

## SAFE USE OF MEDICINES – TRAINERS’ BOOKLET

### Foreword

A school's primary role is to transmit knowledge. However, as there is a strong link between health and learning, and since all children attend school daily, it is the school's responsibility as an area for socialisation and citizenship, to oversee children's health and encourage them to adopt healthy behaviour. Health and education are therefore closely linked and together form the cornerstone which successful performance is built on: education helps promote health, which in turn, creates the conditions required for learning. Taking pupils' health into account involves the entire education community. This is why schools should provide pupils with health education throughout their schooling in conjunction with lessons.

**Synergies Africaines together with Les Entreprises du Médicament (The French Pharmaceutical Companies Association) provide a programme to educate children and adolescents on the safe use of medicines.** This programme is intended to inform and raise awareness about the risks of self-medication, to stress the importance of adhering to the dosage and prescription, but also to inform them about drug distribution channels and the danger of street medicines.

The education programme for the safe use of medicines (in French called "*Bon Usage du Médicament, BUM*") has shown its relevance and effectiveness in countries where it has been implemented. Cameroon, Burkina Faso, Guinea, Niger, Benin, etc. have all integrated it into their overall strategy for promoting health and tackling the "street medicine" phenomenon. In these countries, children who have been taught about the safe use of medicines have become real vectors of behavioural change in their communities.

As with any learning programme, trainers are called on to exercise their professional judgement in their choice of learning activities and to make any changes to meet their learners' needs. We hope that the safe use of medicines programme will provide effective support in implementing and developing health education activities in schools.

## Introduction

People in African countries have to contend with many terrible diseases, in particular HIV-AIDS, malaria, tuberculosis, meningitis and trypanosomiasis. In addition to these generally communicable, endemic diseases, there are chronic, non-communicable diseases, such as cancer, high-blood pressure, diabetes and epilepsy. From time to time, so-called “emerging” diseases appear, as is the case with the COVID-19 pandemic, that compromise the capacity of healthcare systems to meet the populations’ healthcare needs.

These populations also have to contend with poverty, illiteracy, malnutrition and difficulties in accessing healthcare and medicines. These difficulties are often exacerbated by the lack or inadequacy of information, education and discussion about health and the safe use of medicines.

HIV and AIDS, malaria, tuberculosis, diarrhoea, epilepsy and COVID-19 are all diseases, for which there are medicines, which although not curing the diseases, are sufficiently effective to improve quality of life.

However, the effectiveness of these treatments can be compromised, particularly in the following circumstances:

- Non-compliance with prescriptions, i.e., when the recommended duration of treatment is not adhered to;
- Self-medication, i.e., when someone self-diagnoses without seeking advice from a healthcare professional;
- Buying medicines through informal channels where counterfeit medicines, also called “fake medicines”, are widespread, and where people risk taking products that are ineffective or even dangerous for their health.

It is therefore essential to improve access to healthcare by increasing information and awareness among the population about the need to adopt safe behaviour with regard to a prescription, the importance of following healthcare professionals’ instructions, and the dangers of buying and taking falsified or substandard health products.

### **This programme consists of 4 tools:**

#### 1. Trainer’s booklet

A large-size, **44-page** information booklet that includes the key messages to be promoted in the community, but also more specific points of information and answers for children's activities. The purpose is to help the trainer answer as many questions as possible on medicines and their use.

#### 2. A website that can be accessed offline

A website dedicated to the programme can be accessed at [Leem.Unfn.org/](http://Leem.Unfn.org/)

#### 3. Digital media (USB stick) intended for learners.

#### 4. An awareness poster for schools, which could be used as a communication tool for the general public.

## CHAPTER 1. I AM ILL...

- 1) Knowing how to recognise and deal with a disease

A lesson to familiarise children with **the most common symptoms** so they can deal with the disease as soon as possible.

- 2) Learning about the diseases and how to protect yourself

**Malaria, diarrhoea, tuberculosis, epilepsy, HIV and AIDS, COVID-19:** Six complete sheets to learn about the symptoms, disease progression, modes of transmission and preventative measures.

- 3) At the health centre

The key role of healthcare workers in identifying the disease and curing it. The different steps of a visit to the health centre, from examination to prescribing medicines.

## CHAPTER 2. I NEED TO TAKE MEDICINE...

- 1) The different types of medicine

Learn more about medicines, how they can be used, and be aware of their specific characteristics.

- 2) Protect, relieve and cure

This lesson will specifically cover the topic of vaccines and a better understanding of the role of medicines.

- 3) How to safely use medicine

Compliance with duration of treatment, the dangers of self-medication, expiry date: the basic rules for safe use of medicines that must be observed for effective and safe use.

## CHAPTER 3. I AM WARY OF FAKE MEDICINES

- 1) The legal distribution channel for medicines

This lesson familiarises the learner with drug supply channels.

Overview of the legal drug distribution channel from manufacture to distribution. This topic stresses the dangers related to street medicines.

- 2) Why are there fake medicines?

This purpose of this lesson is to identify factors which drive trafficking in fake medicines. The learner will be able to develop effective strategies to counter this phenomenon.

3) Identifying real medicines from fake ones

The fight against fake medicines is a constant challenge that requires everyone's participation. Constant vigilance is highly recommended at all times. The learner will have the challenging task of distinguishing between real medicines and fake ones.

1) Knowing how to identify symptoms and deal with a disease

Diseases can be detected through a wide variety of signs affecting one or several parts of the body: these are symptoms of the disease.

Some symptoms are noticeable (coughing, spots, swelling, etc.) while others may appear as pain or discomfort felt by the patient (fatigue, heat, chills, headaches or abdominal pain, etc.)

It is important to watch out for the onset of these symptoms to be able to deal with a disease as soon as possible.

