Block J ospe KGMC 2024

By Fatima Haider

Community

Data
Information collected about a sample or population

information collected during observation and/or experimentation that is used as a basis for analysis and discussion

How is data collected
Main sources of collection of data:

- Observations
- Interviews
- Questionnaire
- Surveys
- Records
- Computer database

Polulation surveys
Population surveys are studies that collect data on a defined population to answer research questions. The goal is to generalize the answers to the entire population, not just the individuals in the study.

Epidemiology
The study of the distribution and determinants of disease frequency in human populations and the application of this study to control health problems.

Epidemiological surveillance
Epidemiological surveillance is the systematic collection, analysis, and interpretation of health data to monitor and describe health events in a population. The goal is to support the planning, implementation, and evaluation of public health programs and interventions.

Public health
PH is a multidisciplinary field whose goal is to promote the health of the population through organized community efforts.
Public Health activities include

- Assessing the health status of the population
- Diagnosing its problems
- Searching for the causes for those problems
- Designing solutions for them.

Census

It is the process of collecting, compiling and publishing demographic, economic and social data pertaining to a specific period including all persons in a country.
A census is usually conducted by a national government and attempts to enumerate every person in a country.
Censuses typically occur only every 10 years or so.

Notification of diseases
Disease notification is the process of reporting cases of illness to public health authorities. This includes providing information such as symptoms, risk factors, and demographic details. The purpose of disease notification is to help detect outbreaks early and to control and prevent the spread of disease.

Registeration of vital events
Civil registration and vital statistics (CRVS) is the legal process of recording vital events, such as births, deaths, marriages, and divorces. CRVS systems are important because they:

- Generate vital statistics data that can be used for planning and policy
- Are a critical source of vital statistics

Hospital records
Hospital record means written records of admissions, discharges, total patient days, register of operations performed and outpatients treated.

Disease registers
Disease registers are collections of data about patients with a specific condition, diagnosis, or procedure. They are important for:

- Health policy decisions
- Post-marketing surveillance
- Improving outcomes

Manpower health statistics
Health manpower statistics are data that show the availability of medical personnel, such as physicians, nurses, midwives, and community health workers. These statistics can help identify areas that need investment, such as better trained human resources or additional health facilities

Other routine health related statistics

Hypothesis
a tentative explanation for an observation, phenomenon, or scientific problem that can be tested by further investigation

Define confounding
A confounding variable is a factor other than the one being studies that is associated both with the disease (outcome variable) and with factor being studies (exposure).

A confounder can be responsible for the observed relationship between the dependent and independent variables.

Example: Exposure to coal can cause lung cancer in mine workers. Many miners also smoke cigarettes, which can lead to lung cancer as well.

Ways to minimize confounding:

- Randomization
- Matching

If incidence and duration is greater, then prevalence is increased or decreased?
Prevalence = incidence x mean duration
So prevalence will increase

Mean

- The arithmetic average of the data set
- The sum of all the data divided by the number of values in the data set.

median

The middle value of the data set that has been arranged in order of magnitude; it divides the upper half of the data set from the lower half

mode

The most common value in a data set

Screening test

- A screening test is done to detect potential health disorders or diseases in people who do not have any symptoms of disease. The goal is early detection and lifestyle changes or surveillance, to reduce the risk of disease, or to detect it early enough to treat it most effectively.
- Used to identify disease in asymptomatic individuals (e.g., mammogram for breast cancer, Pap smear for cervical cancer)

Sensitivity

- True positive rate
- The proportion of individuals with the disease who actually test positive

Specificity

- True negative rate
- The proportion of individuals without the disease who actually test negative

Surveillance (active or passive)

Surveillance is a critical component of disease control and prevention. There are two main types: active and passive

Active surveillance

- Proactive and systematic collection of data on disease occurrence, usually through regular outreach to healthcare providers, laboratories, or other sources
- Often used for diseases with high public health impact or outbreaks
- E.g. regular phone calls or visits to healthcare providers or laboratories to report on specific diseases
- Sentinel surveillance: selective specific healthcare providers or laboratories to report on specific diseases

Passive surveillance

- Reactive collection of data on disease occurrence, usually through voluntary reporting by healthcare providers, laboratories, or other sources
- May be used for diseases with lower public health impact or those that are not immediately reportable
- E.g spontaneous reporting of cases by healthcare providers or laboratories; review of medical records or lab results to identify cases

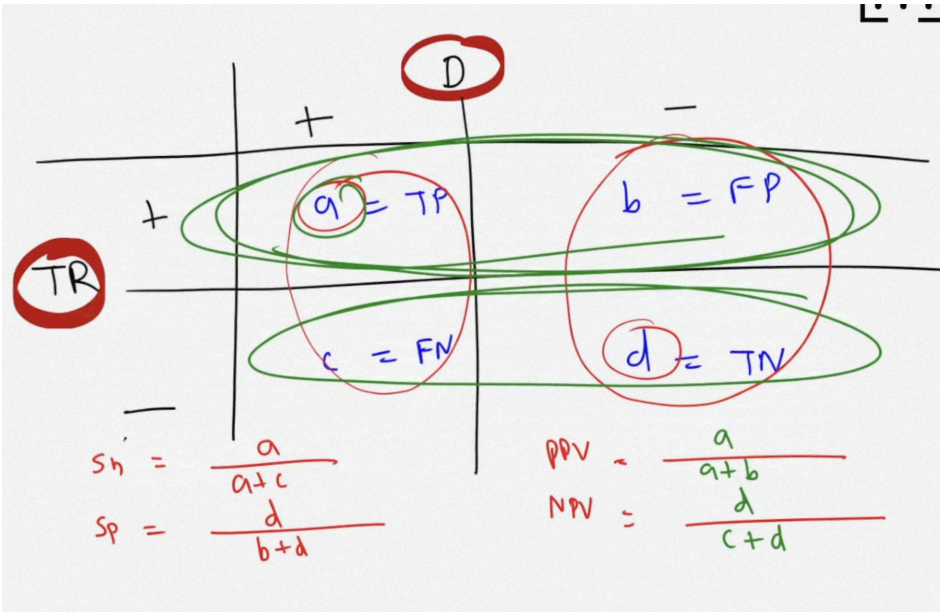
Rabies management

Rabies post-exposure prophylaxis [10][11]

- Cleaning and debridement, as with all bite wounds
- Tetanus shot and antibiotic prophylaxis may be indicated
- Nonimmunized patient: postexposure prophylaxis (passive-active immunization)
  - **Rabies immunoglobulin** is given into the site of the wound by injection (passive immunization)
  - **PLUS inactivated rabies vaccine** is given IM on days 0, 3, 7, and 14 (active immunization)
- Prior immunization [12]
  - Even patients who have been vaccinated against rabies should be treated after exposure!
  - Rabies vaccine IM on days 0 and 3.
  - No immunoglobulin
  - Check antibody titers on day 14.

