Subject Pharmacology Date No.

Purpose of Drugs = medication = medicine

① Therapeutic purposes (العلاج)

② prophylaxis purposes (الوقاية)

③ Diagnostic purposes (التشخيص)

~~Natural~~ Drug sources:-

1 Natural sources:

A plant sources → Atropine → Atropa belladonna

→ Morphine from → Papaver somniferum

B Animal sources → human insulin (used) (usually)

→ Animal insulin → ~~cow~~ pancreases of cow/pigs

Not used because it may cause allergy.

C Microorganisms → Cephulosporin → Bacteria

→ penicillin → fungi (name: penicillium notatum)

(Antibiotic)

D Mineral sorse → Ferrous sulphate used in → iron deficiency anemia

2 synthetic sources: → Chemical sources; Artificially produced (aspirin)

→ Biotechnology; prepared by (recombinant DNA Technology) (as human insulin)

Routes of Drug Administration

① oral route ② sublingual route ③ parenteral medication (I.V / I.m / subcutaneous)

④ Topical route ⑤ Inhalation route

Subject Pharmacology Date No.

* General information of pharmacology

1. onset of action (الوقت المحتاج للتأثير)
2. During of drug action (مدة التأثير)

Paracetmol → 5min → (I.V) route
→ 30min → oral route
→ 6 Hours

بال emergecny بستخدم I.V/I.M routes
بال oral لو فيه وقت

Terminology related to pharmacy:

1. Indication / Therapeutic uses — الاستخدامات العلاجية
   Paracetamole indicated as analgesic (يمكن) for Headeche + antipyretic for fever (خافض الحرارة)
2. mechanism of action
3. Therapeutic dose — الجرعة العلاجية
4. Adverse drug reaction (side effect)
5. contraindications — موانع الاستخدام
6. Antidote (Magic drug) — (دواء يوظف في حالة overdose لعلاج آخر (للإبطال المفعول)
   • morphine overdose → Nalxone استخدام

phurmecology Branches

pharmacokinetics

4 Process (ADME)

1- Absorption (from route → Blood)
   mainly GI
2- Distribution (from Blood → tissue)
3- Metabolism / biotransformation
   (Liver is major site of drugg metabolism)
4- Elimination (kidney is the major site of drug excretion)

pharmacoDynamics

: study anything done by drug in the body such as: (MAIN)

- Mechanism of action
- Adverse effects and toxicity
- Indications or therapeutic uses
- Contraindication

* The process of pharmacodynamics starts when the drug reaches the t...

NOTEBOOK

Subject Pharmacology Date 12/16/21 No.

Drugs According to affected Body system...

1) CVS system:

1) Antihypertensive drugs → Control hypertension (elevated)
2) Anti-anginal Drugs → Management of angina: (Decrease blood supply to the heart resulting pain.) Types:
3) Antiarrhythemia drugs → to maintain regular rhythem. (Heartbeat unregularity.)
4) Antithrombotic → to prevent clots formation within blood vessels.

2) GIT System

1) laxatives (مسهلات/ملينات) → increas GI motalty, management of constipation.
2) Antidiarrheal drugs → Decrease GI motalty (control or stop diarrhea)
3) Antiematic → used against vomiting + nausea / we can use the prophylactic and therapeatic drugs

3) Respiratry system

1) Bronchodilators drugs → use to relaxes bronchial smooth muscle.
2) Drugs for Cough (anti-tussive) → used to suppress coughing, also know as Cough suppressants.

Noble Prizes.

1) 1908 ↓ 15 → first antimicrobial drugs (Salvarsan) Paul Ehrlich
2) 1923 ↓ 16 → Discovery of insulint to treate diabetes (Fredrick Banting + John macleod
3) 1939 ↓ 8 → Discovery of antibacterial effect of (prontosil) (Gerhard Domagk)
4) 1945 → Discovery of penicillin (Ernst chain + Sir howard florey + Sir Alexander fleming)

NOTEBOOK

Subject pharmacology Date No.