The most common symptoms:

- **Fever**
  - Feeling hot, particularly on the head (forehead and temples)
  - Feeling hot followed by feeling cold
  
- **Nausea and vomiting**
  - Loss of appetite
  - Stomach pain
  - Feeling of discomfort after eating
  
- Transit disorders
  
- **Constipation**
  - Pain and abdominal heaviness
  - Difficulty going to the toilet
  - Swollen and tense abdomen
  
- **Diarrhoea**
  - Abdominal pain
  - Very frequent stools with a loose or watery consistency
  
- **Dry cough**
  - Repeated coughing
  - Feeling of dryness and irritation in the mouth and throat
  
- **Productive cough**
  - Congested throat
  - The need to spit

- Difficulty breathing
- A whistling sound when breathing
- A sound like congestion in the chest

#### Each disease has its own specific symptoms

Each disease has its own specific symptoms. But the same symptom can be common to several diseases.

*For example, fever is a symptom that can be caused by either malaria, diarrhoea, tuberculosis or other diseases. However, if the fever is accompanied by a cough with bloody sputum, for example, healthcare workers will focus on a more specific group of diseases, including tuberculosis.*

#### Find out more

Each symptom relates to a system or structure in the human body, for example:

- Palpitations (feeling your heart beat faster, having difficulty breathing, feeling of suffocation, etc.) relate to the heart and blood vessels.
- Coughing affects the respiratory system
- Nausea, vomiting and transit issues are digestive system disorders.

There are 3 stages in the course of a disease, during which signs of the disease progress:

- **Disease onset** is accompanied by a variety of symptoms. This is when the decision has to be made to go to the health centre to deal with a possible disease as quickly as possible.
- **Prodromal stage:** all symptoms are usually present and active, but some may disappear once the disease has been established and give way to new symptoms.
- **Progression stage to recovery:** the symptoms disappear with treatment, sometimes slowly, until full recovery. The initial signs of improvement do not mean the medicine should be stopped, but on the contrary, it is essential to adhere to the duration of treatment specified by healthcare workers.

## ACTIVITY FOR CHILDREN:

*Describe the feelings corresponding to each symptom. The children have to find the right symptom corresponding to the effects described. The symptom is marked in green.*

1. My head's hot, I've got joint pains, my entire body's hot...  
→ I've got a fever
2. I've got stomach ache and I can't go to the toilet...  
→ I'm constipated
3. I'm not hungry, I don't feel well after eating, I feel like vomiting...  
→ I feel nauseous
4. I'm coughing, I need to spit, I've got a sore throat...  
→ I've got a productive cough
5. I've got stomach ache, I'm going to the toilet more often than normal...  
→ I've got diarrhoea

## 2) Learning about the diseases and how to protect yourself

To maintain good health, it is important to know:

- The main symptoms that can indicate a disease
- How a disease can be transmitted
- Its progression and how to fight it.

*We previously learnt what symptoms were, now let's study some common diseases.*

### a) Malaria

Malaria is a parasitic disease transmitted by a mosquito infected with plasmodium and known as the female anopheles.

This disease can be fatal if untreated.

It can have extremely serious, or even fatal, effects for young children and pregnant women.

#### Symptoms

- Mainly fever which starts between 8 and 30 days after infection.
- But also other symptoms such as:
  - o Chills
  - o Headaches
  - o Muscle pain

- General fatigue
- Vomiting
- Diarrhoea
- Jaundice (yellowing of the skin and eyes)
- Pallor indicating anaemia (a serious disorder which specifically affects the blood)

### Modes of transmission

- The disease is transmitted by mosquitoes. There is no direct transmission between people.
- However, an infected pregnant woman can transmit the disease to her unborn child.
- The rainy season is the most favourable time for disease transmission.

### Disease progression

There are two forms of malaria:

Uncomplicated malaria:

- This is the most common form. It can be treated with anti-malarial tablets provided by the health centre.
- Recovery is fairly quick, provided that the course of medication is taken consistently and for a sufficiently long time.
- However, uncomplicated malaria can develop into a form of severe malaria without appropriate treatment.

Severe malaria:

- In addition to the symptoms described above, the disease can cause convulsions (involuntary contractions of part or all of the body's muscles), or even coma (a state of deep unconsciousness) and rapidly result in death.
- Treatment must be provided urgently by healthcare workers.

### Preventative measures

Due to the effects of malaria, preventative treatment is recommended for pregnant women, as well as for children under five, at the instigation of healthcare workers.

Some recommended precautions:

- Disinfect the area surrounding homes (no stagnant water).
- Use an impregnated mosquito net or protective screens on windows at home to prevent mosquitoes from entering the room. The use of insecticides is recommended provided that they are regularly applied.
- When going out at night, wear clothing that covers the whole body.

N.B.: According to WHO's (World Health Organisation) estimates, malaria causes the death of a child every 30 seconds. It is the leading cause of death in children under five.

Find out more

- Malaria is transmitted to humans by the bite of an infected female mosquito (Anopheles). It injects the parasite into humans by taking the blood required to lay its eggs. Males do not transmit malaria, because they do not bite.

## **b) Diarrhoea**

As discussed previously, diarrhoea can be one of the symptoms of a disease. However, in severe forms it can cause death, so it can be considered as a preventable disease.

### Symptoms

- Loose or watery stools that are much more frequent than normal (more than 3 to 4 times a day)
- Vomiting
- Fever
- Loss of appetite
- Weakness and general fatigue
- In some cases, blood in the stool and mucus may also be present.
- Dryness of the tongue and mouth, a refusal to drink or, on the contrary, a constant feeling of thirst are signs of dehydration. Dehydration is a serious or even fatal risk.

### Modes of transmission

Disease onset is facilitated by:

- Consumption of contaminated or polluted water or food stored or cooked in poor conditions.
- Poor personal hygiene.
- Closeness to animal excrement.

It can be transmitted from one person to another: the stools and vomit of a sick person are extremely contagious.

### Disease progression

It can last from several days to several weeks. It is essential to go to the health centre as soon as diarrhoea starts.

Healthcare workers may use an oral rehydration salt solution to prevent dehydration if they consider it is necessary.

In any case, it is important to give the patient plenty to drink until the diarrhoea has stopped.

Also highly nutritious food should be given as a priority to avoid malnutrition which often accompanies diarrhoea.