Treatment with PEP in suspected cases of a bite by a rabid animal should take place urgently, as the disease is fatal once it becomes symptomatic. Suspicion of rabies is sufficient indication for PEP!

Sensitivity and specificity calculation



$$\text{Sensitivity} = \frac{a}{(a+c)} \times 100 = \frac{TP}{(TP+FN)} \times 100$$

$$\text{Specificity} = \frac{d}{(b+d)} \times 100 = \frac{TN}{(TN+FP)} \times 100$$

$$\text{PPV} = \frac{a}{(a+b)} \times 100 = \frac{TP}{(TP+FP)} \times 100$$

$$\text{NPV} = \frac{d}{(c+d)} \times 100 = \frac{TN}{(FN+TN)} \times 100$$

Types of errors while testing hypothesis
Type 1 or alpha error : Falsely rejecting a null hypothesis
Type 2 or beta error : falsely accepting a null hypothesis

Z score
Z score indicates how many standard deviations a value is from the mean.

$$z = \frac{x - \mu}{\sigma}$$

$\mu =$ Mean

$\sigma =$ Standard Deviation

X is the value of element
Meu is population mean

Standardization
Conventinal probabilty

Attack rate
The attack rate is a measure of the proportion of people who become ill with a particular disease or condition after exposure to a risk factor or outbreak.

- High attack rate indicates a highly infectious or contagious disease
- Low attack rate suggest a less infectious or contagious disease
- Variable attack rate may indicate differences in population susceptibility, exposure, or other factors

Significance of attack rate

- Risk assessment
- Disease transmission - informs about transmissibility of disease
- Vaccine efficacy - evaluate effectiveness of vaccines in preventing illness
- Attack rate guides public health officials in implementing control measures to contain an outbreak
- Comparison analysis

Ratio

- A ratio is a mathematical concept that describes relationship between two quantities
- Comparison of two values or the magnitude of two quantities
- Ratios are offen denoted using a colon (:) of a fraction (/) e.g 3:4 or ¾

Proportion

- A proportion is a statement that two ratios are equal
- a/b = c/d
- Comparison of one part of the population to the whole

- Proportions are usually expressed as percentages.

Bias
Bias is any systematic error in the determination of the association between the exposure and the disease.

Types of bias
1. **Selection bias** - The individuals in the sample group are not representative of the population from which the sample is drawn because the sampling or the treatment allocation is not random.
2. **Information bias** - incorrect data collection, measurement, or interpretation that leads to misclassification of groups or exposure
3. **Bias due to confounding**
4. **Berksonian bias** - Individuals in sample groups drawn from a hospital population are more likely to be ill than individuals in the general population.
5. **Interviewer bias** - The interview approach distorts the responses provided by study participants, which results in researchers finding differences between groups when there are none.
6. **Recall bias** - awareness of a condition by subjects changes their recall of related risk factors (recall a certain exposure)

Rabies
Incubation period - 4 to 12 weeks
Clinical Features - fever, hydrophobia, hypersalivation, and stupor alternating with mania. Coma and eventually death due to respiratory and circulatory collapse ensue.

Patho

Astrocytoma definition
It is a primary brain tumor in which proliferation of astrocytes occur.
It may be Pilocytic astrocytoma or Glioblastoma multiforme

Location of Astrocytoma in brain
- Glioblastoma multiforme - usually arises in cerebral hemisphere and characteristically crosses the corpus callosum
- Pilocytic astrocytoma - usually arises in cerebellum

Viruses that can cause encephalitis
- HSV
- CMV
- EBV
- VZV
- Rabies virus

- Influenza virus
- Enterovirus

Antony A and Antony B
Seen in shwannoma
- Antony A - hypercellular areas
- Antony B - hypocellular areas

Stroke types
1. Non hemorrhagic (Ischemic) stroke
2. Hemorrhagic stroke

Causes of stroke
Stroke refers to infarction from obstruction of local blood supply.
It may be due to
- Embolic occlusion (e.g. Mural thrombi from left side of heart)
- Thrombotic occlusion (MCC: Atherosclerosis)

Symptoms of stroke
- Aphasia - difficulty speaking or loss of speaking ability
- Dysarthria - slurred or garbled speech
- Hemiparesis - weakness on one side of body
- Paresthesia - tingling, pricking, chilling, burning, or numbness of skin

Quadrplegia (Tetraplegia)
Partial or total loss of function in the arms, hands, trunk, legs, and pelvic organs.
It is usually caused by spinal cord injury in the neck.

Paraplegia (Paraparesis)
It is impairment in motor or sensory function of lower extremities.

How to diagnose hemorrhagic stroke

Which tumor is associated with neurofibromatosis 1
Gliomas

(Schwannoma associated with neurofibromatosis type 2)

Nutrition deficiency of neuropathy (thiamine, Vit B1 and B6)
- Vitamin B1 (thiamine) deficiency - Wernicke's encephalopathy
- Korsakoff psychosis - B1 deficiency

Location of astrocytoma in children

Cerebellum (pilocytic astrocytoma)

Different grading of astrocytoma on degree of differentiation

- Grade I - Pilocytic astrocytoma
- Grade II - Diffuse astrocytoma
- Grade III - Anaplastic astrocytoma
- Grade IV - Glioblastoma multiforme

Microscopic features of astrocytoma

- pleomorphic, neoplastic astrocytes infiltrate the white matter
- Nuclear pleomorphism
- Pilocytic astrocytoma - Rosenthal fibers, eosinophilic granular bodies, tumor cells are GFAP positive
- Glioblastoma multiforme - pseudopalisading necrosis, endothelial cells proliferation, tumor cells are GFAP positive

Antibodies against acetylcholine Receptor

Myasthenia gravis

Etiology of cerebrovascular disease

Main pathogenic mechanisms are:

- Thrombotic occlusion
- Embolic occlusion
- Vascular rupture

Cerebral embolus (due to atrial fibrillation)

