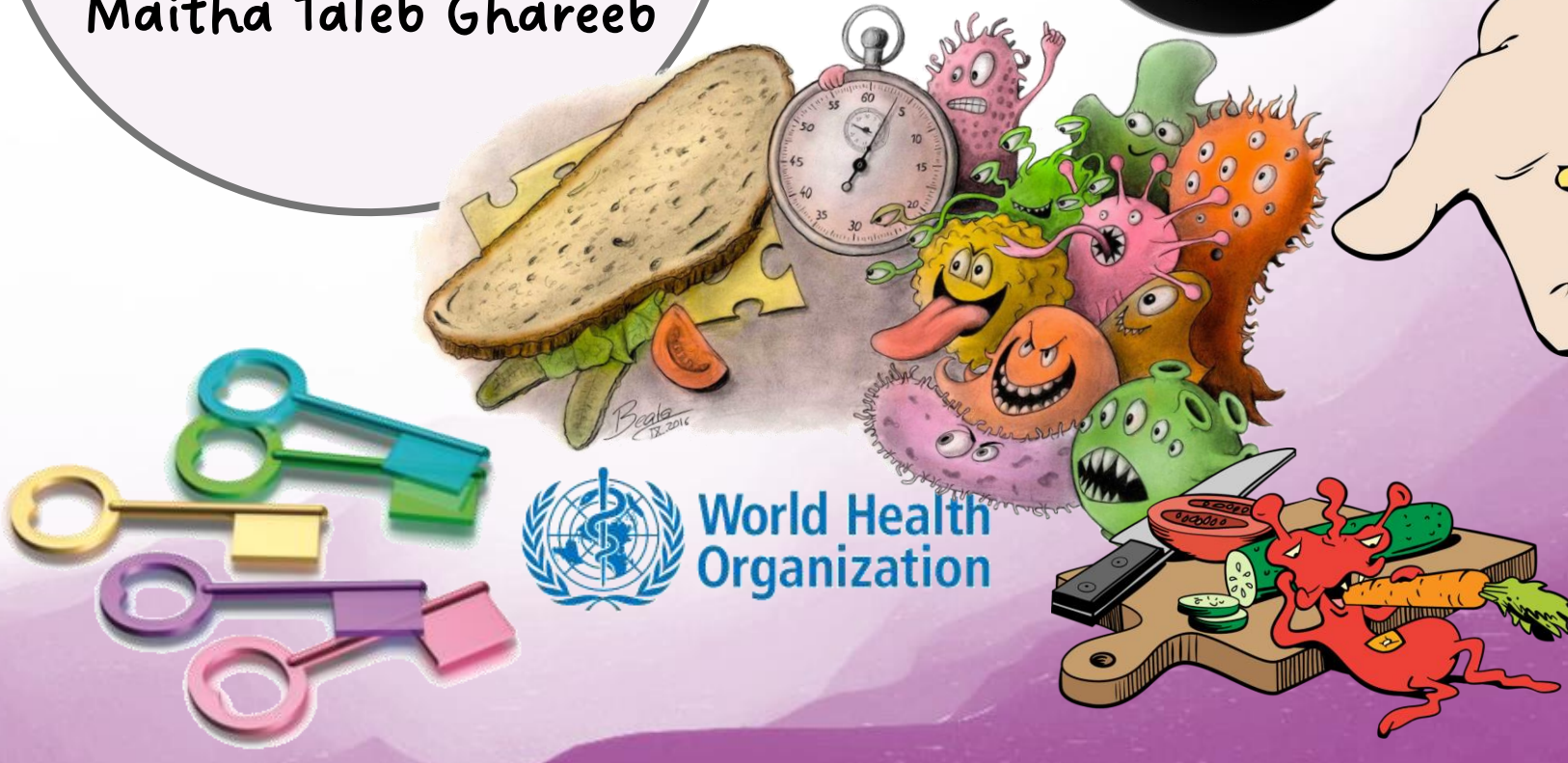


HS Final Exam Review
Term3 (2024-2023)
Grade12 **General**

Maitha Taleb Ghareeb



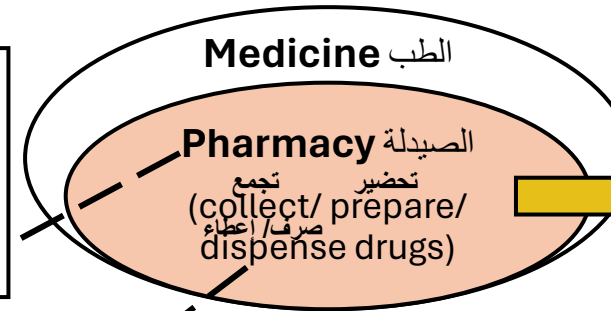
Rx



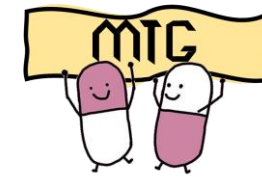
World Health
Organization



Ancient/ old Greece: the 1st to use drugs
 (Asclepios + Hygeia “the masters of medicine/ health & hygiene”)
Herb: a plant or part of it.
Egypt + India + China: used plants & herbs
 In ancient Egypt, a **small separation** between pharmacy & medicine happened.

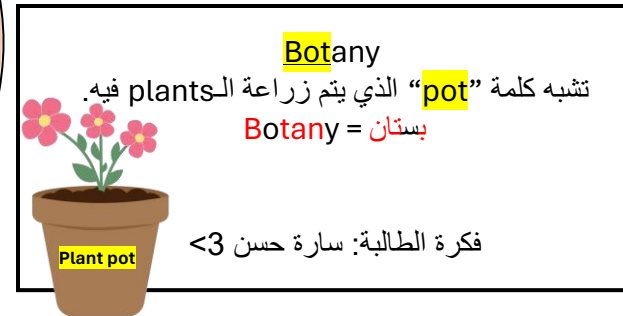


Pharmacy started as a part of medicine

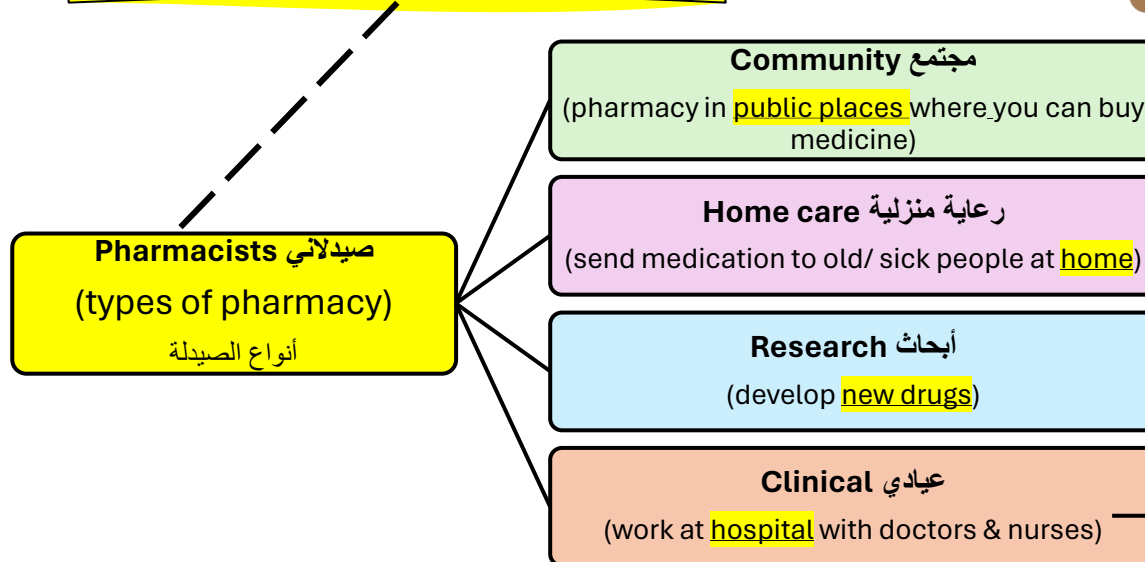


في تعريف ثاني للصيدلة انتبهوا!!
Pharmacy: clinical health science (medical science + chemistry + biology)

dispensing صرف الدواء: giving drugs/ medicines following a doctor's prescription وصفة طبية



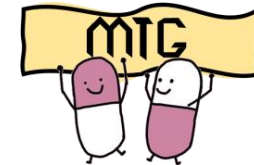
Pharmacist: healthcare professional who is involved in pharmacy



Pediatric (children/ infants) أطفال
Geriatric (old people) كبار السن
Psychiatry (mental disorders) أمراض نفسية
Oncology (cancer) السرطان

Islamic Golden age
 (8th – 14th century):
 #**Separate** between pharmacy and medicine
 #Great knowledge in **chemistry** & **botany** “study of plants”
 #Lots of books were written
 #**Al Razi** (the first to write books based on home treatments)
 #1st pharmacies were built in **Baghdad**

In the 16th century a law was created: “only **pharmacists** are allowed to prepare medicines”



P22

PHARMACY

1) Collect drugs

2) Prepare
(making medicine)

3) dispense medicine

drugs = ingredients

- ✓ Drugs are chemical substances taken from:
 - Plants (herbs)
 - Animals
 - Microorganisms
 - Minerals

- ✓ They are **NOT** used directly as a treatment.

