number of diseases, usually spread by sexual intercourse, produce similar manifestations in the male and may be difficult to distinguish clinically:

- Gonorrhea: caused by the bacterium *Neisseria gonorrhea*
- Trichomoniasis: caused by the protozoan *Trichomonas vaginalis*
- Non-gonococcal urethritis: caused by virus-like bacteria *Mycoplasma* and *Chlamydia trachomatis*; *C. trachomatis* is most common cause of bacterial STDs; transmitted through oral and anal sexual contact

Clinical Features

- Patients complain of mucus or pus appearing at the tip of the penis or staining underwear
- Burning pain on passing urine (dysuria)
- Examination may show a scanty or profuse discharge

Treatment of Patients and Partners

Ciprofloxacin 500 mg single dose plus doxycycline 100 mg every 12 hours for 7 days

If the partner is pregnant, give erythromycin 500 mg every 6 hours for 7 days plus co-trimoxazole 2.4 g (5 tabs) every 12 hours for 3 days.

 **If discharge still persists, refer for specialist management.**

Lower Abdominal Pain Syndrome (Female)/Pelvic Inflammatory Disease (PID) Syndrome

Causes

Infection of the uterus, tubes, and ovaries by *N. gonorrhea, Chlamydia*, and anaerobes

Investigation

- Take history, check if period overdue
- If possible, examine the patient manually for pregnancy, bleeding, recent delivery, or abortion
- Check for severe pain, vomiting, or rebound tenderness

Treatment

If any of the above signs and symptoms are found, refer quickly for further management.

If none of the above signs and symptoms are found, give:

- Ciprofloxacin 500 mg every 12 hours for 3 days
- Plus doxycycline 100 mg every 12 hours for 10 days
- Plus metronidazole 400 mg every 12 hours for 10 days

If there is an IUCD, remove it 2-4 days after commencing treatment.

 **If no improvement within 7 days, refer for specialist management.**

Abnormal Vaginal Discharge Syndrome

An abnormal vaginal discharge is often the first evidence of genital infection, although the absence of an abnormal vaginal discharge does not mean absence of infection.

Causes

- Can be a variety and often mixture of organisms
- Bacterial vaginosis

Clinical Features

- In all cases: abnormal increase of vaginal discharge; normal discharge is small in quantity and white to colorless
- Gonorrhea produces a thin mucoid, slightly yellow pus discharge with no smell
- Trichomoniasis causes a greenish-yellow discharge with small bubbles and a fishy smell and itching of the vulva
- *Candida albicans* causes a very itchy, thick, white discharge like sour milk
- Mycoplasma and chlamydia may cause a non-itchy, thin, colorless discharge
- Ectopic pregnancy and infertility are the most serious complications

Treatment

If there is lower abdominal tenderness with itching, reddening, or tenderness, treat as lower abdominal pain syndrome and give:

- Ciprofloxacin 500 mg every 12 hours for 3 days
- Plus doxycycline 100 mg every 12 hours for 10 days
- Plus metronidazole 400 mg every 12 hours for 10 days

If there is no lower abdominal tenderness but there is itching, erythema, or excoriations, insert one nystatin pessary 100,000 IU into the vagina at night for 14 days or insert one clotrimazole pessary 500 mg single dose at night for 1 night plus metronidazole 2 g single dose.

If Pregnant

- Give erythromycin 500 mg every 6 hours for 7 days plus co-trimoxazole 2.4g (5 tabs) every 12 hours for 3 days
- Do not give co-trimoxazole in the first trimester or after 36 weeks
- Postpone giving metronidazole until after the first trimester
- Do not give ciprofloxacin or doxycycline

Children (7-day course)

Co-trimoxazole 24 mg/kg every 12 hours or erythromycin 12.5 mg/kg every 6 hours plus metronidazole 12.5 mg/kg every 8 hours

If no improvement within 7 days, refer for specialist management.

 **Antibiotic treatment is initiated upon prescription from a health facility.If discharge still persists, inform the patient to go to a higher facility for specialist management.**

No lower abdominal tenderness and no itching, erythema, or excoriations:

- Ciprofloxacin 500 mg stat
- Plus doxycycline 100 mg every 12 hours for 7 days
- Plus metronidazole 2 g single dose

Prevention

The best way to prevent STDs is to avoid sexual contact with others. If people decide to become sexually active, they can reduce the risk of developing an STD in these ways:

- Counsel the patient on risk reduction, e.g., practice safe sex by using condoms, remaining faithful to one sexual partner, personal hygiene, avoiding anal intercourse, or abstaining or delaying sexual relations as long as possible.
- Encourage to correctly and consistently use a male latex condom.
- Have regular checkups.
- Avoid having sex during menstruation; HIV is passed more easily at this time.

Session 2. Family Planning

Objectives

1) Identify and counsel those at risk on different family planning methods.
2) Explain types and categories of all family planning methods in Liberia to enable clients to make voluntary and informed choices.
3) Screen, initiate, and instruct clients on taking oral pills and using condoms.
4) Counsel and refer clients for contraceptive methods not available at the medicine store
5) Recognize and refer clients with contraceptive-related side effects and complications.
6) Give health education about STIs (very important), e.g., including symptoms of STDs. Provide specific education on the need for early reporting and compliance with treatment
7) Ensure notification and treatment of sexual partners
8) If necessary and possible, schedule return visits

Time

8-10 hours

Role Play

Scenario 1

A 31-year-old woman who gave birth 7 weeks ago has come to your drug shop to buy a syrup for her baby. She wants to delay another pregnancy for at least 2 years. She asks you to assist her. She is breast-feeding her baby, but during the day when she is at work in the market, her mother-in-law gives the baby milk formula.

How can you help her?

Scenario 2

Mrs. Cecilia, who is 19-years old and living with her husband, developed high blood pressure when she was pregnant, but it returned to normal after a normal delivery of her baby girl 3 months ago. She is exclusively breast-feeding and has come to buy paracetamol syrup at your drug shop on her way back home from the MCH clinic where she had her baby immunized. She wants to have another baby within two years and has no knowledge about family planning (FP) services.

How can you help her?

Scenario 3

Princess Johnson is an 18-year-old who comes to your accredited shop for a pregnancy test because a condom had broken during intercourse the night before. Her last menstrual period was 13 days ago and was normal. She always has a monthly menstrual cycle. She is extremely nervous about pregnancy because she still stays in her father's house. She states there have been no other acts of unprotected intercourse since her last menstrual period. She did take oral contraceptives briefly in the past but discontinued use due to weight gain and mood swings.

How can you help her?

Role and Tasks of the Drug Seller in Delivering Selected FP Methods

1) Educate and counsel clients on oral pills and condoms

- Identify and counsel those at risk on different FP methods.
- Plan, conduct, and evaluate individual and group educational and counseling sessions for FP.
- Give clear information about all FP methods to enable clients to make voluntary, informed choices.

2) Manage clients on oral pills and condoms

- Apply knowledge of reproductive anatomy and physiology to client counseling for oral pills and condoms.
- Initiate use of oral pills and condoms on the basis of clients' informed choices, medical and social history, and checklist assessment.
- Instruct clients on use of oral pills and condoms.
- Counsel and refer clients for contraceptive methods not available at the medicine store.
- Correctly prescribe and dispense oral pills and condoms.
- Refer clients with contraceptive-related side effects and complications to trained health workers.

3) Manage FP services in the drug shop

- Provide oral FP methods and condom services as an integral part of other drug sales.
- Procure and maintain stocks of oral pills and condoms in the drug shop.
- Maintain accurate records of FP services and submit drug shop FP service returns/reports to the appropriate authority.
- Use data from monthly reports to monitor and evaluate FP integration into drug shop activities.

High-Risk Concept in Family Planning/Reproductive Health Service Delivery

A high-risk client in FP/reproductive health (RH) is one whose life and that of her baby/baby-to-come are threatened by pregnancy. For example:

- Young mothers under 20-years old: Children born to young mothers and those born after a short birth-interval are subject to much higher mortality rates than those born to older mothers and after longer birth intervals.

- All sexually active males and females are at risk of contracting STI/HIV; behaviors that put the individual or couple at risk include practicing unprotected sex, having more than one sexual partner, or having sex with an infected person without protection.

Certain women and/or their unborn babies are likely to have problems during pregnancy and child birth and after delivery. The service provider needs to pay special attention to them.

Table 15. Consequences of "the 4 Toos"

Concept	Consequences to the mother	Consequences to the baby
Too early: Having a pregnancy before 20 years of age	• Difficult delivery because of an immature birth passage • Pregnancy-induced hypertension, which creates risks for mother and baby (e.g., assisted deliveries that may result in birth injuries) • Unwanted pregnancies, resulting in abortion and post-abortion complications	• Unwanted, poorly cared for, illnesses, and neglect • Abandoned or thrown away • Premature birth with low chance of survival
Too soon: Having a pregnancy within an interval of less than 2 years	Lack of rest and time to replace lost blood, weak, and anemic; maternal depletion syndrome	• Low birth weight • Insufficient time to breast-feed, baby will have lowered immunity, diarrhea • Lack of care and love
Too many: Having more than four pregnancies	Repeated child birth can to lead to: • Antepartum/postpartum hemorrhage in the successive pregnancies • Malpositions, leading to assisted deliveries	• Premature deliveries, small even at full term • Competition of children for parental love and care may lead to inadequacies among some of the children
Too late: Having a pregnancy after 35 years of age	At the age of 35, pelvic bones begin to harden, making it difficult to give way for the baby to be born; mother is likely to have obstructed/ difficult delivery, caesarean section	Baby may be born with problems such as congenital handicaps or prematurely or small for dates.

What is Family Planning?

It is about deciding when to have children

A couple or an individual decides:

- When to start and when to stop having children
- How many children to have
- How often to have children

Male Reproductive System

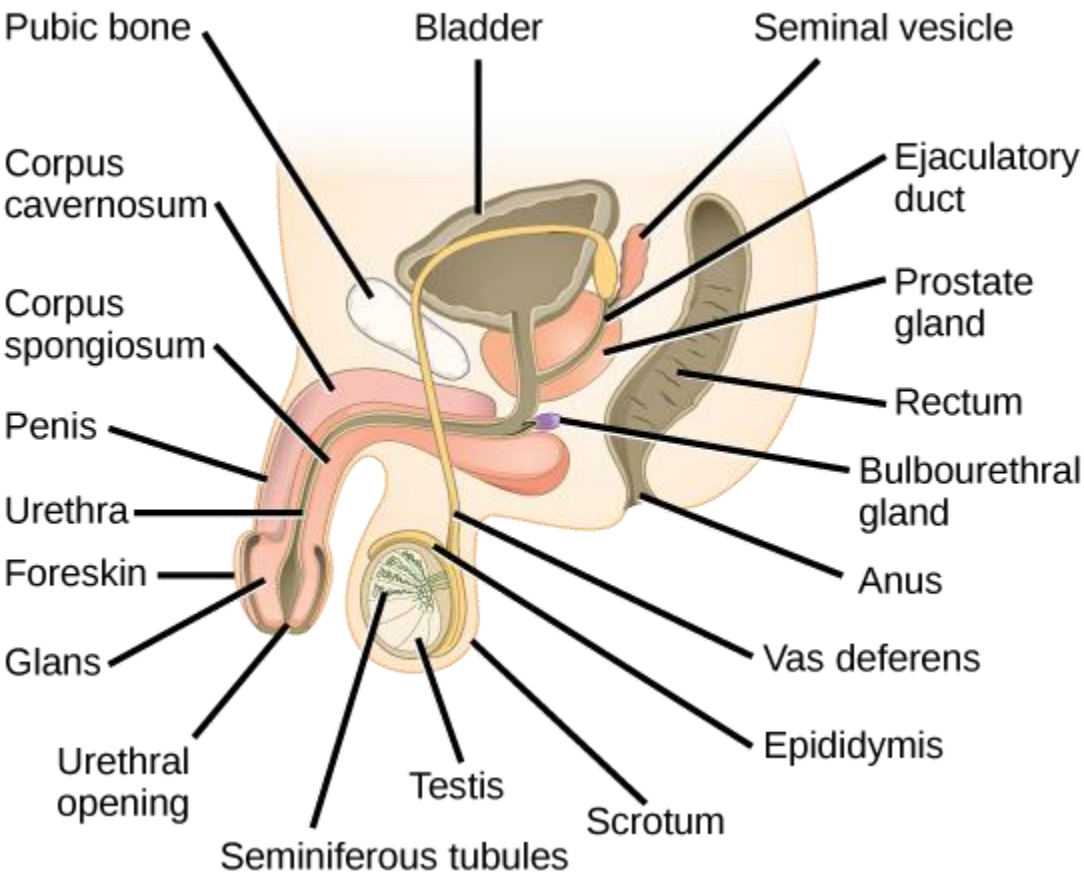


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Figure 10. Male reproductive organs

Penis

The part of man's body that deposits the man's seeds into the vagina and also the organ for urination. The condom is worn over the penis.

Urethra

This is a single tube approximately 15 cm running from the bladder through the penis and is a passage for urine and also for seminal fluid.

Vas deferens

Two tubes that carry sperm from the testicles to the penis. This is the site for vasectomy; these tubes are tied and cut so that they can no longer carry the man's seeds from the testicles to the penis.

Vasectomy does not affect sperm production; the testes continue to produce sperm, but after maturing, they degenerate and are absorbed into the body.