Which proteins in alzheimer

amyloids and Tau proteins

- brain tumor images

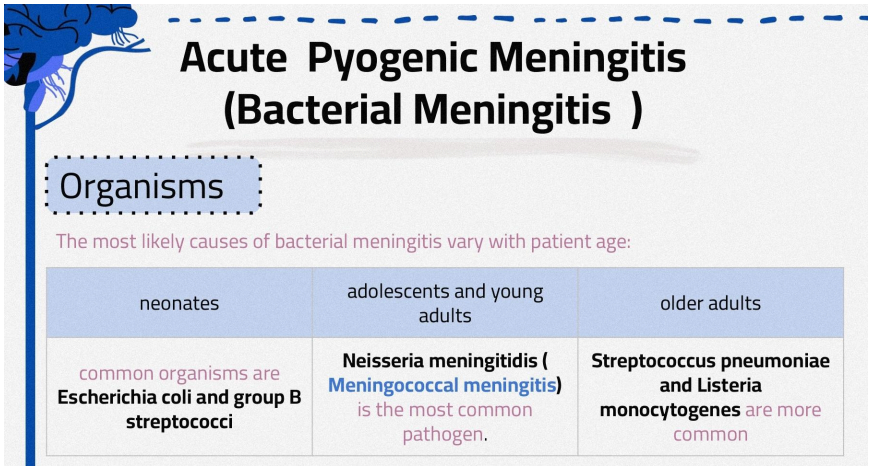
Ischemic

- Thrombus
- Emboli
- Hypertension

Hemorhagic

- Aneurysm
- Av malformation
- Anticoagulation drugs

Meningitis causing organisms in children and young adults



Cells in Schwannoma
Antony A
Antony B

Lewy bodies are present in
Parkinson disease
Lewy bodies are eosinophilic inclusions of alpha synuclein in affected neurons

Other tests for hemorrhagic stroke

- MRI to localise the lesion
- CT angiography to look for aneurysms in blood vessels
- Spinal tap to diagnose subarachnoid hemorage

Pilocytic astrocytoma involve which area of brain
Cerebellum

Intra axial
Intra-axial is a term that denotes lesions that are within the brain parenchyma, in contrast to extra-axial, which describes lesions outside the brain, and intraventricular, which denotes lesions within the ventricular system.

Clinical Features of Parkinson Disease
Mnemonic: TRAP

- Tremor - pill rolling tremor at rest, disappears with moving
- Rigidity
- Akinesia/ Bradykinesia - slowing of voluntary movement; expressionless face
- Postural instability and shuffling gait

Guillain barre

- bilateral ascending flaccid paralysis

- sensory involvement e.g. paresthesia
- PNS demyelination
- upper respiratory tract or GIT infection before onset of GBS symptoms

Poliomyelitis
- Damage to anterior horn due to poliovirus infection
- Presents with lower motor neuron signs - flaccid paralysis with muscle atrophy, fasciculations, weakness with decreased muscle tone, impaired reflexes, and negative babinski sign (downgoing toes)

Subarachnoid hemorrhage
- Bleeding into subarachnoid space
- Presents as sudden headache with nuchal rigidity
- Most frequently due to rupture of berry aneurysm
- Lumbar puncture shows xanthochromia (yellow hue due to bilirubin breakdown)

Multiple sclerosis
- Autoimmune destruction of CNS myelin and oligodendrocytes
- UMNL
- Multifocal white matter disease
- Presents with relapsing neurologic deficits with periods of remission

Alzheimer's disease
- Degenerative disease of cortex
- Most common cause of dementia
- Clinical Features: Slow onset memory loss and progressive disorientation, loss of learned motor skills and language, changes in behavior and personality, patients become mute and bedridden, infection is a common cause of death
- Deposition of A beta amyloid protein and Tau protein
- Morphologic features: cerebral atrophy with narrowing of gyri, widening of sulci and dilation of ventricles; neuritic plaques (extracellular core comprised of A beta amyloid with entangled neuritic processes; neurofibrillary tangles (Tau proteins); loss of cholinergic neurons in nucleus basalis of Meynert

Parkinson disease
- Degenerative loss of dopaminergic neurons in substantia nigra of basal ganglia
- Clinical Features: pill rolling tremor at rest, rigidity, bradykinesia, postural instability and shuffling gait
- Lewd bodies in affected neurons

Huntington disease
- Degeneration of GABAergic neurons in caudate nucleus of basal ganglia
- Presents with chorea that can progress to dementia and depression

Forensic

Poison definition
Any substance that, when absorbed, inhaled, ingested, or otherwise introduced into the body, can cause harm, injury, or death.

Snake bite management

Formication
- Also known as Magnan's symptom or cocaine bugs
- Seen in cocaine poisoning
- The feeling as if grains of sand are lying on the skin or small insects are creeping on the skin

Clasify Neurotoxin
Neurotics are poisons that act on nervous system
They are classified into 3 groups

CEREBRAL POISONS
- Somniferous poisons - include opioids
- Inebrient poisons - include alcohol, anesthetic, fuels, agrochemical compounds, hypnotics, sedatives
- Delirient poisons - dhatura, belladonna, hyoscyamus, cannabis indica
- Stimulants -Amphetamine, cocaine
- Depressants -
- Psychotropic - hallucinogens

SPINAL POISONS
- Strychnine - stimulate spinal cord neurons
- Gelsemium - inhibit spinal cord neurons

PERIPHERAL NERVE POISONS
- Curare
- Conium

Organophosphorous poisoning
Main toxic effects of organophosphates are muscarinic, nicotinic and on CNS

MUSCARINIC EFFECTS
Mnemonic (DUMBELS)
- Diarrhea
- Urination
- Miosis
- Bronchospasm

- Emesis
- Lacrimation (red tears)
- Salivation

NICOTINIC EFFECTS
- muscle weakness
- Fasciculations
- Areflexia
- Muscle paralysis

EFFECTS ON CNS
- Irritability, restlessness, apprehension
- Fine fibrillary tremors of hands, eyelids, face or tongue
- Mental confusion progressing to stupor and muscle weakness with tremors and convulsions
- Coma with absence of reflexes and depression of respiratory and circulatory centers

Synesthesia
- Seen in LSD poisoning
- Synesthesia is a neurological condition that causes people to experience crossovers between their senses. For example, someone with synesthesia might see colors when they hear sounds, or taste colors.
- Sounds being seen, colors heard, and sense of time, space and distance bordering on eternity.