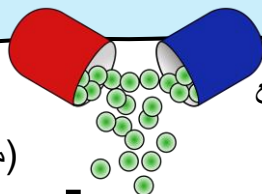
- ✓ **Excipients** are used to prepare medicines.

- ✓ Helps to:
 - Formulate
 - Protect
 - Support
 - Make medicines safe to use

- ✓ Most medicines have excipients added to them.

- ✓ **Medicines** are directly used as a treatment.

- ✓ They are the result of **mixing** a drug or drugs, sometimes with or without excipient.



المادة الفعالة في الدواء
(مثال: البودرة اللي في الكبسولة)

المادة غير الفعالة في الدواء ويتم خلطها مع
المادة الفعالة لجعل الدواء سهل وآمن في
الاستخدام (مثال: الكبسولة الخارجية)

drug(s) + excipient_{extra} (with/without) = medicine

Ready to be used!

الدواء جاهز للعلاج والاستخدام المباشر

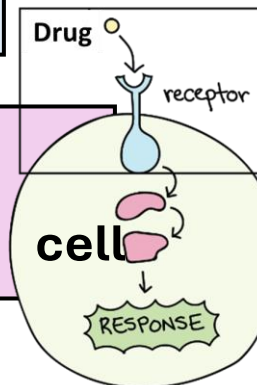
يمكن ينضاف يمكن لا

P18-21

Pharmacology علم الدواء (the study of drug)

Cell receptors:
مستقبلات الخلية

Surface (outside)
سطحية
Intra-cellular (inside)
داخل الخلية



Enter exit

Pharmacokinetics حركة الدواء

(The study of what the body does to the drug)
What happens to the drug once it enters the body?

ADME

Pharmacokinetics The principles of ADME

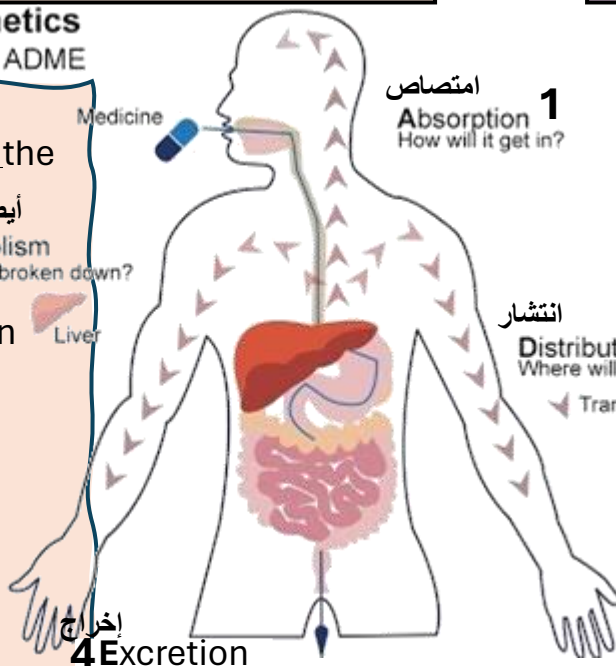
1) **Absorption:** how the medicine gets into the body (enter blood stream)

أيض (تكسير)
3 Metabolism
How is it broken down?

2) **Distribution:** where the medicine goes in the body (move with blood stream)

3) **Metabolism:** what the body does to the medicine (breaks down in liver)

4) **Excretion:** how the body gets rid/ remove of the medicine (eliminated in urine through kidneys)



Factors عوامل affecting pharmacodynamic:

- 1) Patient age.
- 2) Disease type.
- 3) Pregnancy.
- 4) Other drugs in the body.



Pharmacodynamics تفاعل الدواء

(The study of what the drug does to the body)

دواء مستقبل استجابة
Drug + receptor = response

3 levels of response

1,2,3 go!

Agonist منشط

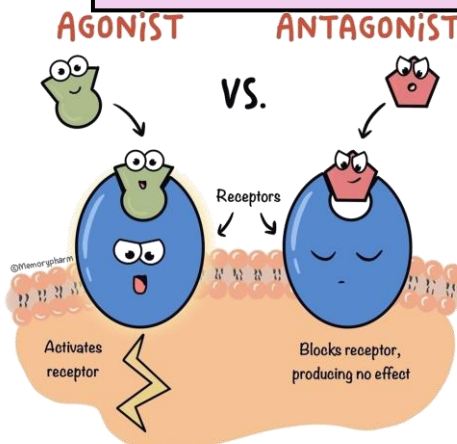
1) **Full كامل:** when a drug connects to a receptor & produces a **maximum effect**

2) **Partial جزئي:** when a drug connects to a receptor & produces **less than a maximum effect**

Anti = against

3) Antagonist مثبط

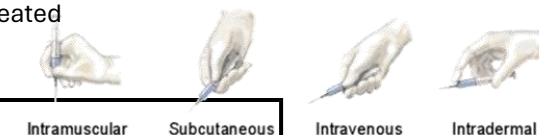
When a drug connects to a receptor, but there is **no effect**



طرق إعطاء الدواء Routes of administration: Provide/give

Depends on 3 Factors:
1) Which body part is being treated
2) How the drug works
3) The drug's formula

L3: Routes of administration



P24-29

Oral-B

PO

Oral فموي amal ahmed
(by mouth) 12/ADV

Time until effect:
20 mins – 1 hour

Forms of medication:

Capsules
Liquid
Pastilles حلاوة المص
Powder

Advantages:

- ✓ Easy/ safe/ cost-effective (cheap)
- ✓ Stable & provide accurate dose.
- ✓ **Slow-release** (need only to be taken once/ twice a day)

Disadvantages:

- X Unpredictable absorption rate affecting the effect.
- X Slow absorption it take time to show any **effect** (go through digestive system)

SL

Sublingual (تحت اللسان) & **buccal** (بين اللسان و الشفة)

amal ahmed
12/ADV

Time until effect:
3-5 mins

Forms of medication:

Small tablets
Films
Wafers
Sprays

Advantages:

- ✓ Lower doses needed
- ✓ If the patient cannot swallow or nauseatic

Disadvantages:

- X Uncomfortable to hold small tablets for a long time
- X Can be swallowed accidentally
- X Eating/ drinking while holding the tablet can affect the absorption

TOP

Topical موضعي

On TOP of affected area!

(applied directly on affected area)
Easy reached areas: skin/ eyes/ ears/ nose

Time to take effect:

Variable (minutes to hours)

Forms of medication:

Creams
Lotions
Gels
Ointments
Sprays
Liquids

Advantages:

- ✓ Easy to apply
- ✓ Good for treating specific area
- ✓ Low risk of side effects

Disadvantages:

- X Not well absorbed into deep layers of skin
- X Absorption can be slow
- X Stain cloths

Parenteral بالحقن
(injection/ infusion)

Intra-dermal: في الجلد
Into skin layers
e.g., allergy test

Intra-venous: IV في الوريد
Into vein
e.g., saline infusion
(takes from 30-60 seconds)

Sub-cutaneous: SC تحت الجلد
Into **fat** under skin
e.g., insulin infusion
(take from 15-30 mins)

Intra-muscular: IM في العضل
Into muscle
e.g., vaccine
(take from 10-20 mins)

Advantage:

- ✓ Faster drug action
- ✓ Useful for unconscious patients

Disadvantage:

- X Require aseptic (clean) conditions
- X Can be painful
- X Most injections are not self-administered
- X Dangerous if administered incorrectly

Sub- = under = تحت

مثال: sub-title هو العنوان اللي يكون تحت العنوان الرئيس

Sub-lingual = تحت اللسان

اشتقينا كلمة **lingual** من كلمة **language** وطبعاً م نقدر نتكلم أي لغة من غير اللسان
lingual = lingual = اللغة = اللسان

فكرة الطالبة: سارة حسن

inter ≠ intra

Inter = between
مثل "الشبكة البينية"
intern-net
Intra = inside داخل

تذكر:

MTG

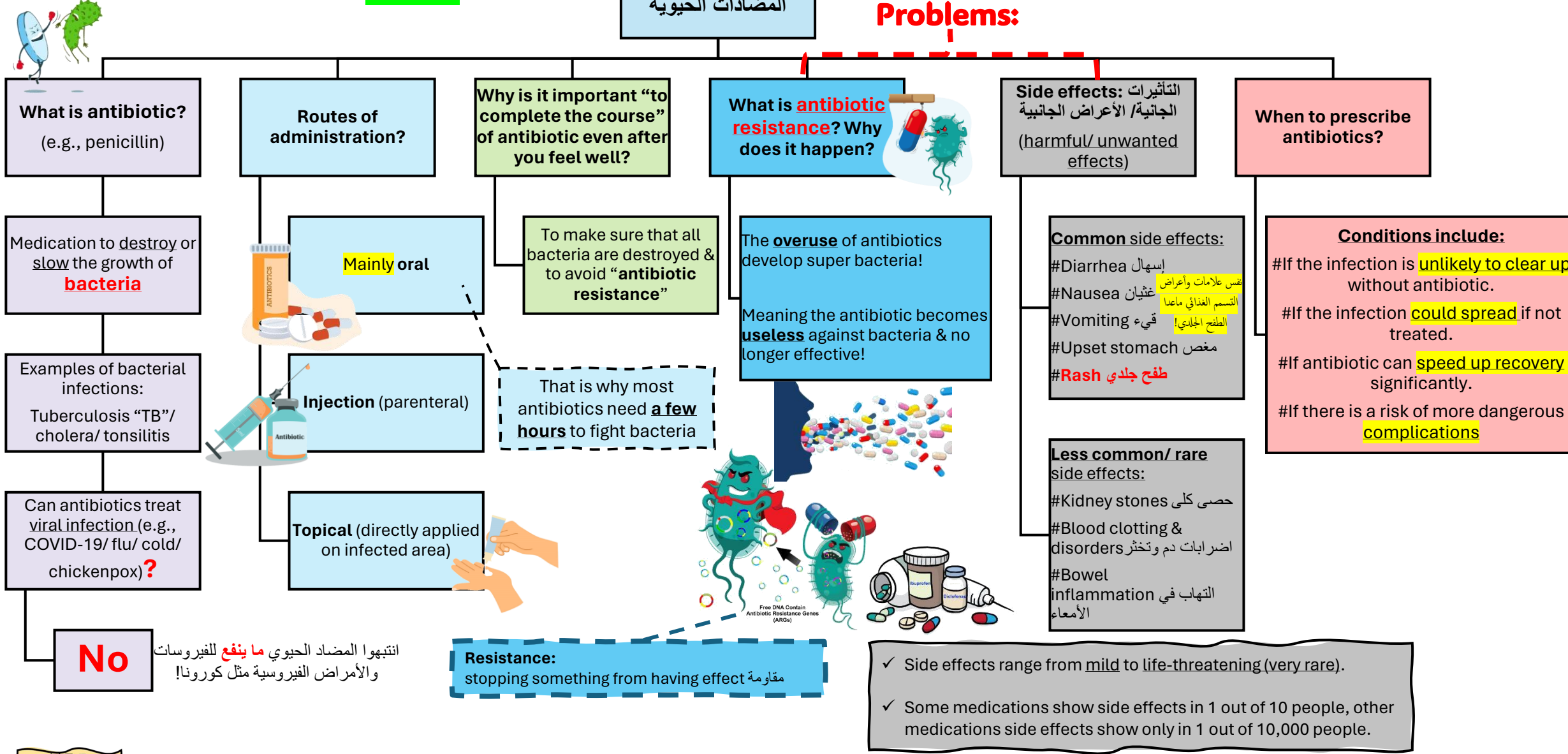
SUBWAY

P30-33

Antibiotics:
المضادات الحيوية

تذكر:
Anti- = against مضاد / ضد
Ante- = before قبل

Problems:



Under-dose جرعة أقل من المطلوب	Over-dose جرعة زائدة
Take medication less than recommended or prescribed	#Take medication more than the recommended amount #Overdosing is very toxic & can lead to death

P34-39

Why is it importance to interpret abbreviations correctly?
Ensure patient's safety & avoid medication errors (underdose or overdose)

MTG

Abbreviations:
اختصارات

Example: "Rx Captopril 25mg, i, SL, STAT, high BP"
"Prescription: Captopril 25 milligram, one tablet, sublingual, give now. This medication is being administered because the patient has high blood pressure"

Measurements:
قياسات

kg = kilogram
g = gram
mg = milligram
mcg = microgram
ml = milliliter
tsp = teaspoon (5ml) ملعقة صغيرة

Routes of administration:
طرق إعطاء الدواء

IM = Intra-muscular
IV = Intra-venous (vein)
PO = By mouth (O = oral)
SC = Sub-cutaneous
SL = Sub-lingual
TOP = Topical

Others:

Dr. = doctor
XR = X-ray
Sx = symptom
Dx = diagnosis
Tx = treatment
FBC = full blood count
BP = blood pressure

Roman numbers:
أرقام رومانية

i	ii	iii
I	II	III
1	2	3

نفس فكرة الـ am/ pm:
قبل منتصف النهار (صباحاً)
am (ante meridiem = before midday)
بعد منتصف النهار (مساءً)
pm (post meridiem = after midday)

Latin:
مصطلحات واختصارات لاتينية

Prescription: الوصفة		
Abbreviation	Latin	Meaning
Rx	praescriptus	prescription وصفة
ac	ante cibum	before meal
pc	post cibum	after meal
hs	hora somni	at bedtime
stat	statim	give now
bid	bis in die	twice a day
tid	ter in die	three times a day
qid	quarter die sumendus	four times a day
prn	pro re nata	as needed
ad	ad libitum	as desired/ wanted

Rx:
أيام أول كانوا يستخدموا كلمة "Recipe" وبعدين تغيرت لـ prescription بس الاختصار م تغير

كلمة "cibum" تشبه كلمة "سينابون" فكرة الطالبة: غزلان خلفان
cibum = meal = وجبة

كلمة "insomnia" بمعنى الأرق وعدم القدرة على النوم. لو حذفنا الـ in أصبحت "somni" بمعنى نوم!

Prefix bi- :
bicycle
bi- = 2

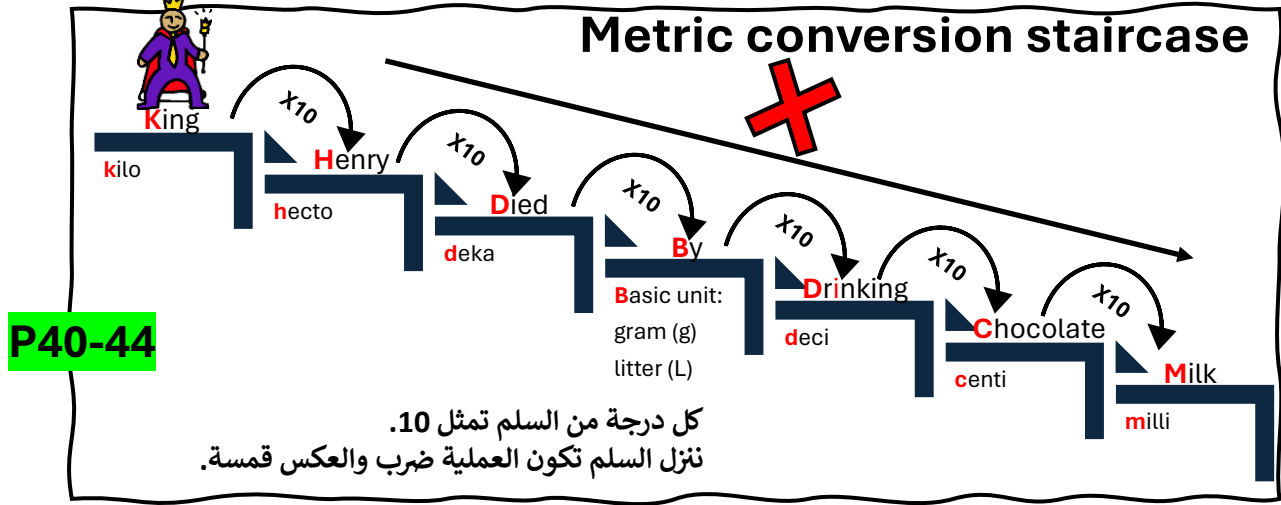
Prefix tri- :
triangle
المثلث عنده ثلاث زوايا

Prefix quad- :
quarter
الربع له علاقة بالرقم 4
quad- = 4

start now!

4id

فكرة الطالبة: عائشة جمعة سعيد

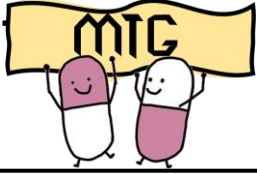


Convert the following units:

15g to mg
15 X 1000 = 15000mg
نزلنا 3 درجات يعني نضرب في 1000. نزول الدرج يعني ضرب.