Seminal vesicles

These two accessory glands lie posterior to and at the base of the bladder and secrete the liquid portion of the semen, which contributes to the viability of the sperm. Mature sperm are stored here until they are ejaculated during sexual intercourse or passed during wet dreams. The seminal vesicles continue to produce semen even after vasectomy. This information helps to dispel the myth that a man will continue to ejaculate, but the ejaculation will have no sperm.

Testes

Two balls inside the scrotum; they produce sperm and sex hormones and store sperm. The mature sperm can live about 3-5 days in a woman's genitals after ejaculation.

Epididymis

These are two comma-shaped coiled tubes about 5-6 meters or 20-feet long coiled on top of each of the testes. It stores sperm for about 10 days until they mature. But, if after 4 weeks, the sperm are not passed to the vas deferens, they are absorbed into the body.

Prostate gland

One of the accessory glands that secretes a fluid that helps sperm move and neutralizes the acidity in the penile urethra and the vagina.

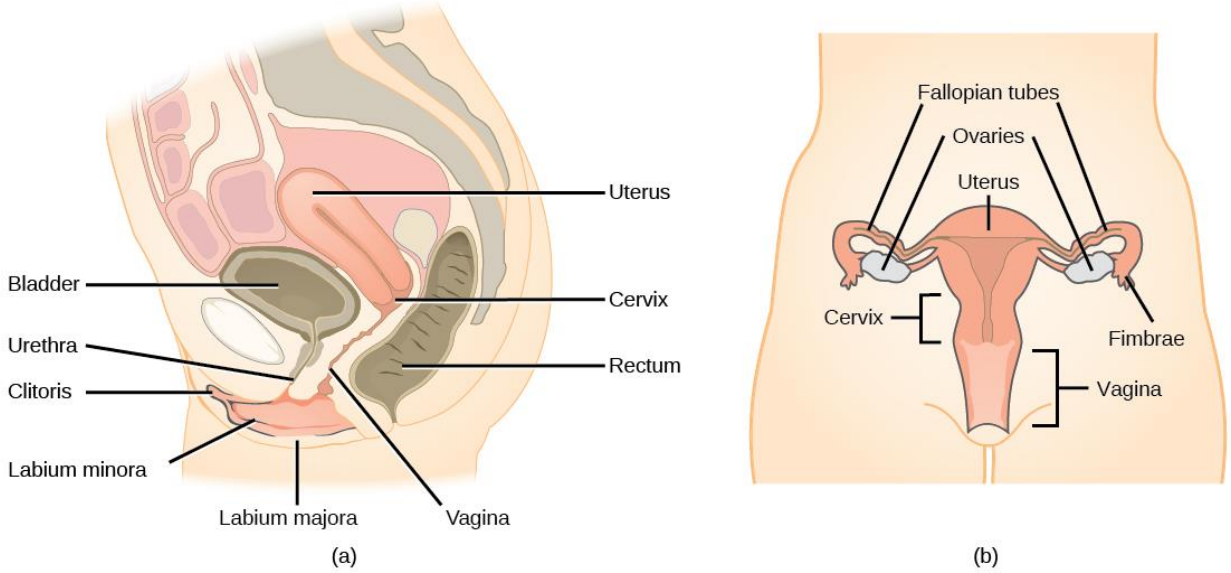
Cowper's glands

Two accessory glands about the size of peas, lying beneath the prostate; they produce semen and an alkaline secretion that protects sperm against the acid secretions of the male urethra and vagina. After the removal of the prostate gland, the Cowper's glands continue to secrete alkaline fluid.

Scrotum

It is a sac that contains and protects the testes. It regulates the temperature of the testes which is critical for their normal function.

Female Reproductive System



Source: OpenStax College. Human Reproduction [OpenStax-CNX Web site]. June 28, 2013. Available at: http://cnx.org/content/m45549/1.4/.

Figure 11. Female reproductive organs

Vagina

This is the passage from outside of the female body to the uterus. It is the outlet for menstrual flow, entry for the penis during sexual intercourse, and passage for a baby at birth. This is where the female condom is applied and can be found here if it slips off during intercourse. Threads for intrauterine device (IUD) device can be felt in the vagina.

Cervix

This is the mouth of the uterus (womb). It allows the menstrual blood to come out from the uterus and sperm to enter the uterus from the vagina. It dilates and permits the birth of a baby from the uterus.

Uterus

The uterus is a muscular, pear-shaped organ where the baby grows and is nourished until ready to be born. Every month, the womb prepares itself for a baby by making a thick lining. If there is no baby, the womb throws away the lining, that is, monthly bleeding originates here. The baby grows in the womb during pregnancy.

Fallopian Tubes

Two tubes connecting the ovaries to the womb**.** One egg travels along the tube from the ovary to the womb every month and if it meets the man’s seeds, then they join to start making a baby.

In a tubal ligation, the fallopian tubes are tied and cut so that the passage is blocked, and the woman's egg and male seed cannot meet to make a baby.

Ovaries

Two sacks on each side of the womb containing 300,000–500,000 egg cells at birth. One egg (ovum) matures and is released into the fallopian tube every month. Ovaries secrete female hormones, estrogen and progesterone, which change a girl into a woman at puberty and continue to secrete female hormones after puberty.

When a woman is using hormonal FP, the eggs do not mature and are not released from the ovaries. Therefore, there is no union of the female egg and the male seeds to make a baby.

Menstrual Cycle

When a girl is born, she has thousands of egg cells, or ova in her two ovaries. Each egg is the size of one grain of sand. The tiny dots in the two ovaries are the eggs. Each month, one egg ripens and leaves the ovaries; this is ovulation. The egg is picked up by the broad end of the fallopian tube and starts moving toward the uterus. At the same time, the uterus starts getting ready for the egg by thickening its inner lining.

An egg can grow into a baby only if it meets a sperm cell from a male. If the sperm and egg meet, a woman becomes pregnant. The fertilized egg attaches to the thick lining of the uterus. This lining nourishes and supports the baby until birth.

If the egg is not fertilized by a sperm, the lining is not needed and it breaks down. The lining, tissue, and the egg flow out of the uterus through the vagina and leave the body; this is menstruation. Menstruation occurs approximately 14 days after ovulation, if the egg is not fertilized. Menstrual periods may last 2-8 days; the average menstrual period lasts 4-6 days. The menstrual cycle occurs about every month until a woman goes through menopause. It also stops during pregnancy and starts again after the baby is born.

The menstrual cycle starts from day 1 of menstruation and continues to the day before the first day of the next menstruation. On average, it is usually 28 days in duration, but may vary from 21 to 35 days or more. It consists of the menstrual phase, the estrogen (proliferative) phase, and the progesterone (secretory) phase.

Menstruation (also called periods because they occur every month) marks the onset of sexual maturity in girls. Menstruation is the periodic shedding of blood and tissue from the female reproductive organ called the uterus. Beginning to menstruate means a girl is capable of becoming pregnant and having a baby.

Phases of the Menstrual Cycle and Clinical Applications

Hormones are natural chemicals carried in the blood stream that influence how glands and organs work. Low levels of hormones give feedback messages to the brain to release hormones I and II at appropriate intervals which make the anterior pituitary lobe release follicle-stimulating hormone (FSH) or luteinizing hormone (LH), depending on the gonadotropin-releasing hormone.

Table 16. Female Reproductive Cycle

Phase	Changes that take place
Menstrual phase, days 1-7	**Ovaries:** Corpus luteum (shell that ovum has been released from) shrivels and dies; levels of progesterone and estrogen drop. **Uterus:** Inner lining of uterus is shed. **Cervix:** Blood flows from the cervix and is visible externally (the menstrual period). **Hypothalamus:** Receives message to release FSH releasing factor (FSHRF). **Clinical applications:** The uterus is not ready for pregnancy during this period; therefore, it is safe to start clients on FP methods on days 1-7 as the chances of pregnancy are extremely low in the majority of women.
Estrogen (proliferative) phase, approximately days 7-14	**Anterior pituitary lobe:** Releases FSH to the ovaries due to presence of FSHRF **Ovaries:** FSH stimulates/activates the ovarian follicles (eggs) to grow and as they do so, high levels of estrogen and some progesterone are released. **Uterus:** Estrogen starts re-growth of inner lining of the uterus, which becomes thick and firm. **Cervix:** Estrogen makes cervical mucus thin, clear, and stretchy to assist entry and to nourish sperm.
Progesterone (secretary) phase, approximately days 14-28	High levels of one hormone send a message back to the brain and another hormone is released. **At ovaries:** Eggs begin to grow faster; one matures and is released from the ovary into the fallopian tube. This mature egg is ready for fertilization. This process is called ovulation. A mature egg is released from a shell which is a yellow body or corpus luteum, which releases high levels of progesterone and estrogen. **Uterus:** Progesterone makes the lining of the womb thicker and richer in blood supply, ready for implantation. **Cervix:** Mucus becomes dryer and stickier, plugging the cervix and blocking the passage of sperm. If no pregnancy occurs, the yellow body (corpus luteum) shrinks and levels of estrogen and progesterone drop. The inner lining of the womb begins to shrink and shed, starting a new cycle. If pregnancy occurs, the yellow body continues to produce progesterone and estrogen until the placenta takes over. **Clinical applications** • Progestin in FP methods alters the cervical mucus making it thick and not easy for sperm to pass. Hence, the quick (24 hours) protection against pregnancy by Depo Provera,™ progestin-only pills (POPs), and Norplant.® • The fact that ovulation occurs before menstruation explains the risk of pregnancy before menses in post-abortion and postpartum women, and unnoticed pregnancy in women with lactation amenorrhea. • Just as the lowering of hormones causes shedding of the inner lining of the womb if a woman forgets to take three or more pills, she gets withdrawal (lowering of hormones) bleeding. • Methods that contain high levels of progestin with no withdrawal, such as Depo Provera or Norplant, switch off FSH and LH and therefore cause amenorrhea with prolonged use. • Emergency contraceptive pills (ECPs) prevent fertilization.

Types of FP Methods Available in Liberia

- Hormonal contraceptive methods
    - Oral pills: combined oral contraceptives (COCs; Lo-feminal, Microgynon, and Pill Plan) and POPs (Overette and Microval)
    - Injectables (depot medroxy progesterone acetate [DMPA/Depo Provera]) and implants (Norplant, Jadelle, and Implanon
- IUDs, such as the copper T380A
- Barrier methods, such as female and male condoms
- Natural FP: lactational amenorrhea method (LAM), fertility awareness methods, moon beads
- Permanent methods: tubal ligation and vasectomy

Combined Oral Contraceptives

COCs prevent pregnancy by suppressing ovulation and thickening the cervical mucus, thus making sperm entry difficult. COCs contain two hormones, namely, artificial estrogen and progestin. They are taken orally and daily to prevent pregnancy. COCs are very effective when used properly; about 3 in 1,000 women (0.3%) who use COCs correctly and consistently get pregnant in the first year of use. Lo-feminal and Microgynon are found in the public sector health facilities whereas Duofem (Pilplan) is found in the private sector. COCs do not provide protect against STIs, including HIV.

Advantages and Non-Contraceptive Benefits of COCs

- Cause periods to be regular and predictable
- Reduces menstrual blood loss which prevents anemia
- Reduces painful periods, where pain is not caused by infection
- Can be used as an emergency contraception
- Are very effective if taken correctly
- Are easily reversible
- Are safe for most women
- Are independent of coitus

Disadvantages and Common Side Effects of COCs

- Must be taken daily
- Requires regular and dependable supply
- Reduces breast milk, especially in the first six months after delivery
- Minor side effects common in first three months may include spotting, amenorrhea, nausea, breast tenderness, headaches, weight gain, depression, and acne

Women Who Can Use COCs

All women of reproductive age who wish to can use COCs, including women with:

- Anemia, but the basic problem causing anemia must be evaluated and treated
- Painful periods not caused by infection
- Irregular cycles
- History of ectopic pregnancies
- Blood pressure less than 160/100 mm Hg
- Unexplained vaginal bleeding
- Thyroid disease
- Benign breast disease
- STIs, including HIV and AIDS

Women Who Should Not Use COCs

- Those who are pregnant
- Have complications or side effects that a service provider is not capable of handling
- Mothers who have been breast feeding less than six months
- Women with:
    - Heart disease
    - High blood pressure
    - Diabetes
    - Headache with blurred vision
    - Yellow coloring of the eyes
- Women who smoke cigarettes and are over 35
- Women taking other drugs for conditions such as TB, epilepsy
- Women who are absent minded or mentally retarded

Signs of Problems that Require Urgent Medical Attention

- Severe headaches with blurred vision
- Severe constant pain in the chest with difficulty in breathing
- Acute abdominal pain
- Pain in the calf muscle
- Eyes or skin become unusually yellow

Progestin-Only Contraceptives (POPs, Injectables, and Implants)

POPs are effective for seven days, and the effectiveness is maintained by swallowing every day at the same time.

Injectables are effective within 48 hours; specifically for DMPA, effectiveness will last 12 weeks.

Providers are also reminded that the effectiveness of injectables and implants depends on giving the injection following the correct procedure and following infection prevention protocols.

Implants

The new implants (Jadelle and Implanon) are different from the Norplant implants. Norplant was effective within 48 hours and was used for 5 years, whereas the new ones are effective for 3 years. Effectiveness depends on proper insertion under the skin (subdermally).