Kerosene poisoning management
- If ingested - stomach wash with water containing 5% sodium bicarbonate
- Absorption can be slowed by giving liquid paraffin, followed by a saline cathartic
- If inhaled - patient must be removed to the open air and artificial respiration persisted in

Brain injury classification (GA scale)

Written station: Nux vomica ID, active ingredients, management of Nux poisoning

ID - seeds are concavo convex, yellowish brown in color, have a hard pericarp covered with fine silky hair

ACTIVE INGREDIENTS - strychnine, brucine, loganin
MANAGEMENT:

- Quick anesthesia with chloroform or an IV barbiturate
- Stomach wash with dilute KMnO4
- Antidote - Barbiturates like phenobarbitone
- Avertin anesthesia per rectum is helpful
- Mephenesin - a muscle relaxant

Dhatura active ingredients

- Levohyoscyamine
- Hyoscine (Scopolamine)
- Traces of atropine

Dhatura antidote
Physostigmine or neostigmine

Signs and symptoms of dhatura poisoning
9 DS

- Dryness of mouth
- Dryness of throat
- Difficulty in talking (Dysarthria)
- Dysphagia
- Dilated pupil
- Drunken gait
- Dilatation of cutaneous blood vessels
- Dry hot skin
- Delirium (muttering delirium)
- Drowsiness

Run amok

- Seen in cannabis poisoning
- It is a condition resulting from the continued use of cannabis or even it's use for the first time. It is characterized by frenzied desire on the part of the person to commit murders. A number of individuals are killed, the first ones being those against whom the assailant has some real or imaginary enmity, followed by others who are in the way, until the homicidal tendency lasts. The person may then commit suicide or surrender himself to the police.

Strechnine poisoning what happens, what's the sequence of seizures in it

- Strychnine stimulates all parts of CNS and particularly the anterior horn cells of spinal cord causing greatly increased reflex excitability. Normal Inhibition of spread of motor cell stimulation is lost so that any slight stimulus, such as noise, light or air breeze, causes violent reflex generalized muscle spasms.
- The convulsions are first clonic (intermittent) and then tonic (sustained). They affect simultaneously both the flexors and extensors. During this stage, the muscles become so stiff and rigid that the body is arched.
- Opisthotonos - body arches backwards
  Emprosthotonos - body curved forward
  Pleurothotonos - body curved sideway
- **Risus Sardonicus** - Facial muscles contract into a fixed grin and eyes appear prominent and staring

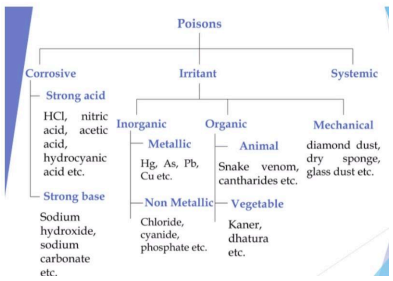
Kerosene Antidote

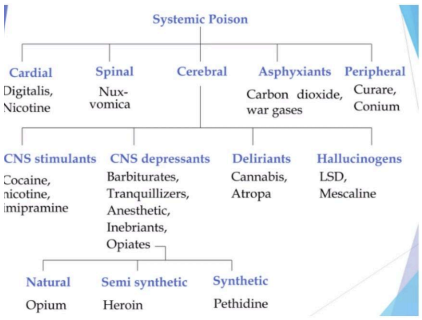
Liquid paraffin?

nux vomica seeds and info.

- Nux vomica aka strychnine (a spinal poison)
- Seeds are hard and flat, about 2cm in diameter and half cm in thickness
- They are slightly convex on one side and concave on the other
- They are yellowish brown in color and have a shining hard pericarp (outer coat) covered with fine silky hair.
- They are intensely bitter in taste
- The contain the active principles strychnine, bucine, and loganin.

- classify poisons





Stages of alcohol poison

1. Stage of excitement
2. Stage of incoordination - incardination of thought,speech and action; pupils are dilated
3. Stage of narcosis - pulse rapid, temperature subnormal, breathing stertous, pupils contracted (McEwan's sign)

McEwan’s sign

- Seen in stage of narcosis of ethyl alcohol poisoning. The pupils are constricted but on pinching the neck or face, they dilate initially and slowly return to constricted size.
- This helps differentiate alcoholic coma from other comatose conditions

Delirium tremens

- Seen in alcoholic poisoning
- It is a state of excitement with hallucinosis which usually lasts 3-4 days
- It is characterized by an attack of acute insanity in which the main symptoms are sleeplessness, marked tremors, excitement,fear and hallucinations chiefly visual and occasionally auditory.

Korsakoff psychosis

- It is a syndrome characterized by hallucinations, disorientation and multiple neuritis. The patient’s memory for recent events is lost and he fills the gap by confabulation.
- Cause: Severe, untreated thiamine deficiency, secondary to chronic alcohol abuse

Alcohol withdrawal symptoms

- Tremors 6-8 hours later
- Hallucinations 12 hrs
- Seizures 12-24 hours
- Delirium tremens 2-3 days (48-72 hrs)

Snake bites classification

POISONOUS SNAKES

- 2 fang marks with or without small marks of other teeth

NON POISONOUS SNAKES

- A number of small teeth marks in a row
- Characteristic U shaped set of teeth marks

Head injury

Head injury is defined as “a morbid state resulting from gross or subtle structural changes in the scalp, skull and/ or the contents of the skull, produced by mechanical force”

Classify head injury

Depending on the state of dura

- Closed head injury (DURA INTACT) even if there is a fracture
- Open head injury (DURA TORN)

Depending on duration of unconsciousness and Glasgow coma scale

- Minor or mild head injury
- Moderate head injury
- Severe head injury

Complication of skull fracture

- Injury to brain
- Intracranial hemorrhage
- Fracture of anterior cranial fossa may involve frontal, ethmoidal or sphenoidal air sinuses
- Intracranial infections – meningitis/encephalitis
- Cranial pneumatocele or pneumocranium
- Cranial nerve injury
- Traumatic epilepsy
- CSF otorrhea
- Coma
- Cerebral edema
- Increased intracranial pressure/tension
- Death

Shooting Gallery

The place where heroin activities are conducted.

Crack house

A place where crack or cocaine is sold or smoked.

Knock out drops

- Chloral hydrate is used to produce sleep. It's action is so rapid that it has been given the name “knock out drops. It renders a victim of rubbery or rape suddenly helpless.

Trip
A psychedelic experience caused by hallucinogenic drugs (LSD, psilocybin). It can involve sensory distortions, altered thoughts, and hallucinations.

Bad Trip
An unpleasant or terrifying experience during a hallucinogenic trip, characterized by anxiety, paranoia, confusion, and panic attacks.

Flashback
A sudden, intense re-experience of a past hallucinogenic trip without drug use. It may occur weeks, months, or even years after the original experience. Common in LSD users.

McNaughton's rule
Every man is to be presumed to be sane and to possess a sufficient degree of reason to be responsible for his crimes, until the contrary be proved.

The Durham rule
also known as the product test, is a criminal law rule that states that a defendant is not guilty by reason of insanity if their criminal act was the result of a mental disease or defect

Barbiturate Automatism
It is a condition that can cause death of a person, when the consumer forgets to have taken the early dose and continues to take automatically till coma supervenes and even death may ensue.