7000g to kg
7000 ÷ 1000 = 7kg
صعدنا 3 درجات يعني نقسم على 1000. صعود الدرج يعني قسمة.

Convert 180 seconds to minutes.
1min X ? = 180s
60s X 180s
حركة المقص بتساعدكم في التحويل
(1 X 180) ÷ 60 = 3mins



Calculating drug dosages:
حساب جرعات الأدوية

Tablets
الحبوب

Example: The doctor prescribed 500mg of a drug that is available in a stock strength of 100mg. Calculate how many tablets are needed using the basic formula.

Prescribed dose ÷ stock strength = number of tablets needed

500mg ÷ 100mg = 5 tablets

Mixtures & solution
المحاليل والمخاليط

Example: The doctor prescribed a 500mg dose of solution. It is available in a strength of 250mg/5ml. How much solution is needed?

Desired dose ÷ stock strength X stock volume = amount of solution

500mg ÷ 250mg X 5ml = 10ml

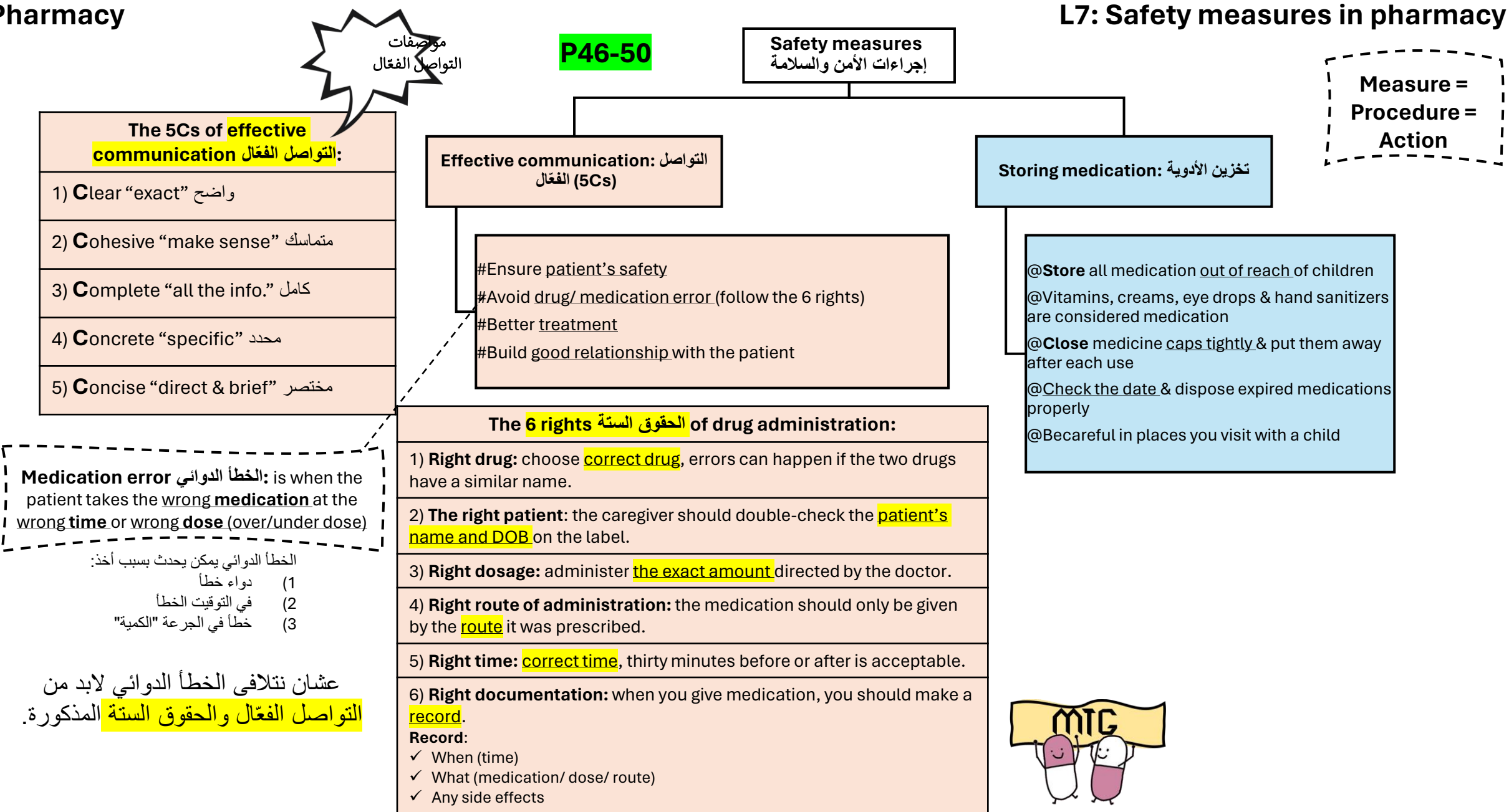
IV rate (ml/hr)
المعدل / السرعة اللي ينزل بها المحلول الوريدي

Example: The doctor prescribed 120ml of IV liquid medicine over a period of 3 hours. How much liquid is administered per hour?

Total IV volume (ml) ÷ time (hours) = quantity administered per hour (ml)

120ml ÷ 3hrs. = 40 ml/hr.

في الامتحان النهائي كل المعادلات
بتعطى فبدون فلسفة عوضوا بالأرقام
في المعادلة المعطاة وإن شاء الله
بتوجدوا الحل بكل سهولة! تدرّبوا!