The side effects are temporary and stop (usually within three months) when the body gets used to the implant.
All contraceptives that contain only progestin are referred to as progestin-only contraceptives (POCs). In Liberia, the major types of POCs available include oral pills, injectable, and implants.

All POCs prevent pregnancy in two ways by thickening the cervical mucus within 24 hours making it difficult for sperm to enter the uterus and/or inhibiting ovulation.

Table 17. Types of POCs

Type of POC	Name	Description
Oral pills	POP	The one found in the health units in Liberia is Overette.
Injectable	DMPA	The common name is Depo Provera, marketed as Injecta–Plan. It is found in public sector health facilities.
Implants	Implanon	A single rod (capsule) provides contraceptive protection for 3 years
	Jadelle	Consists of two rods (capsules)

Progestin-Only Pills

Effectiveness

- POPs are most effective when taken at the same time every day. A delay of only three hours may result in pregnancy if the woman has unprotected sexual intercourse in that time.

- For breast-feeding women, POPs are very effective when taken correctly because breast-feeding itself provides much protection against pregnancy. A pregnancy may occur in 1 of every 100 women in the first year of use.

- POPs are also very effective when used correctly and consistently in both breast-feeding and non-breast-feeding women. A pregnancy may occur in 1 of every 200 women in the first year of use.

Advantages and Non-Contraceptive Benefits

- Very effective if taken correctly
- Can be very effective during breast-feeding, if started six weeks after delivery
- Does not suppress lactation
- No estrogenic side effects
- Easy habit to establish; because one pill of the same color is taken every day with no break, it is easy to make it a habit

- Suitable for those with hypertension, cardiac, or sickle cell disease
- Does not increase blood clotting

Common Side Effects and Disadvantages

Women who are not breast-feeding may have:

- Spotting or bleeding between periods
- Amenorrhea
- Mild headache
- Breast tenderness
- An increased risk of pregnancy, if the pill is taken even a few hours late
- Does not protect against STIs or HIV

Depo Provera (DMPA)

Very effective; a pregnancy may occur in 1 of every 33.3 women when injections are given regularly, every 12 weeks.

Advantages and Non-Contraceptive Benefits

- Does not suppress lactation
- Client only has to remember the return date for subsequent injections, i.e., it is private, no one needs to know that the woman is on it
- Can be used at any age
- No estrogen side effects
- May reduce the frequency of epileptic and sickle cells crises

Disadvantages and Common Side Effects

- Changes in menstrual bleeding: spotting (most common at first), amenorrhea (normal after first year of use), heavy bleeding (rare)
- Weight gain
- Delayed return of fertility, have to wait about four months longer to get pregnant after stopping use
- Mild headaches
- Breast tenderness
- Loss of libido
- Moodiness
- Nausea
- Acne or hair loss
- Requires injection every three months
- Does not protect against STIs or HIV

Implants

There are two types of implants in Uganda, i.e., Implanon and Jadelle.

Effectiveness

Implants are very effective, only 1 pregnancy per 1000 women occurs in the first year of use. Pregnancy rates have been slightly higher among women weighing more than 70 kg.

Advantages and Non-Contraceptive Benefits

- Very effective even in heavier women
- Effective within 24 hours after insertion
- No delay in return to fertility after removal
- Long acting; needs replacement after three years
- No repeated clinic visits required
- Helps to prevent iron deficiency, anemia, and ectopic pregnancy
- Makes sickle cell crises less frequent and less painful
- No effect on breast milk
- No estrogen side effects
- Little or no pain from anesthesia injection

Common Side Effects and Disadvantages

- Changes in menstrual bleeding: spotting, heavy bleeding (rare), or amenorrhea
- Minor surgical procedure required for insertion and removal
- Discomfort in the arm after insertion
- Does not protect against STIs including HIV and AIDS
- Weight gain
- Headaches
- Dizziness
- Breast tenderness
- Moodiness
- Nausea
- Acne, skin rash
- Change in appetite
- Hair loss or more hair growth on the face
- Client cannot start or stop using an implant on her own; the capsules must be inserted and removed by a specially trained health care provider

Women with the Following Conditions Can Use POCs

- Post abortion (anytime)
- Breast feeding mothers; can be started after six weeks postpartum
- Sickle cell disease
- Diabetes, without evidence of hypertension or history of a heart attack
- Smokers
- Hypertension with blood pressure not higher than 140/100
- Headaches, including migraines
- Congenital heart disease
- Unexplained vaginal bleeding (although evaluation should be done as soon as possible to

rule out underlying malignancy), except for DMPA and implants
- Cervical, endometrial, or ovarian cancer (awaiting definitive treatment)
- Those undergoing treatment with the antibiotic griseofulvin
- Those undergoing treatment with antiretrovirals, although effectiveness of the POC may be reduced

Women Who Cannot Use POCs

- Breast-feeding less than six weeks postpartum
- Pregnant mothers (although there is no harm to women or the fetus if POCs are accidentally used during pregnancy)
- Under treatment for current breast cancer or have a history of breast cancer
- Under treatment for epilepsy with phenytoin or TB with rifampicin
- Current deep venous thrombosis
- Active viral hepatitis
- Severe cirrhosis or liver tumors

Signs of Problems that Need Urgent Medical Attention

- Repeated severe headaches that start or become worse while client is on POCs
- Missed or delayed menstrual period after several months of regular menses
- Severe lower abdominal pain, which maybe a sign of ectopic pregnancy
- Very heavy vaginal bleeding, twice as much or twice as long as usual

Client should report back to the clinic if any of the following occur at the injection or insertion site:

- Pus
- Prolonged pain
- Bad smell
- Feels hot to the touch
- Redness
- Bleeding
- Specifically for implants, if the capsule comes out or skin or eyes become unusually yellow

IUDs

The IUD is a plastic and copper device that is inserted in the uterine cavity to prevent pregnancy.

In Liberia, the copper T 380A is the most common IUD used. It is T-shaped, with copper on its stem and arms. It has a shelf-life of 10 years and an intrauterine life of 12 years.

Mechanism of Action of IUD

Copper-bearing IUDs like the copper T 380A act primarily by preventing fertilization. Copper ions emitted from the IUD decrease sperm motility and function by altering the uterine and tubal

fluid environment which means that sperm rarely reach the fallopian tubes and are unable to fertilize the ovum.

Effectiveness of IUD

Copper T 380A IUDs are 96-99% effective. However, their effectiveness depends on the skillfully the service provider places the device during insertion.

Advantages of IUDs (Copper T 380A)

- Easily reversible
- Long-term contraception
- No hormonal-related side effects
- Minimal attention needed; the user needs to check that the IUD is still in place (by checking on the strings) and uses pads during menstrual periods
- Can be inserted immediately after delivery up to 48 hours or six weeks after delivery
- Safe for most women
- Only one follow-up visit after insertion is required unless a client has problems
- More economical than other methods
- Private
- No interactions with medications a woman may use

Disadvantages and Side Effects of IUDs

- Mild cramps during the first few days (3-5) after insertion
- May experience longer and heavier menses in the first three months after insertion
- Increased normal vaginal discharge in first three months after insertion
- Spotting between menstrual periods
- Increased menstrual cramps
- Exposure to injection during insertion and removal
- Are service provider dependent
- May be partially or completely expelled from the uterus
- Does not protect against endometrial or ovarian cancer

Protection against STIs/HIV/AIDS

IUDs do not offer protection against STIs nor HIV. If a client is at a risk of STIs, there is an increased risk of PID and subsequent infertility if an IUD is inserted.

Women Who Can Use an IUD

- Women of reproductive age who prefer a nonhormonal, highly reliable method of contraception that does not require daily attention

- Women and couples who have reached their desired family size and do not want undergo sterilization

- Women who have trouble with correct and consistent use of other contraceptive methods (e.g., remembering to take pills on time, negotiating condom use with a partner)

- Women at low risk of STIs

The IUD can be used without restrictions or generally used by women of any age and parity who may also have the following conditions.

- Breastfeeding
- Current or history of cardiovascular disease or stroke
- Headaches, including migraine

Women Who Should Not Use an IUD

The IUD is not generally recommended or is contraindicated for women with the following:

- Pregnancy
- Distorted uterine cavity incompatible with IUD insertion (including uterine fibroids)
- Unexplained vaginal bleeding (before evaluation)
- Cervical, endometrial, or ovarian cancer
- Current PID
- High individual likelihood of exposure to gonorrhea and chlamydia

Signs of Problems that Warrant Immediate Return to the Clinic

- Severe lower abdominal pain
- Pain during intercourse
- Fever
- Foul-smelling vaginal discharge
- Missed periods
- Missing strings
- Prolonged vaginal bleeding
- Spotting

Permanent Methods of Contraception

Vasectomy is a permanent method of contraception in which the tubes (vas deferens) through which sperm travel from the testes to the penis are tied and cut so that sperm can no longer enter the semen that is ejaculated.

Tubal ligation is a permanent method of contraception whereby both fallopian tubes are tied and cut using a modern operation (Mini-Lap) so that the ovum cannot travel through them to meet the sperm and be fertilized.

These methods are considered voluntary because the decision is made by an individual or couple after receiving proper counseling and without any bias or influence from anyone else.

Vasectomy

Vasectomy is 99-100% effective.

However, effectiveness is not immediate; it usually takes at least 20 ejaculations to clear sperm from the seminal vesicles. Condoms or another contraceptive method should be used until then. The surest way to confirm sterility is to bring a sample of semen to a clinic to determine whether it still contains sperm after at least 20 ejaculations.

Advantages and Non-Contraceptive Benefits

- Permanent
- Surgery is relatively fast (usually less than 30 minutes)
- Very appropriate for couples who already have the number of children they want
- Requires only a single procedure and therefore is inexpensive in the long term
- Procedures are very safe, and major complications are rare
- Does not require hospitalization
- Does not interrupt love-making

Disadvantages and Side Effects of Vasectomy

- Considered irreversible
- May cause pain and skin discoloration in area of incision (treatable)
- May cause swelling and discoloration of the scrotum (treatable)
- Sexual relations must cease until two or three days after the procedure and can resume only if there is no discomfort
- A condom or another method needs be used for the next 20 ejaculations

Protection Against STI/HIV Infection from Vasectomy

Vasectomy offers no protection against STIs and HIV.

Men Who Can Have a Vasectomy

In general, the majority of men who want vasectomy can have a safe and effective procedure in a routine setting, provided they have been counseled.

They should also be able to give informed, written consent. Men who may consider sterilization include those:

- Who are certain that they have achieved their desired family size
- Who want a highly effective, permanent contraceptive method
- Whose wives face unacceptable risk in pregnancy

Men Who Should Not Have a Vasectomy

There are no medical conditions that would absolutely restrict a man’s eligibility for vasectomy. Some conditions and circumstances indicate that the procedure should be delayed or that certain precautions be taken.

- Local infections (scrotal skin infection)
- Current STI
- Systemic infection or gastroenteritis
- Men or couples who are not certain that they have completed their family size
- Men making the decision because of social problems
- Men or couple who do not understand that vasectomy is permanent

Signs of Problems from Vasectomy Warranting Immediate Return to Clinic

- Bleeding at the incision site or internally
- Infection at the incision site or internally
- Injury to abdominal organs
- Blood clots in scrotum

Tubal Ligation

Tubal ligation is a permanent method of contraception whereby both fallopian tubes are tied and cut using a modern operation (Mini-Lap) so that the ovum cannot travel through to meet the sperm and be fertilized. The procedure can be obtained at any public or private hospital or other health facility.

Effectiveness

The procedure is more than 99% effective. Less than 1 woman in 100 may become pregnant within two years.

Advantages

- Private
- Permanent
- Very appropriate for couples who already have the number of children they want
- Requires only a single procedure and therefore is inexpensive in the long term
- Procedures are very safe and major complications are rare

Disadvantages and Side Effects

- Once it has been done, it cannot be reversed
- Needs couple consent
- Minor complications, such as slight bleeding and wound infection, occur in less than 5% of cases

Protection Against STI/HIV Infection from Tubal Ligation

Tubal ligation offers no protection against STI/HIV.

Women Who Can Have Tubal Ligation

Women who may consider tubal ligation include:

- Those who are certain that they have achieved their desired family size
- Those who want a highly effective, permanent method of contraception
- Those for whom pregnancy presents an unacceptable risk such as
  - Women who have had four or more previous caesarean sections
  - Women with medical conditions
- Couples or women who understand and voluntarily give informed consent for the procedure

Women Who Should Not Have Tubal Ligation

No medical condition absolutely restricts a woman's suitability for tubal ligation. However, tubal ligation should be delayed in case of:

- Pregnancy
- Postpartum (between day seven and six weeks)
- High blood pressure, prolonged rupture of membranes (24 hours or more), infection, bleeding before or soon after delivery
- Complicated abortion (infection, hemorrhage)
- Current blood clots in the veins
- Current ischemic heart disease
- Unexplained vaginal bleeding (before evaluation)
- Current PID or purulent cervicitis
- Current gall bladder disease
- Acute respiratory disease
- Severe anemia
- Acute respiratory disease
- Abdominal skin infection
- Women or couples who are not certain of their desired family size
- Women requesting tubal ligation because of social problems

Timing

- Within the first seven days after childbirth (if she made voluntary, informed choice in advance)
- Six weeks or more after childbirth
- Immediately after an abortion (if she made voluntary, informed choice in advance)
- Any other time, provided pregnancy is ruled out (but not between seven days and six weeks postpartum)
- During caesarean section

Signs of Problems from Tubal Ligation Warranting Immediate Return to the Clinic

- Severe bleeding at the incision site or internally
- Infection at the incision site or internally
- Injury to abdominal organs

Condoms (Male and Female)

A condom is a thin rubber sheath worn on an erect penis (by men) or inserted into the vagina (by women) to prevent the male ejaculate from mixing with the female vaginal secretion.