Antidotes
- Opium - Naloxone
- Methanol - Ethanol
- Organophosphates - Atropine
- Dhatura - Physostigmine, Neostigmine
- Strychnine - Barbiturate
- Curare - Prostigmine

Stages of opium poisoning
- Stage of excitement - sense of well being of breif duration, laughter, hallucinations, rapid heartbeat
- Stage of stupor - weariness, headache, giddiness, a sense of weight in the limbs, diminished sensibility, a strong tendency to sleep from which patient can be roused by painful stimuli, contracted pupils, face and lips cyanosed, itching sensation felt all over skin, pulse and respiration almost normal

- Stage of narcosis - deep coma from which patient can't be aroused, muscles relaxed, reflexes abolished, pinpoint pupils and do not react to light, BP falls, pulse rapid and feeble, skin cold with profuse perspiration, temperature is subnormal
  Cheyne stokes breathing in opium poisoning.

Opium poisoning classical triad

(Remember mnemonic CRP)

- Coma
- Respiratory depression
- Pinpoint pupils

MOA of cocaine

Inhibit synaptic reuptake of epinephrine, norepinephrine, dopamine, serotonin resulting in sympathomimetic toxidrome

MOA of amphetamine

Cause release of endogenous catecholamines from nerve terminals. (Similar to cocaine but more potent stimulant)

MOA of LSD (Lysergic Acid Diethylamide)

increase serotonin levels in brain, only psychological dependence

MOA of organophosphates

powerful inhibitors of cholinesterase at the myoneural junctions and synapses of the ganglions. Acetylcholine, therefore accumulates and results in hyperexcitation of voluntary and involuntary muscles.

MOA of cannabis indica

Active principles is oleoresin, cannabinol. It is a CNS stimulant.

MOA of strychnine

It stimulates all parts of CNS, particularly the anterior horn cells of spinal cord causing greatly increased reflex excitability.
Normal Inhibition of spread of motor cell stimulation is lost so that any slight stimulus such as noise, light or air breeze, cause violent reflex generalized muscle spasms.

MOA of curare

It paralyses motor nerve endings in voluntary muscles by interfering with production of acetylcholine

MOA of conium

Active principle are coniine and methyl. Coniine cause paralysis of motor nerve terminals in muscles, gradually spreading to motor cells of cord and brain.

Classification of Snake Bites

Elapids (Neurotoxic Venom)

- Secrete neurotoxins and cholinesterase
- Examples: Cobra, King Cobra, Common Krait
- Effects: Paralysis of respiratory muscles, muscle weakness, convulsions

Vipers (Vasculotoxic Venom)

- Secrete hemolysins and thromboplastin
- Examples: Russell's Viper, Saw-scaled Viper
- Effects: Severe bleeding, swelling, tissue damage.
- Locally - oozing of hemolytic blood, spreading cellulitis
- Hemorrhages from external orifices
- Collapse - cold clammy skin, rapid feeble pulse, dilated pupils insensitive to light

Sea Snakes (Myotoxic Venom)

- Effects: Generalized muscle pain, myoglobinuria, respiratory failure.

Forensic Psychiatry

It is a specialized branch of psychiatry that focuses on the intersection of mental health and the law. It involves the evaluation and treatment of individuals involved in legal cases

Fact

A fact is something that is objectively true, based on actual events, evidence, or reality, and can be verified or proven. In law and forensic contexts, a fact refers to a piece of information presented as evidence, such as an event or statement that is accepted as true

Pharma

Treatment of alcoholism

CHRONIC ALCOHOLISM TREATMENT

- Drug aversion therapy - Disulfuram
- Natraxone (opioid Antagonist) - reduce alcohol cravings and help maintain abstinence
- Acamprosate -activates GABA receptors and reduce relapse
- Ondansetron -reduce alcohol consumption
- Topiramate - decrease alcohol cravings

ACUTE ETHANOL OVERDOSE

- Maintain airway, breathing, circulation, fluid and electrolyte balance
- Gastric lavage if necessary
- IV Glucose to correct hypoglycemia
- Thiamine is administered as IV infusion in glucose solution
- Hemodialysis helps to hasten the recovery

METHYL ALCOHOL POISONING

- Maintain airway, breathing, circulation
- Gastric lavage is done after endotracheal intubation
- IV Sodium bicarbonate - to correct acidosis and prevent retinal damage
- Ethanol administered via nasogastric tube
- Fomepizole (an alcohol dehydrogenase inhibitor) - preferred agent for treatment of methanol poisoning
- Calcium leucovorin - folate adjuvant therapy
- Hemodialysis

Why benzodiazepenes are preferred to barbiturates

- Benzodiazepenes have a wide therapeutic index
- They cause near-normal sleep, less rebound phenomenon on withdrawal
- They produce minimal hangover effects
- They cause minimal respiratory depression
- They are less likely to cause tolerance and dependence when used for short periods
- They have no enzyme inducing property, hence drug interactions are less
- They have a specific BZD-receptor antagonist, flumazenil, for the treatment of overdosage

Use of ethanol in methanol poisoning

Ethanol competes with methanol for metabolic enzymes and saturates them. Hence it prevents the formation of toxic metabolites of methanol (formaldehyde and formic acid)

Mechanism of MI with cocaine

Adverse effects of drug interaction of levodopa

- Pyridoxine promotes peripheral conversion of L Dopa to dopamine and reduce therapeutic effect of L Dopa
- L Dopa x MAO Inhibitors - Inhibition of MAO retards the metabolism of dopamine which leads to increased plamsa concentration of dopamine. This may precipitate hypertensive crisis
- L Dopa x Antihypertensive agents - worsening of postural hypotension
- Metoclopramide cross BBB, blocks the D2 receptors in basal ganglia and cause drug induced parkinsonism (i.e. interferes with anti parkinsonian effect of L Dopa.

Describe basic pharmacology of Bupropion

It is an atypical antidepressant. It inhibits the reuptake of norepinephrine and dopamine into the neuron.

Used as antidepressant

It is also useful for decreasing cravings and attenuating withdrawal symptoms of nictone in patients trying to quit smoking

Describe dissociative anesthesia
Ketamine produce dissociative anesthesia, which is characterised by sedation, amnesia, marked analgesia, unresponsiveness to commands and dissociation from surroundings.