Food Poisoning



Foodborne illness/
foodborne disease

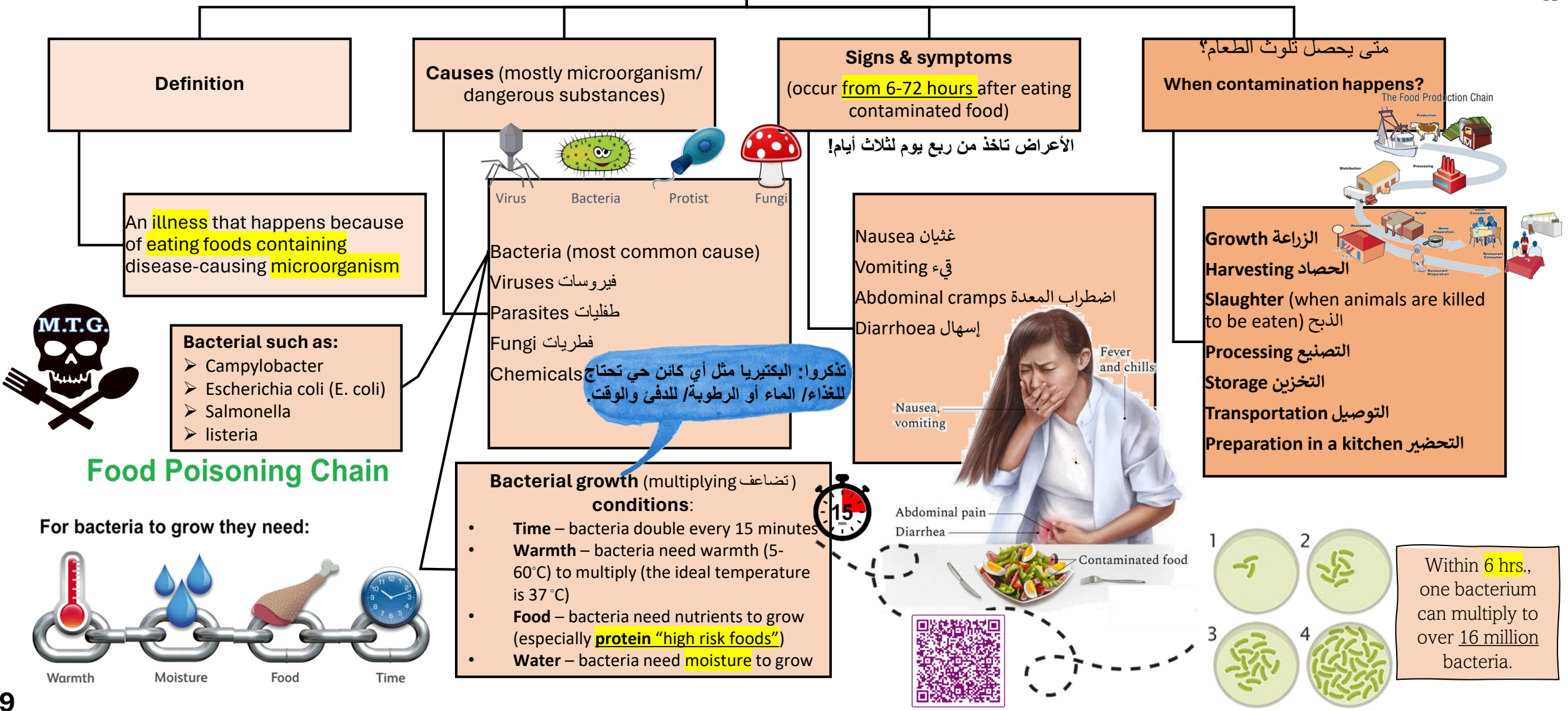
الأمراض المحمولة على الطعام

(food poisoning) التسمم الغذائي

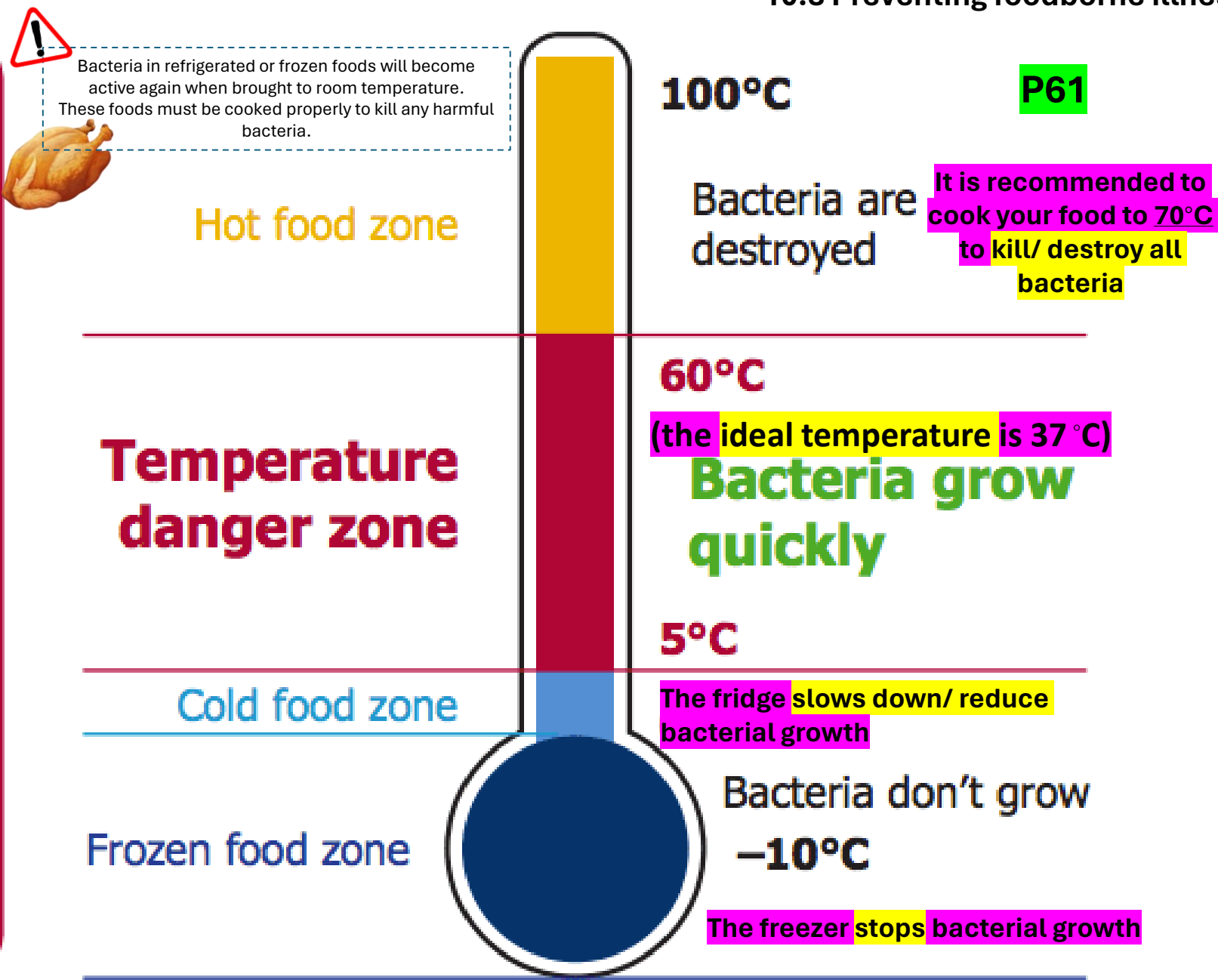
P58-62



There are more than **200 foodborne diseases** ranging from diarrheal disease to cancer.
1 in 10 ppl become ill after eating contaminated food.
Yearly: 420,000 die from foodborne illness (125,000 are children younger than 5)



- The temperature danger zone is between 5°C and 60°C, when it is easiest for harmful bacteria to grow in food
- Minimise the time that food spends at these temperatures in order to keep food safe
- Refrigerated food needs to be kept at 5°C or below
- Hot food needs to be kept at 60°C or above





Cross-contamination
انتقال/ عبور التلوث

P66-67



Bacteria are hitchhikers.



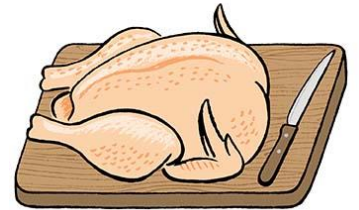
Definition

How bacteria can spread & contaminate safe food.

It happens when **bacteria** from an object, a food or a person touch safe food (3 types)

It also can refer to **allergen** touch safe food making it dangerous for **allergic people!**

Contaminated food: when a harmful or unwanted substance such as **bacteria** gets into food.
X Eating contaminated food cause foodborne illnesses which may lead to other complications



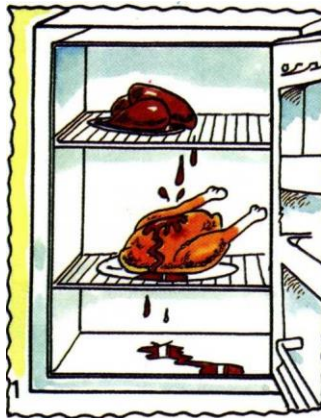
DON'T
cross contaminate

Types

1) Equipment-to-food
Most common type of cross contamination.
Happens when germs transfer from dirty equipment to food like:
#countertops
#cutting boards
#utensils (knives & forks)
#storage containers
#factory equipment
It is important to properly wash equipment using soap and hot water.

2) Food-to-food
Can happen if raw food touch clean food, or if the juices from raw food drips into other food, either in the fridge, shopping cart or while preparing food.
e.g., adding unwashed, contaminated lettuce to a fresh salad can contaminate the other ingredients

3) People-to-food
Happens when bacteria transfer from a person's body or cloths to clean food.
A person could cough into their hand and continue to prepare a meal without washing their hands



P69

Raw النيء

Prevent cross contamination

Use the correct colour coded chopping boards and knives

Raw meats and poultry only

لون الدم

Raw fish and shellfish only

لون البحر

Raw unwashed vegetables,
salads and fruits only

لون التراب

Ready to eat and
cooked foods only

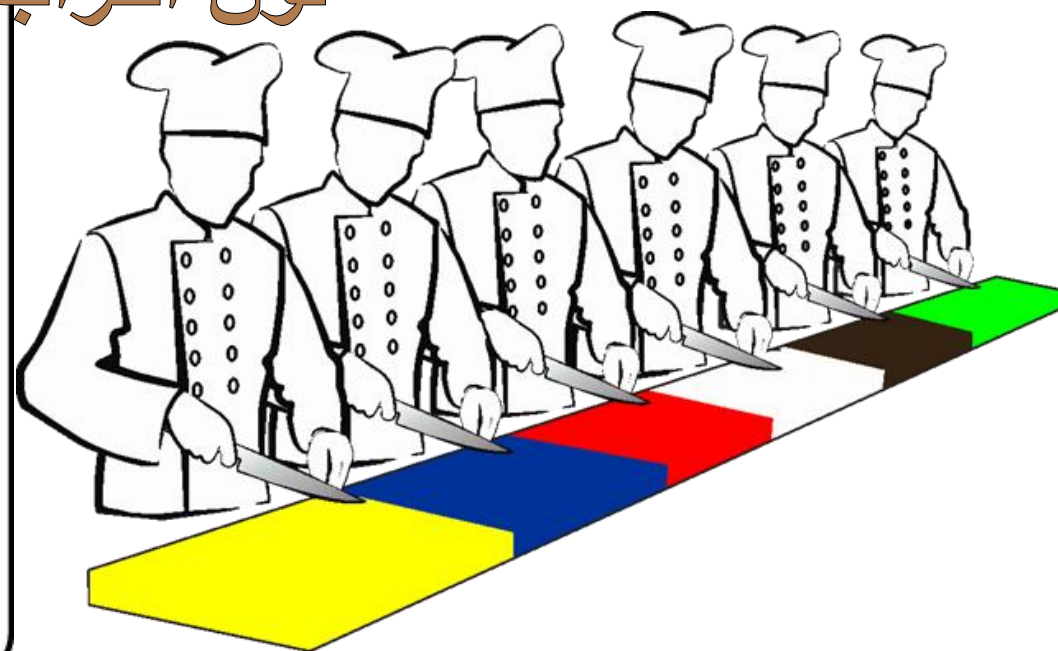
Washed vegetables,
salads and fruits only

Bakery and dairy prod-
ucts only

لون الخضار

لون الحليب والطحين

Food hygiene act 1996

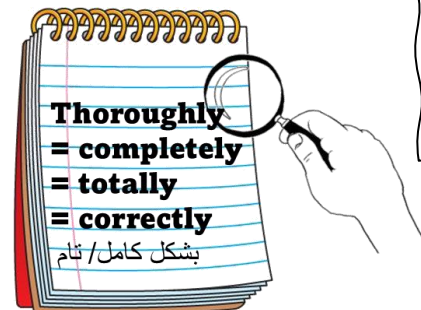


5 keys for food safety



Cleaning: the process of removing dirt & crumbs of food.