### Preventative measures

- Find out what water purification facilities are available in the region.

- Boil water before drinking it, clean food thoroughly and eat it immediately after it has been fully cooked.
- Wash your hands with water and soap:
  - o After having been to the toilet or touched a baby's bottom or nappies.
  - o Before preparing, serving or eating food.
- Dry your hands with a clean towel.
- Cut your nails regularly.

N.B.: diarrhoea is one of the leading causes of death in children under five. It mainly affects children and people already weakened by illness.

### c) Tuberculosis

Tuberculosis is a disease caused by a bacterium called Koch's bacillus which spreads quickly through the air from one sick person to another.

It primarily affects malnourished people or those with an immune deficiency (a drop in the body's natural defences), for example caused by a disease (HIV/AIDS in particular).

#### Symptoms

- Violent and persistent coughing fits, sometimes accompanied by bloody sputum.
- High- or low-grade fever.
- General fatigue, loss of appetite and weight.
- Difficulty breathing.
- Night sweats.

#### Modes of transmission

- Whenever they cough, sneeze, speak or spit, people with TB in their lungs project micro-droplets into the air that contain germs causing the disease.
- If the sick person is untreated, they can infect an average of 10 to 15 people in a single year.

#### Disease progression

There are two forms of tuberculosis:

Primary TB infection:

- If there are no symptoms, it usually goes unnoticed.
- When it is stopped by the immune system's defences, the infection generally results in a natural recovery.
- However, 5 to 10% of infected people develop the disease or become contagious, and sometimes several years after infection, during which the infection may remain latent in the body.

Tuberculosis disease:

- This is very serious, as the infection attacks the lungs and can spread to other organs, resulting in death if it is not correctly treated.
- Treatment involves taking anti-TB drugs regularly and consistently for an average of 6 to 8 months. Regular monitoring by healthcare workers is essential.
- At the start of treatment, the person should be isolated for as long as they are contagious (bacteria is present in their sputum).

### Preventative measures

There is a tuberculosis vaccine. It is recommended the vaccine be given from birth.

### Find out more

Each year, 1.5 million people die of tuberculosis and this figure has been increasing year-on-year (2018)

Tuberculosis is caused by a bacterium known as Koch's bacillus. Is the development of drug-resistant forms of TB a major problem in the fight against tuberculosis? These forms are usually found in people who have been infected and have not consistently taken the medication prescribed by healthcare workers.

## **d) Epilepsy and the brain**

Your brain is made up of billions of tiny nerve cells. These cells send messages to one another and to other parts of the body. Nerve cells in different parts of the brain control different parts of the body. For example, some cells send messages to the arms and legs. Others to the eyes and ears. Your brain sends a message to your foot to kick the ball when you play football, or to your hand when you want to answer a question in class, or even makes you smile when you meet a friend.

When you have epilepsy, the nerve cells sometimes become over active and send messages without you wanting them to. When this happens, you have a seizure. Having a seizure is a bit like getting lost in a maze. From time to time, nerve cells in the brain get confused or become over active for a while, and send the wrong messages to other parts of your body.

### Seizures

There are various types of seizures. During a seizure, the person may stare blankly, blink, be afraid, be dizzy, fall and twitch. A seizure is a bit like sneezing. It cannot be stopped. It lasts from several seconds to several minutes and is not painful.

### What causes seizures?

Worldwide people of all ages have seizures. Epilepsy is not a disease that you can catch from someone else. It is a condition that causes a person to have seizures. Many causes can bring one on. Sometimes a cause cannot be found.

### Preventing seizures

Some things increase the risks of seizures in people with epilepsy. These are called seizure triggers. When you know that something is likely to trigger a seizure, you can try to avoid it. So, if a person with epilepsy does not get enough sleep, there is a greater chance of having a seizure. It is important for people with epilepsy to:

- always take their medicine as prescribed;
- get enough sleep;
- not skip meals;
- avoid any situation that causes tension;
- And for people with photosensitive epilepsy, avoid flickering lights, such as those on computers or televisions.

### Hobbies and friends

People with epilepsy can participate in virtually any sport or hobby. They can have just as much fun as their friends.

If you have epilepsy, talking to your friends about it will help them to understand you, and they won't be afraid if you have a seizure. It will also help them to know what to do if you have one when with them. Anyone can have a seizure; having epilepsy means you will have more than one.

### Help

There are some things that you can do to help someone who is having a seizure. Most seizures only last a few seconds or minutes. Sometimes, the person will be a bit tired or confused after a seizure.

Some tips for helping a person having a seizure:

1. Stay calm.
2. Remove any sharp or hard objects that are nearby.
3. Don't try to restrain the person.
4. Don't put anything in the person's mouth.
5. If a person falls and is shaking on the ground, turn them on their side until the shaking stops.
6. Send someone to get an adult.
7. Stay with the person.

### e) AIDS

**HIV**, or **human immunodeficiency virus**, is a type of virus that can cause a disease called **AIDS** (Acquired Immunodeficiency Syndrome). HIV infection affects the immune system, i.e.

the body's natural defences against the disease. Serious diseases can develop if it is untreated. Infections that are normally harmless, such as flu or bronchitis, can worsen, become very difficult to treat or even lead to death. Furthermore, the risk of cancer is also increased.

What distinguishes HIV from other viruses, is that it affects the **immune system** by attacking the CD4 T cells. The role of these cells is to co-ordinate the immune response when a virus is detected. When HIV uses CD4 cells to spread, it damages and destroys them. In the process, HIV undermines the immune system from within, which is responsible for fighting it.

### Transmission

HIV is transmitted through body fluids: blood, semen, vaginal secretions, and breast milk. These body fluids only transmit HIV if they come into contact with an area that lets it enter the body, such as a mucous membrane. Healthy skin is impervious to HIV.

Usually, the virus is contracted during unprotected sex or was previously contracted through sharing needles among injectable drug users. There is no transmission risk through kissing with saliva exchange.

