Concepts of health and disease

1.1 State the definition of health

World Health Organisation (1948):

Health is a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity.

1.2 State a definition of pathophysiology

Pathology is the study of structural changes in cells, tissues, and organs.

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Physiology is the study of body function.

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Pathophysiology is the study of the body's response to dysfunction or disease (can provide the background for treatment).

1.3 Describe the following terms: aetiology, pathogenesis, morphology, clinical manifestations, diagnosis, prognosis and clinical course

Aetiology	The causes of disease **Causes Include:** -Biological agents -Physical forces -Chemical agents -Nutritional excesses or deficits -Genetic defects **Most disease-causing agents are non-specific** They can cause disease to a single organ. Some can lead to disease of a number of organ systems. **Most diseases are multifactorial** They are diseases without a single cause. Multiple factors that predispose individuals to disease are referred to as risk factors. **Causes of disease can be split into:** **Congenital:** defects present at birth **Acquired:** caused by an event that occurs at birth.
Pathogenesis	Sequence of cellular and tissue events that take place from the time of initial contact with an aetiological agent until the ultimate expression of the disease.

Morphology	-Fundamental structure or form of cells or tissue
	    -Gross anatomical
	    -Microscopic
	-Lesion is discontinuity of a body organ or tissue

Clinical Manifestations	Diseases can manifest in a number of different ways **-Signs:** manifestation noted by an observer (i.e. what we can see and measure). **-Symptom:** is a subjective complaint that is noted by the person.
Diagnosis	Designation of the nature or cause of a health problem.
Prognosis	Possible outcome and prospect of recovery from a disease.
Clinical Course	-Evolution of a disease **Acute:** Self-limiting **Chronic:** implies a continuous, long-term process **Subacute:** between acute and chronic

1.4 Explain the meaning of reliability, validity, sensitivity, specificity, and predictive value as it relates to observations and tests used in the diagnosis of disease.

Reliability	The extent to which an observation, when repeated, gives the same result
Validity	The extent to which a measurement tool measures what it is intended to measure
Sensitivity	The ability to detect change or responsiveness to change. SNOUT – sensitivity = Negative results ruled out
Specificity	The ability to detect those patients who do not have the disorder SPIN = specificity = Positive results ruled in
Predictive Value	The extent to which an observation or test result is able to predict the presence of a given disease or condition.

1.5 Define the terms: epidemiology, life expectancy, morbidity and mortality

Epidemiology	Study of disease occurrence in human populations. Questions include: What are the risk factors? How disease is spread? How to control disease? How to prevent disease? How to eliminate disease? -Looks for patterns of persons affected with a disease including age, race, dietary habits, lifestyle, geographic location. -The basis for clinical decision making, allocation of health care dollars and development of policies
Life Expectancy	It is the average number of years of life remaining to a person at a specified age, assuming current age specific mortality rates continue during the person's lifetime. **Impacts on Life Expectancy** <table><tr><th>Positive</th><th>Negative</th></tr><tr><td>-Improving socioeconomic conditions -Increasing child survival -Near-eradication of infectious disease and high standards of living (diet, sanitation, healthcare) -Public health campaigns, changes in public health regulation, legislation</td><td>-Increases in a certain cause of death (e.g. AIDS) -Rise in cigarette smoking in mid-20th century -Increasing rates of chronic disease and chronic disease risk factors (e.g. obesity)</td></tr></table>
Morbidity	-The condition of being diseased. The rate of disease in a population.
Mortality	-Measurement of disease and consequently health in the planning of public health care -Studying trends in mortality over time helps to understand how the health status of the population is changing and assists us in the implementation of preventative measures -Life expectancy is one of the more important measures derived from mortality data

1.6 Compare the meaning of the terms incidence and prevalence as they relate to measures of disease frequency

Incidence: The number of new cases arising in a population at risk during a specified time

Prevalence: A measure of existing disease in a population at a given point in time

Disease Frequency:
Disease Case: an existing case or the number of new episodes of a particular illness

1.7 What is meant by risk factors?

Are associated with ill health, disability, disease or death.

Risk factors can be categorised as:

Behavioural	Biomedical
-Risk factors that can be eliminated or reduced through lifestyle or behavioural changes **Includes:** -Tobacco smoking -Excessive alcohol consumption -Poor diet and nutrition -Physical inactivity -Excessive sun exposure -Insufficient vaccination -Unprotected sexual activity	-Biomedical risk factors may be influenced by a combination of genetic, lifestyle and other broad factors. **Includes:** -Overweight and obesity (60% of people) -High blood pressure -High blood cholesterol -Impaired glucose tolerance
Demographic	**Environmental and Genetic**
- Demographic factors include age, sex, population subgroups - **Examples of risk associated with demographic factors include:** -A woman's risk of developing breast cancer before age 75 is 1 in 11, whereas for men the chance is only 1 in 1,426 -Aboriginal and Torres Strait Islander people are far more likely to die from rheumatic fever and rheumatic heart disease than other Australians	- Environmental determinants of health cover a wide array of topics, and can be split into two broad categories ▪ **Social, economic, cultural and political** ▪ **Physical, chemical and biological** - Some diseases result entirely from an individual's genetic make-up others reflect the interaction between that make-up and environmental factors. **-There are three broad groups of genetic diseases / disorders:** ▪ Single gene (monogenic) disorders (e.g. haemophilia) ▪ Chromosomal abnormalities (e.g. Down syndrome) ▪ Multifactorial diseases (e.g. such as diabetes)

1.8 Define the terms: word root, prefix, suffix and combining forms

Word Root	The foundation of a term, the general meaning of complete word.
Prefix	Added at the front of a term. Usually indicates a number, time, position or direction.
Suffix	- Added at the end of a word, may be an adjective or noun for. -When written by itself, followed by a hyphen e.g. intra-. -Adds meaning such as condition -algia=pain, disease -it is=inflammation, procedure -ectomy=surgical removal. - Include hyphen when written by itself.
Combining Forms	- A combining form is a word root with the combining vowel attached, separated by a vertical slash. - Adding a vowel (a, e, i, o, u, or y) to a word root to create a combining form allows 2 or more word roots to be joined to form a compound word. - If the suffix begins with a **vowel**, do not use a combining vowel. e.g. arthritis not arthoritis. - If the suffix begins with a **consonant**, use a combining vowel. e.g. arthroscope not arthrscope.

1.9 List the basic rules for forming medical words

Rules for DEFINING medical words (using example term gastroenteritis)

Rule #1
Define the suffix (the last part of the word).
E.g. -It is = Inflammation

Rule #2
Define the first part of the word (May be a word root, combining form, or prefix).
E.g. Gastr/o =Stomach

Rule #3
Define the middle part of the word
E.g. Enter = Intestine

Rules for BUILDING medical words

Rule #1
A word root links a suffix that begins with a vowel

Rule #2
A combining form (root +) links a suffix that begins with a consonant

Rule #3
Use a combining form to link root to another root to form a compound word