

Moxie digest

A Community Pharmacy training guide



VOL 7

This Volume contains:

- * General Overview
- * Self Care tips
- * WWHAM Questions
- * When to refer to the Pharmacist
- * Treatment algorithm
- * Test of Knowledge

Topic Of Focus

Fever

Ideal for training:

Corper Pharmacists | Intern Pharmacists | Pharmacy Technicians | Counter Assistants | Pharmacy Students

HOW TO USE THIS TRAINING MANUAL

This book is broken down into chapters based on different disease conditions. Each chapter is further broken down into different sections to help the reader fully understand the disease condition and empower the reader with the necessary skills and information needed to give the best form of pharmaceutical care to the patient. The sections include

1 Disease overview

This section looks at the general disease condition, symptoms and common medications used in treating the condition. It helps the reader get a deeper understanding of cause of the disease and how the medication works.

2 Self-care tips

This column focuses on additional steps and advice given to the patient to help ensure that recovery is quick. This section usually focuses on non-drug approach to disease management.

3 WWHAM Questions

This section provides a good framework for finding out more about a customer's condition.

Everyone in the pharmacy team should be familiar with the WWHAM questions. Proper use of these questions helps the Pharmacy team to obtain the necessary information so that they can offer the right advice and/or a product recommendation.

The WWHAM questions are intended to form the basis of any conversations with customers, whether you are responding to their health complaints and recommending a product or they have asked for a medicine by name.

The WWHAM Questions are

- | | | |
|----------|-------------------|--|
| W | Who | W: Who is the medicine for?
It may not be for the customer |
| W | What | W: What are the symptoms?
You may need to ask a few more questions so that you can fully understand the symptoms. |
| H | How | H: How long have you had the symptoms?
Many minor ailments clear up within a few days. |
| A | Action | A: What Action has been taken?
Have they tried any medicine or treatment without success? |
| M | Medication | M: Are you taking any other Medication?
It is important to ask about prescribed medicines as well as any OTC and herbal remedies as some can interact with each other. |

In addition to the WWHAM questions, it is also important to find out whether the patient has any allergies. (it is important to know if the patient reacts to any medicines, foods or other substances).

4 When to refer to the Pharmacist

This section focuses on things the care giver should look out for and then subsequently refer to the Pharmacist in Charge. The section focuses on triggers that point the care giver to the fact that there may be a more serious underlying condition which requires professional management.

5 At a glance

This is a pictorial treatment algorithm for the disease under consideration. It shows a flow chart that the care giver can easily follow in questioning the patient so as to rule out any complications. It also clearly spells out the point at which the case is referred to the Pharmacist in charge.

6 Test of Knowledge Exercise

After each topic, the reader is expected to answer 10 questions drawn from the content studied. The answers to the questions are provided at the back of this manual.

Moxie

Paracetamol

Oral Suspension



Fever

A fever is a temporary increase in your body temperature, often due to an illness. Having a fever is a sign that something out of the ordinary is going on in your body.



One of the human body's most remarkable abilities is the automatic control of body temperature within a very narrow range limit. A normal temperature ranges from 36.4 °C to 37.2 °C, which is the best level at which the vast majority of bodily functions work most efficiently. For most people, a temperature of 37 °C is baseline. Having said that, however, there are a number of factors that affect normal temperature control

such as age, sex, time of day, weather (hot or cold), activity level, and more. For example, normal body temperature is lowest in the morning (between 2-4am) and higher in the late afternoon and evening (it is highest between 6pm and 10pm). After a hot bath or exercise, the body temperature will be temporarily raised, and for women, a 0.4 °C rise after ovulation during the menstrual cycle is common. When the temperature is

constantly above 37.2 °C for 24 hours, however, that person is said to have a fever. To summarize, these are what certain body temperature levels mean:

- 35 °C and below: hypothermia (abnormally low)
- 36.4 °C and below: subnormal
- 36.4 - 37.2 °C: normal
- 37.2 °C and above: fever (pyrexia)
- 41.6 °C and above: hyperpyrexia (abnormally high)

How do we develop fever?

A part of the brain called the hypothalamus controls body temperature, which usually changes a little bit depending on the time of the day. The hypothalamus knows what temperature the body should be (usually around 37 °C) and will send messages to the body to keep it that way. When the body suffers from an infection, illness, or some other cause, the blood will produce white blood cells which fight the infection. The increase in these cells affects the hypothalamus and causes it to reset the body to a higher temperature which makes the body an uncomfortable place for the infection to survive. When this happens, the blood vessels close to the skin constrict (close) to reduce heat loss through the skin, therefore forcing blood to the inside of the body so as to raise the body's temperature. The outer skin then becomes cool and causes the muscles to

contract which makes the body begins to shiver (shake). This makes the muscles to produce more heat and raise the temperature even more. Assuming the hypothalamus maintains the normal body temperature, the infection would take over the entire body. The infection slows down in the hotter temperature, which allows the immune system to attack it.