In most industrialized countries, anal sex between men is the predominant route of HIV transmission. However, heterosexual transmission has significantly increased since the start of the epidemic.

### HIV is not transmitted in the following ways

It cannot be contracted through shaking hands, sweat or tears. It is not carried by insects. It is not contracted from toilet seats, or from public swimming pools, sharing food or using an infected person's clothes, towels or telephone.

### HIV-AIDS: a more treatable disease

It is now known that a well-treated, HIV-positive person has an extremely low risk of transmitting HIV through sex given certain conditions:

- Medication is taken regularly,
- This results in an undetectable viral load (or a viral load below 50 copies/ml in plasma for more than 6 months and at the most recent test),
- The viral load is measured regularly, at least every 3 or 4 months
- Both partners are free of sexually transmitted infections.

### **Untreated HIV infection leads to AIDS and eventually death.**

Since HIV infection is more and more treatable, some at-risk populations are becoming complacent with their preventative efforts.

### In summary

- HIV can be transmitted through unprotected sex (vaginal or anal) and oral sex with an infected person
- It can also be transmitted through transfusion of contaminated blood or by sharing contaminated needles, syringes or other sharp instruments.
- It can also be transmitted from mother to child during pregnancy, childbirth or breastfeeding.
- AIDS is the end stage of infection with human immunodeficiency virus. The word AIDS is an abbreviation of acquired immunodeficiency syndrome.
- According to WHO and UNAIDS estimates, 38 million people were living with HIV at the end of 2019. Around 23 million of them are in Africa. AIDS has caused the death of nearly 700,000 people.

#### f) Coronavirus disease 2019 also known as COVID-19

##### What is coronavirus?

Coronaviruses are a family of viruses that can cause disease in humans and animals. In humans, several coronaviruses can cause respiratory infections ranging in severity. These range from a plain cold to more severe disorders.

In January 2020, a new coronavirus was discovered in China that causes the coronavirus disease 2019 (COVID-19).

##### COVID-19 symptoms

The initial symptoms appear, such as headaches, a dry cough or fever. The loss of taste and smell, as well as the occurrence of a skin rash, such as hives may be connected to **symptoms of the new coronavirus**. In the event of these symptoms, the first thing to do is contact your doctor. The doctor makes their diagnosis and subsequently refers the patient.

Healthcare professionals advise on what action to take; either the patient is transferred by ambulance or they remain at home. Doctors then regularly call the patient to check on them.

##### How is the patient treated?

**COVID-19 patients** can be treated at home or in hospital. When the patient is admitted to hospital, they may be given respiratory support if necessary. In the most severe cases, an artificial coma may be induced followed by intubation. Patients who have undergone this type of treatment are monitored for several days in hospital and then sent home. **This mainly affects at-risk people.** It should be noted that **98 % of infected people with the new coronavirus recover** However, it will take several weeks for people who had a respiratory emergency to recover. Indeed, they may be tired and have a persistent cough.

## How to protect yourself from COVID-19?

Without control and protection measures, there is a high risk of person-to-person contamination with coronavirus.

It is possible to reduce this risk through simple actions (barrier measures):

- Frequent hand washing with soap and water or a hydroalcoholic solution. Washing kills the virus if it is on your hands.
- Cough or sneeze into your elbow or into a disposable tissue.
- Only use single-use tissues and dispose of them in the bin after use.
- Stop shaking hands and kissing when greeting others.
- Do not put your hands to your mouth, nose, or eyes. If the virus is on your hands, it can enter your body through these orifices.
- Stand more than one metre away from a person who is coughing or sneezing. If you stand less than a metre away, you can inhale droplets containing the virus (if the person is a carrier).
- Stay at home if you have COVID-19 symptoms.
- Find out which areas the virus is actively circulating in and avoid going there.
- Wear a mask when you leave home.
- Ventilate confined rooms.

If someone you know is infected, avoid contact with them during their quarantine period. If you have been in contact with them, you should stay at home for 7 days as well as any people you have been in contact with.

## ACTIVITY FOR CHILDREN:

Ask the following questions, the correct answer is in green.

Q1 Is epilepsy contagious?

- A Yes
- B No

Q2 WHAT DISEASE CAN YOU CATCH FROM A MOSQUITO?

- A. Diarrhoea
- B. COVID-19
- C. Malaria

Q3 LOSS OF TASTE AND SMELL CAN BE A SYMPTOM OF WHICH DISEASE?

- A. Tuberculosis
- B. COVID-19
- C. HIV-AIDS

### 3) At the health centre

We have previously looked at the various symptoms and the diseases related to these symptoms. **The onset of symptoms or a change in behaviour is a warning to go to the health centre as soon as possible to be examined by healthcare workers.**

Only healthcare workers can recognise a disease and prescribe the appropriate medicine to treat it if necessary.

They can also explain how to take medicine and can give more general advice, for example, on how to prevent the onset of diseases.

#### Going to the health centre: an important step!

Seeing and knowing how to recognise symptoms of a disease is an important first step, the responsibility for which lies with the patient's family.

Apart from obvious symptoms, you need to be aware of less noticeable ones or changes in behaviour, such as loss of appetite, difficulty in seeing, hearing or speaking, restless sleep, repeated loss of attention, or repeated occurrences of brief loss of consciousness., etc.

Sometimes, the person with symptoms does not always realise or thinks that “it will pass”. It is then up to the family to decide whether to take the person to the health centre.

Parents of young children should take the initiative to regularly consult healthcare workers, even when there are no symptoms, to check that the child is gaining sufficient weight, is growing well, is developing normally, and for administering the recommended vaccinations.

### What happens during a visit to the health centre

- Medical history

If the healthcare workers have the patient’s medical or care records, they will start by consulting this. This document will inform them about any potential health problems the patient may have, as well as medicine already prescribed: it is called a medical history. This information can help healthcare workers to diagnose (identify the disease) and prescribe the most appropriate medicine.

- Questions

Healthcare workers ask patients and possibly people accompanying them, specific questions to gather information about the onset and progression of symptoms.

It is important to inform healthcare workers about any symptoms you have noticed, to help them accurately identify the disease you have.