Floppy baby syndrome
Use of benzodiazepenes during labor may cause respiratory depression and hypotonia in newborn, known as floppy baby syndrome

Fetal Hydantoin syndrome
cleft lip, cleft palate, digital hypoplasia due to use of phenytoin during pregnancy

Prophylaxis of migraine
- Beta blockers - propranolol, metoprolol
- Anticonvulsants - valproate, topiramate
- Antidepressants - amitriptyline, fluoxetine
- Calcium channel blockers - verapamil

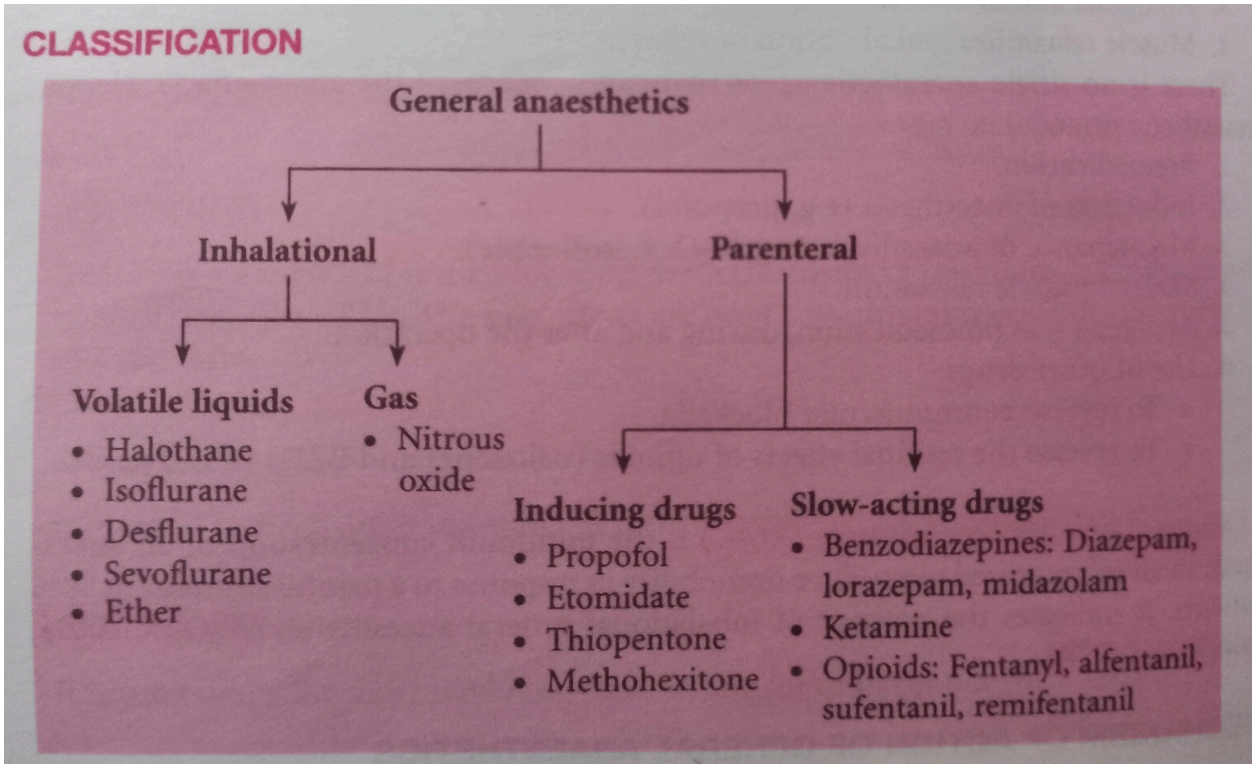
Adverse effects of triptan
- Vasospasm
- Ischemic heart
- Angina
- Arrhythmias

Classify local anesthetics

SURFACE ANESTHETICS
- Cocaine
- Lignocaine
- Tetracaine
- Benzocaine
- Oxethazaine
- Proparacaine
- Butylaminobenzoate

INJECTABLE ANESTHETICS
- Short Acting with low potency - Procaine, Chloroprocaine
- Intermediate Acting with intermediate potency - Lignocaine, Mepivacaine, Prilocaine, Articaine
- Long acting with high potency -Tetracaine, Bupivacaine, Dubicaine, Ropivacaine

Classify general anesthetics



Why nitric oxide used despite its side effects

Nitrous oxide is used because of its second gas effect. N2O rapidly diffuses while halothane/isoflurane diffuses poorly into the blood. When these anesthetics are administered simultaneously, halothane/ isoflurane also enters the blood rapidly along with nitrous oxide. This is known as second gas effect.

Lithium MOA

- Inhibition of inositol monophosphatase and inositol biphosphatase, thereby reducing the release of IP3 and DAG, which are second messengers for both alpha adrenergic and muscarinic transmission
- It is a monovalent cation that can mimic the role of sodium ion
- Also decrease the release of norepinephrine and dopamine in brain

Lithium

- Used as prophylactic agent for bipolar disorder to treat mania
- Not used for acute mania
- May produce nephrogenic diabetes inspidus by blocking the action of ADH on collecting ducts
- Leukocytosis (increase WBC count)
- Inhibit release of thyroid hormones (can result in goiter)

Opioid side effects

- Respiratory depression

- Hypotension
- Nause, vomiting, constipation
- Biliary spasm
- Bronchospasm in asthmatics

Which 3 effects of opioids on the body not exhibit tolerance

- Miosis
- Constipation
- Convulsions

Which anesthetic have effect on steroidogensis

etomidate, an anaesthetic now known to block adrenal steroidogenesis in vivo

Etomidate is a rapid hypnotic intravenous anesthetic agent. The major side effect of etomidate is the reduced plasma concentration of corticosteroids, leading to the abnormal reaction of adrenals

What is tramadol

It is a synthetic opioid Agonist.