Sanitizing: the process of killing germs/ disinfecting.



تذكروا: الأكل المطبوخ يخزن في الرف العلوي والأكل النيء واللحوم تحت عشان نمنع انتقال الجراثيم.
Cooked food should be kept above raw food to avoid cross-contamination!



#	Question:	Answer:																		
1	What is the definition of pharmacy?	The science of collecting, preparing and dispensing drugs																		
2	Pharmacy is the clinical science that combines which three sciences?	1) Medical sciences 2) Chemistry 3) Biology																		
3	<table><thead><tr><th></th><th>True</th><th>False</th></tr></thead><tbody><tr><td>Pharmacy is the science of collecting, preparing and dispensing drugs.</td><td>☒</td><td>☐</td></tr><tr><td>Pharmacy is a very modern and new science. It didn't exist since a very long time ago.</td><td>☐</td><td>☒</td></tr><tr><td>Ancient (old) Greeks were the first ones to treat a person using a drug.</td><td>☒</td><td>☐</td></tr><tr><td>During the Islamic Golden Age, the separation between pharmacy and medicine happened.</td><td>☒</td><td>☐</td></tr><tr><td>Pharmacists are healthcare professionals specialised in preparing, using, storing and providing medicines.</td><td>☒</td><td>☐</td></tr></tbody></table>		True	False	Pharmacy is the science of collecting, preparing and dispensing drugs.	☒	☐	Pharmacy is a very modern and new science. It didn't exist since a very long time ago.	☐	☒	Ancient (old) Greeks were the first ones to treat a person using a drug.	☒	☐	During the Islamic Golden Age, the separation between pharmacy and medicine happened.	☒	☐	Pharmacists are healthcare professionals specialised in preparing, using, storing and providing medicines.	☒	☐	
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4	What are the four types of pharmacy you studied in this unit?	1) Community pharmacy 2) Clinical pharmacy 3) Research pharmacy 4) Homecare pharmacy																		
5	The first table below has four different types of pharmacy. Read the sentences in the second table and decide which one describes each type of pharmacy. <table><tr><td>community</td><td>clinical</td><td>home care</td><td>research</td></tr></table>	community	clinical	home care	research	<table><tr><td>These pharmacists develop new drugs.</td><td>Research</td></tr><tr><td>These pharmacists work in a pharmacy where you would go to buy medicines.</td><td>Community</td></tr><tr><td>These pharmacists work in hospitals with doctors and nurses.</td><td>Clinical</td></tr><tr><td>These pharmacists are responsible for preparing and sending medication to people who are at home.</td><td>Home care</td></tr></table>	These pharmacists develop new drugs.	Research	These pharmacists work in a pharmacy where you would go to buy medicines.	Community	These pharmacists work in hospitals with doctors and nurses.	Clinical	These pharmacists are responsible for preparing and sending medication to people who are at home.	Home care						
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#	Question:	Answer:										
6	In the diagram below, write the name of the two principals of pharmacology and explain what each of them mean Pharmacology Pharmacokinetics Pharmacodynamics											
7	There are four stages of pharmacokinetics. In the spaces below, write the name of each stage and explain what it means. <table><tr><th>Stage of pharmacokinetics</th><th>What does it mean?</th></tr><tr><td>Absorption</td><td>How the medicine gets into the body</td></tr><tr><td>Distribution</td><td>Where the medicine goes in the body</td></tr><tr><td>Metabolism</td><td>What the body does to the medicine</td></tr><tr><td>Excretion</td><td>How the body gets rid of (removes) the medicine</td></tr></table>	Stage of pharmacokinetics	What does it mean?	Absorption	How the medicine gets into the body	Distribution	Where the medicine goes in the body	Metabolism	What the body does to the medicine	Excretion	How the body gets rid of (removes) the medicine	
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Distribution	Where the medicine goes in the body											
Metabolism	What the body does to the medicine											
Excretion	How the body gets rid of (removes) the medicine											
8	What is the meaning of pharmacodynamics? Pharmacodynamics is the study of what the drug does to the body What factors affect the pharmacodynamics of a drug? ✓ Patient age. ✓ Disease type. ✓ Pregnancy. ✓ Other drugs in the body.											

#	Question:	Answer:																								
9	Look at the sentences in the table below. Choose whether they are describing pharmacokinetics or pharmacodynamics. <table><thead><tr><th>Statement</th><th>Pharmacokinetics</th><th>Pharmacodynamics</th></tr></thead><tbody><tr><td>Metabolism is what the body does to a drug.</td><td>K</td><td></td></tr><tr><td>This is the study of what happens to drugs once they enter the body.</td><td>K</td><td></td></tr></tbody></table>	Statement	Pharmacokinetics	Pharmacodynamics	Metabolism is what the body does to a drug.	K		This is the study of what happens to drugs once they enter the body.	K		<table><thead><tr><th>Statement</th><th>Pharmacokinetics</th><th>Pharmacodynamics</th></tr></thead><tbody><tr><td>Patient age or pregnancy are factors that influence what the drug does to the body.</td><td></td><td>D</td></tr><tr><td>This is the study of the effect that drugs have on the body.</td><td></td><td>D</td></tr></tbody></table>	Statement	Pharmacokinetics	Pharmacodynamics	Patient age or pregnancy are factors that influence what the drug does to the body.		D	This is the study of the effect that drugs have on the body.		D						
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11	Match the following routes of administration with the correct explanation. <table><tbody><tr><td>Oral</td><td>When the area to be treated is easy to reach. For example, the skin.</td></tr><tr><td>Topical</td><td>When the patient takes medication through the mouth.</td></tr><tr><td>Parenteral</td><td>The use of injections.</td></tr></tbody></table>	Oral	When the area to be treated is easy to reach. For example, the skin.	Topical	When the patient takes medication through the mouth.	Parenteral	The use of injections.																			
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#	Question:	Answer:			
12	Choose one of the routes of administration and write down one advantage and one disadvantage of this route.				
	Rout of administration:	Oral	Sublingual + buccal	Topical	Parenteral
	Advantages:	#The <u>easiest/ safest</u> & most <u>cost-effective</u> . # <u>Stable</u> & provide <u>accurate dose</u> . # Slow-release over a period of 12/ 24 hrs. (need to be taken once or twice a day).	# <u>Lower doses</u> needed (it goes straight into bloodstream) #If the patient <u>unable to swallow</u> or suffer from <u>nausea</u> .	#Easy to apply. #Good if treatment is only needed for <u>specific area</u> . # <u>Lower risk of side effects</u> & affecting other drugs.	#Fast drug action (suitable for emergencies) #For unconscious patients or when the oral drugs do not work.
	Disadvantages:	* Unpredictable absorption . (the drug will not have the expected “wanted” effect). * Slow absorption , it takes time to show any effect. (not suitable for emergencies)	*Uncomfortable to hold a small tablet for long time. *Can be swallowed accidentally. *The absorption can be affected if the patient is eating or drinking.	*Not well absorbed into deep layers of the skin. *Slow absorption. *Can stain cloths.	*Require aseptic (clean) conditions. *Expensive. *Painful. *Cannot be self-administered as they need a trained medical professional. *Dangerous if administered incorrectly.
13	Look at the images and descriptions below. Identify if the route being described is sublingual or buccal. Write your answer in the boxes below the description.  The drug is placed between your gums and cheek. Buccal  The drug is placed under the tongue. Sub-lingual				
15	What is an antibiotic?	Medicines that destroy or slow the growth of bacteria.			
16	Can antibiotics cure (treat) COVID-19 infection? COVID-19 is viral infection caused by corona virus. Yes, it can cure it. No, it cannot cure it.				