A condom serves a dual purpose. It protects the woman from pregnancy by preventing entry of sperm into the vagina. It also protects both the male and female from contracting STI/HIV because it provides a barrier that prevents male and female fluids from meeting during sexual intercourse.

If used correctly, condoms keep sperm and any disease organisms in the semen out of the vagina and likewise they also stop any disease organisms in the vagina from entering the penis.

Effectiveness

It is very important to use the condom correctly and consistently to be highly effective. When used correctly every time, only 3 pregnancies may occur per 100 women in the first year of use (1 in every 33).

When not used consistently and correctly every time, 14 pregnancies may occur per 100 women in the first year of use (1 in every 7).

Advantages and Non-Contraceptive Benefits

- Prevents STIs, including HIV and AIDS, and pregnancy when used correctly with every act of sexual intercourse
- Can be used alone or with another FP method as dual methods
- Helps prevent conditions caused by STI's, e.g., PID, infertility in both men and women, and possibly cancer of the cervix
- Safe, no hormonal side effects
- Offers occasional contraception with no daily upkeep
- Involves men in taking responsibility for contraception and for prevention of STIs
- Increases sexual enjoyment because there is no worry about STIs or pregnancy
- Helps men with premature ejaculation maintain an erection
- Easy to obtain, sold in many places including vending machines
- Can be used immediately after childbirth

Disadvantages and Common Side Effects

- Deteriorates (loses structural integrity) quickly if storage is poor

- Slipping off, tearing, and spillage of sperm can occur, especially among inexperienced users and users with inadequate vaginal lubrication
- Couple must take time to put the condom on the erect penis before sex
- User must be highly motivated to use correctly and consistently
- A man's cooperation is required for a woman to protect herself from pregnancy and disease
- May embarrass some people to buy, ask partner to use, put on, take off, and throw away
- Latex condoms may cause itching in those who are allergic to rubber; some people may be allergic to the lubricant in some brands

Who Can Use Condoms?

Condoms can be used by any man or woman regardless of his or her health status. People who may want to consider condom use include:

- Men wishing to participate more actively in FP
- Couples who have sexual intercourse infrequently
- People in casual sexual relationships where pregnancy is not desired
- Couples needing a back-up method while waiting for another contraceptive method to become effective or when the woman has forgotten to take the pill
- Couples who need a temporary method while waiting to receive another contraceptive method
- Those who are at increased risk of STIs (e.g., when one or both partners have other partners)
- Couples where one or both partners are HIV positive

Who Should Not Use Condoms

- Men or women who have an allergy to rubber
- Men who are unwilling to use condoms consistently and correctly
- Men who cannot maintain an erection when using a condom

Signs of Problems that Require Urgent Medical Attention

Severe reaction to the rubber or the lubricant in some brands of condoms

Natural FP with LAM

LAM is a contraceptive method that relies on the condition of lactational infertility, which results from specific breast-feeding patterns. There are three criteria and core parameters that must be met to use LAM.

1. Woman's menses have not returned.
2. Woman exclusively breast-feeds an infant.
3. Infant is less than 6 months old.

If any one of the three criteria changes, a complementary contraceptive must be started immediately. However, once the menses have resumed, lactation will no longer protect a woman from pregnancy. Six months after delivery, the chance that ovulation will occur before the first menstruation significantly increases, even in a fully lactating amenorrheic (who has not seen menstruation) woman.

Any factor that causes a decrease in suckling can result in the return of ovulation and decreased milk production. These factors include use of supplemental feeding, reduction in number of breast-feeds or increasingly long intervals between breast-feeds, maternal stress, and maternal/child illness.

As the time after delivery increases, as supplemental feeding is introduced and suckling decreases, or when the feeding pattern is changed, prolactin levels will diminish, leading to ovarian follicle development, ovulation, and menses.

Effectiveness

Effectiveness is 97-98% in the first six months post-partum if the client is still amenorrheic and exclusively breast-feeding (no more than 4 hours between feeds in the day and 6 hours at night with no supplementary baby food).

Advantages and Non-Contraceptive Benefits

- Very effective contraceptive method particularly during the first six months in exclusively breast-feeding women before the return of menses
- Requires no medical or chemical substances
- Available and convenient
- Protects baby against diarrhea and other infectious diseases by providing antibodies and by avoiding exposure to contaminated milk
- Provides important nutrients to the baby
- Promotes bonding with the mother

Disadvantages and Side Effects

Effectiveness decreases:

- After six months
- Once the mother's menses have returned
- Once the baby starts on foods other than breast milk
- If ovulation precedes a period and therefore client could become pregnant before having a period

Protection Against STI/HIV Infection

No protection against STI/HIV.

Reasons to Initiate Client on Another FP Method

- Woman's menses have resumed
- Mother cannot breast-feed exclusively
- Baby cannot suckle well for any reason (e.g., illness)
- It is six months since delivery
- Mother is supplementing baby's feed
- Mother desires another method

Screening Clients for and Initiating Them on Oral Pills

A drug shop operator needs to screen FP clients so as to:

- Rule out contraindications and precautions to FP method use
- Determine eligibility for method of choice, according to WHO criteria (WHO 2009)
- Ensure that the client is not pregnant before beginning to use any method of contraception

What is Involved in Screening Clients for FP?

A drug shop operator will use the "Checklist for Screening Clients Who Want to Initiate Combined Oral Contraceptives" to ask questions to ensure that the client does not have any medical conditions that may prevent her from taking oral pills. Another checklist "How to be reasonably sure a client is not pregnant" should be used to exclude pregnancy.

Initiating Clients on Oral Pills

Hormonal FP methods and IUDs are initiated after proper screening and you are reasonably sure a client is not pregnant**.** To easily apply the WHO eligibility criteria, (WHO 2009) the Ministry of Health has developed simple checklists. The checklists are based on WHO guidance and are designed to identify medical conditions and high-risk behaviors that would prevent use of some contraceptive methods.

Table 18. When to Initiate FP Methods

COCs	POPs	Condoms	LAM
• Any time in the cycle once certain the client is not pregnant • After 6 months postpartum with LAM and pregnancy ruled out • Changing from Depo Provera or POP, even if having no periods • 1 week after abortion (first trimester)* • 2 weeks post-abortion (second trimester) or post-delivery and not breast-feeding	• Any time in the cycle once certain the client is not pregnant • Postpartum period with LAM if client not pregnant • At 6-8 weeks postpartum • Changing from Depo Provera or COC • Immediately postpartum or post-abortion	• Any time of the cycle • As back up when: ○ Starting COC ○ Missing pills ○ Drug interaction	• Immediately postpartum • Any time before first 4 weeks postpartum

*When method is started before ovulation occurs, it increases protection against pregnancy by suppressing/preventing ovulation.

Ways to be Reasonably Sure a Woman is Not Pregnant

The Ministry of Health has developed a simple checklist for use by FP providers to help non-menstruating clients safely initiate their method of choice. The checklist is based on criteria endorsed by WHO to determine with reasonable certainty whether a woman is pregnant. The tool is very effective and can be used by any health care provider who needs to determine if a woman is pregnant.

Pregnancy Checklist: How to be Reasonably Sure a Client is not Pregnant

Ask the client these six questions. If the client answers yes to any question, stop and follow the instructions.

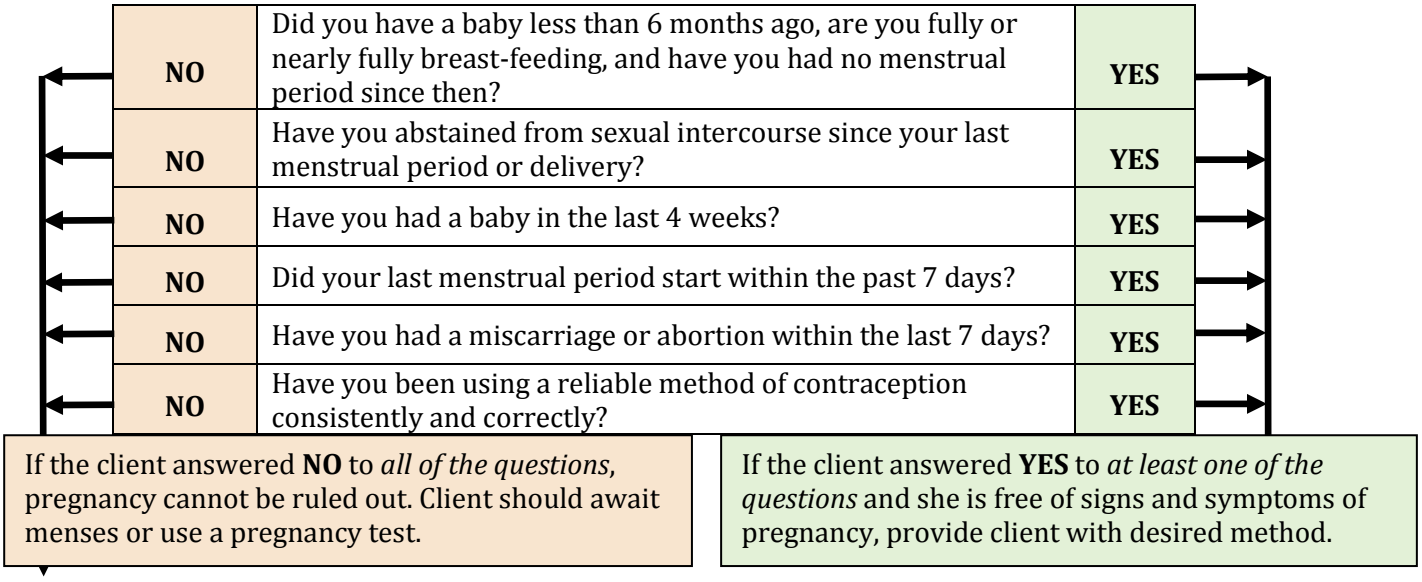


Figure 12. Pregnancy decision tree

Checklist for Screening Clients Who Want to Initiate COCs

To determine if the client is medically eligible for COCs, ask questions 1-9. If the client answers yes to any question, stop and follow the instructions after question 9.

NO	1. Are you currently breastfeeding a baby under 6 months of age?	**YES**
NO	2. Do you smoke cigarettes *and* are over 35 years of age?	**YES**
NO	3. Do you have severe repeated headaches, often on one side, and/or pulsating, causing nausea, and which are made worse by light, noise, or movement?	**YES**
NO	4. Do you have serious liver disease or jaundice (yellow skin or eyes)?	**YES**
NO	5. Have you ever had a stroke, blood clot in your legs or lungs, or heart attack?	**YES**
NO	6. Do you regularly take any medicine for tuberculosis (TB) or seizures (fits)?	**YES**
NO	7. Have you ever been told you have breast cancer or do you have an abnormal breast lump?	**YES**
NO	8. Have you ever been told you have high blood pressure?	**YES**
NO	9. Have you ever been told you have diabetes (high sugar in your blood)?	**YES**

If the client answered **NO** to *all of the questions 1-9,* the client can use COCs. Ensure that you ask questions to be reasonably sure that she is not pregnant.

If the client answered **YES** to *any of the questions 1-7,* she is not a good candidate for COCs. Counsel about other available methods or refer.

If the client answered **YES** to *questions 8 or 9,* COCs cannot be initiated without further evaluation. Evaluate or refer as appropriate, and give condoms to use in the meantime.

Figure 13. Decision tree for starting patients on COCs

Instructions to Clients on Taking Birth Control Pills (COCs and POPs)

- Start taking your first pill on days 1 to 7 of your menstrual cycle.
- Take your pills daily at the same time, preferably at bed time. This will help you remember to take the pills and prevent any discomfort such as nausea.
- Do not miss or skip taking the pill any day.
- If you start taking pills after day 5 of your cycle, you need to use another method, such as condoms, or abstain from sex for one week.

- Taking the pill for 7 days is enough to suppress follicular development (i.e., protect you from pregnancy).

- Use condoms in addition to the pill if you think there is any chance that you or your partner are at risk of exposure to STIs, including HIV.

- You will have your period when you are taking the brown pills. Do not stop taking the pills. Continue swallowing them.

- When you finish one packet, start on a new packet.

- Store the pills and all other medicines in a dry place and out of reach of children.

- Return to the drug shop for more pills before you have finished your last pack of pills.

Note: It is recommended to give three cycles of COCs to clients at the initial visit.

Instructions to Clients When They Miss Taking Pills (Including POPs)

- If you miss one white pill, take it as soon as you remember, then continue to take one daily until you finish that packet.

- If you miss taking the white pill two or more days in a row, start taking them as soon as you remember and continue doing so until you finish the packet. However, use condoms and/or jelly or abstain from sexual intercourse until you have taken one white pill each day for 7 days in a row. A woman must take hormone pills for 7 days continuously in order to prevent ovulation reliably.

- If you miss taking the brown pill, do not worry. Skip the missed brown pill, but continue to take the rest of the brown pills until the end of the packet.

- If you keep forgetting to take pills, you may need to use another method that is easier for you to use. You should return to the drug shop or go to the health facility for counseling on another method.