4 CNS system Drugs

1 Antiepileptic : used to reduce or control the frequency of epileptic seizures.

2 Antidepressant : a range of medications

3 Hypnotic drug : induce sleep (زونوفان) تحفيز
هيبنوتيك الدروسن

4 Anxiolytic drugs : to reduce tension and anxiety + calm induce calm
انزيولتيك إن لاكزلتي

(systemic)

5 anesthetic drug → General : used to a medication that lead a reversible loss of consciousness + usually used the inlation route
↓
Local : a mediation that causes absence of pain sensation without loss of consciousness.
(Topical)

6 Analgesics مسكنات : medicine used to relieve pain. also known as : painkillers oR pain relievers

① Narcotic analgesics (opioid) مسكنات أفيونية class of medicines that are used to relief from moderate → severe pain, usually used to mange post-operative pain
(المعتدل) الشديد

② Non steroidal Anti-inflammatory Drugs (NSAIDs) used to mild → moderate + used to fever and inflmation.

7 Antipyretic Drugs used to lower body temp when fever is present.
Such as : revanin + paracetmol

Antipyretic + NSAIDs effect له تأثير على الحرارة
مثل الأسبرين، الايبوبروفين، الفولتارين

8 Antimacrobial agents
→ Antibiotic : Drugs anti bacteria E.G : drugs for bacterial pneumonia.
→ Antivirals : against viruses E.G : Drugs for herpes + HIV
→ Anti parasitic : against parasites , E.G . " " malaria
→ Anti fungals : " fungi . E.G : " " yeast infection.

substances produced from certain microorganisms either bacteria or fungi to act against other microorganisms.

NOTEBOOK

Subject: Introduction to Pathology Date No.

Histology of pathology:

started: Autopsy (تشريح الجثث) → organ Pathology (1761) → Cellular Pathology (1854) → ultrastructural pathology with the application of EM (20 century 60's)

Branches: ① Immunepathology, ② molecular Pathology, ③ Gentic pathology, ④ Quantitive pathology.

Historical view

① Redulf Virchow (1821-1902) the understanding of histopathology
- Started with a thin section of diseased tissues with a razor blade and examined them using the microscope. ++
- he is the father of cellular Pathology + initiated Biopsy pathology for diagnosis of diseases

② Paul Ehrlich (1854-1915)
- father of clinical pathology - Described Ehrlich's test for urobilinogen
- Staining techniques of cells and bacteria - foundations of hematology + clinical pathology

③ George N papanicolaou (1883-1962) American
- Father of exfoliative Cytology - developed pap test for diagnosis of cancer of uterin cervix: عنق الرحم

④ Karl Landsteine (1863-1943) Austrian
- father of Blood transfusion - first discovered the existence of major human blood groups in 1900 - Recipient of Nobel prize in 1930

NOTEBOOK

Subject pathology Date No.

Disease may be called

- primary : start from organ and make complications in it
- secondry : " " " " " " " " and on the organ.

- acute
- chronic

- benign
- malignant

[1] Disease

[2] Etiology

The causes of origin of the disease (Genetic or Acquired)

[3] Lesions

The abnormal changes that occur in body during particular disease.

The most commonly used word in pathology.

- macroscopical (gross) tissue
- microscopical morphological changes

severe / mild / moderate

4 Possible outcomes of disease:

1. Healing/recovery
2. functional insufficiency
3. Death
4. impasse → hepatitis B
   → Salmonellosis

Etiology → pathogenesis → Morphology → functional consequences

Causes → Changes → Symptoms

Subject Pathology: Date No.

2 things Cause all the disease

- Combination of inherated genatic susceptibility سرشبيت الجينات
- curious enuironmental triggers

Branches of pathology:

- General pathology — Ex: Cance, aging (الشيخوخة), inflammation ()
- systemic pathology — EX: goiter تضخم الغدة الدرقية, Breast Cancer, pneumonia
- cellular pathology — cytopathology, Histopathology, Forensic pathology (الطب الشرعي)
- immuno pathology
- Surgical pathology — anatomical
- clincal pathology — micrbiology, Hematology (أمراض الدم), Immunology, Genetic, Toxicology, serology (أمصال), chemical pathology

* Techingues used in pathology:

1. light microscopy
2. Electron microscopy
3. cell culture
4. Immunohistochemistry
5. Molecular pathology.

* Methods:

1. Autopsy
2. Biopsy
   - Excisional (take the whole tissue)
   - incisional (take part of the tissue)
3. cytology
   - Exfoliative cytology (Cervics / sputum / urine لل smear (مسحة) — precancerous cervical lesions المخدد)
   - Fin-needle aspiration — الخلايا ولكن بإبرة

N O T E B O O K

Subject pathology Date No.