#	Question:	Answer:																
14	Decide on the appropriate route of administration for each of the following forms of medication. <table><tr><th>Form of medication</th><th>Route of administration</th></tr><tr><td> Ointments + creams + gels</td><td>Topical</td></tr><tr><td> Injection</td><td>Parenteral</td></tr><tr><td> Tablet pills</td><td>Oral/ Sublingual + buccal</td></tr></table>	Form of medication	Route of administration	 Ointments + creams + gels	Topical	 Injection	Parenteral	 Tablet pills	Oral/ Sublingual + buccal	<table><tr><th>Form of medication</th><th>Route of administration</th></tr><tr><td> Spray</td><td>Topical/ sublingual + buccal</td></tr><tr><td> Capsule</td><td>Oral</td></tr><tr><td> Infusion</td><td>Parental</td></tr></table>	Form of medication	Route of administration	 Spray	Topical/ sublingual + buccal	 Capsule	Oral	 Infusion	Parental
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17	What is antibiotic resistance and why dose it happen?	When the antibiotic becomes useless and cannot kill/ destroy bacteria. It happens because of antibiotic overuse .																
18	Read the following scenarios and decide if you think the person requires a prescribed antibiotic or not. <table><tr><th>Scenario</th><th>Is an antibiotic needed?</th><th>Why?</th></tr><tr><td>Mahra has a virus which has given her a chest infection.</td><td>No</td><td>Viral infection إصابة فيروسية</td></tr><tr><td>Sultan has a bacterial infection in his eye that spreads easily from person to person</td><td>Yes</td><td>Bacterial infection إصابة بكتيرية</td></tr></table>		Scenario	Is an antibiotic needed?	Why?	Mahra has a virus which has given her a chest infection.	No	Viral infection إصابة فيروسية	Sultan has a bacterial infection in his eye that spreads easily from person to person	Yes	Bacterial infection إصابة بكتيرية							
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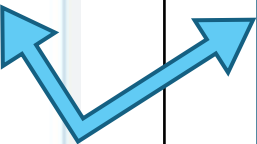
#	Question:	Answer:
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19 What do the following abbreviations mean?

Abbreviation	Meaning
IM	Intra-muscular (into muscles) في العضل
TOP	Topical موضعي
bid	bis in die (twice a day) مرتين في اليوم
Rx	Prescription وصفة طبية
qid	quarter die sumendus (four times a day) أربع مرات في اليوم
PRN	pro re nata (as needed) عند الحاجة

Read the abbreviations below and write the meaning of each of them.

Abbreviation	Meaning
kg	Kilogram
ml	Milliliter
PO	By mouth/ oral
IV	Intra-venous (into vein) في الوريد
Dr.	Doctor
Tx	Treatment
Dx	Diagnosis

#	Question:	Answer:																		
20	Read the following sentences about abbreviations in healthcare and decide if the sentence is true or false. <table border="1"> <thead> <tr> <th>Sentence</th><th>True</th><th>False</th></tr> </thead> <tbody> <tr> <td>Abbreviations are not used in healthcare.</td><td></td><td>X</td></tr> <tr> <td>Abbreviations are only used by doctors.</td><td></td><td>X</td></tr> <tr> <td>Healthcare professionals use abbreviations when writing and communicating.</td><td>✓</td><td></td></tr> <tr> <td>Not interpreting abbreviations correctly can be dangerous for patients.</td><td>✓</td><td></td></tr> <tr> <td>Interpreting abbreviations correctly is very important as it guarantees patients' safety.</td><td>✓</td><td></td></tr> </tbody> </table>	Sentence	True	False	Abbreviations are not used in healthcare.		X	Abbreviations are only used by doctors.		X	Healthcare professionals use abbreviations when writing and communicating.	✓		Not interpreting abbreviations correctly can be dangerous for patients.	✓		Interpreting abbreviations correctly is very important as it guarantees patients' safety.	✓		1. What is the diagnosis of the patient? Dx: pneumonia 2. What type of X-Ray did the patient have? Chest XR 3. What are the names of the three medicines the patient has been prescribed? 1) Augmentin 2) Clindamycin 3) paracetamol 4. What is the indicated route of administration of Augmentin 1.2g and Clindamycin 300mg? Augmentin: intravenous (IV) Clindamycin: by mouth/ oral (PO) 5. How many times is Paracetamol 1g prescribed? tid (three times a day) 6. How many times is Augmentin 1.2g prescribed? qid (four times a day) 7. When should the patient take Clindamycin 300mg? Before, with or after food? ac (ante cibum) before meal/ food
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21	Imagine you are a pharmacist or a nurse, you are going to read now the medical records of a patient who was admitted to hospital yesterday. After you finish reading the medical record, answer the questions on the next page. ♂ 72 y.o. admitted to A&E due to SOB, F/C/S, cough Tests: Chest XR, FBC, MCS, ABG, Sputum sample. Dx: pneumonia Tx: antibiotic therapy, antipyretic Rx: 1. Augmentin 1.2g, IV, qid, pneumonia 2. Clindamycin 300mg, PO, tid, ac, 7 days, pneumonia 3. Paracetamol 1g, IV, tid, fever BP 132/77 T 39.5 O2 82% HR 132 RR 31 																			

#	Question:	Answer:
22	The doctor prescribed 200mg of a drug. The drug is only available in 40mg tablets. How many tablets should be given to the patient?	<i>Prescribed dose ÷ stock strength = number of tablets needed</i> 200 mg ÷ 40mg = 5 tablets
23	The doctor wants to administer a drug intravenously. 120ml of liquid needs to be administered by IV over a period of six hours. How much liquid is administered per hour?	<i>Total IV volume (ml)÷time (hours)=quantity administered per hour (ml)</i> 120 ml ÷ 6 hours = 20 ml/hr

24

Convert the following units. You can use the space below for your calculations.

15g to mg

15 X 1000 = 15000 mg

7L to ml

7 X 1000 = 15000 ml

2 hours to min

كل ساعة فيها 60 دقيقة

2 X 60 = 120 mins

3kg to g

3 X 1000 = 3000 g

8L to ml

8 X 1000 = 8000 ml

4 min to sec

كل دقيقة فيها 60 ثانية

4 X 60 = 240 sec

Bigger to smaller, MULTIPLY

x 10

x 10

x 10

x 10

x 10

x 10

Kilo

Hecto

Deka

Basic Unit

Deci

Centi

Milli

+ 10

+ 10

+ 10

+ 10

+ 10

+ 10

Smaller to bigger, DIVIDE

25

Calculate the correct number of tablets in the following scenarios. Remember, the 'No. of tablets' section is for one dose only.

Scenario 1

There is 5mg of prednisolone in one tablet. The doctor wants the patient to take 40mg once daily at 7am. How many tablets should the patient take at 7am?

Desired dose	Equation	Stock strength	Equals	No. of tablets
40	÷	5	=	8

Scenario 2

The doctor has prescribed 400mg of Ibuprofen three times a day for a patient. The tablets come in 200mg tablets. How many tablets need to be dispensed per day?

Desired dose	Equation	Stock strength	Equals	No. of tablets
400	÷	200	=	2

حبتين في كل مرة ياخذ الدواء

X 3

6

المريض بياخذ الدوا ثلاث مرات في اليوم فينضرب 2 X 3 = 6

tablets per day

Scenario 3

There is 250mg of penicillin in one tablet. The doctor wants the patient to take 500mg twice daily. How many tablets should the patient take in the morning?

Desired dose	Equation	Stock strength	Equals	No. of tablets
500	÷	250	=	2

22

26 Look at the scenarios below. Use the calculation tables to calculate the amount of solution needed.

Scenario 1

A child has a temperature of 39.0°C. The doctor has ordered a 500mg paracetamol suspension, four times a day. Paracetamol suspension comes in 250mg/5ml. How much paracetamol suspension needs to be dispensed per day?

Desired dosage	Equation	Stock strength	Equation	Stock volume (ml)	Equals	Amount of solution required (ml)
500	÷	250	×	5	=	10 ml

Total per day = $10 \times 4 = 40 \text{ ml}$ المريض بياخذ الدواء أربع مرات في اليوم وكل مرة بياخذ 10ملي

Scenario 2

The doctor has ordered a 250mg paracetamol suspension, two times a day. Paracetamol suspension comes in 250mg/5ml. How much paracetamol suspension needs to be dispensed per day?

Desired dosage	Equation	Stock strength	Equation	Stock volume (ml)	Equals	Amount of solution required (ml)
250	÷	250	×	5	=	5 ml

Total per day = $5 \times 2 = 10 \text{ ml}$ المريض بياخذ الدواء مرتين في اليوم وكل مرة بياخذ 5ملي

27 Calculate the correct IV rates in the following scenarios.
The 'total IV volume' section should be entered in ml. You may need to do unit conversion.