- Examination

Healthcare workers examine the patient who is generally lying on an examination table.

-They look at the visible symptoms that the patient has told them about and touch the corresponding areas of the body.

- They look at other areas of the body for other possible symptoms that the patient may not have noticed: they listen to heartbeats and breathing, look down the throat and in the ears, and examine nails and skin.

If the healthcare workers consider it necessary, they can ask for more detailed examinations, like a blood test or an X-ray (a technique that “photographs” the human body to look at the skeleton for instance).

- Diagnosis

Once all the necessary tests have been performed, healthcare workers make their diagnosis, i.e., they identify the disease causing the symptoms observed and its degree of severity.

- Prescription

The healthcare workers tell the patients what care and treatment they will have to undergo: the name of the medicines, of course, but also how and when to take them (before, during or after meals), the times when they should be taken and the duration of treatment.

They also specify the likely progression of the disease to recovery and indicate when the patient should return to the health centre during treatment for a check-up or assessment.

Finally, they should give general advice on diet, rest, possible relaxation, but also recommendations for protection against disease.

The prescription is usually written on a document, the prescription form, which must be legible. If the healthcare workers have the patient's medical or care records, they can also write down the details of the visit to the health centre for reference at a later visit. So, it is important to keep these documents and bring them with you on each visit.

The dose of medicine prescribed should not be changed (increased or reduced) without prior consultation with healthcare workers.

### 1) The different forms of medicines

The forms of medicines and how they are administered are designed to allow the medicine to work in the best possible way.

- **Syrups**

These are liquid preparations usually containing lots of sugar and flavourings to give them a better taste. Be careful children do not confuse them with sweets!

- **Ointments**

Ointments, creams and lotions are applied directly on the skin. They usually have a local effect (against pain for example).

- **Tablets**

Some have to be chewed, but most are swallowed with water. Other tablets are designed to gradually release their active ingredient in the digestive tract to obtain a long-lasting effect.

- **Capsules**

You should always swallow a capsule with its coating on without opening it. The coating is designed to dissolve in the stomach or intestine where the active ingredient is released and is therefore safe.

- **Powders and granules**

Powders are usually poured and mixed into a glass of water or in the food of young children. Granules can either be swallowed directly or placed under the tongue where they melt.

- **Eye drops**

These are liquids to treat eye and eyelid diseases. They are used by applying some drops only in the corner of the eye.

A CHILD SHOULD NEVER DECIDE TO TAKE A MEDICINE ON THEIR OWN. THEY SHOULD DO SO ON THE ADVICE OF OR WITH THE HELP OF AN ADULT

Find out more

The medicine's form is called the "pharmaceutical or galenic formulation" after the ancient Greek physician Galen.

The active ingredient of a medicine refers to the compound it contains which has a therapeutic action.

In addition to those mentioned previously, there are other forms and routes of administration for medicines:

- Injectable ampoules are administered by injection into the muscles, under the skin, into veins or joints.
- Suppositories are administered rectally and allow the quick absorption of some active substances. They can be used when a child has difficulty swallowing tablets.
- Phials and drops are usually diluted and taken in a half glass of water.
- Drops are administered nasally (nose drops) or in the ears (ear drops).
- Mouthwashes and aerosols are applied to the back of the mouth to treat a mouth, larynx or pharynx infection.
- Patches are applied directly on the skin to allow the active ingredient to pass directly into the bloodstream.

## 2) Protect, relieve and cure

Medicines can have 3 different roles:

- Prevent the onset of diseases
- Relieve pain
- Treat an established disease

### a) Disease prevention

Preventative medicines, such as vaccines or serums, are used to prevent a disease from developing. They allow the body to make specific defences (antibodies) that prevent it from contracting the disease afterwards.

When they are administered systematically to a large number of people, these preventative medicines help to reduce the risk of contagion and the outbreak of epidemics. These medicines have already helped to eradicate some diseases that now no longer exist in the world, such as smallpox.

**Some vaccines or serums are now administered worldwide.**

These include the measles, polio, diphtheria, tetanus, whooping cough and tuberculosis vaccines. Some of these vaccines are sometimes combined in the same injection, such as the diphtheria, tetanus and whooping cough vaccine. In other cases, it may be necessary to administer several different injections.

**Others are reserved for regions where the risk of catching certain diseases is greater.**

The yellow fever vaccine consists in a single injection, which is given from the age of 9 months and is effective for life.

The cholera vaccine is given as a single oral dose.

The typhoid vaccine requires an initial intramuscular injection followed by a booster 3 years later.

Lastly, there is a combined vaccine to prevent meningitis A and C that protects a child over 2 years for about three years.

There is also a rubella vaccine, particularly recommended for women of childbearing age, and more recently one for hepatitis B.

In 2021, as a result of the COVID-19 pandemic, an unprecedented collaboration has been established between pharmaceutical companies, health authorities and international organisations to develop several vaccines against COVID-19 in a record time. These vaccines require one to two injections, depending on the type of vaccine chosen.

It is essential to be aware of the risks in the area where you live or travel, and to be informed about preventative measures available to the public.

#### Find out more

The World Health Organisation estimates that the number of deaths from measles fell worldwide by 84% from 550,100 in 2000 to 89,780 in 2016 due to vaccination. However, this number increased by almost 50% between 2016 and 2019. Experts explain that the increase in the number of deaths is mainly due to not enough children being vaccinated, who need to receive 2 doses of the vaccine at the correct time.

#### **Apart from vaccines and serums, there are other forms of preventative medicines.**

Anti-allergy drugs are given to people with respiratory, skin or eye allergies to prevent these occurring.

Vitamins and minerals can play a preventative role in health, particularly for infants, young children and pregnant women. For example:

- Vitamin A deficiency can cause serious eye problems and even lead to blindness.
- B vitamins are involved in many functions, such as energy production and the proper functioning of the nervous system.
- Vitamin C prevents scurvy (a disease that is characterised by extreme fatigue, bleeding gums, teeth loss, etc.)
- Vitamin D and calcium to fight bone diseases.
- Iron to cure general fatigue and prevent anaemia, which is a serious disorder that mainly affects the blood and primarily impacts women and children..