* Aim of pathology

1. Diagnosis of diseases
2. Determining the treatment, prognosis + grading
3. medico-legal conditions to determine the cause of death.
4. Researches and medical discovery.

* Techniques included in the field of pathology.

- macroscopic (gross) pathology
  - الفحص للتغيرات على مستوى النسيج والأعضاء.
- microscopic examination
  - للخلية
- Histochemistry
  - استخدام صبغات خاصة لتصبيغ النسيج
- Electron microscopy
  - أكثر شي بيستخدم في حالة renal + skin biopsy
- Hematological techniques
  - الفحص خلايا الدم
- Biochemical techniques
  - الفحص كيمياء الجسم (مثلاً في خلل بأنزيمات القلب أو وجودها في الدم بيوحي في مشكلة بالقلب)
- Immunohistochemistry (IHC) and Immunofluorescense (IF)
  - بيستخدم الـ Antibody بدلاً من الصبغات ونفس مبدأ الـ Histochemistry.

Subject Microbiology Date No.

Causes of disease "in the past"

Extra ordinary force | Affect from stars | Evil spirit

Classification of microorganism

microbes are ubiquitous

Complete cell or not

pathogenics or not

Cellular microbe (microorganism)

A cellular microbes (infection particles)

pathogenic (3%) infection agents

NoN-pathog (97%)

Indigenou microbiot (Microflora)

infectious disease

macrobial intoxications

by

Eukaryotes

- Algae: rarely associated with disease, may associated intoxications
- protozoa: unicellular plasmodium cause malaria disease.
- Fugni: Associated with disease espically immune compromised weak immune system.

prokaryotes

- Bacterias
  - called ubacteria
  - The diameter (1-100) $\gamma/10^{-6}$
- Archea
  - The old Bacteria
  - considered extremophiles (Survive in extreme conditions)

Viruses

- DNA or RNA
- surended by protein shell (caspid)
- Some are have envelop.

prions

- Proteinceous infections particles
- No genetic material

1) occupying sp
2) depleting the
3) secreting materials
- opportunistic pathoge

Some viruses cause late infection such as measles
-could cause Tonic and clonic convulsions.

Subject Microbiology Date No.

97% of Mos are in Soil (1 gram Soil → 10^9 Mos)

* Saprophytes (Decomposition microorganisms)

soil fertalization — organic compound ⟶ inorganic compound [phospate, CO_2, H_2O, nitrogen]

- important role in Nitrogen + CO_2 Cycle
- purefication of wastewater.

Cycle of Nitrogen:

N gas → Amonia → nitrate, nitrites ⟶ N gas → Ammonia → etc
by bacteria

infectious dose × virulent factors → اذا كنتِ صابا بمكرسه؟!

immune status

* The scope of microbiology

① Bacteriology ② phycology (algeology) ③ protozoology ④ mycology (fung

⑤ virology ⑥ viroid (to plant only) ⑦ prions.

* Fields of microbiology

① General microbiology (Bacteria as a biological system)

② medical M // (study of pathogens)

③ Clinal // or diagnostic microbiology

⑧ physiology + Gentics

10-20 (5mi)

انقسام باكتيريا

④ Veterinary

⑤ Agriculture

⑥ Sanitary جغرافيًا

⑦ Industral ⟶ Antibiotic

⑨ Environment (bioremedi

halophile is archea lives in Dead sea.

NOTEBOOK

Subject Immunology Date No.

Immunology → immunis (Exeption from)
* Good immune system → Immuno competent
Bad immune system → Immunocompromised

*properties of immune system

Diversity, Specifity, memory, Recognize self from non-self, Production of effector cells.

History of immunology.

[1] Thucydides [430 BC] ~~Athens~~ → لاحظ ان اللي اتصاب بال plague مابيرجع يتصاب فيه مرة تانية غالبا.

[2] Chinese + Turks (15th century) → لاحظوا ان الشخص المصاب بال smallpox مابيرجع يتصاب فيه مره تانية

[3] Edward Jenner → لاحظ ان الناس اللي المصابون بجدري البقر لا يصابوا بالجدري

he is the father of immunology.

[4] Louis pasteur → اول من لاحظ ان ال cholera لها causative organism وقام بعزل ...
... لما اتصاب ال Rabies (السعار) ... وساهم في عمل لقاح ال ... جربه على أطفال ... وساهم في
اكتشاف لقاح ال anthrax في ... من خلال ال sheep وهو ال chikens.