Minor Side Effects

Nausea, headaches, or spotting; if these last more than three months, the client should come back to the drug shop.

What to Tell the Client If They have Diarrhea or Vomiting

If you have severe diarrhea or vomiting for any reason, your pills may not be working as well as they ought to. Therefore, if you have severe diarrhea or vomiting, you should use condoms or abstain from sexual intercourse until you are well and have taken the white pills for 7 days after the vomiting and diarrhea stop. (This also applies to POPs.)

What to Tell the Client If They Are Taking Other Drugs

If you are taking medicines, specifically rifampicin, griseofulvin, or anticonvulsants such as phenytoin, carbamezapine, barbiturates, and primadone, the pill may not work as well as is ought to, and you should use condoms or jelly for the time you are taking the medicines and for 7 days after you have finished taking them. (This also applies to POPs).

Tell the Client to Return Urgently to the Clinic if They Have Any of These Signs

- Severe abdominal or chest pain or shortness of breath
- Severe headaches
- Sight problems such as blurred vision or loss of vision
- Severe leg pain on the calf or thigh

Pills and Medical Care

- Bring the pill packets with you on each return visit.

- Mention that you are taking the pill (COCs) any time you visit a health provider or doctor, because certain medicines may interfere with the effectiveness of COCs.

- Tell the provider if you are on anti-TB treatment, antibiotics, or antiretrovirals. (This also applies to POPs.)

Instructions for Clients on How to Use Condoms

- Check condom packet to ensure that the packet is intact and there are no holes.

- Check condom packet for the expiry date to make sure that the condom is still good to use. If the condom has expired, throw it away and get a newer one.

- Open the condom packet carefully and take the condom out.

- Squeeze the tip of the condom to remove the air; this will create space at the tip of the condom. This will be the space for the semen. Roll the condom onto the erect penis up to the hairline before it comes into contact with any of the woman’s private parts.

- Immediately after the man ejaculates and while he is still hard, he should withdraw his penis from the vagina while holding the condom on. This stops the semen from spilling out.

- Remove the condom from the penis carefully, making sure the semen does not spill.
- A new condom should be used for each new act of sexual intercourse.

- Wrap the used condom in a piece of paper and throw it in a pit latrine or burn it.

How to Keep Unused Condoms

- Keep condoms in a cool, dry place away from the sun, insects, and rodents.
- Keep condoms where children cannot reach them.

How to Make the Condom More Effective

- Condoms are more effective if the woman uses foaming tablets or jelly when the man uses the condom.

- Never use a petroleum-based lubricant (such as Vaseline) with condoms because it can cause condoms to break.

Instructions for Clients on LAM

Allow the client to ask questions at intervals and answer her questions factually.

- For LAM to work effectively, you should:

    - Breast-feed your baby on both breasts on demand at least 10 times during the day and night
    - Do not give any solid foods or liquids to the baby other than breast milk

      NB: Supplementary feeding makes the baby suckle less and breast-feeding will no longer be effective as a contraceptive method.

- LAM will no longer be an effective method when:

    - The baby for any reason does not breastfeed exclusively
    - Menstrual periods have resumed

- There are other FP methods such as IUDs, condoms, Depo Provera, implants, POPs, and spermicides that you can use while breast-feeding. These methods do not decrease breast milk.

- You will need to use another contraceptive method when the baby cannot breast-feed exclusively for any reason, such as:

    - You begin to work
    - When you or the baby are very ill
    - When you are not producing enough breast milk
    - When your menstrual periods resume
    - When the baby is being given solid foods or other liquids

- Use condoms in addition to LAM if you think there is any chance that you or your partner(s) are at risk for STIs, including HIV.

Guidelines on Dose/Quantity to be Given at the Initial Visit

The Ministry of Health has approved two evidence-based strategies on initiation of FP to improve uptake of oral contraceptives.

1) **Providing oral contraceptives in advance** is an important strategy for clients who want to initiate use of oral contraceptives but are not able to rule out pregnancy and are not

currently menstruating. Although such a client must wait for menses to begin her first pack of pills, she does not need to return to the drug shop at menses to receive her supply. As a provider, you may give her the pills to take home with her to begin swallowing when she gets her menses.

2) **Provide more than one packs of pills during the initial and return visits.** The number of packs provided in advance depends upon the available supply. If supplies allow, WHO recommends providing up to a one-year supply (13 packs) of pills for new and returning COC users. Restricting the number of pill packs given to a client may result in discontinuation of the method when the woman is not able to come back for resupply and may increase her risk for pregnancy.

Note: The above guidelines may not be applicable in drug shops because most clients can only take the number of cycles they are able to buy.

Conducting Routine Follow-Up Visits for FP

COCs/POPs

- Ask how the client is doing with the method and whether she is satisfied. Ask if she has any questions or anything to discuss.

- Ask especially if she is concerned about bleeding changes. Give her any information or help that she needs.

- Ask if she often has problems remembering to take a pill every day. If so, discuss ways to remember, review what to do in case she misses the pill, and/or counsel her for another method.

- Ask a long-term client if she has had any new health problems since her last visit. Address problems as appropriate. For any new health problem that may require switching the method, counsel the client.

- Ask a long-term client about major life changes that may affect her needs, particularly plans for having children and STI/HIV risk. Follow-up as needed.

LAM

- A woman can switch to another method anytime she wants while using LAM. If she still meets all three LAM criteria, it is reasonably certain she is not pregnant. She can start a new method with no need for a pregnancy test, examinations, or evaluation.

- To continue preventing pregnancy, a woman must switch to another method as soon as any one of the three LAM criteria no longer applies.

- Help the woman choose a new method before she needs it. If she will continue to breast-feed, she can choose from several hormonal or non-hormonal methods, depending on how much time has passed since childbirth.

 **Emphasize that all clients should come back to you or go the nearest health facility as soon as they notice any problem or concerns at any time.**

WHO Instructions on Missed Pills

In 2004, WHO simplified recommendations to women who miss pills (WHO 2004). Counseling COC clients by using the new missed pill instructions may help decrease failure rates. The new recommendations state:

- A woman who misses any number of hormonal pills should take a hormonal pill as soon as possible and then continue taking one pill each day.

- A woman who misses three or more hormonal pills in a row needs to take an additional step. She should use condoms or abstain from sex until she has taken hormonal pills for seven days in a row. A woman must take hormonal pills for seven days continuously in order to prevent ovulation reliably.

 **For all complaints on bleeding on FP methods, refer the client to trained health providers.**

Session 3: Maternal and Child Health

Objectives
1) Provide care for mothers, new born, infants, and children
2) Identify danger signs in mothers and children that require referral

Time
3-4 hours

Services for Pregnant Mothers and Mothers of Children

An AMS seller should offer the following services to pregnant mothers and mothers of children under 5 years:

- Assessment, identification, and treatment of illnesses
- Advice on when and where to access ANC and post-natal checks (health centers II, III, and IV and hospitals)
- General advice on how to care for newborns and children up to three years
- Assessment of newborn babies for any danger signs and referral to a health facility
- Advice on the use of mosquito nets
- Advice on immunization of children under five years and administration of dewormers and vitamin A
- Assessment and advice on nutrition for children under five years
- Referral of children and mothers who are HIV positive to health facility for care

The Integrated Management of Childhood Illnesses was designed to build on health facilities' management of diarrhea, malaria, and pneumonia in children under five years.

These guidelines are intended to ease the management of cases and have been used in public health facilities and at the community level and will now be extended to AMSs. AMSs should manage the selected cases in the best interests of patients and in accordance with regulations. Complicated cases and cases involving children under two months of age should be referred.

Steps in the Case Management Process

When a child is brought to the AMS, the seller must always go through the following steps as indicated in the Sick Child Job Aid (SCJA).

1) Assess and classify the sick child (2 moths-5 years) or infant (1 week to 2 months)
2) Identify treatment
3) Treat the child
4) Counsel the mother

Charts are available and used according to age group (refer to SCJA).

Steps in the Assessment Process

Assess the child's age and determine the chart to use.

1) Ask the mother about the child's problem
2) Check for general danger signs
3) Ask the mother about the four main symptoms:
    - Cough or difficult breathing
    - Diarrhea
    - Fever
    - Ear problems

When a main symptom is present go through the following steps:

1) Assess the child further for signs related to the main symptom

2) Classify the illness according to the signs that are present or absent

3) Check for signs of malnutrition, anemia, and classify the nutritional status

4) Check the immunization status and determine if the child needs immunization today (refer if needed)

5) Check the vitamin A supplementation status in children aged 6 months or more and decide if the child needs supplementation today

6) Check the de-worming status in children aged 1 year or more and decide if the child needs de-worming today

7) Assess any other problems

Treatment

After assessing the child, the next step is to identify treatment.

Patients who need urgent referral should be given pre-referral treatment and counseling together with a referral note.

When Offering Treatment to a Child

Always teach the mother to continue giving treatment at home. The drug seller should be able to correctly determine the appropriate oral drugs and dosages for a sick child and to give oral drugs (including antibiotics, antimalarials, vitamin A, etc.) while teaching the mother how and when to give oral drugs at home.

Observe the child and assess for the presence of local infections (such as eyes, ears, mouth ulcers, sore throat, and cough), provide treatment, and teach the mother how to give treatments (refer to SCJA pages 10-12) at home. Always check if the mother understands the instructions by asking her to repeat them.

- Prevent low blood-sugar in children by encouraging the care giver to feed the child often with sweet sugar foods.

- Treat different classifications of dehydration, and teach the mother about extra fluid to give at home (refer to SCJA page 15 plans A and B)

- Refer children for immunization, if needed

All procedures should be accompanied with information and counseling. Examples of accompanying information include:

- Feeding

- When to return for follow-up visits; teach the care giver about signs that indicate the need to return immediately for further care

- Refer to the recommendations on Food, Fluid, and When to Return on the chart titled “Counsel the Mother” (refer to SCJA pages 22-26)

When communicating with the mother, focus on:

- Giving relevant advice

- Using good communication skills (establish rapport, be respectful, greet warmly, show empathy, listen actively, maintain confidentiality)

- Using a Mother’s Card as a communication tool

The Counsel chart describes how to:

- Assess the child’s feeding
- Identify feeding problems
- Counsel the mother about feeding problems
- Advise the mother to increase fluid during illness
- Additional advice to the mother (SCJA page 28)

Examples of Good Assessment Skills

- Asking the mother questions about frequency of feeds, the type of foods the child eats most, etc.

- Listening carefully to the mother's answers so that you can make your advice relevant to her child. Active listening involves nodding and looking into the eyes of the mother. Maintain good posture when communicating.
- Praising the mother for appropriate practices and advising her about any practices that need to be changed.

- Using simple language that the mother can understand.

- Asking checking questions to ensure that the mother knows how to care for her child at home.

Follow-Up Visits to the AMS

- Advise the caregiver on the dates when the child should return for follow-up. Although not all children should, some sick children need to return to the AMS for follow-up.

- At a follow-up visit, treatments given are often different from the first treatments.

- Children who have returned immediately to the clinic because they became sicker should be assessed as if this was their initial visit to ascertain if the right assessment was done.

- When conducting follow-up, assess signs in the follow-up box for the previous classification.

- Select new treatment on the basis of the child's signs.

- For any new problems, assess and classify them as if it is an initial visit.

- Ask the mother about the child's problem.

- Children who return repeatedly with chronic problems that do not respond to treatment should be referred to hospital. These include children with AIDS who may have persistent diarrhea or repeated episodes of pneumonia. Also refer children who come for follow-up with several problems and are getting worse, those who may need second-line treatment, and those for whom it is not clear what to do.

Antenatal Care Visits

These are visits to the health facility that a mother makes during her pregnancy to help ensure that her and her unborn child are healthy and growing well.

What to Tell Pregnant Mothers about ANC Visits

The AMS seller should always tell a pregnant woman when to begin her visits and how many she should have. It is recommended that each pregnant woman has at least four ANC visits during a pregnancy. The first visit should be done when the mother misses at least two menstrual periods. Additional visits should be done at least three or more times as advised by the health worker.

At the health facility, the pregnant woman will be given medicines to prevent malaria and loss of blood and vaccines against tetanus. During ANC visits, urine tests will be done to check for sugar diabetes and kidney disease. High-risk pregnancies can be easily identified and managed to avoid dangers. Mothers will be counseled and tested to prevent transmission of HIV to their unborn babies while treating any STDs that may be present to ensure a healthy pregnancy.

At each encounter with a pregnant woman, the AMS should look for the following danger signs for referral:

- Breaking of water before expected time
- Excessive vaginal bleeding
- High temperature
- Severe headache or dizziness
- Swollen feet, hands, and face
- Fits or convulsions
- Paleness or fatigue
- Baby has stopped moving

Advise pregnant women on how to care for newborn babies as follows:

- Dry baby immediately, cut the cord, and wrap the baby in dry clothes to keep it warm
- Place baby to breast-feed
- Check for danger signs at least every hour for the first 6 hours
- Breast-feed exclusively, at least 8 times a day for the first 6 months
- Maintain direct contact with the baby; sleep in the same bed and wrap in dry, warm clothing to keep baby warm
- Clean the cord with warm, clean water and leave it dry and exposed
- Take the baby for immunization on schedule
- Every person who touches the baby should carry out hygienic practices; wash hands with soap and water before touching the baby and after every visit to the latrine

Danger Signs

Advise the caregiver on the following signs that need immediate attention at a health facility:

- Difficulty in breathing
- Weakness
- Fever
- Failure to breast-feed well
- Reddened area surrounding the cord, with discharge

- Convulsions
- Vomiting everything

Immunization

Why Immunize?