#### b) Relieving pain or discomfort

Fever, headaches, abdominal pain, joint or muscle pain: some diseases can go hand in hand with painful or uncomfortable symptoms that medicines can relieve. These medicines are usually administered orally (capsules, tablets, syrups, etc.).

#### c) Curing diseases

This is the best known role of medicine. For instance, the antibiotics family is designed to fight infection by destroying the bacteria that cause it. For example, antibiotics can be used to treat bacterial diarrhoea (this type of diarrhoea can be caused by drinking unsafe water or eating contaminated food).

### ACTIVITY FOR CHILDREN

**Ask the children if they know what medicines they have been taking and if so, what role they are supposed to do (prevent, relieve or cure).**

### 3) Safe use of medicines

For a medicine to be effective and safe, it is essential to adhere to some principles of use. One of healthcare workers' tasks is to advise the patient on how medicines should be used.

Always adhere to the dose and duration of treatment as instructed by healthcare workers.

- Taking less than the prescribed dose, could cause the medicine to be less effective, so that it may be thought to be unsuitable for the disease being treated.
- Even, if you no longer feel ill, because your fever has subsided for example, you need to continue the medicine until the end, i.e. follow the prescribed dose and duration to avoid a relapse.
- It is wrong to think that you will get better quicker by taking a greater dose of medicine than prescribed. On the contrary, this could be very dangerous.
- The number and timing of doses specified by healthcare workers are also very important. Indeed, most medicines have a time-limited action, and therefore must be taken repeatedly.
- There is also a specific way to take the medicine, which is the instructions for use: for example, tablets and capsules must be taken with water. Some medicines should be taken with meals, others between meals. Do not hesitate to ask healthcare workers to explain to you and show you how to use medicines so that they are effective.

#### Contra-indications

There are some medicines that cannot be used by certain people, because of their age, health status, possible allergies or because they are taking other medicines: it is essential to know about and comply with these contra-indications.

Some medicines are also not advised for pregnant or breastfeeding women, as they may harm the unborn child or the infant.

Finally, a disease may prevent the use of some medicines and some of them cannot be taken together.

Therefore, it is important to inform healthcare workers about your health status, medicines that you have already been prescribed, and conditions you have or have had.

### Never take a medicine without it being prescribed by healthcare workers.

- Similar symptoms (fever, headaches, abdominal pain, vomiting) may obscure very different diseases, or a similar disease requiring different medicine. THEREFORE, YOU CANNOT DECIDE BY YOURSELF TO RESUME TAKING MEDICINES THAT HAVE BEEN PRESCRIBED PREVIOUSLY.
- Similarly, IT IS DANGEROUS TO GIVE MEDICINE TO ANOTHER PERSON because their symptoms resemble a disease you have already had.
- DO NOT GIVE A CHILD MEDICINE PRESCRIBED FOR AN ADULT: children need medicines adapted to them, because their bodies do not function in the same way as an adult's.
- WARNING: ALWAYS BUY MEDICINES SOLD THROUGH LEGAL DRUG DISTRIBUTION CHANNELS (pharmacy, hospital, clinic). Never buy street medicines (see Chapter 3).

### Never leave medication within the reach of young children

- Medicines often contain lots of sugar or fruit flavourings to make them taste better. Sometimes, they are also coloured to make them more attractive to young children.
- So, medicines should be stored carefully out of the reach of the younger children so they are not tempted to taste them.
- When a medicine has been prescribed to a young child, an adult should ensure that the child is taking it according to the dose and the duration specified by healthcare workers.

### Check the medicine's expiry date or period of use

- Medicines have a limited shelf life.. The use-by date is indicated on the box. Always check a medicine has not expired before taking it.
- Some types of medicine (eye drops, syrups, etc.) have a short shelf life once opened. Make sure this is observed.

### Side effects

- Taking some medicines can sometimes go hand in hand with malaise or discomfort. These side effects should be reported to healthcare workers who will advise what to do in such cases.

### Find out more

THE MEDICINE'S PACKAGE LEAFLET is an essential source of further information. It is important to read it carefully before taking medicine and to keep it for the entire duration of treatment so that it can be referred to regularly. It includes:

- The medicine's name, its manufacturer and composition.
- How to use the medicine: number and times of doses, expiry date, contra-indications, route of administration, duration of treatment, etc.
- Storage conditions (for example: keep away from flames, keep out of humidity,)
- This is indicative information. IN ALL INSTANCES, THE INSTRUCTIONS ISSUED BY HEALTHCARE WORKERS AND WRITTEN ON THE PRESCRIPTION OR HEALTH RECORD

MUST BE OBSERVED. Sometimes, they can be written directly on the drug package.

### ACTIVITY FOR CHILDREN:

Ask the following questions, the correct answer is in green.

Q1 If I feel better, can I stop taking my medicine before the end of the period prescribed by the doctor?

- C Yes
- D No

Q2 WHERE IS THE MEDICINE'S EXPIRY DATE?

- A. On the medicine's package leaflet
- B. the medicine has no expiry date
- C. On the drug package

Q3 I have the same symptoms as my dad, can I take the same medicine?

- A. Yes, it's most likely the same disease
- B. No (children need medicines adapted to their bodies, also the same symptom may correspond to a different disease!)

## CHAPTER 3: I AM WARY OF FAKE MEDICINES

Medicines are very specific products. It is essential to adhere to a few rules to improve their effectiveness and safety. Although healthcare workers are trained to supervise people and assist them in their treatment, the community also have a very important role to play.

Knowing how to respond when faced with disease, how to follow the rules for using medicines, knowing how to prevent diseases, understanding the official drug distribution channels, being aware of the risks related to self-medication and the illegal market for medicines, are all knowledge to be shared, particularly with future generations, through dialogue, exchange, sharing ideas and knowledge.