[5] Eli Metchnikoff → لاحظ ان في خلايا تبتلع البكتيريا (البلعمة) phagocytosis وكمان الحبرة تحمي الجسم

[6] Karl landsteiner → أول حد يكتشف مجموعات الدم من خلال خلط مجموعة الدم باللازما ... نقل الدم.

[7] Bruce Glick → اكتشف دور ال Brucella + اكتشف خلايا B و T

T → seen in Thymus Gland

B → seen in an organ (bursa of Fabricuis) which is the site of hematopoiesis in chikens. تصنيع الدم

NOTEBOOK

المسوحة ضوئيا بـ CamScanner

2 Theories in Immunology

The Instructional theory

مولدالف له دور في تحديد خصوصية ال antibody ويرتبطوا معا كمركب تكميلي وهذه النظرية تعطي ال Diversity دال specificity.

The clonal selection Theory

الانتقاء النسيلي

* أجسام تصنع ال antibodies بدون ال antigen خاص فيها ، ويتم اختيار الأجسام المضادة بشكل عشوائي خلايا ال B ترتبط بال antigen تبعها وتنشط وتفرز

• Immunoglobulins وهي عبارة عن antibodies → proteins

Innate immune system

*The one we born with
* No memory cells
* No specificity to one pathogen

[1] physical barriers (skin, mucus membrane)

[2] phagocytosis → WBC (Neutrophils + macrophages)

[3] The Complement system (general protection) [mannan-binding lectin]

[4] Natural Killer cells

[5] Inflammatory mediators

[6] Interferons divide to (α, β, Gamma) provide protection against virus

adaptive immune system

*has memory cells
*has a specificity to pathogens
* differentiates between self and non-self
*work by secretion antigen recognition molecules (B cells receptors / antibodies and T cell receptors).
#T cell receptor و Antibody لما يرتبطوا بال virus وبالتالي الفيروس ما رح يرتبط بالسبجة اكبر من الأخرى ، neutralized منه العملية اسمها
وهاي ال molecules تعمل ال Clonal selection

Subject Immunology Date No.

Immunology achievements

① Development of vaccines
② immunity to microbes (defense)
③ If we understand the physiology of immune system Ⓐ understand the process of transplantation successfully
Ⓑ how to make antibodies in the laboratory (Monoclonal)

But, what if any process has failed in the immune system ?!

[1] Autoimmunity [don't recognize self-cell from non-self-cell so it will destroy our tissue.
[2] Immunodeficiency : No enough Number of immune cells or malfunctioning immune cells.
[3] Allergies (hypersensitivity) : when there is excessive response from our immune system to a stimulus.

أثناء البلعمة : ① ارتباط البكتريا بالخلايا البلعمية
② الخ تكسير وتدمير البكتريا

[3] Some phagocytic cells such as (Neutrophil) die during the process of phagocytosis, and other don't (Monocytes + Macrocytes) and turn into pus cells

neutropenia : low Number in neutrophil
Neutrophilia : Increased number in neutrophils

and now lets talk about **Adaptive immune system**

* This type of immune system takes (7-10) days to make response (Slower than the in[nate])
* This " " " is influenced by [1] gentic diversity ③ Somatic Muta[tion]

Subject Immunology Date No.

Adaptive immune system response include:

1. T and B lymphocytes
2. Cytokinse
3. Antigens
4. Antigen recognition molecules
5. Antigen determinants (epitopes)
6. B and T cell receptors
7. Major histocompatibility (MHC) antigens
8. Modification of self-antigen and deletion or inactivation of self-receptors.

primary lymphoid organ : bone marrow

secondary lymphoid organ : spleen, lymph nodes, mucosa associated lymphoid organs.

how does aB cell react in response to an antigen?

1. The cognitive phase — الارتباط مع antigen
2. The activation phase — الانقسام لخلايا كثيرة
3. The effector phase — تمايز خلايا بلازمية وافراز antibody

hemodialysis: غسيل الكلى

Cells of innate system

1. Neutrophils: 3 segments nuclei, cytoplasm filled with granules that digest bacteria, have short half-live: 24hours.
2. Eosinophils: upper in worm infctious + hypersenstivity reactions, effective in killing parasites + contain granulas + stain in pink + 2 segments nucleus.
3. Mucrophages: effective in antigen presentation for B cells to activate them + aids in phagocytosis + Bactericidd (killing) called giant cells.
4. Mast cells: release histamine and other inflammatory mediators in type 1 hypersensitivity reactions.
5. Natural killer cells: looks like lymphocyte but it's not! and isn't a phagocytic cell but it kills the viral-infected cells + tumor cells.

active → مناعة اكتسبها الجسم

passive → ناقلة

Subject Dentistry 1 Date No.