Scenario 1

The doctor has prescribed 300ml of normal saline solution over six hours. What is the rate in ml per hour?

Total IV volume (ml)	Equation	Time (Hours)	Equals	ml administered
300	÷	6	=	50 ml/hr

Scenario 2

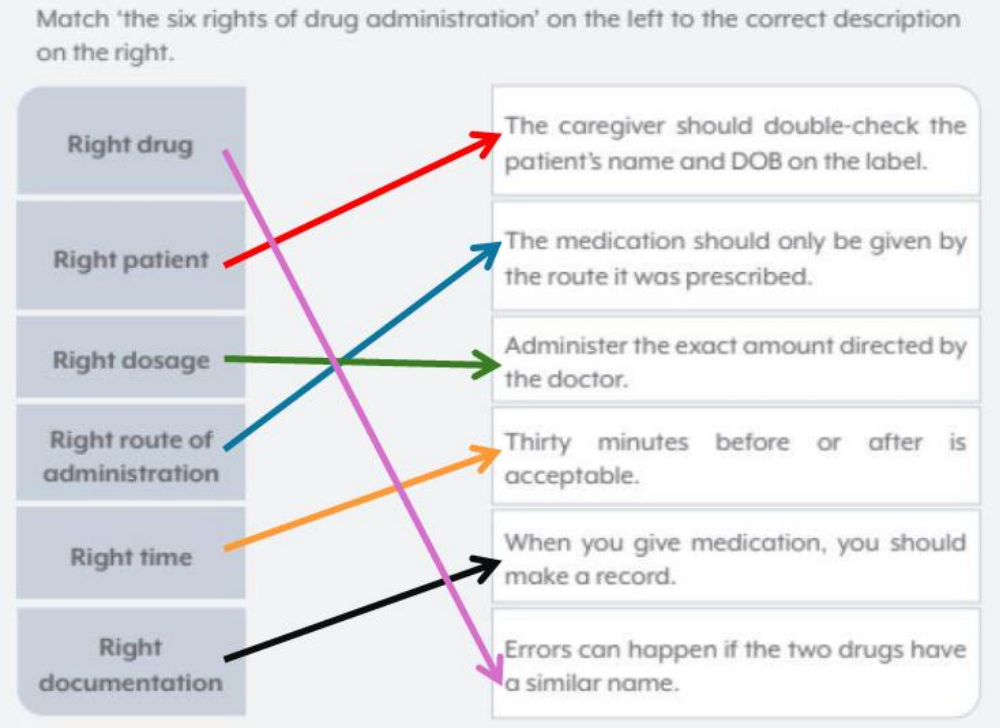
نحول اللتر للملي لتر (الوحدة المطلوبة في المعادلة)
A patient needs to be given two litres of saline over 16 hours. What is the rate in ml per hour?
 $2 \times 1000 = 2000 \text{ ml}$

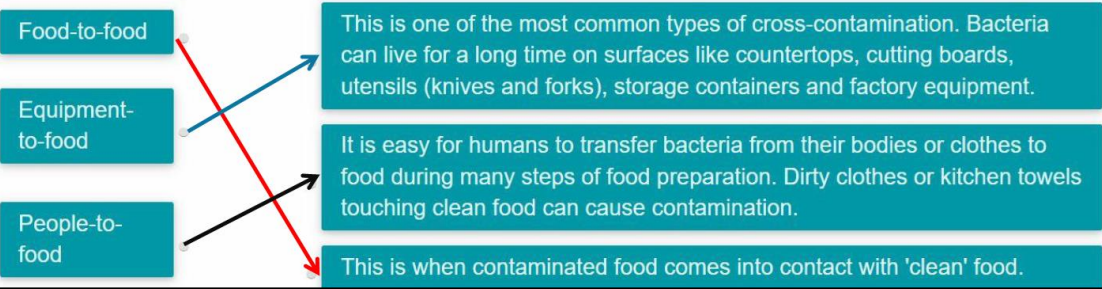
Total IV volume (ml)	Equation	Time (Hours)	Equals	ml administered
2000	÷	16	=	125 ml/hr

Scenario 3

نحول التوقيت من الدقائق للساعات (الوحدة المطلوبة في المعادلة)
A patient needs to be given 50ml of saline over 90 minutes. What is the rate in ml per hour?
 $90 \div 60 = 1.5 \text{ hours}$

Total IV volume (ml)	Equation	Time (Hours)	Equals	ml administered
50	÷	1.5	=	33.3 ml/hr

#	Question:	Answer:
28	Safe administration and storage of medication are very important. What might happen if medication are not administered or stored (kept) correctly?	Medication errors could occur, or the drug could become less effective, affecting treatment. Medication error: wrong medication, at the wrong time or dosage.
29	What are “the six rights” of drug administration?	1) Right drug 2) The right patient 3) Right dosage 4) Right route of administration 5) Right time 6) Right documentation
30	Explain how effective communication can improve safety in pharmacy.	#Ensure <u>patient’s safety</u> #Avoid <u>drug/ medication error</u> (follow the 6 rights) #Better <u>treatment</u> #Build <u>good relationship</u> with the patient
31	Match ‘the six rights of drug administration’ on the left to the correct description on the right. 	
32	What are foodborne illnesses?	Illnesses that happen because of eating foods containing disease-causing microorganism

#	Question:	Answer:
33	Fill in the blanks Read the following paragraph about foodborne illnesses. Fill in the blanks with the correct answers. Foodborne illnesses normally last a for a short time. They happen from 6 to 72 hours after eating food that is contaminated. Most people recover without treatment.	
34	Explain the following types of cross-contamination: 1) Equipment-to-food: Happens when germs transfer from dirty equipment to food like: countertops, cutting boards, utensils (knives & forks), storage containers & factory equipment. 2) People-to-food: Happens when bacteria transfer from a person's body or cloths to clean food. 3) Food-to-food: When contaminated (raw/ undercooked/ unwashed/ unclean) food comes into contact with 'clean' food	
35	Match the elements. Let's look at three main types of cross-contamination, can you match them up to their description:  Food-to-food: This is when contaminated food comes into contact with 'clean' food. Equipment-to-food: This is one of the most common types of cross-contamination. Bacteria can live for a long time on surfaces like countertops, cutting boards, utensils (knives and forks), storage containers and factory equipment. People-to-food: It is easy for humans to transfer bacteria from their bodies or clothes to food during many steps of food preparation. Dirty clothes or kitchen towels touching clean food can cause contamination.	
37	In your own words, explain what is contamination is.	When something becomes dangerous because a harmful or unwanted substance, such as bacteria, gets into it.
38	List the points that contamination with bacteria can happen.	•Growth •Harvesting •Slaughter (when animals are killed to be eaten) الذبح •Processing •Storage •Transportation •Preparation in a kitchen

#	Question:				Answer:	
36	Name of food:	Poultry الدواجن	Eggs	Seafood	Rice	Vegetables
	Why is it high risk?	Avoid washing raw chicken as this will spread bacteria around the kitchen.	Bacteria can live in the yolk, white part of the egg & on the eggshell.	Fish contaminated with toxins & sewage water.	Bacteria can live in both uncooked & cooked rice.	Leafy green vegetables are especially dangerous as they are usually eaten raw.

39

Read the following scenarios and decide which type of cross-contamination is being described.

1 - Huda made dinner for the family. When she finished, she rinsed the utensils (knife and fork) in cold water and left them to dry. The next day Huda’s mother used the same utensils to prepare breakfast. During the day, the whole family became unwell.

Equipment-to-food (from dirty utensils to food “breakfast”)

2 - Mohammed works in a fast-food restaurant. He emptied the bins in the restaurant and did not wash his hands. Then he prepared some burgers. Customers reported feeling sick a few days after this happened.

People-to-food (from dirty hands to food “burgers”)

3 - Hind used a brown chopping board to prepare some sushi for her friends. Hind and her friends thought the sushi was delicious, but they could not understand why everyone was sick the next day.

Equipment-to-food (from brown chopping board for unwashed vegetables to food “sushi”)

4 - Saeed made a chicken shawarma for dinner. He did not realise that the chicken he made was not fully cooked. It made him so unwell that he had to go to the hospital for a few days.

Food-to-food (from undercooked chicken to the shawarma)

40

Keep clean.

Separate raw and cooked food.

Cook thoroughly.

Keep food at safe temperatures.

Use safe water and raw materials.

Store food in containers to avoid contact between raw and cooked foods.

Use clean water to cook and clean with.

Allow food to defrost in the fridge.

Wash your hands before handling food and during preparation.

For meat and poultry, make sure the juices are clear and not pink.