Why we use carbidpa and levodopa together in fixed dose combinations

Doses ratio of L Dopa and Carbidopa is 4:1 or 10:1

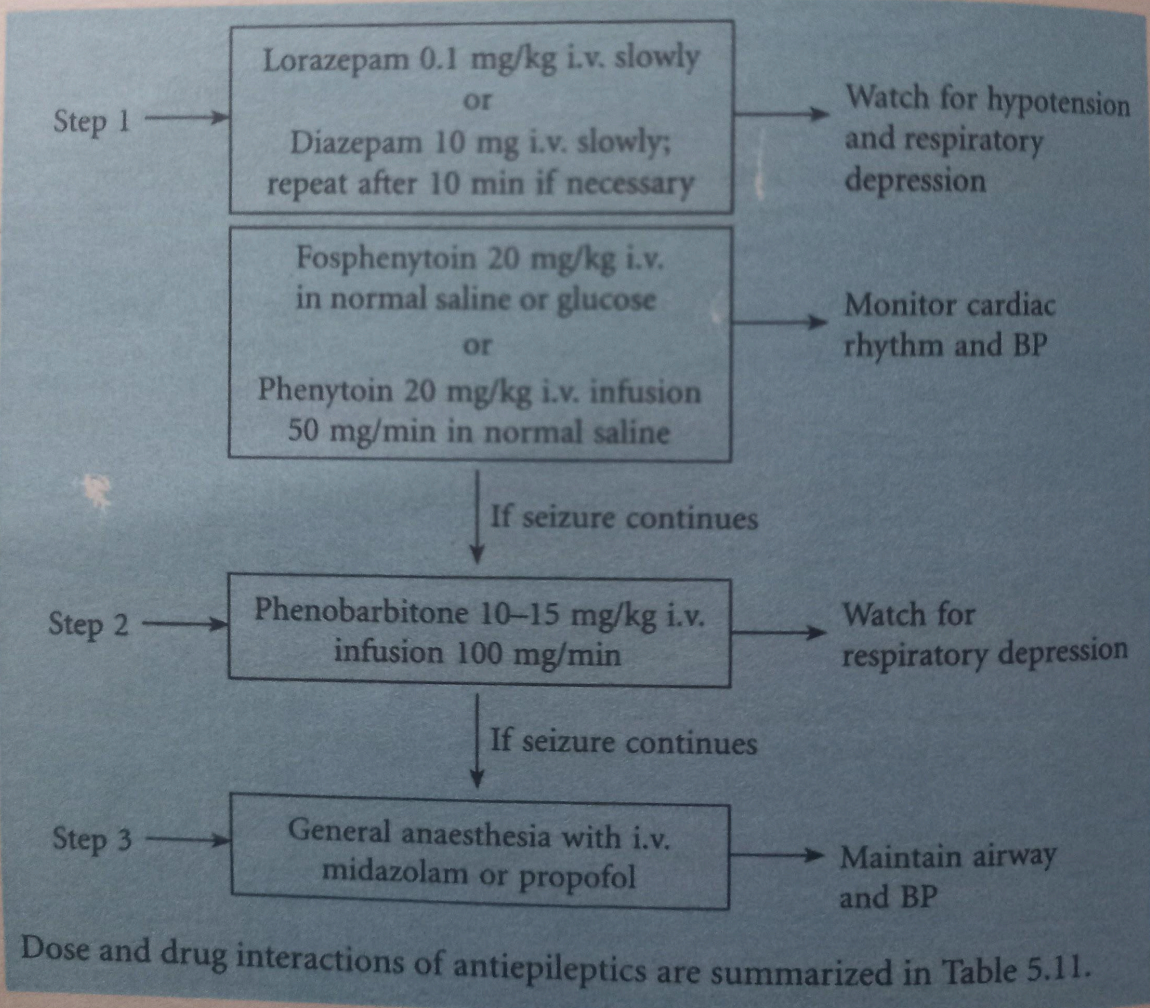
Advantages of fixed dose

- Increased bioavailability of dopamine in basal ganglia
- Prolongation of plasma half life of L Dopa
- Reduction in incidence of GI side effects like nausea and vomiting
- Cardiovascular side effects are minimised
- Better patient compliance

Management of status epilepticus

Treatment

1. Hospitalize the patient.
2. Maintain airway and establish a proper i.v. line.
3. Administer oxygen.
4. Collect blood for estimation of glucose, calcium, electrolytes and urea.
5. Maintain fluid and electrolyte balance.



Dose and drug interactions of antiepileptics are summarized in Table 5.11.

Adverse effects of phenytoin

Mnemonic: PHENYTOIN

P - P 450 Interactions

H - hirsutism, hypersensitivity reactions, hyperglycemia, hypocalcemia

E - Enlarged gums (Gingival hyperplasia)

N - Nystagmus

Y - Yellow browning of skin

T - Teratogenic

O - Osteomalacia

I - Interference with Vitamin B12 metabolism (megaloblastic anemia)
N - Neuropathies (vertigo, ataxia, headache)
Fetal Hydantoin syndrome - cleft lip, cleft palate, digital hypoplasia
(remember toin in phenytoin and hydantoin)

Pathognomonic adverse effect of pheytoin sodium
Gingival hyperplasia

Drugs used in parkinson

DRUGS AFFECTING BRAIN DOPAMINERGIC SYSTEM

- Dopamine precursor - Levodopa (L-Dopa)
- Dopaminergic agonists - Bromocriptine, Ropinirole, Pramipexole
- COMT Inhibitors - Entacapone, Tolcapone
- Peripheral decarboxylase Inhibitors - Carbidopa, Benserazide
- MAO-B Inhibitors - Selegiline, Rasagiline
- Glutamate (NMDA Receptor) Agonist - Amantadine

DRUGS AFFECTING BRAIN CHOLINERGIC SYSTEM

- Central Anti Cholinergics - Trihexyphenidyl, Procyclidine, Biperidin
- Anti histamines - Orphenadrine, Promethazine, diphenhydramine

Prescription for depression

alcohol withdrawal drugs (Drugs to treat alcohol withdrawal symptoms)

- Long acting benzodiazepenes - Chlordiazepoxide, Diazepam
- They are used to control anxiety, tremor, palpitations, sleep disturbances, confusion and convulsions associated with alcohol withdrawal

procedure of CSF taking
Known as lumbar puncture or spinal tap.
The ideal level for a lumbar puncture is the L4-L5 interspace, or the L3-L4 interspace. The spinal cord usually ends at L1-L2, so inserting the needle at these levels avoids damaging the conus medullaris

Local anesthetic used for spinal anesthesia - Lignocaine, tetracaine, Bupivacaine

wet preparation

why tramadol is dif from other opioids

- It is a synthetic opioid, has dual action - opioid receptor agonist and inhibit reuptake of noradrenaline and serotonin

- Low addiction potential
- Less respiratory depression

Migraine ka station prescription me tha

Drug for alcohol aversion/ Alcohol Aversion Therapy

- Disulfuram
- Disulfuram inhibits aldehyde dehydrogenase and cause accumulation of acetaldehyde in blood and tissues (acetaldehyde syndrome). The signs and symptoms include nausea, vomiting, flushing, headache, sweating, tachycardia, palpitations, breathlessness, chest pain, hypotension, hypoglycemia, confusion, shock and even death. This reaction is unpleasant, hence the person on disulfuram develops aversion to alcohol.