* A sumerian text described "tooth worms" as the cause of dental decay
* The first dentist "hesy-Re"
Hippocrates + Aristotle write about dentistry
* The prince of physicians + first mention the nerve of teeth: Claudius Galen
The father of modern dentistry: pierre fauchard
The first school: The Baltimore college.
who discover X-Ray? Roentgen
G.V. Black: Grand old man of dentistry

Maxilla: upper
Mandible: lower jaw

Each quadrant include: 1 canine / 2 incisors / 2 premolars / 3 molars

The tooth anchored in jaws by:
1- Gum (gingiva)
2- Alveolar bone
3- periodontal legmant (PDL)
4- cementum

Crown: Enamel, Dentin, pulp
root: nerves + blood vessels
Root canal
cementum.

Dental specialties

orthodontics	oral surgery	periodontics	prosthodontics	pedodontics	Health puplic	oral pathology	Endodont
1901	1918	1918	1918	1927	1937	8	63

9 oral Radiology 72

NOTEBOOK

CamScanner المسوحة ضوئيا بـ

Subject Date No.

Branches of dentistry

① Basic dental science oral Biology

oral anatomy, Dental histology, Embryo, oral anatomy, oral pathology, Radiology

② Restorative Dentistry

Endodontics, Conservative

③ prosthodontics: fixed, Removable

④ periodontics ⑤ oral Surgery ⑥ oral medicine ⑦ pediatric dentistry ⑧ Orthodontics ⑨ dentistry forensic

* Radiopaque: The mineralized spots (white)
Radiolucent: demineralized (Black)
occlusal: used to see impacted canines
* Bitewing Radiograph: صورة لسن (تاج سن) في الفكين معًا
* periapical Radiograph: صورة لسن (جذر وتاج) لوحده

steps of Root canal treatment (Rct)

① opening the tooth ② shaping and cleaning ③ filling the canals: use gutta percha
④ Restoring the tooth

Subject Date No.

TMJ : Temporomandibular joint

أسماء الأسنان

بكل ربع فك 8 :

Functions of ~~teeth~~:

1. Mastication (مضغ)
2. The appearance
3. Speech
4. Groth of Jaws

(single rooted) interior teeth are 6 in 2 quadrant in each jaw.

1- Central incisor
2- lateral incisor
3- Canine (1 cusp)
4- 1st premolar (2)
5- 2nd premolar
6- 1st molar more than (2)
7- 2nd molar
8- 3rd molar

posterior teeth

3rd molar عند الأطفال 20 سن وما في + premolars.

* The first tooth in erupt in primary dentition "Lower central incisor" at 6mon
* Mixed dentition (6-12) years
* The first permenant tooth to erupt is: 1st permenant molar.

We have 3 systems to identify the teeth.

1. The palmer notation system.

max R | , max L, mad R, mad L

ABCDE ← أطفال
CI LI C m m_2

1 2 3 4 5 6 7 8
CI LI C 1p 2p 1m 2m 3m

5| = Maxilla Right, 2nd ~~molar~~ premolar.

|D = Mandible lift, 1st molar.

Subject Den 2 Date No.

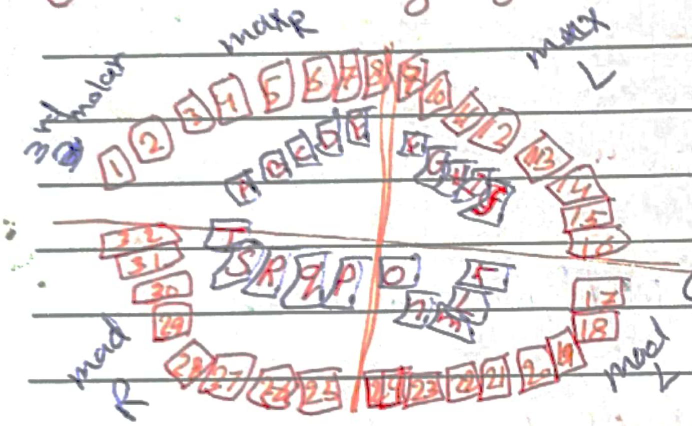
② The international FDI system:

permanent		primary
1	: max R	: 5
2	: max L	: 6
3	: mad L	: 7
4	: mad R	: 8

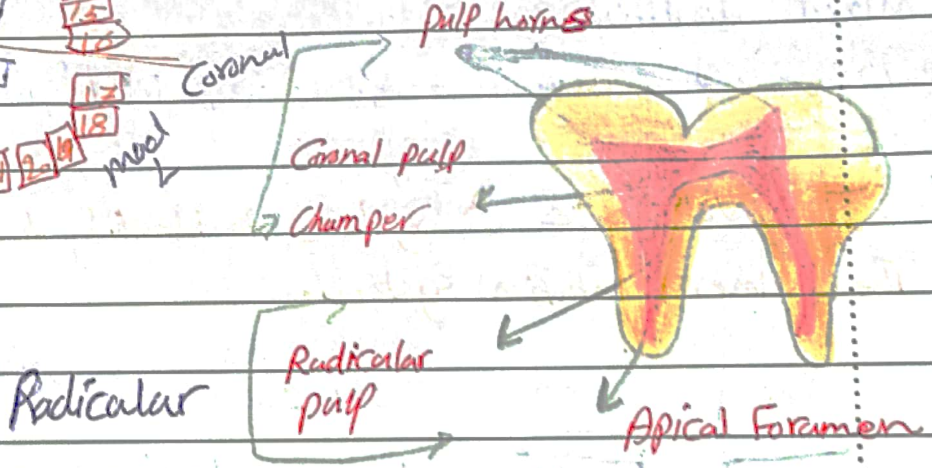
1–8 (permenant)
1–5 (Primary)
Ex: 37 : mad Left, 2nd molar
73 : mad left, canine

Socket: غرفة لـ support جذور الأسنان
Crypt: فراغ يحتوي على السن الّي بده يطلع

③ universal numbering system:



* Antomical crown: Covered with enamel
Clinical crown: above the gum line



Surfaces of the teeth:

[1] facial surface → Labial surface: anterio teeth
→ Buccal surface: posterior teeth

[4] functioning surfaces
→ Incisal: interior
→ occlusal: posterior

[2] Interproximal surfaces → mesial
→ Distal

[3] lingual surfaces (من جوا) → Palatal: maxilary tooth
→ Lingual: mandibuelar

NOTEBOOK

Subject Den 2 Date No.

point angle : زاوية (نقطة) تجمع ٣ أسطح للسن
Line angle : الخط الذي يجمع سطحين

tooth thirds :

① occluso-gingivally :
occlusal third
middle third
~~Gingival~~ Cervical third

② mesio-distally :
Mesial third
middle third
distal third

③ bucco-lingually
Buccal third
Middle third
Lingual third

④ root : 3
Cervical third
Middle third
Apical third (apical foramen) فتحة.

Depressions : 1-pits 2-Fossa 3-Sulcus 4- Groove .
Elevations : 1-Cusp 2- Cingulum 3-lobe 4- mamelons
تخزين تكوين (3)
5-Ridges → marginal Ridges التمن على الحواف
→ Tringular Ridges (الوسط الكاين cusp من قمة الـ)
Transverse ridge (تلتقي مع حافة السن)
Cusp ridges (Tip)

Subject First Aid Date No.

* implied Consent: Someone who is critically ingured or ill, or a confused person, you can assume that they would want you to help them

First Aid steps
1- recoginition of the proplem PPE : personal protective Equipment
2- unresponsiveness of the person

First Aid Kit content:
1- Chemical cold pack 4- Antibiotic cream 7 Bandages
2- Sterile (شاش معقم) 5- Absorbent compresses 8- mask for breathing
3- Burn ointment 6- wipes + swabs 9- Eye shield + Eey wash
10- guide + (911) No

Breathing proplems:
1- fast/shallow breathing 2- unusual sounds 3- noisy breathing
4- unability to talk.
(atrovent inhaler + albuterol) يبسطوا وسعان للقصبات. (طرطش

Alergic reaction
arise from: envoriment triggers: dust / chemical fumes / pollens / bee, hornet, wasp stings (لسعات)
food (nuts, fruit, egg) لقاح
symptoms → Mild (بسيط) hives + itching (قشعريرة / حكة)
→ serious (خطيرة) close air way by tounge + lips. we use ~~epiph~~ epinephrine.