How to take a temperature

The body temperature is best recorded with a mercury thermometer which should be kept in position for about 4-5 minutes (although a digital thermometer can also be used). There are three main ways of taking someone's temperature, and they vary slightly in their results. They include:

- In the mouth (oral) – an oral thermometer is used to take the reading. The thermometer tip is placed under the tongue and the person is told to close his/her lips firmly around it.

The person should not bite the thermometer with his/her teeth and should not talk while the reading is being taken. It is a preferable choice for children and adults 4 years of age or older. It usually gives a slightly higher reading than a temperature taken from the armpit and a slightly lower reading than one taken rectally.

- Under the armpit (axillary) – with babies or children below 4 years of age, it can often be difficult to take an oral temperature, so a temperature reading under the armpit can be taken. The thermometer should be placed under the armpit (it must be touching the skin) and the arm folded across the chest to hold the thermometer in place. It is not as accurate as an oral or rectal temperature reading.

- In the anus (rectal) – this gives the most accurate and reliable temperature reading. A special rectal thermometer is used and this method is preferably used for

babies under 3 months old (children between 3 months to 4 years can also use this method).

The tip of the thermometer is rubbed with petroleum jelly to lubricate it. The baby is laid on his/her tummy and the tip of the thermometer is gently inserted into the anus until the tip of the thermometer is fully in the rectum. The baby and the thermometer are held in position for about 3 minutes. The thermometer is removed and the reading taken.

What are the different types of fever?

There are two basic types of fevers depending on how severe they become: low-grade and high-grade fevers. Low-grade fevers are usually between 37 °C - 39 °C while high-grade fevers are usually above 39 °C. Dangerous temperatures are high-grade fevers that are 40 °C or higher (extremely high fevers are also termed



Using a cool towel to wipe the baby's body helps bring down the body surface temperature

hyperpyrexia). Therefore we can use the terms "low" or "mild", "high", and "dangerous" when describing fevers. Other terms are used to describe fever or fever types depending on their pattern:

- **Continuous fever:**

It is also called constant fever. It is usually low-grade fever and the temperature increases above normal throughout the day. It does not change by more than 1 °C in 24 hours. This type of fever is common with typhoid infection.

- **Remittent fever:**

The temperature increases above normal throughout the day and falls at intervals but not to the normal body temperature of about 37 °C (the temperature remains above normal throughout the day). It could change by more than 2 °C in 24 hours.

- **Intermittent fever:**

The temperature increases for a certain period (sometimes lasting several hours), but falls to normal body temperature at intervals during the day. Malaria is an example of a disease producing intermittent fevers.



Children with fever should be encouraged to drink cool fluids

• Relapsing fever:

This very similar to intermittent fever, however, the temperature increase is separated by days. Fever may occur on one day, fall back to normal the next day and then recur in about one to three days. Malaria also produces this type of fever.

What are the causes?

For an adult, a fever may be uncomfortable, but usually isn't a cause for concern unless it reaches 39.4 °C or higher.

For babies, a slightly elevated temperature may indicate a serious infection. Mild fevers are quite common in

young children.

It is important to remember that fever by itself is not an illness but a symptom of an underlying problem. Fevers can be caused by:

• Infection:

Any infection whether bacterial, viral, fungal or parasitic can give rise to a fever. Also, infections of the ear, lung, skin, throat, bladder, or kidney can give rise to fever. Viral infections are the most common cause of fever in children and adults. They cause many common illnesses such as colds, coughs, flu, diarrhoea, etc and others like chicken pox, measles, HIV and ebola. Bacterial

infections are less common than viral infections but also cause fevers. They are more likely to cause serious illness such as tetanus, typhoid, pneumonia, tuberculosis, gastroenteritis, appendicitis, urine and kidney infections etc. Parasitic infections give rise to malaria.

• Cancer:

Cancer can cause fever in a variety of ways. Sometimes it makes 'pyrogens', which are chemicals that cause a fever on their own. Cancers in the brain may prevent the hypothalamus from properly regulating the body temperature. Many of the medications that a cancer patient takes can cause a fever. Finally, immune systems in cancer patients may be weakened, which makes them prone to various infections.

• Immunization:

Babies and kids sometimes get a low-grade fever after getting vaccinated.

• Teething:

Although teething may cause a slight rise in body temperature, it is probably not the cause if a child's temperature is higher than 38.3°C.

• Overdressing a child:

When in a relatively hot environment, a child wearing too many clothes and covered in blankets may experience an increase in temperature becoming too hot.

• Environment:

Occasionally a very high body temperature can be reached when the body becomes overheated.

This condition is called hyperthermia and often occurs with energetic exercise or when the body is exposed to hot weather. Also, people who work in the plastics industry can develop a temperature after inhaling the fumes.