Immunization is a way of protecting a person against certain diseases by building up the body's defenses.

When Should Children be Immunized?

Table 19. Immunization Chart

	Vaccine	Protects against	How it is given
At birth	BCG	TB	Upper right arm
	Polio 0	Polio	Mouth drops
At 6 weeks	Polio 1	Polio	Mouth drops
	DPT + HEP B + Hib 1	Diphtheria/tetanus/whooping cough/hepatitis B/ *H. influenzae* type B	Upper left thigh
At 10 weeks	Polio 2	Polio	Mouth drops
	DPT + HEP B + Hib 2	Diphtheria/tetanus/whooping cough/hepatitis B/ *H. influenzae* type B	Upper left thigh
At 14 weeks	Polio 3	Polio	Mouth drops
	DPT + HEP B + Hib 3	Diphtheria/tetanus/whooping cough/hepatitis B/ *H. influenzae* type B	Upper left thigh
At 9 months	Measles	Measles	Upper left arm

Children should be taken for immunization even if the schedule is missed.

In addition to immunizations, a child should receive vitamin A supplementation every 6 months starting at 6 months.

Management of Young Infants

Young infants have special characteristics that must be considered when classifying their illness:

- They can become sick and die very quickly from serious bacterial infections.

- They frequently have only general signs e.g. few movements, fever, or low body temperature

- Mild chest in drawing is normal because their chest wall is soft

- **Young infants (newborn to 2 months) should be referred to a health facility**

Infants with the following danger signs must always be referred to a health facility:

- Cough for 14 days or more
- Diarrhea for more than 7 days
- Blood in stool
- Convulsions
- Not able to eat or drink
- Vomiting everything the child eats
- Sucking in of the stomach when breathing
- Very sleepy child or unconscious
- Too thin a child
- Presence of edema

Role Play: Receiving a Care Giver

AMS Seller: Hello. Welcome. Please come in.

Mrs. Theresa: Hello. My son is sick. He has been sick since last night. Can you please take a look at him?

AMS Seller: Certainly. I am glad that you brought your son right away. Please seat down here. Let me ask you a few questions to find out what is wrong. I also need to get some information from you. First, what is your son's name? [Sit close to Mrs. Theresa and look at her in a concerned, supportive way. Use a recording form to record the information you get from the answers to your questions.]

Mrs. Theresa: His name is Chris. C-H-R-I-S

AMS Seller: How old is Chris?

Mrs. Kato: He is 12 weeks old.

AMS Seller: And what is your name?

Mrs. Theresa: My name is Theresa.

AMS Seller: Mrs. Theresa, where do you live?

Mrs. Theresa: We live near Fish Market Corner.

AMS Seller: Thank you, Mrs. Theresa. I hope we can help Chris feel better. Let me ask you some questions to find out how he is feeling. Does Chris have a cough? And if so, how long has he had a cough?

Mrs. Theresa: Yes. He has been coughing since the market day, Sunday.

AMS Seller: So he has been coughing for 3 days. Has he had any diarrhea?

Mrs. Theresa: No. He does not have diarrhea.

AMS Seller: Has he had any fever—or hot body?

Mrs. Theresa: No. He has not had fever.

AMS Seller: Do you have any other concern about Chris that you would like to talk about today?

Mrs. Theresa: No. I am mostly worried about his cough.

AMS Seller: I can see that you are. It is good that you brought Chris to see me. I will take a closer look at Chris.

Annex. Conditions That Can be Managed at the AMS

The following conditions may be diagnosed and managed by a trained AMS after proper examination and diagnosis. In case the AMS is uncertain about the diagnosis, the patient should be referred to the nearest health facility.

1) Uncomplicated malaria
2) URTIs
   a. Coughs lasting less than 30 days
   b. Non-severe pneumonia (with danger signs, chest in-drawing, or stridor in calm child)
1) Diarrhea and dysentery, except severe diarrhea or severe dehydration
2) Ear infections, except in cases of tender swelling behind the ear (mastoiditis)
3) Anemia and malnutrition, except for severe cases as defined in this manual
4) Minor skin conditions, such as boils, ring worm, scabies, chicken pox, nappy rash, and minor cuts
5) Eye conditions, including FBs and styes

The AMS should also offer the following services to their clients:

- Routine deworming, especially for children under 5 years
- Checking immunization status for children under 5 years
- FP, condoms, and oral contraceptives
- Advice on the need for FP and FP methods
- Advice on newborn care
- Advice on proper nutrition and care for children

MODULE 4: COMMUNICATION SKILLS, HEALTH EDUCATION, AND PROMOTION IN AMS

Session 1. Fundamentals of Communication Skills

Session 2. Consumer Rights

Session 3. Health Education in AMS

Session 4. Counseling and Referral

Session 1. Fundamentals of Communication Skills

The work of AMS dispensers involves interaction with customers on a daily basis. Good communication skills are the foundation of dispensing work and this translates into both increased customer satisfaction and sales revenue. More importantly, good communication skills are critical for how information and health education about diseases and recommended treatment is passed on to customers. The dispenser's unique position in one-on-one communication could profoundly influence a customer's beliefs and help change practices. Behavior change is very difficult, but is essential to promoting rational drug use.

Objectives

1) Establish/strengthen and maintain positive interpersonal relationships with consumers, the owner of the AMS, and colleagues.
2) Identify elements of IPRs and list situations/behaviors or actions that indicate both positive or negative IPR and their effects on AMS service.
3) Demonstrate the ability to use verbal and non-verbal communication/IPR skills during the following interactions:
    - Dispenser/consumer
    - Dispenser/owner
    - Dispenser/colleague
    - Dispenser/inspector of AMS service

Time

4-6 hours

Establishing and Maintaining Interpersonal Relationships in AMS Services

Why Discuss or Learn about IPR in AMS Services

Interpersonal relationships (IPRs) is one of several factors that influence the quality of a service; consumers or clients are attracted to or discontinue a service where they feel IPRs are negative.

Many satisfied consumers help AMS services grow.

Dispensers interact with their peers in their own or referral sites/services, with the AMS owners, consumers, supervisors, and the community at large. Each person likes to be treated well by others and satisfaction is necessary for an AMS to grow.

Positive IPRs contribute to job satisfaction and uninterrupted service and to meeting expectations of consumers, dispensers, and owners in your area

Some Benefits of Establishing and Maintaining Positive IPR in AMS Services

Between Dispenser and Consumers

Consumers trust and listen to dispensers during communication on drugs or relevant illnesses.

Through appropriate use of IPR (communication or facilitation) skills, the dispenser collects adequate information from the consumer to guide the care he/she provides.

Consumers feel their needs and rights are addressed by dispensers.

Openness and transparency prevail, even in cases of shortages or expiration of drugs and other challenges in the AMS service.

Dispenser/Owner

A good working atmosphere promotes:

- Openness and transparency
- Consideration of the needs of the dispenser or owner without reducing the quality of service
- Going out of the way to provide extraordinary service when needed, but maintaining the goals or plans made for enhancing quality service

Dispensers and owners are clear about each other's roles and responsibilities in ordinary circumstances and emergencies.

Dispenser/Inspector

Dispensers are cooperative during inspectors' visits and in relation to follow-up activities after the visit.

Dispensers view inspectors' visits as an opportunity for learning or problem solving.

Inspectors use the opportunity to provide supportive supervision (opposite of checking "wrongs").

Clarity of roles of inspectors is achieved.

Dispenser/Colleague

Consumers trust and listen to the dispensers during communication on drugs or relevant illnesses.

The team approach to handling problems occurs, e.g., when new drugs enter the market.

Sharing of interesting professional activities may occur.

Consumers that are referred are likely to receive appropriate service.

Dispenser/Community at Large

Community advertises services for the AMS and providers.

Community considers the AMS as one of the services it must support.

Community helps to easily establish the service or solve problems.

IPRs in AMS Services

The skills that are necessary for establishing or maintaining IPRs are also known as communication or facilitation skills. Some of these skills are verbal and others are identified as nonverbal or body language.

Verbal and Nonverbal Communication IPR Skills/Actions

Verbal Skills

Use “I” rather than “you” statements.

For example, say “I understand you to say” or “I was confused when you said”; do not say “you did not explain well” or “you confuse me.”

Use encouraging words, such as “Tell me more,” “go on,” “aha,” and “yes.”

Respond to nonverbal communication of the person talking with you. For example, when he/she shows confusion, ask “Have you any questions or is there something we have discussed so far that I need to clarify?”

Paraphrase or summarize what you have heard.

Ask open-ended questions by using what, when, and how.

Further, use closed questions to start an idea, but follow it with open-ended questions.

When applicable, tell the other person that the discussion is being recorded.

Nonverbal Communication Skills

Listen actively. Signs of listening actively include:

- Ensuring culturally acceptable eye contact
- Avoiding looking at your watch or a clock
- Avoiding interrupting when the other is speaking
- Ensuring no interruptions of any kind from “third” persons or phones

Show you care and want to help or solve the problem if applicable. Say “I am sorry” as needed. Use an appropriate tone of voice.

Be respectful regardless of gender, age, race, or creed.

Smile and shake your head to show you are listening or agreeing with his/her point.

Put aside your personal feelings about a subject, e.g., do not show you are disgusted with a particular idea or practice of the person you are talking with.

Provide confidentiality and privacy. Confidentiality is when the consumers' personal information (written or spoken) is not shared with other people or exposed so that an unauthorized person can read it. Privacy can be provided by:

- Being in a place where others cannot see (visual privacy)
- Talking softly enough to be heard only by the person concerned (auditory privacy)

Demonstrate professionalism in dress and how you maintain and pack your drugs for consumers. Be sober.

Be creative in enabling a quick but effective service and reduce long queues (lining up of consumers waiting to be served).

Show acceptance, even if your attitude differs from the consumer or other person.

Practice Using Verbal and Nonverbal Communication Skills

Role Play Guides

Objective: To demonstrate ability to use IPR skills

In groups of three, each person will act as:

- Sender (the one speaking)
- Receiver (the one being spoken to)
- Observer (the one listening and making notes while two are discussing)

Everyone should use as many verbal and nonverbal communication skills as you can.

Each round should take only 10 minutes:

- 3 minutes: agree on subject
- 5 minutes: sender and receiver talk (in the first round, dispenser and consumer; second round, dispenser and colleague; third round, dispenser and owner)
- 2 minutes: share immediate feelings of sender and receiver about the exercise (say one to three words only to show how you feel (I felt ……..)
- 5 minutes: observers provide feedback on strengths and limitations observed on use of IPR skills

Examples of subjects (choose any of these for one round only; use any other subject related to working in the AMS):

- Consumer has stomach ache after taking aspirin
- Dispenser's colleague gave medication which was inadequate for a full course

- Dispenser is justifying his/her request to the owner to attend the next four-week AMS training or seminar
- Other subject of your choice for the same pairs (dispenser/customer, dispenser/colleague and dispenser/owner).

Session 2. Consumer Rights

Consumers' rights are an essential aspect of the quality of services provided by an AMS, and it is important that AMS owners and dispensers become acquainted with the basic elements of consumer rights. This session will introduce consumer rights.

Objectives

1) Identify key consumers rights as they apply to the AMS health service
2) Demonstrate the ability to make a referral that the consumer is likely to follow
3) Uphold consumers' rights during interactions with them and through maintenance of the AMS environment

Time

2 hours

Applying Consumers' Rights during AMS Service Delivery (Adapted from IPPF 1993)

1.0. Introduction

One way of providing quality AMS services is to ensure that the rights of consumers are applied by the dispensers and owners in the AMS. Each member contributes to the total service. Consumers should be educated about these rights appropriately in order to enhance their participation in the AMS services.

2.0. Consumer Rights

Ten consumers' (clients) rights have been identified based on research conducted by the International Planned Parenthood Federation (IPPF) in early 1990s.

These are briefly explained below. **(A poster explaining each of these rights can be prepared and posted for your and the consumers' reference).**

2.1. Information

Consumers have the right to clear, up-to-date information. Consumers have the right to information that is relevant to their needs and to not be overloaded.

2.2. Choice

- Choice is facilitated by facts. For example, the dispenser explains the correct use of drugs, side effects, actions the customer should take if side effects occur, and the help that the dispenser can provide if any of these problems should happen.

- The dispenser helps the consumer to choose the actions he/she wishes to take after providing the facts. The dispenser does not coerce or force the consumer in any way.

2.3. Access

Consumers should have access to information, education, and counseling about drugs and common illnesses, regardless of the consumers' sex, age, socioeconomic status, creed, religious affiliation, marital status, or location. Dispensers are obligated to provide and discuss this information with consumers upon request.

2.4. Safety

In an AMS, the safety of the consumer is maintained or achieved by ensuring that the consumer:

- Understands the correct dosage and side effects and how to manage them
- Is given unexpired drugs that have been properly stored to maintain their efficacy
- Clearly understands those drugs that interact negatively with the ones he/she is taking
- Obtains relevant information for emergencies that may occur as result of taking or having medication

2.5. Privacy

The consumer is provided with auditory privacy if possible and visual privacy in terms of "being seen" by third persons during counseling, education, and purchase of drugs.