### 1) The legal drug distribution channel

There is a legal drug distribution channel, from manufacture to use by the patient, with rules to ensure the effectiveness and safety of medicines.

There is no guarantee for medicines outside this distribution channel. This is particularly so for medicines sold illegally on the street, at markets or in unlicensed shops.

#### **Legal drug distribution channels:**

- Medicines are manufactured by pharmaceutical companies.

Before putting their products (medicines) on sale in a country, pharmaceutical companies have to obtain official or legal authorisation. This authorisation confirms the medicine can be distributed in a country.

Furthermore, for most common and urgent diseases, each country has specific supply terms with manufacturers in agreement with the World Health Organisation (WHO).

- Medicines are then sent to the places where they will be dispensed.

At the hospital, health centre or pharmacy, the pharmacist or healthcare staff are responsible for dispensing the medicines prescribed by the healthcare workers.

In some areas where these facilities are underdeveloped, medicines may unusually be dispensed by traders, provided that they have received OFFICIAL AUTHORISATION. These places are usually called "MEDICAL DEPOTS" and are authorised to only sell medicines on the official list assigned to them. They must be regularly checked by pharmacists.

#### Street medicines, beware, danger!

Many vendors obtain medicines illegally to resell them on the street, in unlicensed shops, on market stalls or via itinerant traders. However, medicines are unlike other products. To ensure their effectiveness and patients' safety, distribution and dispensing of medicines must follow very precise rules that only healthcare workers are able to apply.

Hence, what are known as falsified medicines can be found in street markets. ***What are falsified medicines?***

According to the WHO, a counterfeit or falsified medicine is one which is deliberately and fraudulently mislabelled and does not show its real identity and/or source.

It can be a brand or generic product. Some falsified medicines may contain active ingredients, but in insufficient quantities. Others contain no active ingredients or may contain the wrong ingredients that are dangerous to health.

We are actually talking about "falsified medicines". This term is more extensive than "counterfeit" and it also includes substandard medicines, or genuine medicines that may have been trafficked by smugglers in poor conditions (in the sun and heat for example), damaging the product's effectiveness and safety.

## 2) Why are there falsified medicines (fake medicines)? What are the risks of using fake medicines?

- Sources of the problem

Although the phenomenon is global, 42% of substandard or falsified medicines are circulating in sub-Saharan Africa, 21% in America and 21% in Europe.

Several factors are responsible for the spread of substandard or falsified medicines, especially in sub-Saharan Africa.

The inadequacy of healthcare systems, difficulties in accessing healthcare services and quality medicines, and poverty have facilitated the emergence of this informal market. There is little enforcement of this very lucrative market which attracts many criminal organisations.

Furthermore, porous borders, corruption, an inadequate legal framework and criminal punishment, and no cooperation policy between states are also to blame.

- Five reasons not to buy medicines outside of the official drug distribution channels:

### 1) Their origin is not clearly identified

They may be medicines diverted from their destination (and which have therefore circulated in poor conditions), expired products, counterfeit or illegally imported medicines or even medicines stolen from donors.

Falsified medicines are often repackaged and relabelled before being sold. Therefore, their quality is not verified by healthcare workers and often in the stock of itinerant traders, there are medicines without an active ingredient, or containing a different active ingredient to the expected one, expired medicines, or ones deteriorated due to poor storage conditions.

### 2) The medicines sold do not always correspond to those stated on the prescription.

The resort to self-medication (treating yourself) is usually accompanied by buying medicines on the illegal market. Since the sellers are not medically trained, they will not be able to tell the patient how to take the medicines and how long to take them for. Even worse, they may provide medicines that fail to meet their needs at all.

### 3) The package leaflet is not always supplied with the medicine.

Medicines that are often sold “in bulk” are not usually supplied with their package leaflet, or even their package. Sometimes, the instructions are present but in a foreign language. The patient is then unable to check the medicine's name, indication, contra-indications, or even its expiry date.

### 4) The cost to health and wallet is higher

As they are often sold individually, street medicines seem to be cheaper. In reality, they often cost more than those sold through official distribution channels. Furthermore, these medicines are often ineffective, or even dangerous, and buying them is a waste of money.

5) They present risks for the patient... but also for the whole community

The use of unauthorised medicines can lead to a deterioration in health, and even death. Moreover, the bacteria that cause disease become more resistant, if the disease is not treated with the appropriate medicine. This makes it more difficult to treat the disease even with high-quality medicines.

**N.B.:** The WHO conducted impact studies on this issue in 2017, based on several hundred scientific studies. The results are telling: falsified medicines are estimated to be responsible for at least 170,000 deaths from childhood pneumonia and 150,000 deaths from malaria each year in children under five in sub-Saharan Africa!

### 3) Identifying real medicines from fake ones

Given counterfeiters' ingenuity and expertise, it is not always easy for healthcare professionals (doctors, pharmacists and others), even less so for patients, to distinguish between real medicines and fake ones.

- **Which medicines are most often counterfeited?**

Anti-malarial drugs and antibiotics are among the most frequently reported substandard and falsified medicines (12% of seizures worldwide).

Overall, the WHO reports that 60% of anti-malarial medicine sold worldwide may be fake medicines and specialists estimate that if all patients received the correct medicine, the annual number of deaths could be reduced by nearly 300,000 cases/year. Resistance to anti-malarial medicines has also been observed due to the lack of appropriate medicine.

Erectile dysfunction drugs (in particular Viagra) are the most counterfeited medicine in the world (in 2010 they accounted for 57% of seizures!) as are contraceptives.

"Trendy" or highly-publicised medicines: highly-publicised medicines are subject to frequent counterfeiting. This has been the case since the beginning of 2020 for COVID-19 medicines, particularly chloroquine.

- **How to protect yourself?**

In Cameroon, for example, it is estimated that around 40% of medicines in circulation are fake. Healthcare professionals recommend a number of precautions for patients to reduce the risk of buying substandard medicines :

1. Buy your medicines at a pharmacy and nowhere else,
2. Look carefully at the packaging, appearance, and product logo. In Cameroon, the package leaflet must be in either French or English, so if you see a foreign language the medicine has definitely been smuggled.