• Drugs:

Some people react to drugs such as penicillin antibiotics (ampicillin, Ampiclox), co-trimoxazole (e.g.

Septin) and aspirin which often lead to skin rashes, swelling of the face, hands and ankles and a high temperature.

Other drugs such as isoniazid (anti-tuberculosis) and alpha-methyldopa (e.g. Aldomet) have been associated with fever. The fever can occur at any time after starting the drug and should go away after the drug is stopped.

• Auto-immune

diseases: Many people have medical illnesses that prevent their immune system (defense system) from working normally. These conditions, e.g. rheumatoid arthritis, are more common in women.

They could cause joint pain or arthritis (swelling, redness and pain in the joints) and may produce persistent mild or low-grade fever.

What are the symptoms associated with fevers?

An infant or child with a temperature of 38 °C or over is considered

Self-care tips

- ▲ Drink plenty of fluids such as water, juice and soup
- ▲ Rest well so as to recover faster
- ▲ Stay cool and dress in light clothing. Sleep with only a sheet or light blanket

to be suffering from a fever. Other symptoms that may accompany the fever are weakness, poor eating, poor sleeping, seizure, and lack of interest in play. Small children may not be able to describe exactly how they feel, but they may demonstrate the problem by becoming irritable (easily disturbed or angry), crying continuously, having feeding problems or rubbing their ears, or by coughing, sneezing or having a runny nose. When a fever is present in adults, the person may experience violent shivers (body shaking) and feel very cold. The skin may look flushed (red), and there may be aching in the muscles and joints. Headache and

sweating usually accompany a temperature, and loss of appetite is common. Sometimes diarrhoea, abdominal pain or strongly smelling urine may indicate an infective source of the temperature.

What are the treatment options?

Where infants and children are concerned, it is always better to refer them to the pharmacist. There are a number of steps to help children and babies with fever:

- Make sure the child isn't wearing too many layers of clothing. If the room is normal room temperature, remove clothes from the child.

Encourage the child to drink plenty fluids if they have a fever.

Giving the child cool liquids to drink assists in lowering a fever and if the child is breast-feeding, then let the mother keep breast-feeding, as breast milk is the best fluid.

You could use a cool towel soaked in ordinary water to cool their forehead, arms and legs.

- Should this prove unsuccessful, a bath with ordinary water can often help to get a fever down reasonably fast. When the child is suffering from a particularly high fever it is advisable to combine the lukewarm bath with a fever-reducing medication to prevent it from increasing again.

- Paracetamol (from 3 months) and ibuprofen (from 6 months) are effective in reducing fever. You can give these medicines in liquid form for children. Studies suggest that ibuprofen works slightly faster, lasts a little longer and seems to bring a fever down further.

Note that these medicines do not treat the cause of the fever. They merely help to ease discomfort. You do not need to give these medicines if the child is comfortable and not seriously disturbed by the fever. Never give a child aspirin, as it has been associated with Reye's syndrome, a rare but serious and sometimes

deadly condition. Treatments in adults vary depending on the cause of the fever. For example, antibiotics would be used for a bacterial infection. It is always better to refer customers with fevers to the pharmacist so that the cause of the fever could be properly identified. Ibuprofen and paracetamol are effective in reducing fevers.

Caution

Children may suffer from febrile seizure (fever-induced severe shaking of hands and legs all over the body with loss of consciousness) when their temperatures are very high which may be dangerous to the child. It is advisable to always attend to high-grade fevers in children quickly by bringing down their temperature by bathing, fanning or tepid sponging (cooling their bodies with a soaked towel).

Never let very high temperatures in children last very long.

WWHAM questions

Ask these questions in order to find out more about the patient's condition so as to give accurate advice and correct medication for their problems.

W – Who is it for?

It may not be the customer who needs the treatment. Remember that fevers, especially in children, should be referred to the pharmacist.

W – What are the symptoms?

Ask the customer to describe all the symptoms so that you can establish what the most appropriate treatment would be and whether they need to be referred.

H – How long have the symptoms been present?

You need to find out if the customer has had this type of fever before and if they have any idea what may have triggered it.

A – Action already taken?

This will help establish if the customer has used a product that wasn't appropriate or hasn't helped for their symptoms.

M – Medications?

It is important to find out if the customer is taking an herbal preparation, prescribed or OTC medicines and refer them when appropriate to the pharmacist.