2.6. Confidentiality

AMS dispensers ensure that any personal information is not shared with anyone else, even a parent or guardian, in the case of youth. This includes recorded information as well as any information the consumer provides verbally.

2.7. Dignity

Consumers are treated or served with courtesy by the dispenser and other staff. Consideration and attentiveness is provided, regardless of sex, age, creed, marital status, socioeconomic status, and other factors stated earlier under access.

2.8. Comfort

Consumers should be made to feel comfortable when receiving services. For example, consumers are provided with a shaded area and seating if they have to wait and are spoken to in a way that does not embarrass them.

2.9. Continuity

Consumers are provided with services in a way that encourages them to return to the AMS and even recommend that others choose that AMS. These services include providing clear instructions on taking medications, reasons for the way they are taken, and any precautions. The AMS may make a full course of medication available on special credit.

2.10 Opinion

Consumers are given the opportunity to express their views on the services offered during purchases, counseling, or education.

In some cases, a suggestion box may be placed in the AMS.

The box should be placed where all consumers can see and reach it. The dispenser or owner encourages consumers to put their suggestions or concerns in the box. Once a month, the comments are read and analyzed and actions taken to improve the service. When possible, the consumers are thanked for the comments and told how they have been used.

Case Study: Applying Consumers Rights during AMS Service

Story of Tarmay Yekele at the Good Health (GH) Drug Shop

Tarmay Yekelle is the 16-year-old mother of Tabolo a three-month old boy. She has a sixth grade education. Tarmay came from Popo Beach village, about one hour's walk to GH. She arrived at the shop with her baby on her back, looking tired. Her doctor had prescribed the following:

- Fersolate, 200 mg b.d.
- Folic acid, 1 tablet daily

On arrival at GH, Tarmay found that Ford the dispenser was busy receiving new stock of supplies from Monrovia. He greeted Tarmay and asked her to wait until he finished receiving and storing the supplies. This task took one hour. When Ford went to pack the prescription, he found that there were no fersolate tablets; only folic acid tablets were available. So Ford gave Tarmay those tablets and said "take as instructed by your doctor." He then wrote the name of the tablets, the dosage, and directions on a pill packet. There were no marked boxes at GH.

Tarmay went home and started taking folic acid tablets every second day to make them last longer.

Purpose of the Story

1) To identify which consumers' rights were applied and those that were not during Tarmay's visit

2. To suggest actions/guidance through education or counseling that Ford should have provided to Tarmay, given the details about her in the story

Instructions

1) Read the story

2) Based on the content of the story:
   a) List the consumers' rights that Ford upheld
   b) Suggest two or three actions that reflect upholding the consumer's rights by a health provider/dispenser

3) Present your group work to the class

Session 3: Health Education in the AMS

Health education is a continuing process of informing people how to achieve and maintain good health; of motivating them to do so; and of promoting environmental and lifestyle changes to facilitate their objective.

Objectives

1) Conduct health education on illnesses and symptoms for which the consumer is purchasing drug(s).
2) Conduct one-to-one health education sessions on drugs used and common illnesses encountered in the AMS's service delivery.
3) Identify the consumers' health education needs as part of the health education process. List factors that can be a barrier to meeting consumer needs.
4) Use records on recommended services for developing consumer education messages.

Time

3 hours

Conducting Health Education as Part of AMS Services

Health Education

The process of providing information so that the consumer can:

- Correctly and consistently use or relate the actions of medications to his/her sickness or problem

- Convince his contact (in case of STD/HIV/AIDS) to seek medical help

Health education that is successful changes the behavior of the consumer.

Teaching

This is the process of helping another person learn a new knowledge or skill. In the AMS context, teaching will be considered similar to health education and explaining written instructions about drugs or illnesses.

Reality-based teaching is needed by consumers, as it can be immediately used or applied and meets their needs at that particular time. Otherwise, if the consumer does not see the value of the teaching, he/she will not listen and may come away with misconceptions.

Learning in Health Service/AMS Setting

This is the result of an effective health educational or counseling session. The consumer practices and shares with others the ideas he/she obtained from the AMS service provider or from the information distributed or posted at the AMS.

Effective Communication

The condition that is reached by following the guidelines and principles of communication and the correct and appropriate use of verbal and nonverbal communication skills while upholding consumers' rights.

Principles of effective communication include but are not limited to:

- Providing a comfortable setting with few distractions
- Focusing on the listeners'/consumers' needs, interests, and health status
- Being brief and avoiding "overload" of information
- Using words that are familiar to the listener/consumer
- Using a two-way communication style (listening as well as speaking and allowing the consumer to talk during the discussion)

Reasons for Improving Consumer Health Education as Part of AMS Services

1) Increased self-prescription and home care
   - Consumers' exposure to general medical information has contributed to their ability to self-treat and to reduce the number of visits to health facilities. Unfortunately many under-treat themselves, thus leading to resistance to drugs.
   - Some consumers share one course of medication, apparently to save money or time for medical care. But they do not return to receive the rest of their medication.

2) Multiple service providers or caretakers for one patient/consumer
   - Hurried or no explanation of the medicine or health condition is provided.
   - Assumption that the next provider will have or the previous provider already has explained to consumer the correct use of medicine and action on the symptom.
   - Some dispensers/providers in the multiple caregiver group have inadequate or no technical background to help consumers use drugs correctly.

3) Team approach to care
   - In a team approach to service delivery, every provider or care taker has a special role to play. If it is not played, the care of the consumer is negatively affected, and some of the patient's rights may not be upheld (e.g., safety, information, continuity).
   - Important for long-term results for consumers' health

4) A legal responsibility and a way of adhering to the Code of Ethics

5) Less confusion about medications

   Because drugs often have more than one trade name, it helps reassure consumers of similarity with other medications they have been taking.

6) Competitive business environment
   - An AMS provider who provides clear health education gains the respect of consumers.
   - Happy consumers will spread the reputation of the AMS, bringing in more consumers.

7) Integrated health services

   When a dispenser explains a health condition to a consumer in an AMS, the dispenser is participating in integrated health services.

Guide for Establishing a Good Relationship between Consumer and Dispenser

This relationship may also be referred to as the provider/consumer relationship.

This relationship, which incorporates positive IPR skills, is also crucial to health education and counseling consumers. Consumers are not interested in learning from a dispenser or other health provider if they do not feel that dispensers care.

Guide for Establishing and Maintaining Trust of Consumers

Show respect

- Treat the person as unique and worthwhile.

Build trust

- Be consistent in the way you deal with the consumer or care for him/her.
- Act with integrity to help the consumer develop confidence in you and your abilities

Accept the consumer

- Show the consumer that you accept him/her as he/she is and show that he/she can be open and feel safe with you.

Demonstrate caring

- Show the consumer your interest and concern for him/her and their problems.

Be sincere

- Make sure that what you say and do during interaction with the consumer sends the right message to the consumer.

Be an advocate for your consumers; be consumer oriented in what you do

- Advocate for consumers' rights wherever and whenever possible.
- Teach consumers the 10 consumer rights; when appropriate, ensure these rights are applied during their care at the AMS.

Avoid making assumptions; obtain facts

Understand yourself

- Ensure that your personal beliefs and values do not interfere with consumer care.
- Recognize that you and consumers are likely to have differences of values, perceptions, or views on particular subjects or practices.
- Take a positive stand about how you will objectively handle specific care that is a challenge to your beliefs. For example, provide STI treatment and counseling to an adolescent and uphold his/her right to privacy, confidentiality, respect, and access, even if you would prefer not to provide the service. Or help a consumer who is not good at reading by explaining the facts with visuals or read to them until they understand and can repeat the information back to you. Do not force them to read if they don't want to.
- Continually self-evaluate your work and make improvements as needed.
- Establish positive IPR, always.
- Choose a variety of teaching methods that you can use comfortably to obtain positive results.
- Establish and maintain a non-judgmental attitude about consumers.
- Make health education something that gives you job satisfaction.

Other Communication Skills

- Also be sure to acknowledge and reassure consumers.
- Allow silences. This allows time for consumers to think about what they have been told, what has been discussed, and what needs to be discussed further.

Some Consumers' Health Education Needs

Assessing consumers' needs is the first step in health education; some needs are described below. These may contribute or be barriers to the health education that the dispenser provides.

Consumers' health education needs in an AMS setting must be assessed quickly by:

- Observing consumers and listening from the moment they arrive
- Asking questions
- Conferring with escorts or guardians

Once the consumer's needs are identified the dispenser and consumer should agree on the outcomes of the health education or what the consumer wishes to achieve or learn before returning home.

During impromptu health education, some of the steps of assessing consumer needs may be omitted or observed over time.

Language

Language can be a problem, especially for foreigners, the older generation, or those from rural areas.

Support Systems

A consumer may need help with their care. For example, for homeless consumers, the dispenser should find out who will help the consumer take their medication. That person should be involved when medication is dispensed.

Health Expectations

The consumer may have expectations of health or results of taking a particular drug that differ from the dispenser. Hence, it is important to find out this information from the consumer when necessary. For example, if the consumer is obstinate about taking a particular drug or following a particular approach of drug taking. The dispenser will need to use counseling skills to help the consumer make decisions that will contribute to effective care by the AMS and the doctors treating him/her. More will be covered in the counseling session on unsolicited service or difficult moments.

Learning Needs

- The dispenser asks the consumer what he/she already knows or asks if the consumer has any questions or concerns.
- Misconceptions could be identified as learning needs.

Learning Readiness

- As part of the health education or counseling session, the dispenser or health worker should assess readiness for learning.
- If the client is very sick, he/she is not ready for long health education. Give the client the priority information they need now, and at an agreed upon later time, arrange for detailed health education.

Difficulty in Seeing

Modify your teaching on drug use.

Difficulty in Hearing

Use written material for them to read or to be helped to read.

Lack of Family Involvement

Talk to the family, the consumer alone, or with people the consumer respects.

Low Literacy Skills

- Teach essential information only, one step at a time
- Have the consumer repeat the information discussed
- Be creative in explaining points
- Use simple, consistent language

Barriers to Meeting Consumer Needs

The following are also factors that can interfere with learning (from health education and counseling) or compliance about drugs and illnesses.

On the Part of the Provider/Dispenser

- Ignorance about the importance of health education
- Inadequate technical competence
- Time management problems
- Religious affiliation or beliefs (sometimes)
- Lack of resources to do the job
- Inadequate or no supportive supervision
- Ignorance about where to refer

On the Part of the Consumer

- Extent of trust in health service/AMS
- Misconceptions and rumors
- Pain, fears about his/her condition
- Embarrassment and shyness to openly state the problem
- Lives too far from the AMS

On the Part of the Community at Large

- Taboos and other cultural or gender oriented practices (e.g., laws that do not allow men and women to be together in the same meeting)
- Reluctance on the part of adults to discuss reproductive and sexual health issues with younger generations (e.g., birth control, sexually transmitted diseases)
- Beliefs in certain traditional medicines given to consumers, despite modern care

Conducting Impromptu Health Education during Sale of Medicines by Using the GATHER Approach

GATHER is one way to remember the process that the counselor/AMS service provider must go through to help a consumer make decisions and good choices.

The process of GATHER requires the use of verbal and nonverbal communication skills to ensure that it is allows the consumer to participate.

G Stands for **G**reet and create an atmosphere for free and two-way information flow between the consumer and the AMS service provider. Give the consumer your full attention. Assume confidentiality and privacy, if possible. Offer seating if possible. This part is also referred to as "creating rapport."

A Stands for **A**sk the consumer questions to ascertain what they already know about the drug or health problem, or find out the real problem behind a situation that the client is presenting. In some situations, such as FP or a specific problem, this stage of GATHER can be used to find out the consumers' concerns, health, or life goal.

T Stands for **T**ell/tactfully explain the drug or health condition. This part of GATHER helps the consumer obtain correct information (facts) and thus dispel misconceptions he/she may have. Depending on needs identified in the previous two steps, deal with what seems to be the client's primary concerns, then offer choices of services that can be provided that are related to the same needs or provide a referral.

H Stands for **H**elp the consumer to make a decision based on the counseling session/discussion that has taken place so far:

- The counselor summarizes important ideas of the counseling session that will help the consumer make an informed decision. He/she does *not give advice* or his opinion of what the consumer should do.

E Stands for **E**xplain fully, or in a build-on manner (to what consumer already knows):

- How to use the relevant drug
- Facts that are related to what the consumer feels is important for him/her to address
- Facts that the consumer must remember before leaving the AMS/health providers
- Encourage questions and answer them openly and fully
- Check that the consumer understands. The dispenser then gives the drug or related supplies for which he/she has paid or will pay according to an agreement you have with him/her.

R Stands for information provided in order to help the consumer **R**eturn to the AMS/health providers:

- As per routine/usual practice
- In an emergency
- When the consumer has concerns, or needs to be reminded about facts.

GATHER Script

The following is a "script" that providers may use as a guide when talking to customers.