Serotonin syndrome

- Severe undesirable effects like tremors, restlessness, muscle rigidity, hyperthermia, sweating, shivering, seizures and coma due to increased serotonin levels at the synapses

Names of all cranial nerves

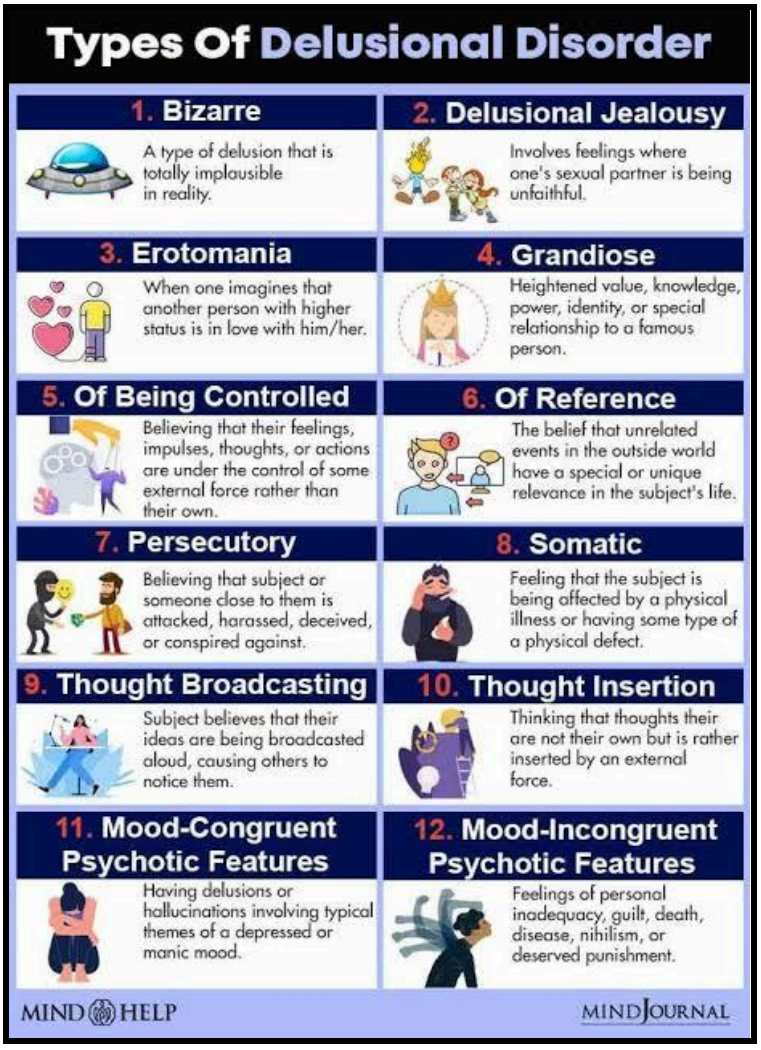
1. Olfactory nerve
2. Optic nerve
3. Oculomotor nerve
4. Trochlear nerve
5. Trigeminal nerve
6. Abducens nerve
7. Facial nerve
8. Vestibulocochlear nerve
9. Glossopharyngeal nerve
10. Vagus nerve
11. Accessory nerve
12. Hypoglossal nerve

Cranial nerves examination and names of all cranial nerves...medicine viva

Psychiatry

Delusions

A delusion is a false belief that is held with absolute certainty, even when there is strong evidence against it.



Persecutive delusion
A persecutory delusion is a type of delusional condition in which the affected person believes that harm is going to occur to oneself by a persecutor

Infidelty delusion
A delusion of infidelity, also known as Othello syndrome, is a mental health disorder that causes a person to be convinced that their romantic partner is being unfaithful, even without any evidence

Delusion of control
A delusion of control is a false belief that someone or something else is in control of a person's thoughts, feelings, actions, or impulses. The person may believe that an external force, like a machine or another person, is controlling them. The person may also believe that their thoughts are being inserted by someone else, which is known as "thought insertion”

Illisions

an illusion is a misperception of reality that occurs when the brain processes information differently from how it is received by the eyes. Illusions can involve any of the senses, including sight, touch, taste, smell, or hearing

What is fact
A fact is an observation that is indisputable and can be verified with evidence. Facts are objective, meaning they are not based on anyone's beliefs or perceptions

Counselling definition
Counselling is a form of 'talk therapy'. It is a process where an individual, couple or family meet with a trained professional counsellor to talk about issues and problems that they are facing in their lives. Professional counselling is confidential and non-judgmental.

Qualities of a counselor
- Communication skills
- Empathy
- Interpersonal skills
- Trust
- Awareness of diversity
- Patience
- Knowledge of laws and regulations

Counselling techniques

Funneling
In psychology, the funnel technique is a method used in user research to guide conversations from general to specific questions

The funnel technique involves:
- Greeting users with open-ended questions
- Slowly guiding the conversation to more specific topics
- Finishing with targeted questions that require precise answers

How to build Rapport with patient

- Understanding Cultural Sensitivity. Cultural sensitivity is paramount in healthcare. ...
- Mastering Active Listening. ...
- Effective Communication Techniques. ...
- Empathy in Patient Care. ...
- Setting Boundaries with Care. ...
- Building Trust Quickly. ...
- The Role of Humor in Healthcare. ...
- Creating a Healing Environment

Diff between empathy and sympathy
Empathy is the ability to understand and share the feelings of another person, while sympathy is feeling sorry for someone else's misfortune.

Difference between open questions and closed questions

In psychology, the main difference between open and closed questions is that open questions allow for a wide range of answers, while closed questions limit the response to a specific set of options

Here are some examples of open and closed questions:
Open-ended question: "What did you do today?"
Closed-ended question: "Did you go to work today?"
Open-ended question in counseling: "What do you think would happen if you tried to talk to your friend about it?"
Closed-ended question in counseling: "Do you want to try talking to your friend about it?"

SPIKES Protocol for counseling

- Setting - consider the physical setting, discussion should take place in a quiet and private environment without interruptions; introduce yourself with your name and role
- Perception - asses the patient's perception, how much he already know?
- Invitation - Obtain permission from patient to have discussion (what the patient wants to know?)
- Knowledge - deliver the information in small chunks and checks the patient's understanding. Use patient friendly language and avoid complex medical terminology.
- Emotions and empathy - recognise and respond to emotions with empathy and concern. Avoid giving false reassurance
- Strategy and summary - Check the patient's understanding of news. Explain and agree the next steps (e.g further investigations or follow up)

Video link for counseling
https://youtu.be/9afuudUCKm4?si=zjVQFsP_fz11N11G

Counseling a diabetic patient (in final proff 2024)

https://youtu.be/wHAKLSSc6P8?si=QGQdUYRyKO82Qmqm

Medicine

Cranial nerves examination

Lower limb examination (in final proff 2024)

https://youtu.be/IdmQSVZN05I?si=192tr2EVcQ691TZW