3. Check the manufacturing and expiry dates,
4. Compare the price with that of products you usually buy or that charged by reputable vendors. If the price is significantly lower, it could be counterfeit.

N.B.: Even though a medicine may be a good quality one, the mere fact that it is stored and handled in unsuitable conditions in the street makes it a substandard medicine.

### ACTIVITY FOR CHILDREN:

*Give the correct answer (in green below)*

**Q1 I need to go and buy medicines, where should I go?**

**(Several correct answers)**

- A. To the hospital
- B. To the market
- C. To the pharmacy

**Q2 HOW DO YOU KNOW IF THE MEDICINE HAS BEEN FALSIFIED OR NOT?**

- A. I take the medicine and wait to see if it works or not
- B. I check the package is securely sealed, has the package leaflet, logo, and that the language is that of the country I am in.
- C. if it was given to me by a friend, it's probably real.

**Q3 What are the risks of taking a falsified medicine?**

- A. Not being cured of my disease
- B. I can become even sicker than before
- C. In the most serious situations, falsified medicine can kill

## GLOSSARY

<b>Active ingredient</b>	This is the substance responsible for a medicine's action. Each medicine is made up of one (or several) different active ingredient(s) that play a specific role in recovery.
<b>Administer</b>	The action of giving medicine to a patient according to a specific instruction (number of medicines, time of dose, duration of treatment, etc.).
<b>Allergies</b>	It is a reaction by the body's immune system to a substance that can be from a wide variety of sources (food, animals, pollens, medicines). The symptoms can appear in different ways: respiratory (difficulty breathing), ocular (tears), cutaneous (swelling and redness), sneezing, etc. There are medicines that calm allergy attacks.
<b>Anaemia</b>	Anaemia is characterised by a decrease in red blood cells and haemoglobin in the blood. It may be the result of a nutritional deficiency. Anaemia is characterised by extreme fatigue, pale skin, headaches, dizziness and feeling thirsty.
<b>Antibiotics</b>	Antibiotics are a family of medicines that act in a targeted way to prevent the spread of bacteria. Antibiotics are not effective against diseases caused by a virus.
<b>Bacteria</b>	Bacteria are tiny living organisms made up of a single cell. Some bacteria are microbes and cause diseases. Others are very useful to humans. They are present in the air, in the soil, on the skin and in water.
<b>Cell</b>	The basic unit of all living organisms. There are between 60,000 and 100,000 billion cells in the human body.
<b>Contagion</b>	Transmission of a disease from one person to another by direct or indirect contact.
<b>Contra-indications</b>	A list of circumstances where using a medicine is not advisable, for example, for people with certain diseases, or in combination with other medicines taken at the same time. The contra-indications are taken into account by healthcare workers when prescribing medicines. They are already listed on the package leaflet that is provided with the medicine.
<b>Counterfeit</b>	These are banned and illegal imitations of medicines, which often do not contain any active ingredient, and are therefore not effective in treating a disease. As their origin is often

	unknown and they are not prescribed a healthcare worker, using them can be very dangerous.
<b>Dehydration</b>	Insufficient amount of water in the body.
<b>Detection</b>	Identifying signs of the presence of a disease before it develops. Detection allows a disease to be managed as early as possible to treat it as effectively as possible.
<b>Diagnosis</b>	Identification of a disease from the observation of its symptoms and a medical examination.
<b>Dispensing of medicines</b>	Dispensing of prescribed medication by healthcare workers, usually the pharmacist.
<b>Dosage</b>	Dose of medicine prescribed by healthcare workers that should be fully complied with to ensure the medicine's effectiveness and patient's safety. The dosage is determined by many factors such as weight, age, medical history, and other medicines.
<b>Epidemic</b>	The spread of a disease to a large number of people through contagion,
<b>Expiry date</b>	Date beyond which using the medicine is no longer advised.
<b>Falsified medicines</b>	According to the WHO, medical products whose identity, composition or source is misrepresented, either deliberately or fraudulently.
<b>Galenic (pharmaceutical) formulation</b>	This describes a medicine's formulation The galenic (or pharmaceutical) formulation is adapted to ensure maximum effectiveness of the medicine's active ingredient.
<b>Generics</b>	A generic medicine is an exact copy of a medicine whose patent, originally held by the company that invented it, has expired. This medicine then belongs to the public domain and can be manufactured and marketed by other companies under another name. It retains the same composition and the same active ingredients as the original medicine.
<b>Healthcare workers</b>	all personnel who administer care in a health facility or pharmacy.
<b>Illegal medicines</b>	Medicines distributed on the street, at markets, outside of the legal distribution channels, they often result from theft and may be expired and therefore dangerous to health.
<b>Immune deficiency</b>	Body's lack of natural defences. In the event of immune deficiency, the patient is weaker and becomes ill more easily.
<b>Immune system</b>	A system of cells designed to defend the body against disease.
<b>Malnutrition</b>	Condition where the nutritional intake is insufficient compared to the body's needs. Malnutrition results in deteriorating general health possibly leading to death.
<b>Microbe</b>	Micro-organism (virus, bacteria or parasite) that causes a disease.
<b>Prescription</b>	A document on which the detailed prescription is written by healthcare workers (name of medicine, duration of treatment, time of dose). The prescription is given to the pharmacist when the medicine is dispensed.

<b>Prescription</b>	The action of healthcare workers in determining the medicine and care received by a patient. The prescription may be written on a form to be presented when the medicines are dispensed. Only healthcare workers are authorised to prescribe.
<b>Self-medication</b>	This is the action of taking medicine by yourself to treat yourself without consulting a healthcare worker.
<b>Symptom</b>	A problem, discomfort, pain, unusual sign indicative of a disease. Symptoms occur before disease onset, but also during its progression. The observation of symptoms allows healthcare workers to identify a possible disease.
<b>Virus</b>	A micro-organism that enters into the cell and uses it to increase and infect other cells in the body. Diseases such as AIDS are caused by viruses.