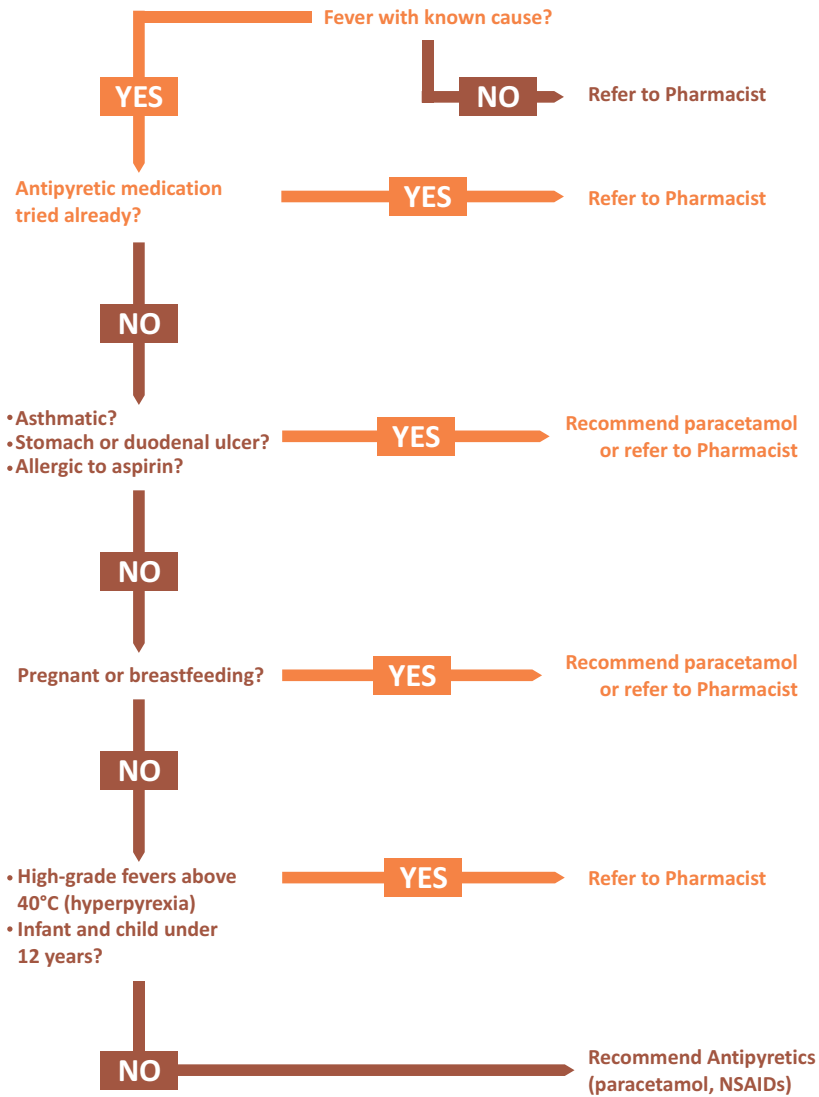
When to refer to the Pharmacist

- ⤴ All cases of fever in children
- ⤴ High-grade fevers above 40 °C
- ⤴ Fever of unknown origin



Every mother should be encouraged to keep a digital thermometer at home

At a glance



Test of Knowledge Exercises

1. **The normal human body temperature ranges from**
 - a. 36.2 °C to 37.4 °C
 - b. 36.4 °C to 37.4 °C
 - c. 36.4 °C to 37.2 °C
 - d. 36.7 °C to 37.4 °C
2. **The factors that affect normal human body temperature includes the following EXCEPT**
 - a. Time of day
 - b. Age
 - c. Height
 - d. Activity level
3. **One of the following options is NOT correct.**
 - a. 35 °C and below: hypothermia (abnormally low)
 - b. 35 °C and below: subnormal
 - c. 37.2 °C and above: fever (pyrexia)
 - d. 41.6 °C and above: hyperpyrexia (abnormally high)
4. **The part of the brain that controls temperature is called**
 - a. Cerebrum
 - b. Cerebellum
 - c. Hypothalamus
 - d. Cerebral cortex
5. **Which of the following is NOT a way of measuring body temperature?**
 - a. Anal
 - b. Oral
 - c. Rectal
 - d. Axillary
6. **The following words are used to describe fevers EXCEPT**
 - a. Mild
 - b. High
 - c. Dangerous
 - d. Killing
7. **Fevers in children**
 - a. Occur at a temperature of 38 °C and below
 - b. May cause them to be interested in playing
 - c. May present with symptoms such as weakness, poor eating and poor sleeping
 - d. Make them unable to cry
8. **Which of the following is NOT a cause of fever?**
 - a. Cancer
 - b. Infection
 - c. Smoking
 - d. Drugs
9. **The following steps are important in managing fevers EXCEPT**
 - a. Drink plenty of fluids such as water, juice and soup
 - b. Sleep with two or three blankets
 - c. Stay cool and dress in light clothing
 - d. Rest well so as to recover faster
10. **Reye's syndrome is rare but serious condition associated with**
 - a. Paracetamol
 - b. Tetracycline
 - c. Ibuprofen
 - d. Aspirin

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Paracetamol

Oral Suspension