Greet

- Welcome
- Make the consumer comfortable; provide privacy
- Ask for and quickly review the prescription or verbal request

Ask and praise

- Assess consumer's knowledge and feelings about the drug
- Praise consumer and build on consumer's knowledge

Tell/explain

- Explain to consumer about the drug
- Dose, how to take it
- Side effects
- Contraindications, if relevant
- How to manage complications, side effects, and emergencies caused by taking the medicine
- Drug interactions with other drugs, foods, and alcohol
- Specific or unique instructions, e.g., storage, disposal of container(s), how to open the container, and store for safety of children
- Using the insert, if applicable
- Allow questions and answer fully using facts
- Refer to appropriate health facility; be clear with consumer about why they are being referred

Help

- Ask consumer to repeat information discussed; he/she can use the facilitator's materials and visuals, if applicable
- Ask consumers how he/she will use the information learned from the session
- Ask if you can discuss a matter that is coincidental to using the prescribed drug

Explain

- If the consumer is ready, provide health education and counseling
- Give the course of drugs
- Encourage consumer to voice any concerns
- Respond appropriately

Return

- Invite consumer to return whenever he/she needs information or to purchase more medicines
- Thank and bid him/her farewell

Approach to Health Education for Selected Common Illnesses

The dispenser should provide the following information on selected illnesses to educate consumers.

Diarrhea and Vomiting

- Main danger is extreme loss of body fluids and electrolytes
- Caution the consumer to avoid giving or taking anti-diarrhea medicines
- What to do: give ORS or plenty of fluids in small amounts until the patient is passing urine as usual
- If a breast-feeding baby has diarrhea, the mother should continue to breast-feed
- Refer to a health facility if diarrhea or vomiting becomes worse

Signs of Seriousness and Worsening of the Condition

- Being very weak, restlessness, and even losing consciousness
- Sunken eyes
- Difficulty drinking or drinking as a very thirsty person
- Skin over the lower abdomen recedes very slowly after lifting it
- Stool is blood-stained
- Diarrhea is accompanied by high fever (over 37.5 °C)

Chronic Problems of the Elderly

Heartburn

Heartburn is the backflow of stomach contents past the end of the food canal (esophagus). It occurs because the muscles that close the food canal (lower esophageal sphincter) are weak due to incompetence or other problems.

Symptoms

- Acid feeling
- Bloated, full feeling after eating even a small amount of food
- Even after swallowing, the sensation of food remaining stuck

Simple Treatment and Management

- Antacids
- Eat small amounts of food more frequently than usual
- Reduce predisposing factors, such obesity, tobacco use, and foodstuffs that upset the stomach

Infertility

Infertility is the inability to conceive in at least one year of marriage in a situation where the couple has lived together (primary infertility) or the inability to conceive again after having had a pregnancy (secondary infertility).

Management

- Both husband and wife have to be checked or investigated
- Prevent it by:
  - Early treatment of infections in the organs responsible (men and women)
  - Infection control where women deliver
- Treat according to results of investigation

Respiratory Infections

Symptoms

- Blocked or stuffed nose
- May have a cough or nose bleed
- Fever
- Sore throat
- Headaches
- A child may also have diarrhea
- Loss of appetite

Management

- Symptomatic treatment, e.g., use of anti-fever tablets according to age
- Give plenty of fluids
- Refer to health facility if not improving or if fever is higher than 37.5 °C

STI (Sexually Transmitted Infections)

STIs are categorized as ulcerative or non-ulcerative.

For simplicity, four types of symptoms are described:

- Vaginal, cervical, or urethral discharge (men and women)
- Lower abdominal pain (women)
- Ulcer in private parts (genital ulcer disease)
- Ulcer disease (men and women), e.g., multiple blisters on sex organs

Management of STIs

- Get medical care at a health facility.
- Abstain from sex or use a condom, if appropriate, until treatment is over.
- Get the contact(s)/sex partners to receive treatment confidentially (no need to make it publicly known with whom he/she is having sex). Use verbal and nonverbal communication counseling skills to help partner accept that they need to go for treatment.

4 C's in supporting the management of STIs

Counseling

- To help solve STI-related problems
- To emphasize the importance of the other C's

Compliance to Treatment

- Explain the importance of compliance in preventing future resistance to medications
- Explain the importance of returning to the health service as requested by the health provider, even if feeling well

Condoms

- Give condoms to consumer if abstinence is not an option he/she can use
- Demonstrate the use of condoms
- Ensure consumer that they can return if necessary

Contact Treatment

Get the contact(s)/sex partners to receive treatment confidentially (no need to make it publicly known with whom he/she is having sex).

Preventing Future Occurrences

- Discuss safe sex practices that the consumer can accept and follow
- Provide community education or help distribute leaflets from the Ministry of Health on STIs
- Teach that an STI-infected person can be without symptoms, but can still infect others

Case Studies/Situations for Health Education Simulations

The time for conducting each health education session is 10 minutes.

For each of the three simulations below (topical, oral, and injectable drugs), follow these instructions:

- Plan and conduct health education with the consumer
- Follow guidelines for impromptu health education on drugs, as applicable

Topical Drugs (Drug for Skin Disease)

Mama Florence has been suffering from soreness between her toes. Her doctor prescribed two tubes of anti-fungal cream. She comes to your AMS to buy only one tube.

Oral Drugs

Baba Tito has come to buy SP for malaria treatment. But on arrival, he tells you that he really wants to understand the “many problems which SP causes” before buying and using it. He still has a fever of more than 37.5 °C.

Parenteral/Injectable Drugs

Esther is a 16-year-old girl who has an abscess on her nail. She has come to purchase a course of injectable, broad-spectrum antibiotic. She mentions to you that she really fears getting injections.

New FP Practice

Mama Peace is the village chairperson. She has heard that in your shop you conduct health education sessions with consumers. Now she has come to discuss with you a rumor that ECPs hurt the unborn child and cause abortion.

Instructions

- Hold an impromptu health education session with Mama Peace to explain:
  - How ECPs are used
  - Why ECPs do not hurt unborn children and cause abortion

Guide for Explaining ECPs by Using GATHER

Greet

Create rapport and establish an atmosphere for free-flowing information.

- Greet in a culturally accepted way
- Provide privacy and confidentiality
- Provide seating
- Use verbal and nonverbal communication skills throughout the session

Ask and praise

- Find out the consumers' knowledge or what he/she has heard about ECPs
- Praise for coming in to talk and for any correct information that the consumer has

Tell/explain

Explain ECPs in a way that builds into the knowledge and ideas that the consumer already has

- Which pills are used as ECPs; show them to the consumer
- When they should be used to ensure that they work
- Effectiveness
- Advantages
- Disadvantages
- Why they should not be used as regular FP
- Check the consumer's understanding on ECPs
- Ask the consumer what is clear and not clear
- Allow the consumer to ask questions
- Add any information that has been omitted and correct any mistaken information

Help

- Ask the consumer how the information discussed will be used
- Help the consumer select one type of ECP

Explain

- Review important points of using the selected pills
- Issue the pills

Return

- Give an open invitation to start FP or discuss concerns
- Thank the consumer and bid them farewell

Session 4. Counseling and Referral

Objectives

1) Apply GATHER (in previous session), CLEARS, or SOLER approaches in counseling consumers to help them make decisions on drugs or other pharmaceuticals available in the expanded list of the AMS.
2) Make referrals that consumers are likely to follow.

Time

2 hours

Guide for Effective Referral

Ensure that the consumer:

- Has understood the reason for the referral
- Can repeat to you the importance going to the referral as soon as possible, e.g., for effectiveness of the medicine prescribed or to ensure early management of an emerging problem identified during purchase of the medicine
- Knows that you are available any time for any questions about the referral; tell her/him how to find you or what to do after working hours

Give a written referral with:

- Name of consumer
- Date of referral
- Reason for referral
- When to go and, if possible, to whom
- If applicable, what medication has already been sold to the consumer
- Your name, signature, AMS name, and AMS address in writing or on a rubber stamp

How to Make Counseling Effective

Use verbal and nonverbal skills appropriately. The acronyms CLEARS and SOLER can help you remember these skills.

CLEARS Verbal Skills

- **C**larify by using open-ended or probing questions
- **L**isten actively; do not interrupt the consumer when he/she is talking
- **E**ye contact made in a culturally acceptable manner; do not look at your watch
- **A**ccurately reflect and focus the discussion in line with consumers' needs
- **R**epeat or paraphrase
- **S**ummarize and ensure common understanding of the discussion

SOLER Nonverbal Skills

- **S**miling and/or nodding at the consumer
- **O**pen and non-judgmental facial expression
- **L**eaning toward the consumer
- **E**ye contact made in a culturally acceptable manner
- **R**elaxed and friendly

Other Aspects of Effective Counseling

Uphold the consumers' rights.

Maintain up-to-date knowledge so as to provide accurate information.

Ensure that the counseling session addresses consumers' priority needs. Avoid providing unnecessary information (to avoid "information overload").

Respect consumers' cultural, religious, and other personal beliefs. However, remember that some of these beliefs have the potential to interfere with the use of prescribed medications. Clients should be counseled to help them "drop" their beliefs, at least temporarily during the use of a particular course of treatment. Other beliefs are harmless and can just be ignored.

Changing Behavior

Acknowledge that changing behavior takes time, depending on what stage of the behavioral change process the individual consumer is at. There are five stages of behavioral change.

The consumer has no plan to change, or appears indifferent or unaware of the need to change.

What to Do

- Offer yourself for counseling any time the consumer wishes to return.
- Thank the consumer for coming; if possible, provide a leaflet on the subjects or illnesses that were discussed.

The consumer is aware of the need to change, but has no specific plans to do so.

What to do

- Praise the consumer for being aware that change is needed.
- Use verbal and nonverbal communication skills to help the consumer make plans even after leaving the AMS.
- Offer an open invitation for further discussion; issue a leaflet, if available.

The consumer is ready for action, has consulted with friends or their partner, and has established personal goals to change behavior, but has not yet made an action plan to achieve the goals.

What to do

- Counsel the consumer using GATHER.
- Offer an open invitation for further discussion.

The consumer is at the action stage. The consumer has begun to change, the change is new, and the consumer alone or with a partner is trying out ways of reaching the goal.

What to do

- Counsel him/her using GATHER.
- Offer an invitation for further discussion.

The consumer consistently demonstrates the changed behavior, and the change is sustained. For example, the consumer fully complies with taking a full course of any prescribed drug.

What to do

- Praise the consumer and ask them to share with their peers, friends, etc., the benefits of fully complying with instructions for taking medications.
- If possible, involve the consumer in relevant community education activities, if applicable.

Situations for Practicing Counseling Skills

Solicited Services

Sarah received a prescription for a full course of amoxicillin 250 mg. She wants to purchase half of the capsules because she cannot afford the price today. In addition, she says that she received capsules of a similar color six months ago and some were left over. Her daughter Rehema referred her to you to help her use antibiotics correctly.

Instructions: Counsel Sarah to help her effectively use drugs prescribed to her.

Mr. Bea Jones was given Panadol tablets at the hospital for pain in his knees. They worked well. He came to purchase the same tablets. When you gave him paracetamol, he became worried and said he prefers to go back to his doctor for Panadol.

Instructions: Counsel Mr. Bea Jones and help him to be confident in using paracetamol or Panadol tablets.

Miss Monique received a prescription for a course of oral Flagyl. She has come to purchase the tablets. However, she tells you that she is worried about taking these pills because her friend who took the same type of pills told her that they are very strong and make one weak.

Instructions: Counsel Miss Monique and help dispel her worries about Flagyl and use it correctly.

Mr. Kroma reports to your AMS looking very frustrated because, he was prescribed Indocid three weeks ago, but it has been out of stock in all the medicine stores. Your AMS has ibuprofen 200 mg pills.

Instructions: Counsel Mr. Kroma on the use of ibuprofen, its similarity to Indocid; help him use ibuprofen confidently and correctly as an alternative to Indocid.

Mrs. Sasha has come to purchase an antifungal for her child's' scalp. Sifa has ringworm. The MCH aid referred her to your AMS for the drug. Mrs. Sasha has used Fungistat (miconazole cream BP 2% w/w) before and believes it is the best medicine, but you have a substitute that works as well. Mrs. Sasha has difficulty in "catching" instructions, according to the note from the MCH aid nurse.

Instructions: Counsel Mrs. Sasha so that she correctly uses the anti-fungal cream you have in stock on her child's scalp. Also address the fact that she has difficulty with instructions.

Unsolicited Services

As you are talking to Mrs. Walter who has come to purchase doxycycline tablets, she informs you that this is the third time within six months that she has had a vaginal discharge that requires this drug.

Instructions: In addition to ensuring that she uses doxycycline correctly, counsel her to help her address the problem of having three bouts of vaginal discharge within six months.

Mr. and Mrs. Wilson have come to your AMS to purchase ORS for their seven- month old baby. During discussion with Mr. and Mrs. Wilson, you hear them say that they will try weaning the baby because breast milk seems to "disagree with his stomach."

Instructions: Help Mr. and Mrs. Wilson use ORS correctly, and counsel Mrs. Wilson to continue to breast-feed their baby.

Mr. Livingstone has been prescribed SP for malaria. His wife whispers to you that, although they will purchase SP, Mr. Livingstone will probably not take it because a friend with medical training advised them to avoid taking SP, since it has very serious side effects. Mr. Livingstone is a literate blind man. His wife works daily and returns late in the evening.

Instructions: Counsel Mr. and Mrs. Livingstone to help the man comply with the SP course of treatment.

Miss Cecilia, a young lady 16 years old, reports to you that she had an unexpected baby six weeks ago. She has come to purchase “proper medicine” to stop a bad-smelling vaginal discharge. Her parents are your best friends. She asks you not to reveal to anyone that she came to buy the medicine.

Instructions: Counsel Miss Cecilia to help her obtain and comply with appropriate treatment for her problem. Also include information that will help her maintain her child’s and her health, based on the brief information she shared with you.

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